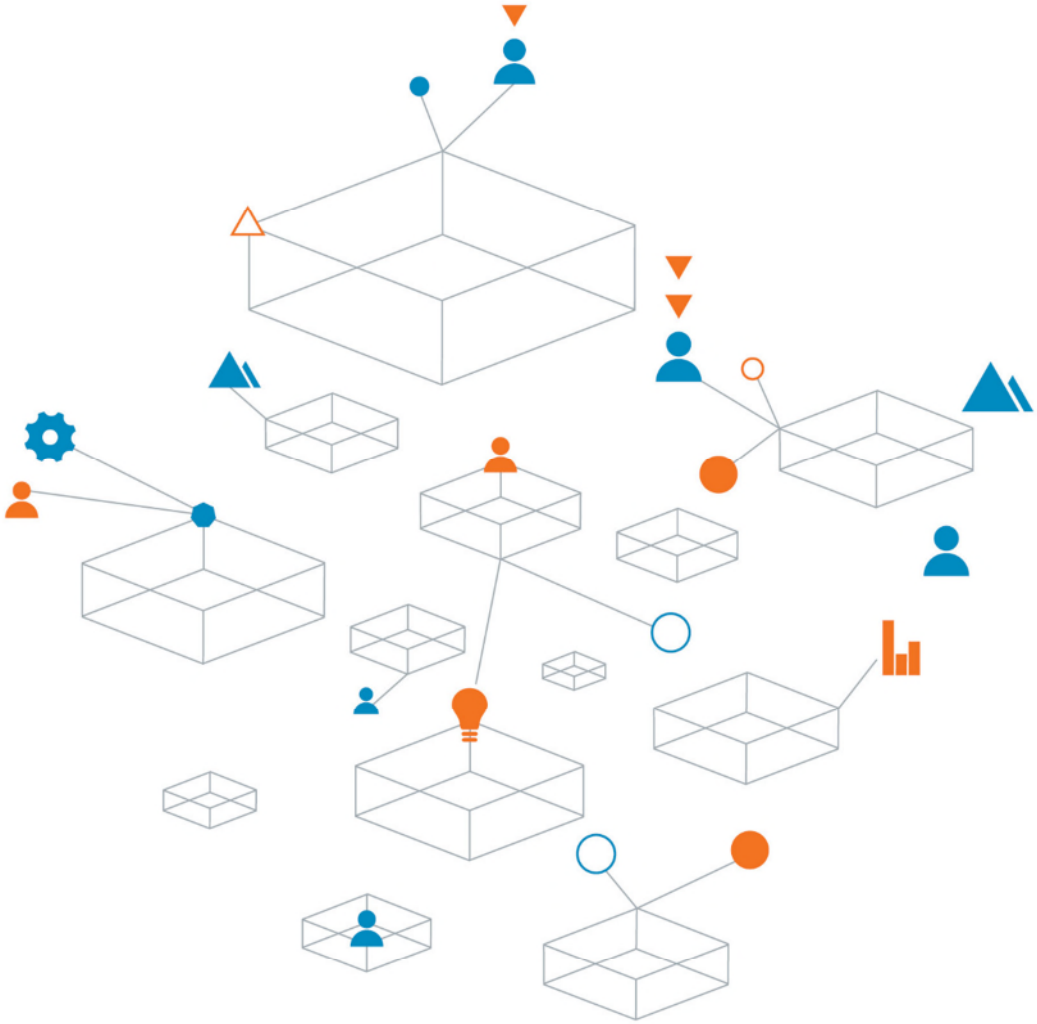
Richard Crookes Construction Pty Ltd
Alexandria Park Community School Redevelopment - Remedial Works Plan

SYDEN224285-R02

18 June 2019



Trust is the cornerstone of all our projects

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Alexandria Park Community School Redevelopment - Remedial Works Plan

Prepared for
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Abbreviations

ACM	Asbestos-Containing Materials
AHD	Australian Height Datum
APCS	Alexandria Park Community School
ARCP	Asbestos Removal Control Plan
ASSMP	Acid Sulfate Soils Management Plan
CoPC	Chemical of Potential Concern
DSI	Detailed Site Investigation
ENM	Excavated Natural Material
LAA	Licenced Asbestos Assessor
LARC	Licenced Asbestos Removal Contractor
LEP	Local Environment Plan
LTEMP	Long Term Environmental Management Plan
mbgs	metres below ground surface
NATA	National Association of Testing Authorities
NSW EPA	New South Wales Environment Protection Authority
PCBU	Person Conducting a Business or Undertaking
PPE	Personal Protective Equipment
RPE	Respiratory Protective Equipment
RAC	Remediation Acceptance Criteria
RAP	Remedial Action Plan
RWP	Remedial Works Plan
TPZ	Tree Protection Zones
UPSS	Underground Petroleum Storage System
UST	Underground Storage Tank
VENM	Virgin Excavated Natural Material

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1. Introduction & Background

The Alexandria Park Community School (ACPS) located on Park Road, Alexandria NSW (the site) is being redeveloped by Richard Crookes Construction Pty Ltd (RCC) for the NSW Department of Education. The redevelopment of the site is being conducted following approval under State Significant Development (SSD) No. 8373. The location of the site is shown on Figure 1, and copies of the design plans are presented in Appendix A.

The redevelopment involves relocation of the existing students into temporary accommodation over the northern half of the APCS, demolition of existing buildings and construction of new school buildings over the southern half, then relocation of students into the new buildings and removal of temporary accommodation and redevelopment of the northern half of the school grounds.

The site is being redeveloped in two phases (refer to Figure 2), namely:

1. Phase 1 (southern part of the site)
2. Phase 2 (northern part of the site)

The site is being audited by Rebeka Hall of Zoic Environmental Pty Ltd (the Auditor), and Coffey understands that a separate Site Audit Statement (SAS) and Site Audit Report (SAR) will be prepared for each phase of the redevelopment.

Coffey Services Australia Pty Ltd (Coffey) have been retained by RCC to provide contaminated land consulting services for the APCS redevelopment. Coffey has previously prepared a number of environmental reports relating to the redevelopment of the site, including a Detailed Site Investigation (DSI)[1] and a Remedial Action Plan (RAP)[2].

The RAP presents the remedial strategy for asbestos in soil (fill) contamination across the whole site and an identified Underground Storage Tank (UST) in the northern portion of the site, to render the site suitable for the proposed development. The remedial approach for asbestos is “cap and contain”, and the remedial approach for the UST is “decommission and removal of UST, followed by excavation of hydrocarbon impacted soils (if present).

The DSI and the RAP documents were submitted in support of the State Significant Development (SSD) No. 8373 development application (DA) for the redevelopment. The reports had been prepared prior to finalisation of the design (included in the DA) and staging of the redevelopment was finalised, prompting a review of the data gaps highlighted within these reports.

The Development Consent for the APCS (Application SSD 8373 dated 11 February 2019) included:

- Condition B7 requiring additional testing of soils over the southern half of the site following demolition of the existing school buildings;
- Condition B8 which required the Remediation Action Plan, titled Alexandria Park Community School Remediation Action Plan, prepared by Coffey, dated 8 December 2017, must be updated to reflect the findings of the additional site investigations required by condition 87; and
- The requirement for a NSW EPA accredited Site Auditor to approve a number of documents (Condition B8 and B9) and following remediation works to issue a Site Audit Report and Section A Site Audit Statement for the site (Condition B11).

[1] Coffey (2017); Detailed Site Investigation – Alexandria Park Community School, Park Road, Alexandria. Ref SYDEN199382-R01-Rev02

[2] Coffey (2017), Remedial Action Plan, Alexandria Park Community School, Park Road, Alexandria NSW (dated 8 December 2017, ref: SYDEN199382.R03).

The Site Auditor review of the DSI, RAP and other contamination related reports also identified a number of data gaps which also require further assessment.

The identified data gaps are documented within a Contamination Data Gap Investigation Sampling Analysis and Quality Plan (SAQP)[3]. The SAQP also presents the scope of additional investigations required to assess the data gaps. The SAQP was reviewed and approved by the Auditor.

Coffey was subsequently engaged by RCC to carry out the additional investigations within the site in accordance with the SAQP, and to address the data gaps of SSD Condition B7 and those identified by the Auditor. The results of the data gap investigation are presented within a separate document (Data Gap Investigation Report (DGIR)[4]).

As noted above the RAP was prepared prior to final design of the APCS redevelopment and as such was written as a high-level document that provides an overall framework for the remediation. However, it was recognised that once the detail design had been completed there would be a need to provide more detail around the design of critical remediation aspects and in particular the detailed design of the capping system. It was envisaged that this would be presented in a Remedial Works Plan (RWP), which supplemented the RAP. Following the SSD consent it was agreed with the Auditor, RCC and the Certifier that the RWP would also provide remediation requirements identified in the DGIR to meet the requirement of the Condition B8 of the SSD Development Consent (i.e. update of the RAP).

The DGIR did not discover any additional contamination that requires consideration to make the site suitable for the proposed development (other than asbestos in fill across the site[5], and the UST). Thus, it is considered there is no need to incorporate additional remediation requirements in the RWP as a result of the data gap investigations (undertaken to meet the requirements of Condition B7 of the SSD consent and the Auditor). Furthermore, it is considered the requirements of Condition B8 have been met.

Therefore this RWP is focused on providing additional detail to that provided in the RAP. The intention of this document is to supplement the RAP. This RWP presents the capping and validation strategy to cap the site in accordance with RCC surface design plans.

1.1. Objectives

The objective of this document is to present the details of the capping remedial strategy to make the site suitable for the proposed school use following redevelopment. This document has been prepared to satisfy condition B8 of the SSD.

This RWP has been developed as a standalone document that provides greater detail regarding the specific remedial solution to manage contamination risks identified within the site. This RWP should also be read in accordance with the Coffey (2017) RAP.

The design of the Phase 2 (northern portion) site area civil works (and hence capping systems) is yet to be finalised, and it is envisaged that this RWP would be reviewed and updated (if required) once design of the civil works for Phase 2 site area are finalised. It is noted that the capping systems for Phase 2 site area would likely comprise similar capping systems that will be utilised for Phase 1 site area.

[3] Coffey (2019); Alexandria Park Community School – Contamination Data Gap Investigation Sampling Analysis and Quality Plan (SAQP), dated 6 May 2019, ref: SYDEN224285-L01-Rev2
[4] Coffey (2019); Alexandria Park Community School – Contamination Data Gap Investigation Report, dated 7 June 2019, ref: SYDEN224285-L03

[5] Excluding Tree Protection Zones (TPZ) within Phase 1

2. Proposed Development

Coffey have been provided with relevant design drawings for the proposed redevelopment, which are presented in Appendix A. Based on the drawings, the proposed development at the site includes:

- Demolition of all existing buildings;
- Site remediation activities;
- Earthworks / site levelling works;
- Service installations; and
- Construction of multiple new school buildings and facilities up to five stories high, arranged along the western and southern part of the site. School buildings include:
  - Classrooms;
  - Collaborative learning spaces;
  - Specialist learning hubs;
  - Learning support spaces;
  - Staff offices;
  - Library;
  - A community centre;
  - Sports hall; and
  - School canteen.
- Construction of outdoor sports fields and courts in the northern portion of the site;
- Landscaping throughout the site;
- A new car park in the northern portion of the site; and
- Construction of ancillary infrastructure and utilities.

Coffey understands the surface caps over the asbestos impacted fill at the site comprise a mixture of soft and hard surfaces, depending on the overlying land use.

Section 5.3 details the components of the proposed caps within the site, and the minimum requirements for the caps to appropriately cap asbestos impacted fill; while Section 5.3.11 provides the surface finishes to the capping system for various areas of the site.

3. Site Description, History & Previous Investigations

The Coffey (2017) DSI provides a detailed description of the site conditions and history. The following section provides a brief summary of the site description and history.

3.1. Site Description

The site comprises an approximately rectangular parcel of land covering an area of approximately 2.7ha. Figure 2 shows the current layout and boundaries of the site (and investigation locations).

At the time of preparing this report, the northern part of the site (Phase 2) comprised the pop-up school and preschool, currently housing the students of the APCS during the redevelopment of the Phase 1 site area. The southern part of the site is currently a construction site for the Phase 1 redevelopment. The site is generally flat, with a very gradual slope towards the south.

The site is bound by Buckland Street to the north, Park Street to the east, and commercial retail and high density residential properties to the south and west.

3.2. Site History

The site was undeveloped in 1887, and a majority of the southern portion of the site was part of the Sheas' Creek swamp land.

Between 1887 and 1893 the land was reclaimed, and the site was predominantly developed with residential terrace dwellings. By 1930, the site and surrounding areas were developed for commercial/industrial uses. The site housed several large warehouses until circa 1975 when all the structures on site were demolished.

The warehouses were occupied by several businesses, including Murray Brothers (furniture manufacture), Federal Match Company (match manufacture). Land surrounding the site was also occupied by various industrial uses. A historical site layout plan was obtained of the Federal Match Company site, which identified several areas of interest including a mechanics workshop, incinerator, tanks (above ground) and filler caps (a subsequent geophysical investigation was conducted for the area by Coffey, concluding that it was unlikely for infrastructure to remain in-situ).

There are no demolition records for the former buildings located on the either the Phase 1 or Phase 2 site areas.

By 1982, the school buildings and grounds of APCS were constructed on the southern half of the site. The northern half of the site remained vacant, and was possibly used as a sporting oval. Land uses surround the site have been developed recently for a mixture of commercial and residential uses.

3.3. Previous Investigations

A summary of previous environmental investigation and reports are presented in Appendix B.

A number of previous investigations have been undertaken at the site as part of the planning works for the redevelopment of the APCS. These include:

- Geotechnical investigations; (GeoEnviro Consultancy 2016)
- Phase 1 Environmental Site Assessment (Hibbs & Associates 2016);
- Phase 2 Detailed Site Investigation (Coffey 2017a),
- A soil vapour investigation (Coffey 2017b);
- Acid sulphate soil investigations (EIS 2017) and an acid sulphate management plan (Coffey 2017c).
- Remedial Action Plan (Coffey 2017d)

A summary of each of these reports is presented in Section 7 of the RAP.

The Coffey (2019b) DGIR presents the findings of additional investigations conducted within the site to assess various data gaps as discussed above.

The findings of the DGIR presents the data gap investigation for the Phase 1 site area as Phase 2 was largely inaccessible due to school use at the time of preparing this report, and additional investigations will be conducted of soils over the Phase 2 site area at a later stage. However it is noted that sampling of gas and groundwater within Phase 2 site area was undertaken with the results of the sampling conducted being presented in the DGIR. These results should be considered once further testing of Phase 2 site area is possible.

Based on the findings of the additional investigations, it was concluded that no further sources of potential contamination (other than asbestos and the UST) or evidence of contamination were encountered which was considered to warrant remediation to make the site suitable for the proposed redevelopment and school use. If additional contamination within Phase 2 site area is identified once investigations have been completed, then the remedial strategies within this document should be reviewed and revised to account for the new finds. In addition, the Tree Protection Zones (refer to Appendix C and Figure 3 for location) did not reveal the presence of contamination warranting remediation. Thus this area will not require capping.

3.4. Identified Contamination Requiring Management

3.4.1. Phase 1 site area

The contamination identified during the investigations on the Phase 1 site area requiring management comprises asbestos in soil (fill) contamination. Asbestos, in the form of fragments of asbestos containing material (ACM) was formerly encountered randomly (and sparsely) distributed within fill beneath the site. ACM within fill was also encountered during earthworks related to the construction of temporary pop up schools directly north of the Phase 1 area. The soil composition of the fill layer is generally consistent across the site, however the level of ACM within the fill layer varies spatially. The fill layer overlies natural sediments of the Botany Basin. The ACM contamination within the fill is described in the Coffey DSI, RAP and DGIR reports.

All of the impacted fill within the Phase 1 site areas (excluding the TPZ, where targeted investigations were conducted) will require remediation. The remediation strategy for the ACM impacted fill is described in the RAP and in simple terms comprises placing a capping over the impacted fill followed by long term management of the capping system.

The remediation of this ACM impacted fill is the focus of this RWP.

3.4.2. Phase 2 site area

Like the Phase 1 site area, ACM impacted fill is also present on the Phase 2 site area. The remediation of this contamination is the focus of this RWP.

A known underground storage tank (UST) and associated potentially petroleum hydrocarbon impacted soils have been identified to be present on the Phase 2 site area. The RAP includes sufficient details of the remediation of the UST and associated impacted soils and as such this is not materially considered further in this RWP. Notwithstanding, this document contains a brief section outlining the remedial and validation approach for the UST for ease of reference.

Additionally, one sample of fill recorded an elevated concentration of lead which was considered did not warrant remediation. The lead is considered to be an isolated occurrence at depth (0.5m), and is likely attributable to the anthropogenic building debris inclusions observed at this location. Coffey notes that these soils will be capped (as part of the asbestos capping works) which would remove potential exposure pathways. As such, a specific remediation strategy to manage risks from the localised presence of lead in soil has not been developed

4. Remedial Action Plan

The RAP (Coffey 2017) presents an overall framework for remediation at the whole of the site i.e. both the Phase 1 and Phase 2 site areas. This includes remediation of ACM impacted fill (i.e. cap and contain) on both Phase 1 and Phase 2 portions, and the UST (decommission and removal of UST, followed by excavation of any associated hydrocarbon impacted soils (if present) on the Phase 2 portion.

Whilst sufficient information was available at the time of preparing the RAP to develop a strategy to remediate the site as the final civil works for the development had not yet been completed. Thus, the detailed design of the capping system(s) (i.e. capping materials and localities within the site) had not yet been determined to cap asbestos contaminated fill.

The RAP was prepared in general accordance with the NSW EPA (2011) Guidelines for Consultants Reporting on Contaminated Sites.

5. Remedial Works Plan

This RWP presents the detailed capping design (and validation) strategy to manage the known ACM impacted fill within the APCS site.

Excluding the TPZ in the Phase 1 site area (which have been shown in the DGIR as unlikely to contain asbestos, or other unacceptable CoPC), the entire Phase 1 site area will be capped. The capping systems vary depending on the overlying land use, as discussed below.

The remediation goal of this document is to make the site suitable for the proposed school redevelopment. The Coffey (2017) RAP provides a discussion of feasible remedial options to mitigate potential risks from for ACM in fill. It was assessed that a cap and contain strategy was the most viable solution for the proposed redevelopment for the following reasons:

- The DoE's management measure for asbestos in fill (outlined within 2017 AMP) supports a cap and contain solution.
- The civil design involves raising of the majority of the site for flood mitigation measures, thus since the site is already being raised, a capping solution can be relatively cost effectively applied.
- Removal of the ACM impacted fill from the site (and disposal to landfill) generally comprises a relatively larger capital expenditure, when compared with other remedial methods (such as capping). The cap and contain minimises the need to dispose soils containing asbestos to landfill.

The extent of the capping works are the entire site (excluding the TPZ).

5.1. Cut & Fill Balance

The figure below, provided by RCC, presents the cut/fill balance for Phase 1 area of the site (the Phase 2 cut/fill balance has not yet been finalised). Based on the drawing, a material deficit is anticipated, thus material will need to be imported to achieve the desired design levels. It is understood that this is primarily due to the need for the school to be designed to be above the 1:100 year flood level, which has meant raising the level of the site.



5.2. ACM in Fill - Cap and Contain

The ACM impacted fill within the site will be capped with various capping systems, depending on the overlying land use. This section outlines the capping systems which shall be used within the site. Figure 3 shows the location of each capping systems within the site (for Phase 1 only). The design of the Phase 2 civil works (and hence capping systems) is yet to be finalised, and this RWP should be reviewed and updated (if required) once the capping systems are finalised for Phase 2. It is understood that the capping systems for Phase 2 will be of a similar nature to the ones discussed below.

5.2.1. Staging & Asbestos Surface Clearance

Prior to a cap being placed (with the exception of an existing asphalt upgrade zone), collection of visible fragments from graded unsealed fill surface prior to placement of the marker layer should be conducted. A Licensed Asbestos Assessor (LAA) should issue a Clearance Certificate following collection of visible asbestos fragments, and prior to the placement of the marker layer. It is envisaged that the collection and clearance will be staged across the site, resulting in multiple clearance certificates for the site.

The capping works will need to be staged depending on the sequence of construction works. It will be important to take care during construction works not to damage areas of the site that have been capped, so that the integrity of the cap is maintained in capped areas while work continues on

adjoining uncapped areas. It is expected that capped areas will be segregated from other areas where work is continuing by temporary fencing or bunting.

5.2.2. Marker Layer

The majority of the capping systems outlined below require a marker layer to be installed directly above the contaminated fill, to delineate clean materials (i.e. the cap) from the underlying fill. The marker layer should meet the following conditions:

- Water permeable
- High visibility
- Rot proof and chemically inert
- High tensile strength
- Coverage of the contaminated areas and 0.5m beyond boundary, if practical
- Parallel Sheets to be fixed together or overlap by 20 cm.

The aim of the geotextile is to:

- Provide a separation layer between contaminated soil and workers; and
- Act as a marker and separating layer for any future intrusive maintenance works.

The marker layer should be placed directly above the graded fill surface, following issuance of an asbestos soil surface clearance certificate by the LAA.

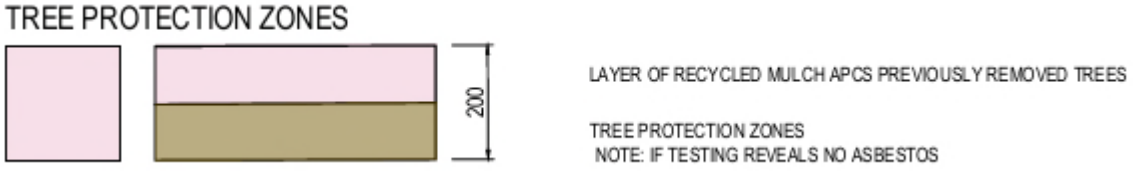
5.3. Capping Systems

5.3.1. Tree Protection Zones (TPZ)

As a result of existing mature trees, the proposed redevelopment includes a tree protection zone (TPZ) in the south eastern and south western corners of the Phase 1 site area. Due to the risks related to filling around trees it is not possible to have a capping layer within the areas of the TPZ.

The Coffey (2019a) DGIR investigation program included targeted investigation locations within the TPZ of Phase 1 to assess the likelihood of asbestos within the TPZ (and hence the need for capping measures within this zone only). No asbestos was identified within the six (6) investigation locations within the TPZ and it was consequently concluded that there is a low risk of asbestos being present within this zone. For this reason, it is considered that TPZ will not require capping.

Coffey understands that RCC will place mulch over the TPZ for aesthetic purposes as per the below.



No validation is required for the TPZ. However, prior to the placement of the mulch, a LAA will undertake an visual inspection of the TPZ area and rake the surface soils, to confirm the surface 150mm of soils are free of visible asbestos. If any ACM is observed this will be collected and the size of individual fragments collected along with the total weight. The quantity of ACM will be assessed against guidelines in the NEPM (as amended 2013) and the WA Department of Health Guidelines for the Assessment, Remediation and Management of Asbestos Contaminated Sites in Western Australia (DoH 2009).

5.3.2. Existing Asphalt Upgrade

An existing asphalt and road base is present on the western boundary of the Phase 1 site area. This is proposed to be retained, with a new asphalt surface layer, in the proposed redevelopment.

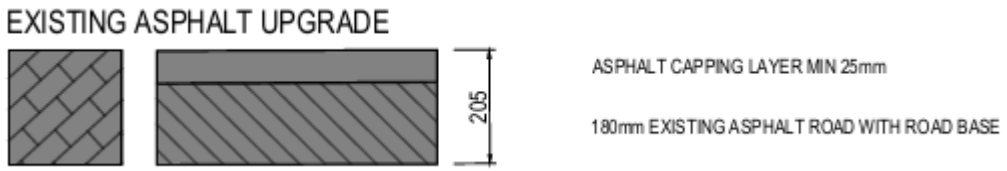
The cap for this zone will comprise the existing asphalt and road base, and a fresh layer of asphalt to be added on top of the existing asphalt.

As the asphalt will not be disturbed (since it would involve removing part of the cap that is currently in-situ) it is not proposed to install the maker layer in this area, but to utilise the existing asphalt and sub-grade as a maker layer. The extent of the asphalt and road base without marker layer will be surveyed and this will be clearly differentiated as not having a maker layer in the Long Term Environmental Management Plan (LTEMP) for the site.

In summary, the cap will comprise (from bottom to top):

1. Road base (existing)[6] 160mm: Sandy Gravel aggregate. Fine to medium gravels, grey to brown/orange, fine to coarse grained sand.
2. Asphalt (existing) 20mm.
3. Asphalt (new) 25mm

The figure below presents the cross section of this capping zone.



Coffey considers that this cap form generally complies with requirements detailed within “Concrete hardstand, bitumen, paved or synthetic grass covered areas” of Section 11.3.2 of the RAP.

5.3.3. Planting Zones

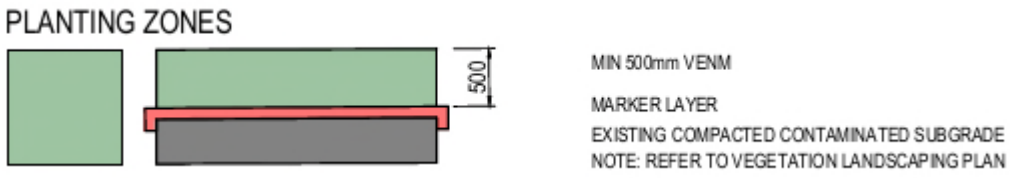
The cap for this zone will comprise a geotextile marker layer on top of the fill, followed by 500mm of imported VENM topsoil.

The cap will comprise (from bottom to top):

1. Graded and compacted ACM impacted fill with clearance certificate from LAA.
2. Geotextile marker layer.
3. Topsoil (VENM) 500mm.

The figure below presents the cross section of this capping zone.

[6] Unit lithology obtained from the Coffey (2019) Contamination Data Gap Investigation Report



Coffey considers that this cap form generally complies with requirements detailed within "Grassed/landscaped areas" of Section 11.3.2 of the RAP.

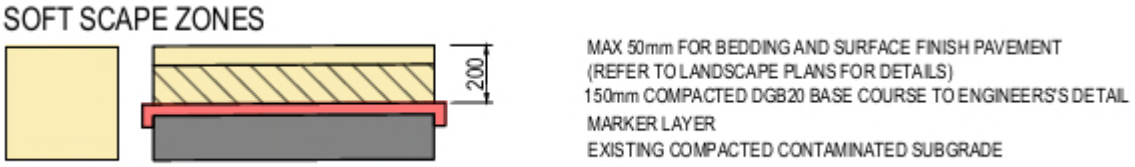
5.3.4. Soft Scape Zones

The cap for this zone will comprise a geotextile marker layer on top of the fill, followed by 150mm of compacted engineered fill (DGB or similar), followed by 50mm synthetic turf.

The cap will comprise (from bottom to top):

1. Graded and compacted ACM impacted fill with clearance certificate from LAA.
2. Geotextile marker layer.
3. Compacted engineered fill (150mm).
4. Surface finish pavement (50mm) - refer to Section 5.3.12.

The figure below presents the cross section of this capping zone.



Coffey considers that this cap form generally complies with requirements detailed within "Concrete hardstand, bitumen, paved or synthetic grass covered areas" of Section 11.3.2 of the RAP.

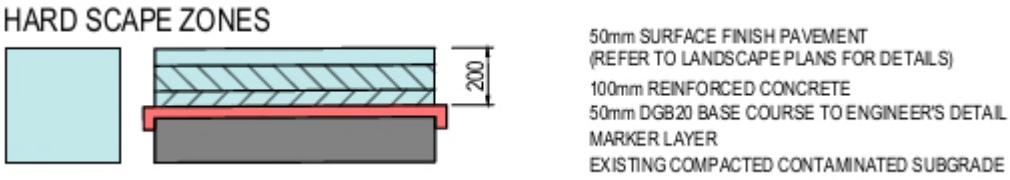
5.3.5. Hard Scape Zones

The cap for this zone will comprise a geotextile marker layer on top of the fill, followed by 50mm of compacted engineered fill (DGB or similar), followed by 100mm reinforced concrete, followed by 50mm surface pavers (define).

The cap will comprise (from bottom to top):

1. Graded and compacted ACM impacted fill with clearance certificate from LAA.
2. Geotextile marker layer.
3. Compacted engineered fill (50mm).
4. Reinforced concrete (100mm).
5. Surface finish pavement (50mm) – refer to Section 5.3.12.

The figure below presents the cross section of this capping zone.



Coffey considers that this cap form generally complies with requirements detailed within “Concrete hardstand, bitumen, paved or synthetic grass covered areas” of Section 11.3.2 of the RAP.

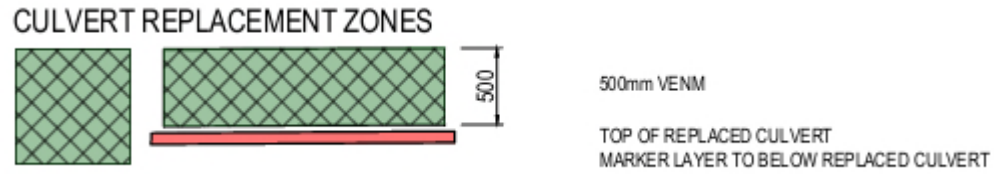
5.3.6. Culvert Replacement Zones

The stormwater easement within the site will be replaced. All impacted soils surrounding the culvert will be removed and placed beneath a cap elsewhere within the site (for example, beneath building caps). Prior to the construction of the new stormwater culvert, a geotextile marker layer will be placed on the surface of the ACM impacted fill, or the underlying natural soils if the culvert extends below the base of the impacted fill, within the easement. Following this, the culvert will be placed, and the void around and above the culvert will be filled with imported VENM or ENM.

The cap will comprise (from bottom to top):

1. Geotextile marker layer draped around perimeter and base of the excavation.
2. Concrete lined culvert.
3. VENM soil (500mm) above the culvert and at least 500mm around the culvert.

The figure below presents the cross section of this capping zone.



Due to the expected depth of the culvert being some 3-4m and either potential safety hazards or shoring preventing observations it is not proposed to have the LAA undertake an inspection of the soils covered by the capping layer or issue a Clearance Certificate. However, the soils beneath the base and walls of the culvert excavation and the marker layer will be described in order to include this information in the LTEMP.

Coffey considers that this cap form generally complies with requirements detailed within “Major Service Trenches” of Section 11.3.2 of the RAP.

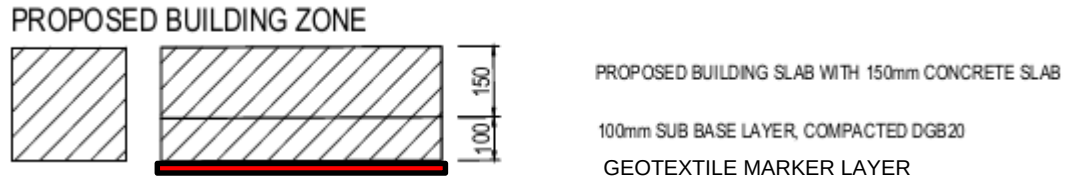
5.3.7. Building Caps

The cap for this zone will comprise a geotextile marker layer beneath compacted DGB20 engineered fill, followed by reinforced concrete.

The cap will comprise (from bottom to top):

1. Graded and compacted ACM impacted fill with clearance certificate from LAA.
2. Geotextile marker layer.
3. Compacted engineered fill (DGB) 100mm.
4. Reinforced concrete (150mm).

The figure below presents the cross section of this capping zone.



Coffey considers that this cap form generally complies with requirements detailed within “Concrete hardstand, bitumen, paved or synthetic grass covered areas” of Section 11.3.2 of the RAP.

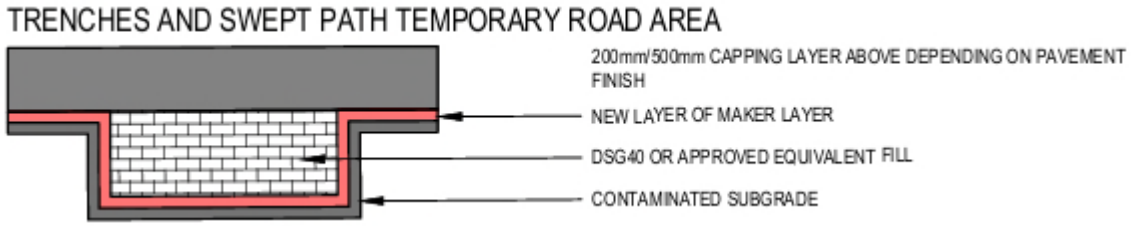
5.3.8. Service Trenches & Swept Path Temporary Road Area

The cap for this zone will comprise a geotextile marker layer on top of the ACM impacted fill, followed by compacted engineered fill, followed by one of capping scenarios above (5.3.2 to 5.3.6).

The cap will comprise (from bottom to top):

1. Graded and compacted ACM impacted fill with clearance certificate from LAA (temporary road area only).
2. Geotextile marker layer.
3. Compacted engineered fill (thickness varies depending on depth of service). Fill material is likely to also vary between service trenches and temporary road areas.
4. Capping scenario 5.3.2 to 5.3.6 (depending on overlying land use).

The figure below presents the cross section of this capping zone.



It is noted that in narrow service trenches it may not be possible to rake the base of the trench. However, the base of the trenches will still be inspected by a LAA who will issue a Clearance Certificate.

Coffey considers that this cap form generally complies with requirements detailed within “Major Service Trenches” of Section 11.3.2 of the RAP (Coffey 2017).

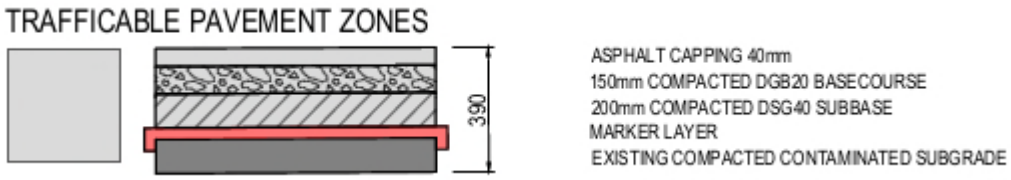
5.3.9. Trafficable Pavement Zones

The cap for this zone will comprise a geotextile marker layer on top of AMC impacted fill, followed by a combined thickness of 150mm compacted engineered fill, followed by 40mm asphalt.

The cap will comprise (from bottom to top):

1. Graded and compacted ACM impacted fill with clearance certificate from LAA.
2. Geotextile marker layer.
3. Compacted engineered fill (350mm).
4. Asphalt (40mm).

The figure below presents the cross section of this capping zone.



Coffey considers that this cap form generally complies with requirements detailed within “Concrete hardstand, bitumen, paved or synthetic grass covered areas” of Section 11.3.2 of the RAP.

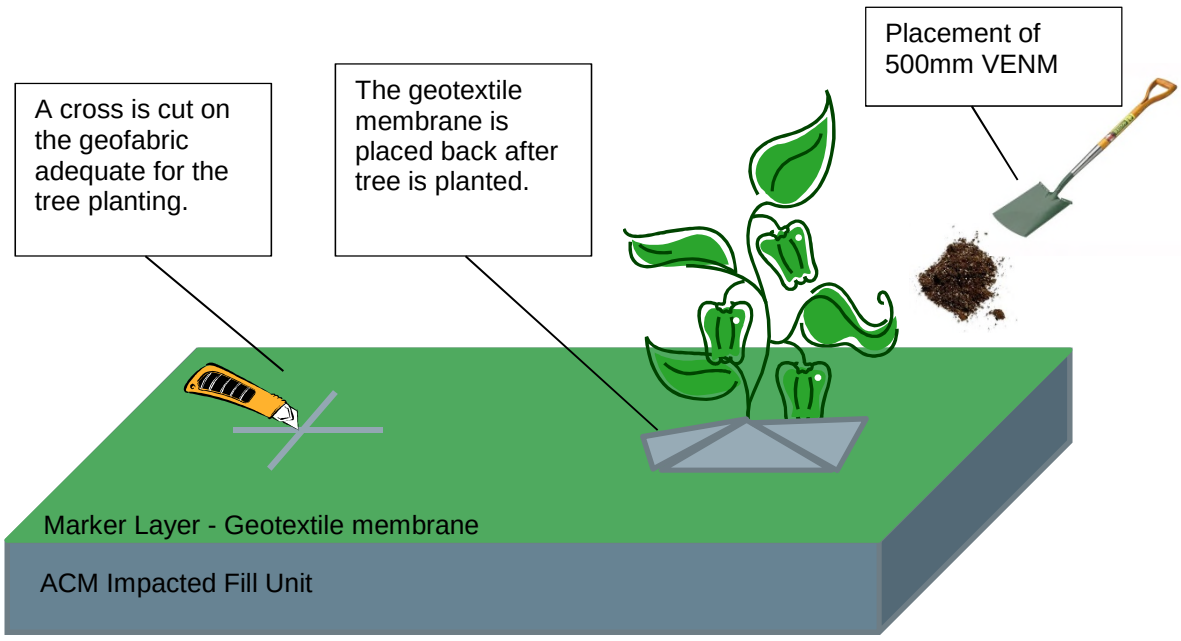
5.3.10. Deep Rooted Trees, furniture or other features which will penetrate cap

Coffey understands the design also includes the planting of new trees within the Planting Zones, which may be deep rooted (roots >0.5m) which could penetrate the marker layer. Deep rooted trees shall will need to be planted as per the below, to avoid the roots compromising the integrity of the marker layer. It may be necessary to obtain advice from the landscaping designer to identify the trees with deep roots.

Landscaping may also include furniture or other features which will penetrate cap.

The process for these landscaping features is as follows:

- Graded ACM impacted fill with clearance certificate from LAA.
- Place geotextile membrane on the ACM impacted fill surface.
- Mark the proposed locations of the potholes.
- If capping has already been placed excavate by hand or with small machinery down to the marker layer taking care not to damage the maker layer.
- When the marker layer has been exposed cut a cross (or similar) at the location of the potholes (see figure below). The cut size should be minimised only sufficient for the vegetation/trees to be placed.



- Dig potholes sufficient for the vegetation/trees/ which is to be placed in the hole. Where possible use hand tools for digging to minimise damage to the geotextile membrane by use of small

machinery with appropriate protection e.g. rubber tracks or rubber tyres etc. If machinery is used the geotextile must be observed for damage in the areas subject to tracking by machinery after completion of works and prior to placement of soil on the geotextile barrier. The observations should be undertaken by a Coffey Environmental Scientist. If the geotextile is observed damage, then it will need to be repaired.

- ACM impacted fill excavated from below the marker layer should be placed on a thick plastic so as not to impact any material above the marker layer. Excavated ACM impacted fill should be segregated and stockpiled separately from the soil excavated above the marker layer. Soils from below and above the capping layer should not be mixed.

- Place the vegetation/trees/ into the hole. The hole beneath the level of the geotextile membrane can be backfilled with a mixture of the excavated material, validated fill, growing medium, or other approved material.

- Place back the flaps of the cut geotextile membrane around the vegetation/trees/ landscape architecture/furniture/related infrastructure.

- Reinstate cap above the marker layer as per the appropriate design.

- The excavated ACM impacted fill from below the marker layer should be transferred to an asbestos impacted stockpile for placement beneath the cap at another location onsite.

The approach outlined above can also be used for furniture or other features which will penetrate cap.

5.3.11. Shallow Rooted Trees and Shrubs, furniture or other features which will not penetrate cap

Coffey understands the design will also include the planting of new trees / shrubs with shallow roots which would not be expected to penetrate the capping system. Landscaping may also include the use of furniture or other features which may be founded within the cap but which will not penetrate the marker layer.

Apart from ensuring the marker layer isn't penetrated or damaged no other special precautions are required for these landscape features.

5.3.12. Surface Finishes

Soft Scape Zones (5.3.4) and Hard Scape Zones (5.3.5) will be finished at the surface with one of the below pavement types. The pavement types are presented in Appendix C.

Table 5.1 – Surface Finishes

Pavement Type	Pavement Name	Description
1	Coloured Concrete	This unit comprises 50mm thick coloured concrete
2	Feature Paving	This unit comprises 50mm thick coloured concrete (as above, with "scratchings")
3	Asphalt	This unit is a 25mm thick asphalt surface
4	Feature Unit Paving	This unit comprises 30mm thick bluestone pavers (cemented together), overlying a 25mm thick mortar bed
6	Sandstone Crazy Pave	This unit comprises 30mm thick sandstone pavers (cemented together), overlying a 25mm thick mortar bed
7	FlexiPave	This unit comprises 50mm thick "plexipave" (synthetic netball turf)
8	Sythetic Turf	This unit comprises 50mm thick "plexipave" (synthetic grass turf)

Pavement Type	Pavement Name	Description
9	Sythetic Turf	This unit comprises 50mm thick “plexipave” (synthetic grass turf)
10	Softfall	This unit comprises 50mm rubber softfall
11	Precast Concrete	This unit comprises 50mm thick precast concrete
12	Granite Cobble	This unit comprises 90mm thick granite pavers (cemented together)
16	Concrete Unit Paving	This unit comprises 43mm thick concrete pavers (cemented together)

5.4. UST Removal

The UPSS will must be decommissioned in accordance with the POEO (Underground Petroleum Storage Systems (UPSS)) Regulation 2014 (POEO UPSS Regulation 2014). The regulations state that a dis-used tank must be decommissioned, and a validation report must be prepared detailing the decommissioning. The sections below provide a guided approach for the removal of the UPSS on the site.

In the absence of as-built records for the UPSS, some uncertainty remains with regard to the location and extent of UST and associated fuel distribution infrastructure on site. It is recommended that a survey is carried out to improve confidence on the location of below ground infrastructure. It is recommended that non-destructive survey techniques including Ground Penetrating Radar (GPR) or magnetometry are employed to identify the location of UST (and other potentially significant infrastructure) and the lateral extent.

Careful consideration of the non-destructive survey techniques is required however to prevent other materials within the fill interfering with survey results.

This UPSS removal will need to include:

- De-gassing of UST prior to hot works commencing.
- Removal and disposal of residual liquids from the UST and lines (if present).
- Disconnect fuel and other associated infrastructure from the UST (if present).
- Excavate soils surrounding the UST to facilitate the removal of the tank. Excavated soils to be placed in designated stockpiling area on site. Attempts should be made to segregate cleaner soils from those which exhibit indications of contamination (e.g. petroleum hydrocarbons, visible ACM) being present.
- Remove tank and transport to nominated recycling facility or disposal site.
- Assessment of stockpiled soils associated with the UPSS removal for either offsite disposal or on-site retainment. The classification of soils associated with the UPSS removal should be conducted separately to other material within the site which will be excavated.
- Validation of soils remaining in tank pit excavation.
- Other actions required to meet prevailing regulations and guidelines.

It is recommended that the excavation of impacted soils around (and below) the UPSS will be guided by s suitably experienced environmental consultant, who will attend site during the UST removal and excavation works. Excavations will be extended until there is no visual/olfactory or significant field screening evidence of petroleum hydrocarbon impact in the excavation. Depending on the size of the tank and required extent of the remediation excavation, the excavation may require shoring, or constructed with an appropriate batter to prevent collapse.

UST excavations will be validated (in accordance with Section 6.2) to demonstrate achievement of the RAC.

The stockpiled soils will be assessed to determine if they are suitable to remain on site. If soils are not suitable to remain on site, a waste classification should be conducted to facilitate offsite disposal. Further details on the classification of waste are presented in Section 6.4.

6. Validation Plan

6.1. Cap Validation

6.1.1. Asbestos Surface Clearance

A LAA will provide an asbestos clearance certificate (visual clearance) for the graded surface soils (prior to capping) of capping scenarios 5.3.3, 5.3.4, 5.3.5, 5.3.7, 5.3.8, 5.3.9 and 5.3.10. The clearance certificate shall be retained and presented within the site validation report. Clearances may be undertaken progressively and staged, depending on the timing of construction works.

6.1.2. Periodic Inspections

Observations and photographs of the capping layer should be undertaken periodically by the environmental consultant undertaking the validations works as further evidence to demonstrate the cover layer has been installed in accordance with the RWP. These records will be provided within the validation report. At a minimum, each capping surface should be inspected once during capping. Additionally, RCC should also take photographs progressively during capping works, for inclusion within the validation report.

6.1.3. Survey

To validate the thickness of the capping layer complies with specified requirements, a survey by a licensed surveyor will be undertaken prior to placement of the marker layer, and again following the installation of the surface capping material. The survey results for the various capping systems should be presented on a thickness contour plan, and presented within the validation report.

6.1.4. Final Capping Inspection

A final surface capping inspection should be conducted by the environmental consultant following the completion of construction works. The intent of the final inspection is to assess if construction works compromised the integrity of surfaces that had been previously inspection and capped. Photographs and observations from the final inspection will be provided within the validation report.

6.1.5. Other Capping Inspections

Other capping inspections may be undertaken from time to time during the construction program or at the request of RCC and/or the Site Auditor. Details and photographs from these inspections should be provided within the validation report.

6.2. UST

The excavation works should be supervised on a regular basis by a suitably experienced environmental consultant.

The validation work at the site will entail collecting soil samples for visual, olfactory and soil headspace measurements by on site the Environmental Consultant to guide excavation works.

Validation samples will be collected from the base and walls of the remediation excavation using the following sampling densities:

- Base – at least 1 sample from the base or one sample per 25m^2

- Walls – at least 1 sample per wall or 1 sample per 10 linear metres. Collection of samples at multiple depths at each sampling point should be considered, based on visual, olfactory and PID screening results.
- Pipework (if present) – at least 1 sample per 10m length of pipework (minimum one per pipe run)

If a soil excavation surface is considered to still be aesthetically impacted or the validation sample analytical results do not comply with the Remediation Acceptance Criteria (RAC), the soil will be further excavated, until validation results of the soil surface complies with the RAC.

The soil samples collected for the UPSS validation will be tested as follows:

- TRH, BTEX, PAH and lead. Field observation of fill material will include visual, olfactory and PID observation.

A PID will be used to assist with the validation works, including guiding collection of samples from the base and walls of the excavation pits. Sample collection methods will be recorded and reported, with rationale for sample selection.

Based on the validation sampling results, one of the following actions will be made:

- If some of the validation samples fail the remediation (acceptance) criteria, the soil identified as failing the remediation criteria will be further excavated. Further validation sampling of these areas will then be required. Statistical interpretation of validation data may also be used to assess whether the remediation goals have been met.
- If some of the validation samples fail the remediation (acceptance) criteria and further excavation is not considered practicable (i.e. due to site boundary), alternate remedial strategies and / or risk assessment to assess the significance of the remaining contamination may be considered.
- If validation samples meet the remediation criteria, no further remedial works will be required.

Selected soil samples will be analysed by ISO/IEC 17025 certified laboratories with NATA accredited methods for the following analytes: TRH, BTEX, PAHs, Lead, Asbestos (if observed within fill).

Remediation Acceptance Criteria

Analytical results will be compared against the tier-1 heath, ecological and management criteria outlined in the amended ASC NEPM for residential land use (HIL/HSL A, EILs/ESLs and management limits).

6.3. Imported Material

6.3.1. Overview

Coffey notes that material will be imported to the site as part of the redevelopment works. Based on advice provided by RCC, we understand that imported materials will be used for:

- Capping covers;
- Backfill for services;
- Landscaped areas;
- Fill for construction access; and
- Fill to achieve design levels.

The RAP identified that soil materials imported to site should be either Virgin Excavated Natural Material (VENM) or Excavated Natural Material (ENM) only. However, Coffey notes that RCC may import recycled aggregates, or other recovered resources in accordance with the NSW EPA resource recovery exemptions and/or orders, although this is not advised due to the risk of fugitive materials

potentially included within the product. Coffey also notes that because of this risk, a more rigorous material importation review and testing program will be required as per the below.

Prior to the importation of material into the site, approval from the Site Auditor is required. Coffey will be required to review material information, prior to consulting with the Site Auditor to seek approval on RCC's behalf. The subsections below presents the process and timing for the importation of VENM/ENM and recycled aggregates or other resource recovery materials.

6.3.2. Virgin Excavated Natural Materials (VENM) / Excavated Natural Materials (ENM)

Material imported as VENM or ENM needs to meet the requirements set out in Section 12.3 of the RAP. VENM or ENM could include material being imported for any of the reasons outlined in Section 6.1, including backfilling of service trenches.

As the Auditor is required to review and approve any materials imported as VENM or ENM it is important that sufficient time is allowed for both assessment of the materials and approval by the Auditor prior to bringing onto site Table 6.1 below has been prepared to provide the anticipated process and timing for assessment, approval and importation of VENM or ENM.

Table 6.1 – Material Import Process

Timing	Action	Responsible Party
Week 0	Advise Coffey of intent to import material. Provide Coffey with available material documentation	RCC
Week 0	Review material documentation and provide RCC with the recommended testing regime (if required, depending on quality of information provided)	Coffey
Week 1	Initial inspection and/or testing (if required, depending on quality of provided information provided) of subject material	Coffey
Week 1-2	Review of test results to assess suitability to import material to site. Coffey provide opinion to Site Auditor, including subsequent batch testing frequency (if required)	Coffey
Week 1-2	Site Auditor to provide opinion to Coffey/RCC regarding suitability of material to be imported to site.	Site Auditor
Week 1-3	Coffey and RCC implement further actions, as required by the Site Auditor (if any)	Coffey/RCC
Week 1-3	Import material to site	RCC
Ongoing	Visually observe and photograph each load of material entering site to confirm the material is visually consistent with that of the documentation and/or testing conducted. RCC to maintain visual and photography records of each load that was observed	RCC

6.3.3. Recycled Aggregate or Other Resource Recovery Materials

As noted above RCC may import recycled aggregates as part of their works for use onsite. At this stage it is envisaged that this will be most likely associated with temporary roadway construction but may include other uses such as filling of depressions.

As the Auditor is required to review and approve any materials imported as VENM or ENM it is important that sufficient time is allowed for both assessment of the materials and approval by the Auditor prior to bringing onto site Table 6.2 presents the anticipated process and timing for importation of recycled aggregates or other resource recovery materials.

Table 6.2 – Material Import Process

Timing	Action	Responsible Party
Week 0	Advise Coffey of intent to import material. Provide Coffey with available material documentation	RCC
Week 1	Review material documentation and provide RCC with the recommended testing regime (if required)	Coffey
Week 2	Initial testing of subject material	Coffey
Week 3	Review of test results to assess suitability to import material to site. Coffey provide opinion to Site Auditor, including subsequent batch testing frequency (if required)	Coffey
Week 4	Site Auditor to provide opinion to Coffey/RCC regarding suitability of material to be imported to site.	Site Auditor
Week 5	Coffey and RCC implement further actions, as required by the Site Auditor (if any)	Coffey/RCC
Week 6	Import material to site	RCC
Ongoing	Visually observe each load of material entering site to confirm the material is visually consistent with that of the documentation and/or testing conducted. RCC to maintain visual records of each load that was observed	RCC
Ongoing	Undertake batch testing of imported material loads, at frequency agreed with Site Auditor, depending on the quality of source information available	Coffey

6.4. Offsite Disposal

Based on the civil drawings, a material deficit is expected. Therefore it is not anticipated that a large volume of material would require offsite disposal. However, if material requires offsite disposal for whatever reason, then the material must be classified in accordance with the NSW EPA (2014) Waste Classification Guidelines: Part 1 Classifying Waste, and the RAP (Coffey, 2017) prior to disposal at a facility licenced to accept the waste.

Section 12.4 of the RAP provides more information on waste classification assessments, while information on offsite disposal is provided below.

RCC are required to maintain material tracking records for all material that is disposed offsite. Tracking records should be provided in a tabular format, and include the following information:

- Date of waste removal
- Waste classification report for the waste
- Volume of waste removed
- Truck registration

All waste classifying as Special Waste Asbestos is required to be tracked using the NSW EPA WasteLocate system.

All records, along with tipping dockets must be provided to Coffey for inclusion within the validation report.

7. Construction Contamination Environmental Management Plan (CCEMP) and Unexpected Finds

A site specific Construction Contamination Environmental Management Plan (CCEMP) has been prepared by Coffey (2019a) for the APCS site. The CCEMP outlines the appropriate site controls and management procedures to mitigate the risks to workers and receptors posed by contamination within the ground during site redevelopment works. The CCEMP also presents an Unexpected Finds Procedure (UFP) to manage unexpected finds, should they occur during site works. A contingency plan for incidents is also presented within the CCEMP.

RCC will prepare a site specific Construction Management Plan (CMP) to document the relevant local work health and safety obligations. The CMP include, but not be limited to, the following:

- Inductions
- Toolbox talks
- Asbestos awareness training
- Record keeping
- Site specific safety plan
    - SafeWork NSW requirements
    - Risk assessments
    - Safe work method statements
    - Site specific safety requirements associated with remedial works outlined within this RWP and managing contaminated materials
- Access
- Barricades and signage
- Dust control
- Sediment control and water management
- Stockpile management
- PPE/RPE
- Noise
- Asbestos control and management

7.1. Remediation Schedule & Hours of Operation

The remedial works will be staged in two phases (Phase 1 and Phase 2).

The remediation works will be conducted in accordance with the operational requirements of the Development Consent (State Significant Development (SSD) No. 8373) and in accordance with any other requirements of Council of the City of Sydney.

7.2. Approvals and Licences

This section discusses some of the regulatory compliance requirements associated with the remediation. It is important to note that this section is not exhaustive and the Contractor must ensure they comply with applicable legislation and guidelines.

All works will be completed in accordance with the conditions of the Development Consent (SSD) No. 8373) and in accordance with any other requirements of Council of the City of Sydney.

Since asbestos is present within fill beneath the site, the relevant authority will require notification of asbestos works. All asbestos related works will be undertaken in accordance with Safe Work Australia Codes of Practice, relevant Commonwealth and state regulations, SafeWork NSW guidelines, requirements under the POEO Act (1997), any other relevant guidance and industry best practice.

Soils or liquids disposed from the site must be classified in accordance with the NSW EPA (2014) *Waste Classification Guidelines*. All impacted soil and water requiring off-site disposal will be transported and disposed of to either a licensed landfill, liquid waste facility or to public sewer following on site treatment. Waste classified as “hazardous waste” must be treated on site, with EPA approved methodology, to reduce the waste classification prior to offsite disposal. Any wastes leaving the site will need to be transported by a NSW EPA licensed contractor. Prior to waste leaving the site, written pre-approval from a licensed disposal facility will be obtained and included in the site validation report. All material leaving the site will be tracked and documented.

Other legislative requirement that may be applicable include but are not limited to:

- Contaminated Land Management Act 1997;
- Environmental Planning and Assessment Act 1979;
- Protection of the Environment Operations Act 1997;
- Waste Avoidance and Resource Recovery Act 2001; and
- WHS Act 2011 and the WHS Regulation 2011.

7.2.1. SEPP55

The potential for significant environmental impacts from the proposed remedial work is considered to be low and as such the proposed remedial works are considered to be Category 2 remedial work as outlined in SEPP 55.

A notification of remedial works at the site will be required to be submitted to City of Sydney Council 30 days before category 2 remediation works commence.

7.2.2. Asbestos Removal Licence

Due to the sensitive land use nature of the site, Coffey note that the DoE prefer a Class A Licenced Asbestos Removalist be used as a precaution where any form of asbestos is present.

7.2.3. Asbestos Notification

The engaged remedial contractor will be required to prepare an Asbestos Removal Control Plan (ARCP) for the proposed remediation works. The engaged remedial contractor will subsequently be required to submit the ARCP together with this RAP to the relevant authority (currently SafeWork NSW) and obtain the necessary NSW WorkCover Permit prior to commencement of remedial work (5 days notification required).

7.2.4. Contact Details

The key contact details for the project are listed below.

Table 7.1 - Contact numbers and emergency response.

Organisation	Name	Phone	Fax	Role
Department of Education	tba	tba	tba	Site Owner
Richard Crookes Construction	Trent Scrivener	(02) 9902 4700	N.A	Site Manager
Coffey Services Australia Pty Ltd	Richard Wilkinson	(02) 9406 1000	N.A	Licensed Asbestos Assessor
Coffey Services Australia Pty Ltd	Alex Ructtinger / Tony Scott	(02) 9406 1000	N.A	Environmental Consultant
Zoic Environmental Pty Ltd	Rebeka Hall	(02) 9251 8070	N/A	NSW EPA Accredited Site Auditor
City of Sydney Council	N.A	(02) 9265 9333	(02) 9265 9222	Local Council
NSW EPA	Pollution Line	131 555	N.A	Environment Protection Authority
Police / Fire / Ambulance	N.A	000	N.A	Emergency Services

tba: to be added when known
N.A: Not available

7.2.5. Community Relations

Coffey notes that the site is surrounded by sensitive land uses. Therefore, prior to implementing asbestos controls at the site, Coffey recommends that consultation with DoE and the APCS school(s) is carried out to alleviate concerns about earthworks including asbestos management which may arise during construction works.

8. Validation report

At the completion of the remedial works, a validation report will be prepared in general accordance with OEH 2011 Guidelines for Consultants Reporting on Contaminated Sites and the ASC NEPM, documenting the works as completed. This report will contain information including:

- Information demonstrating compliance with appropriate regulations and guidelines.
- Confirmation that the as built details of the cap meet the remediation requirements
- Details of the source, classification and suitability of all imported materials.
- Any variations to the strategy undertaken during the implementation of the remedial works.
- Details of any environmental incidents and/or unexpected finds of contamination occurring during the course of the remedial works and the actions undertaken in response to these incidents.

- Details on waste classification, tracking and off-site disposal.
- As-built survey drawings showing elevation of the marker layer and elevation of top of the cap, and changes in the cap design.
- Clear statement of the suitability of the site that is the subject of the validation report, for the proposed use.
- Scope and requirements for the ongoing management (Long Term Environmental Management Plan).

The Validation Report will draw conclusions on any Duty to Report obligations under the Contaminated Land Management Act (1997).

Coffey notes that the site development works are staged (Phase 1 and Phase 2). At this stage, a separate validation report will be prepared for each Phase.

9. Ongoing Management

A long term environmental management plan (LTEMP) will be required throughout ongoing occupation of the site to ensure the integrity of the cap is maintained, ensure any works penetrating the capping system are appropriately controlled and the cap appropriately reinstated and to ensure appropriate repairs are made promptly to any damaged areas of the capping system.

The LTEMP will need to be implemented whilst ever the ACM impacted fill remains in the site.

The LTEMP shall be prepared by a suitably qualified consultant following installation of the capping and should succinctly describe the nature and location of ACM impacted fill remaining on-site and states what the objectives of the plan are, how residual ACM impacts will be managed, who will be responsible for the plan's implementation and over what time frame actions specified in the plan will take place.

It is anticipated that compliance and implementation of the LTEMP will be a condition of the Site Auditors endorsement of this RWP and compliance with the requirements of the LTEMP would be legally enforced as a condition of the development consent for the site and will be expected to be recorded on the planning certificate issued under section 10.7 of the EP&A Act 1979. It is anticipated that the Auditor is required to confirm the mechanism of notification and legal enforcement.

The LTEMP must be reviewed and approved by the Site Auditor (and in consultation with council) prior to implementation. Since the site is being redeveloped in two phases (and thus two separate site audit statements), it is envisaged that a LTEMP will be firstly prepared for Phase 1 site area to allow occupation, whilst Phase 2 site area is being redeveloped. When Phase 2 has been redeveloped, the LTEMP should be updated to incorporate the remedial works conducted within Phase 2 site area.

RCC should make the DoE aware of their obligations associated with managing residual ACM impacted fill under the LTEMP, noting the sensitive land use.

10. Conclusion

RCC (on behalf of the DoE) intend to redevelop the site as part of the proposed development as described within Section 2.

The site has been subject to several phases of investigation and assessment to characterise historical uses of the site and surrounding land, and the contamination status of the site. Findings from, the DSI and the DGIR indicate asbestos impacted fill is present, or potentially present across most of the site, while a known UST is present in the north eastern section of the Phase 2 site area, which will require remediation and management to make the site suitable for the proposed development in accordance with SEPP55. Coffey considers that the investigations carried out to date are adequate for preparation of this RWP.

This RWP when read in conjunction with the RAP, outlines the strategy to mitigate health risks associated with identified contamination and thereby mitigate potentially unacceptable risks during and following re-development. The CCEMP presents a strategy to manage unexpected finds of contamination that may be encountered during construction.

If the remediation is carried out in accordance with this RWP, then Coffey concludes the site should be made suitable for the proposed development. A validation report should be prepared following remedial works, to demonstrate works were conducted in accordance with this RWP.

11. References

- Coffey (2017a). Detailed Site Investigation – Alexandria Park Community School, Alexandria NSW (Ref: SYDEN199382-R01-Rev1; dated 9 May 2017).
- Coffey (2017b). Acid Sulfate Soil Management Plan – Alexandria Park Community School, Park Road, Alexandria NSW (ref: SYDEN199382-L03-Rev01; dated 26 October 2017).
- Coffey (2017c). Soil Vapour Investigation – Alexandria Park Community School, Park Road, Alexandria NSW (ref: SYDEN199382-L02; dated 26 October 2017).
- Coffey (2017d); Remedial Action Plan – Alexandria Park Community School, Park Road, Alexandria NSW (Ref: SYDEN199382-R03; dated 8 December 2017).
- Coffey (2019a); Construction Contamination Environmental Management Plan - Alexandria Park Community School, Park Road, Alexandria NSW (Ref: SYDEN224285-R01; dated 21 May 2019).
- Coffey (2019b); Contamination Data Gap Investigation Report - Alexandria Park Community School, Park Road, Alexandria NSW (ref: SYDEN224285-L03; dated 7 June 2019).
- EIS (2017) Acid Sulfate Soils Assessment – Proposed New School Facilities, Alexandria Park Community School. Ref: E30907Klet-ASS.
- Geological Survey of NSW (1983). 1:100,000 Geological Series Sheet 9130 (Edition 1) – Sydney.
- NEPC (1999). National Environment Protection (Assessment of Site Contamination) Amendment Measure (NEPM) (No. 1) as registered 2013, and its associated Schedules.
- NSE Department of Education (2017); Asbestos Management Plan for NSW Government Schools, dated August 2017 (ref: DN/15/00038).
- NSW EPA (2016). Waste Classification Guidelines Part 1: Classifying Waste.
- NSW OEH (2011). Guidelines for Consultants Reporting on Contaminated Sites.

Important Information about Your Coffey Environmental Report

Important information about your **Coffey** Environmental Report

Introduction

This report has been prepared by Coffey for you, as Coffey's client, in accordance with our agreed purpose, scope, schedule and budget.

The report has been prepared using accepted procedures and practices of the consulting profession at the time it was prepared, and the opinions, recommendations and conclusions set out in the report are made in accordance with generally accepted principles and practices of that profession.

The report is based on information gained from environmental conditions (including assessment of some or all of soil, groundwater, vapour and surface water) and supplemented by reported data of the local area and professional experience. Assessment has been scoped with consideration to industry standards, regulations, guidelines and your specific requirements, including budget and timing. The characterisation of site conditions is an interpretation of information collected during assessment, in accordance with industry practice,

This interpretation is not a complete description of all material on or in the vicinity of the site, due to the inherent variation in spatial and temporal patterns of contaminant presence and impact in the natural environment. Coffey may have also relied on data and other information provided by you and other qualified individuals in preparing this report. Coffey has not verified the accuracy or completeness of such data or information except as otherwise stated in the report. For these reasons the report must be regarded as interpretative, in accordance with industry standards and practice, rather than being a definitive record.

Your report has been written for a specific purpose

Your report has been developed for a specific purpose as agreed by us and applies only to the site or area investigated. Unless otherwise stated in the report, this report cannot be applied to an adjacent site or area, nor can it be used when the nature of the specific purpose changes from that which we agreed.

For each purpose, a tailored approach to the assessment of potential soil and groundwater contamination is required. In most cases, a key objective is to identify, and if possible quantify, risks that both recognised and potential contamination pose in the context of the agreed purpose. Such risks may be financial (for example, clean up costs or constraints on site use) and/or physical (for example, potential health risks to users of the site or the general public).

Limitations of the Report

The work was conducted, and the report has been prepared, in response to an agreed purpose and scope, within time and budgetary constraints, and in reliance on certain data and information made available to Coffey.

The analyses, evaluations, opinions and conclusions presented in this report are based on that purpose and scope, requirements, data or information, and they could change if such requirements or data are inaccurate or incomplete.

This report is valid as of the date of preparation. The condition of the site (including subsurface conditions) and extent or nature of contamination or other environmental hazards can change over time, as a result of either natural processes or human influence. Coffey should be kept appraised of any such events and should be consulted for further investigations if any changes are noted, particularly during construction activities where excavations often reveal subsurface conditions.

In addition, advancements in professional practice regarding contaminated land and changes in applicable statues and/or guidelines may affect the validity of this report. Consequently, the currency of conclusions and recommendations in this report should be verified if you propose to use this report more than 6 months after its date of issue.

The report does not include the evaluation or assessment of potential geotechnical engineering constraints of the site.

Interpretation of factual data

Environmental site assessments identify actual conditions only at those points where samples are taken and on the date collected. Data derived from indirect field measurements, and sometimes other reports on the site, are interpreted by geologists, engineers or scientists to provide an opinion about overall site conditions, their likely impact with respect to the report purpose and recommended actions.

Variations in soil and groundwater conditions may occur between test or sample locations and actual conditions may differ from those inferred to exist. No environmental assessment program, no matter how comprehensive, can reveal all subsurface details and anomalies. Similarly, no professional, no matter how well qualified, can reveal what is hidden by earth, rock or changed through time.

The actual interface between different materials may be far more gradual or abrupt than assumed based on the facts obtained. Nothing can be done to change the actual site conditions which exist, but

steps can be taken to reduce the impact of unexpected conditions.

For this reason, parties involved with land acquisition, management and/or redevelopment should retain the services of a suitably qualified and experienced environmental consultant through the development and use of the site to identify variances, conduct additional tests if required, and recommend solutions to unexpected conditions or other unrecognised features encountered on site. Coffey would be pleased to assist with any investigation or advice in such circumstances.

Recommendations in this report

This report assumes, in accordance with industry practice, that the site conditions recognised through discrete sampling are representative of actual conditions throughout the investigation area. Recommendations are based on the resulting interpretation.

Should further data be obtained that differs from the data on which the report recommendations are based (such as through excavation or other additional assessment), then the recommendations would need to be reviewed and may need to be revised.

Report for benefit of client

Unless otherwise agreed between us, the report has been prepared for your benefit and no other party. Other parties should not rely upon the report or the accuracy or completeness of any recommendation and should make their own enquiries and obtain independent advice in relation to such matters.

Coffey assumes no responsibility and will not be liable to any other person or organisation for, or in relation to, any matter dealt with or conclusions expressed in the report, or for any loss or damage suffered by any other person or organisation arising from matters dealt with or conclusions expressed in the report.

To avoid misuse of the information presented in your report, we recommend that Coffey be consulted before the report is provided to another party who may not be familiar with the background and the purpose of the report. In particular, an environmental disclosure report for a property vendor may not be suitable for satisfying the needs of that property's purchaser. This report should not be applied for any purpose other than that stated in the report.

Interpretation by other professionals

Costly problems can occur when other professionals develop their plans based on misinterpretations of a report. To help avoid misinterpretations, a suitably qualified and experienced environmental consultant should be retained to explain the implications of the report to other professionals referring to the report and then review plans and specifications produced to see how other professionals have incorporated the report findings.

Given Coffey prepared the report and has familiarity with the site, Coffey is well placed to provide such assistance. If another party is engaged to interpret the recommendations of the report, there is a risk that the contents of the report may be misinterpreted and Coffey disowns any responsibility for such misinterpretation.

Data should not be separated from the report

The report as a whole presents the findings of the site assessment and the report should not be copied in part or altered in any way. Logs, figures, laboratory data, drawings, etc. are customarily included in our reports and are developed by scientists or engineers based on their interpretation of field logs, field testing and laboratory evaluation of samples. This information should not under any circumstances be redrawn for inclusion in other documents or separated from the report in any way.

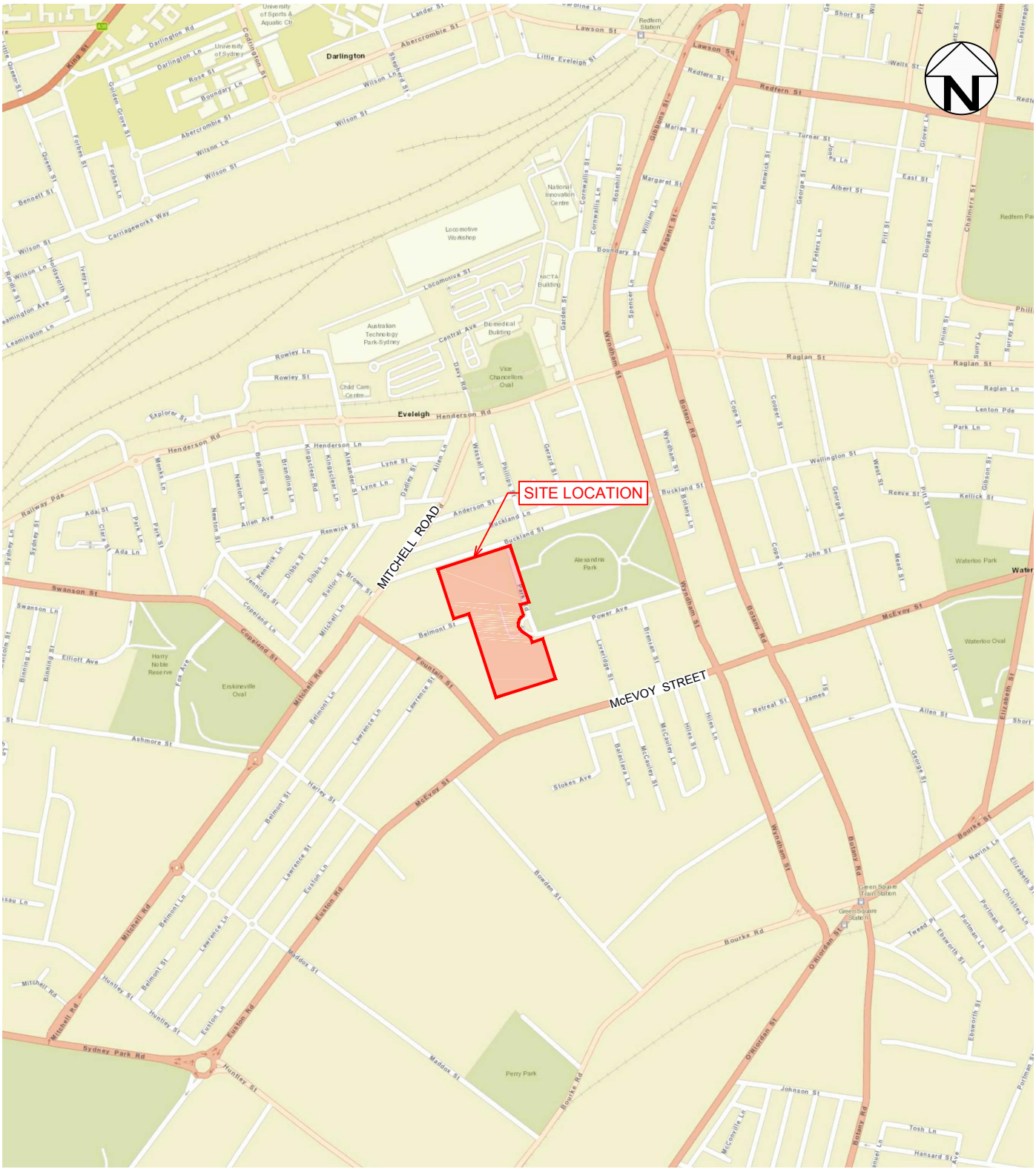
This report should be reproduced in full. No responsibility is accepted for use of any part of this report in any other context or for any other purpose or by third parties.

Responsibility

Environmental reporting relies on interpretation of factual information using professional judgement and opinion and has a level of uncertainty attached to it, which is much less exact than other design disciplines. This has often resulted in claims being lodged against consultants, which are unfounded. As noted earlier, the recommendations and findings set out in this report should only be regarded as interpretive and should not be taken as accurate and complete information about all environmental media at all depths and locations across the site.

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Figures



100 0 100 300 500

Scale (metres) 1:10000

IMAGERY SOURCE: WORLD STREET MAP
SOURCES: ESRI, HERE, GARMIN, USGS, INTERMAP, INCREMENT P, NRCAN, ESRI JAPAN, METI, ESRI CHINA (HONG KONG), ESRI KOREA, ESRI (THAILAND), NGCC, © OPENSTREETMAP CONTRIBUTORS, AND THE GIS USER COMMUNITY

DRAFT

drawn	AR / AW
approved	-
date	17/06/2019
scale	AS SHOWN
original size	A4

coffey
A TETRA TECH COMPANY

client: RICHARD CROOKES CONSTRUCTION PTY LTD

project: ALEXANDRIA PARK COMMUNITY SCHOOL
PARK ROAD, ALEXANDRIA, NSW

title: SITE LOCATION PLAN

project no: 754-SYDEN224285-R02 | figure no: FIGURE 1 | rev: B

PLOT DATE: 17/06/2019 1:34:30 PM DWG FILE: F:\1. PROJECTS\1. SYDENENV\2018\SYDEN224285 APCS REDEVELOPMENT RICHARD CROOKES\CAD\754-SYDEN224285-R02.DWG



LEGEND

- MONITORING WELL LOCATION (COFFEY, 2019)
- TEST PIT LOCATION (COFFEY, 2019)
- TEST PIT LOCATION - INACCESSIBLE (COFFEY, 2019)
- BESST SIMUL PROBE LOCATION (COFFEY, 2017)
- TEST PIT LOCATION (COFFEY, 2017)
- HAND AUGER LOCATION (COFFEY, 2017)
- MONITORING WELL LOCATION (COFFEY, 2017)
- BOREHOLE LOCATION HIBBS & ASSOCIATES (2016)
- BOREHOLE LOCATION - GEOENVIRO CONSULTANCY (2016)
- HAND AUGER LOCATION - GEOENVIRO CONSULTANCY (2016)
- APPROXIMATE STORMWATER EASEMENT LOCATION
- APPROXIMATE ALEXANDRIA PARK SCHOOL SITE BOUNDARY
- STAGE BOUNDARY

NOTE: PREVIOUS SAMPLING LOCATIONS PROVIDED BY CLIENT FROM PLANS BY GEOENVIRO CONSULTANCY, AND HIBBS & ASSOCIATES

DRAFT

revision	no.	description	drawn	approved	date
	A	ORIGINAL ISSUE	AW	AR	3/06/19
	B	ADDITIONAL TEST PITS	AW	AR	7/06/19

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Scale (metres) 1:1250

SOURCE: NEARMAP IMAGE - 2/11/2018

drawn	AR / AW
approved	-
date	17/06/2019
scale	AS SHOWN
original size	A3

coffey
A TETRA TECH COMPANY

client: RICHARD CROOKES CONSTRUCTION PTY LTD

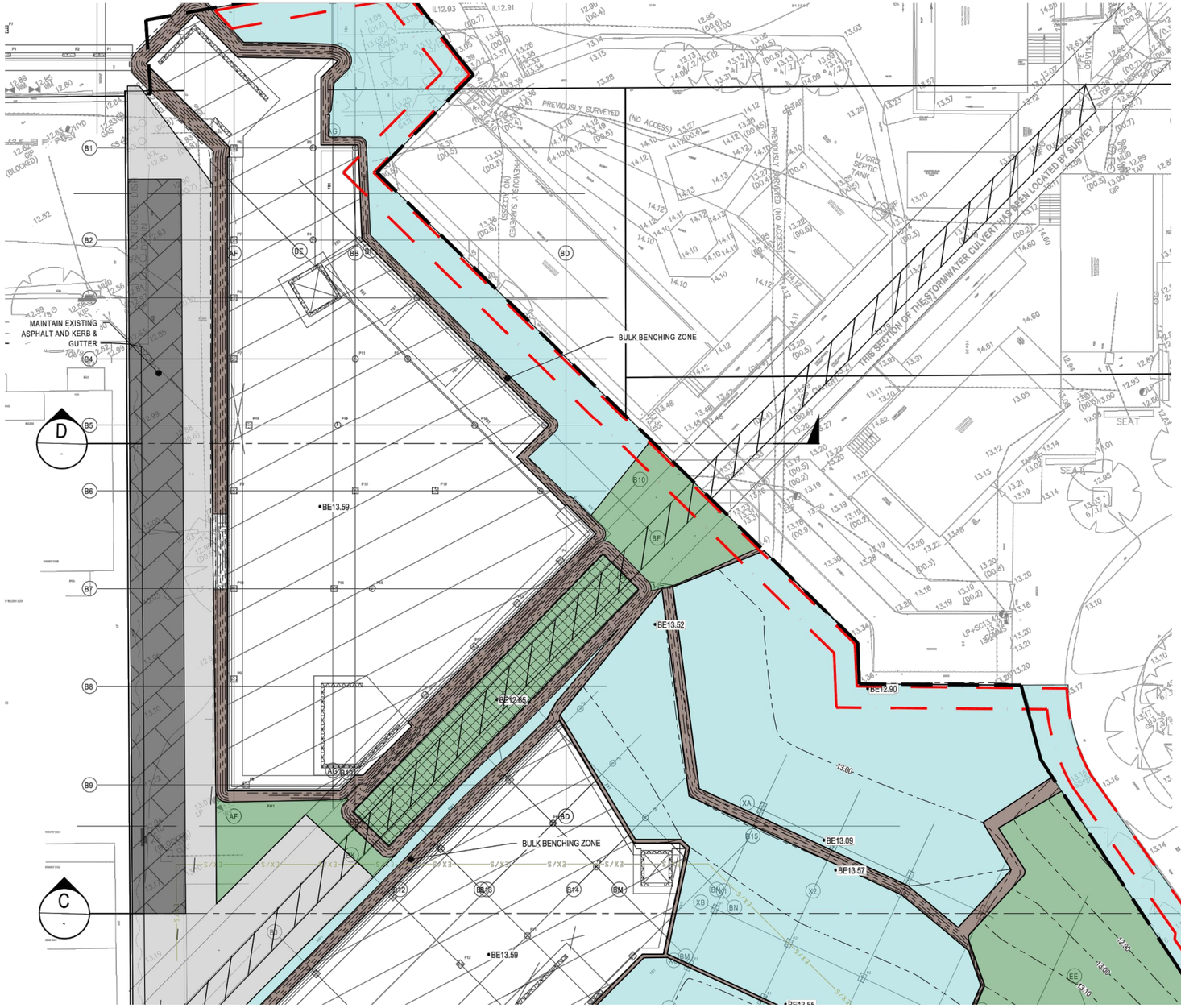
project: ALEXANDRIA PARK COMMUNITY SCHOOL
PARK ROAD, ALEXANDRIA, NSW

title: SITE LAYOUT PLAN

project no: 754-SYDEN224285-R02 | figure no: FIGURE 2 | rev: B

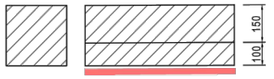
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NOTE: REFER TO PAVEMENT PLAN FOR SPECIFICATIONS OF RESPECTIVE PAVEMENTS USED AS PART OF CAPPING STRATEGY.



LEGEND

PROPOSED BUILDING ZONE

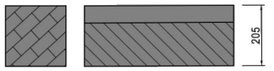


PROPOSED BUILDING SLAB WITH 150mm CONCRETE SLAB

100mm SUB BASE LAYER, COMPACTED DGB20

MARKER LAYER

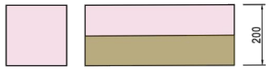
EXISTING ASPHALT UPGRADE



ASPHALT CAPPING LAYER MIN 25mm

180mm EXISTING ASPHALT ROAD WITH ROAD BASE

TREE PROTECTION ZONES



LAYER OF RECYCLED MULCH APCS PREVIOUSLY REMOVED TI

TREE PROTECTION ZONES
NOTE: IF TESTING REVEALS NO ASBESTOS

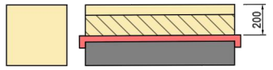
PLANTING ZONES



MIN 500mm VENM

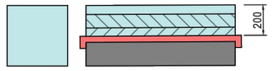
MARKER LAYER
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NOTE: REFER TO VEGETATION LANDSCAPING PLAN

SOFT SCAPE ZONES



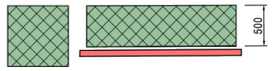
MAX 50mm FOR BEDDING AND SURFACE FINISH PAVEMENT
(REFER TO LANDSCAPE PLANS FOR DETAILS)
150mm COMPACTED DGB20 BASE COURSE TO ENGINEER'S D
MARKER LAYER
EXISTING COMPACTED CONTAMINATED SUBGRADE

HARD SCAPE ZONES



50mm SURFACE FINISH PAVEMENT
(REFER TO LANDSCAPE PLANS FOR DETAILS)
100mm REINFORCED CONCRETE
50mm DGB20 BASE COURSE TO ENGINEER'S DETAIL
MARKER LAYER
EXISTING COMPACTED CONTAMINATED SUBGRADE

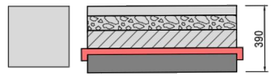
CULVERT REPLACEMENT ZONES



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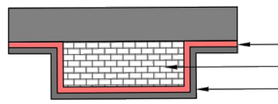
TOP OF REPLACED CULVERT
MARKER LAYER TO BELOW REPLACED CULVERT

TRAFFICABLE PAVEMENT ZONES



ASPHALT CAPPING 40mm
150mm COMPACTED DGB20 BASECOURSE
200mm COMPACTED DSG40 SUBBASE
MARKER LAYER
EXISTING COMPACTED CONTAMINATED SUBGRADE

TRENCHES AND SWEPT PATH TEMPORARY ROAD AREA



200mm/500mm CAPPING LAYER ABOVE DEPENDING ON PAVEI FINISH
NEW LAYER OF MAKER LAYER
DSG40 OR APPROVED EQUIVALENT FILL
CONTAMINATED SUBGRADE

HOARDING LOCATIONS



CURRENT HOARDING LEGS 900mm WITHIN PHASE 1

NEW LOCATION OF HOARDING FOR PHASE 2, 1800mm WIDE

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revision	no.	description	drawn	approved	date
	A	ORIGINAL ISSUE			

5 0 5 10 15 20

Scale (metres) 1:400

SOURCE: SPC - 180168-SCP-CV-DWG-1302-REV 05 - 28/05/2019

drawn	AR / AW
approved	-
date	17/06/2019
scale	AS SHOWN
original size	A3

coffey
A TETRA TECH COMPANY

client: RICHARD CROOKES CONSTRUCTION PTY LTD

project: ALEXANDRIA PARK COMMUNITY SCHOOL
PARK ROAD, ALEXANDRIA, NSW

title: SITE CAPPING PLAN
SHEET 1 OF 3

project no: 754-SYDEN224285-R02 | figure no: FIGURE 3A | rev: A

PLOT DATE: 17/06/2019 2:30:31 PM DWG FILE: F:\1. PROJECTS\1. SYDENENV\2018\SYDEN224285 APCS REDEVELOPMENT RICHARD CROOKES\CAD\754-SYDEN224285-R02.DWG

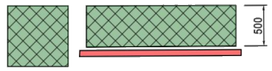
NOTE: REFER TO PAVEMENT PLAN FOR SPECIFICATIONS OF RESPECTIVE PAVEMENTS USED AS PART OF CAPPING STRATEGY.

HOARDING LOCATIONS

CURRENT HOARDING LEGS 900mm WITHIN PHASE 1

NEW LOCATION OF HOARDING FOR PHASE 2, 1800mm WIDE

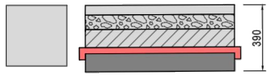
CULVERT REPLACEMENT ZONES



500mm VENM

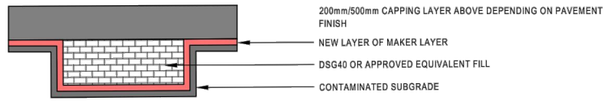
TOP OF REPLACED CULVERT
MARKER LAYER TO BELOW REPLACED CULVERT

TRAFFICABLE PAVEMENT ZONES



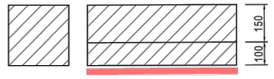
ASPHALT CAPPING 40mm
150mm COMPACTED DGB20 BASECOURSE
200mm COMPACTED DSG40 SUBBASE
MARKER LAYER
EXISTING COMPACTED CONTAMINATED SUBGRADE

TRENCHES AND SWEPT PATH TEMPORARY ROAD AREA



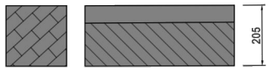
200mm/500mm CAPPING LAYER ABOVE DEPENDING ON PAVEMENT FINISH
NEW LAYER OF MAKER LAYER
DSG40 OR APPROVED EQUIVALENT FILL
CONTAMINATED SUBGRADE

PROPOSED BUILDING ZONE



PROPOSED BUILDING SLAB WITH 150mm CONCRETE SLAB
100mm SUB BASE LAYER, COMPACTED DGB20
MARKER LAYER

EXISTING ASPHALT UPGRADE



ASPHALT CAPPING LAYER MIN 25mm
180mm EXISTING ASPHALT ROAD WITH ROAD BASE

TREE PROTECTION ZONES



LAYER OF RECYCLED MULCH APCS PREVIOUSLY REMOVED TREES
TREE PROTECTION ZONES
NOTE: IF TESTING REVEALS NO ASBESTOS

PLANTING ZONES



MIN 500mm VENM
MARKER LAYER
EXISTING COMPACTED CONTAMINATED SUBGRADE
NOTE: REFER TO VEGETATION LANDSCAPING PLAN

SOFT SCAPE ZONES

MAX 50mm FOR BEDDING AND SURFACE FINISH PAVEMENT
(REFER TO LANDSCAPE PLANS FOR DETAILS)
150mm COMPACTED DGB20 BASE COURSE TO ENGINEER'S DETAIL
MARKER LAYER
EXISTING COMPACTED CONTAMINATED SUBGRADE

HARD SCAPE ZONES

50mm SURFACE FINISH PAVEMENT
(REFER TO LANDSCAPE PLANS FOR DETAILS)
100mm REINFORCED CONCRETE
50mm DGB20 BASE COURSE TO ENGINEER'S DETAIL
MARKER LAYER
EXISTING COMPACTED CONTAMINATED SUBGRADE



DRAFT

revision	no.	description	drawn	approved	date
	A	ORIGINAL ISSUE			

5 0 5 10 15 20

Scale (metres) 1:400

SOURCE: SPC - 180168-SCP-CV-DWG-1302-REV 05 - 28/05/2019

drawn	AR / AW
approved	-
date	17/06/2019
scale	AS SHOWN
original size	A3

coffey
A TETRA TECH COMPANY

client: RICHARD CROOKES CONSTRUCTION PTY LTD

project: ALEXANDRIA PARK COMMUNITY SCHOOL
PARK ROAD, ALEXANDRIA, NSW

title: SITE CAPPING PLAN
SHEET 2 OF 3

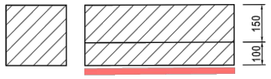
project no: 754-SYDEN224285-R02 | figure no: FIGURE 3B | rev: A

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LEGEND

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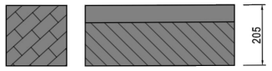


PROPOSED BUILDING SLAB WITH 150mm CONCRETE SLAB

100mm SUB BASE LAYER, COMPACTED DGB20

MARKER LAYER

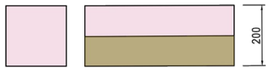
EXISTING ASPHALT UPGRADE



ASPHALT CAPPING LAYER MIN 25mm

180mm EXISTING ASPHALT ROAD WITH ROAD BASE

TREE PROTECTION ZONES



LAYER OF RECYCLED MULCH APCS PREVIOUSLY REMOVED TREES

TREE PROTECTION ZONES
NOTE: IF TESTING REVEALS NO ASBESTOS

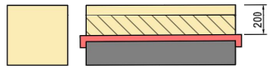
PLANTING ZONES



MIN 500mm VENM

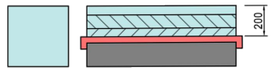
MARKER LAYER
EXISTING COMPACTED CONTAMINATED SUBGRADE
NOTE: REFER TO VEGETATION LANDSCAPING PLAN

SOFT SCAPE ZONES



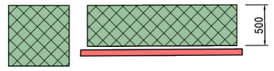
MAX 50mm FOR BEDDING AND SURFACE FINISH PAVEMENT
(REFER TO LANDSCAPE PLANS FOR DETAILS)
150mm COMPACTED DGB20 BASE COURSE TO ENGINEERS'S DETAIL
MARKER LAYER
EXISTING COMPACTED CONTAMINATED SUBGRADE

HARD SCAPE ZONES



50mm SURFACE FINISH PAVEMENT
(REFER TO LANDSCAPE PLANS FOR DETAILS)
100mm REINFORCED CONCRETE
50mm DGB20 BASE COURSE TO ENGINEER'S DETAIL
MARKER LAYER
EXISTING COMPACTED CONTAMINATED SUBGRADE

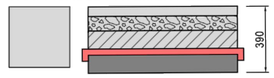
CULVERT REPLACEMENT ZONES



500mm VENM

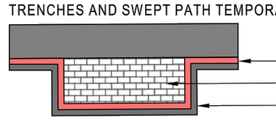
TOP OF REPLACED CULVERT
MARKER LAYER TO BELOW REPLACED CULVERT

TRAFFICABLE PAVEMENT ZONES



ASPHALT CAPPING 40mm
150mm COMPACTED DGB20 BASECOURSE
200mm COMPACTED DSG40 SUBBASE
MARKER LAYER
EXISTING COMPACTED CONTAMINATED SUBGRADE

TRENCHES AND SWEPT PATH TEMPORARY ROAD AREA



200mm/500mm CAPPING LAYER ABOVE DEPENDING ON PAVEMENT FINISH
NEW LAYER OF MAKER LAYER
DSG40 OR APPROVED EQUIVALENT FILL
CONTAMINATED SUBGRADE

DRAFT

revision	no.	description	drawn	approved	date
	A	ORIGINAL ISSUE			

5 0 5 10 15 20
Scale (metres) 1:400

SOURCE: SPC - 180168-SCP-CV-DWG-1302-REV 05 - 28/05/2019

drawn	AR / AW
approved	-
date	17/06/2019
scale	AS SHOWN
original size	A3

coffey
A TETRA TECH COMPANY

client: RICHARD CROOKES CONSTRUCTION PTY LTD

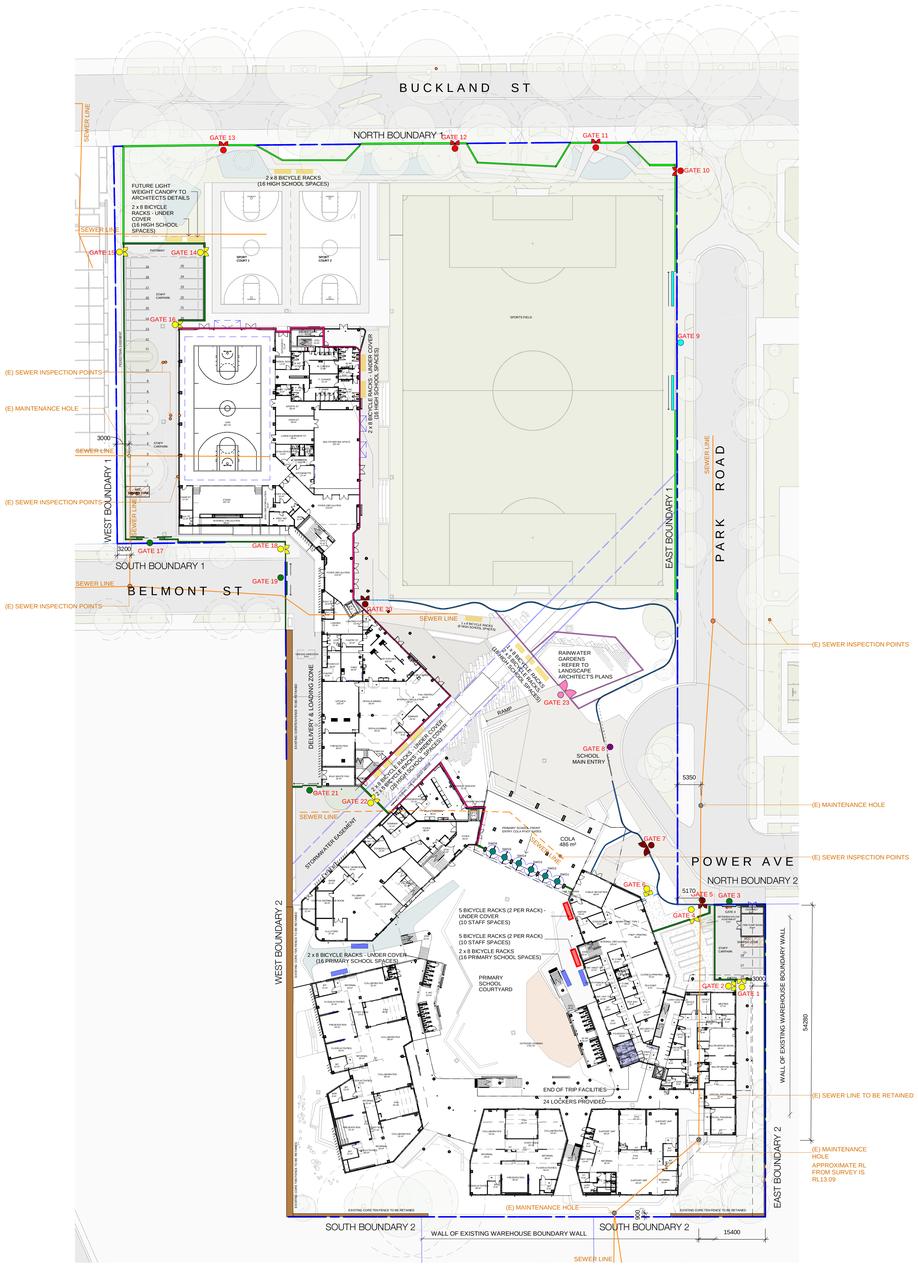
project: ALEXANDRIA PARK COMMUNITY SCHOOL
PARK ROAD, ALEXANDRIA, NSW

title: SITE CAPPING PLAN
SHEET 3 OF 3

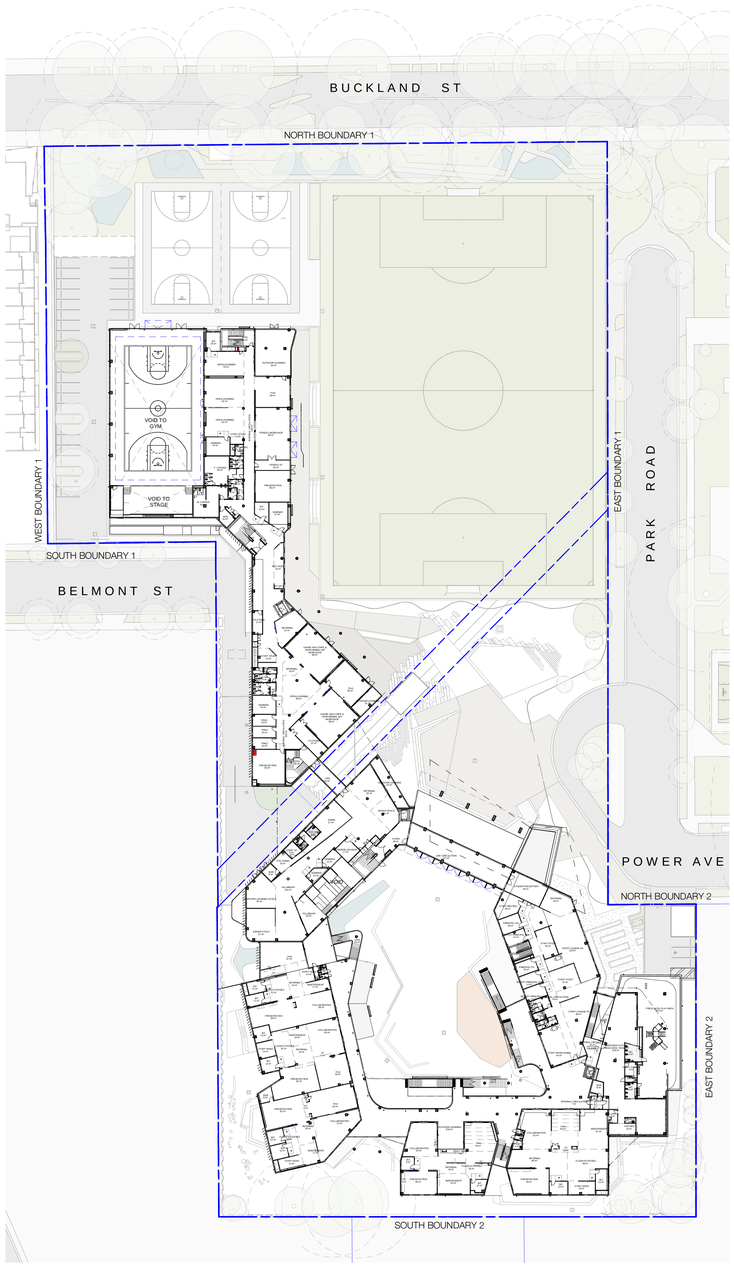
project no: 754-SYDEN224285-R02 | figure no: FIGURE 3C | rev: A

PLOT DATE: 17/06/2019 2:30:10 PM DWG FILE: F:\1. PROJECTS\1. SYDENENV\2018\SYDEN224285 APCS REDEVELOPMENT RICHARD CROOKES\CAD\754-SYDEN224285-R02.DWG

Appendix A - Design Drawings



1 GROUND FLOOR - CAMPUS PLAN
1 : 500



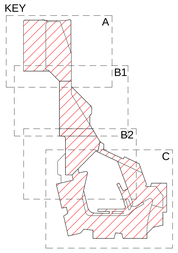
2 FIRST FLOOR - CAMPUS PLAN
1 : 500

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Rev	Date	Description	Checked	Auth.
A	08.05.19	Issue for Information	AH	AK
B	17.05.19	Issue For Information	AH	AK

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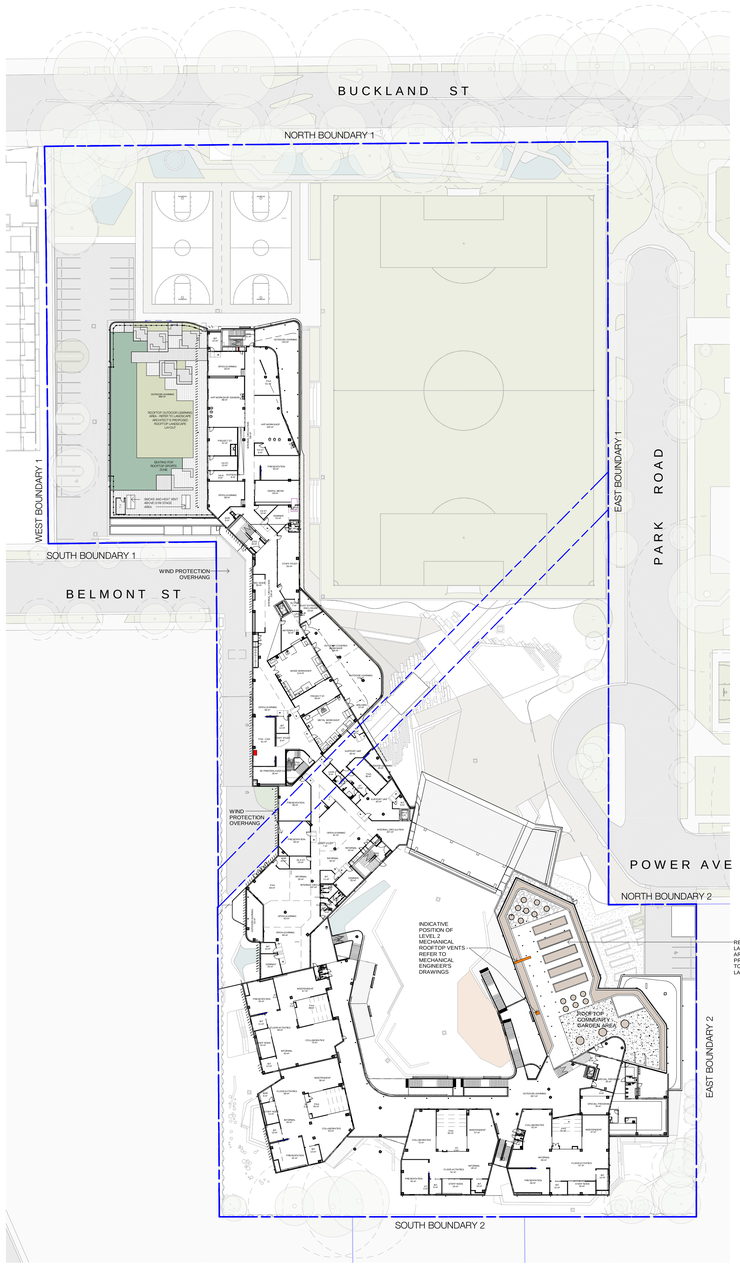
TKDArchitects
Tanner Kibble Denton

Project
Alexandria Park Community School

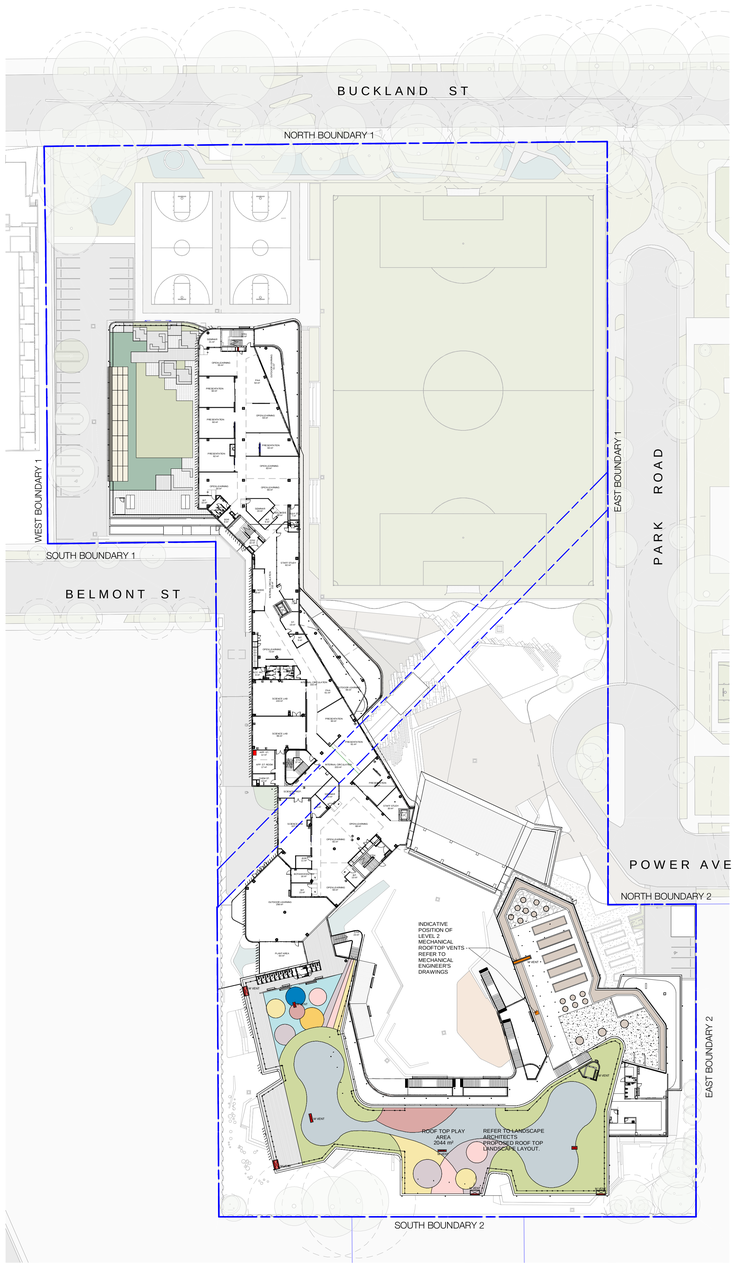
Drawing Title
CAMPUS PLANS - GROUND AND FIRST FLOORS

Proj. Dir	Proj. Arch	Drawn	
AK	AH	BO/HC	
Job No.	**Sheet**	**Scale**	**Date**
161044	A0	1 : 500	01/23/17

Drawing No. AR-CD-2001
Revision B



1 SECOND FLOOR - CAMPUS PLAN
1 : 500



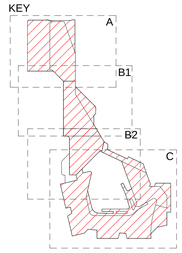
2 THIRD FLOOR - CAMPUS PLAN
1 : 500

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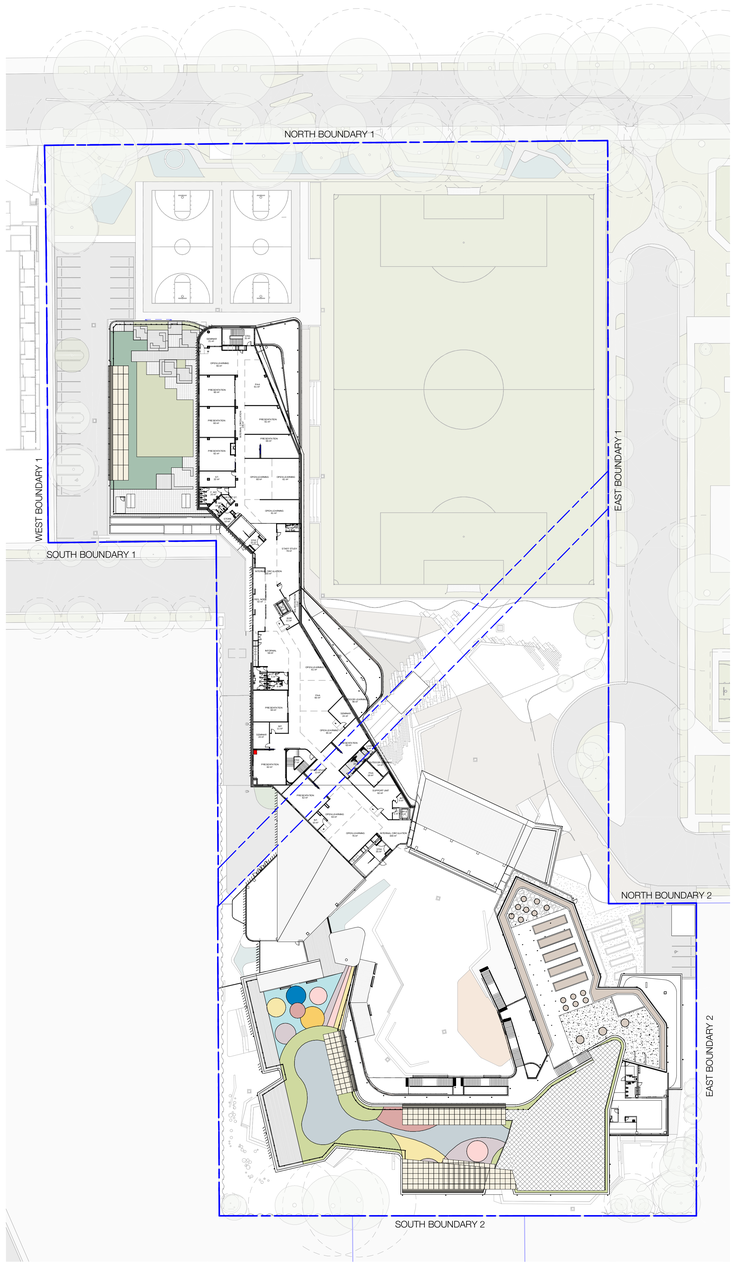
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Project
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Drawing Title
CAMPUS PLANS - SECOND AND THIRD FLOORS

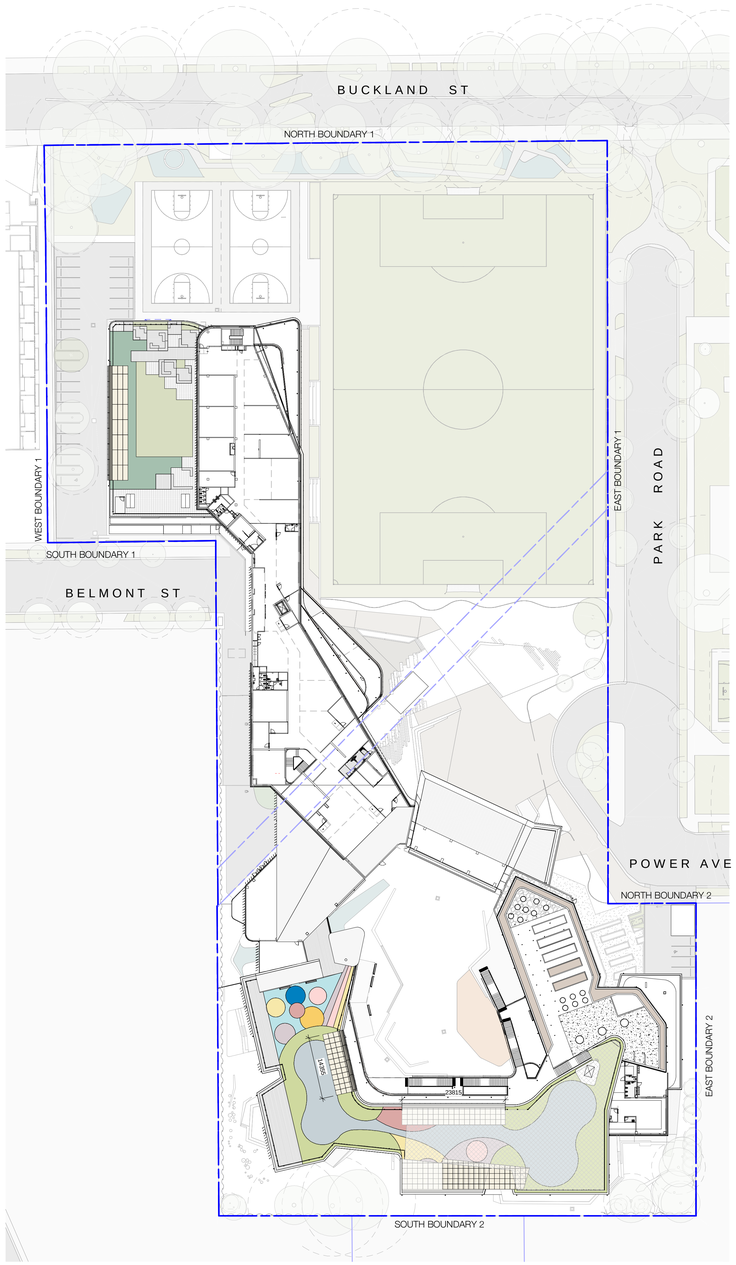
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Job No.	**Sheet**	**Scale**	**Date**
161044	A0	1 : 500	01/23/17

Drawing No. AR-CD-2002
Revision B



1 LEVEL 4 FLOOR PLAN - 1 to 500

1 : 500



2 ROOF PLAN - 1 to 500

1 : 500

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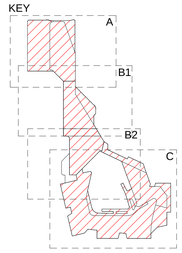
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B	17.05.19	Issue For Information	AH	AK

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Drawing Title

CAMPUS PLANS - FOURTH FLOOR AND ROOF

Proj. Dir	Proj. Arch	Drawn	
AK	AH	BO/HC	
Job No.	**Sheet**	**Scale**	**Date**
161044	A0	1 : 500	01/23/17

Drawing No. AR-CD-2003

Revision B

SHEET IN COLOUR - PRINT ALL COPIES IN COLOUR

ID	Botanical Name	Common Name	Mature Height	Mature Spread	Pot Size	Rate/Spacing	Ratio	Qty
PLANTING ZONE A: Fitness Trail Buckland Street								
Area:	**872.86m2**							
S Ts	Small-Forestry Tubestock		0.3m	0.1m	Ts	6 Plants/sq m	50%	2619
M 140mm	Medium-Grass,Shrub,Fern		0.3m	0.3m	140mm	4 Plants/sq m	35%	1222
L 200mm	Large-Grass,Shrub,Fern		0.6m	0.6m	200mm	2 Plants/sq m	15%	262
ACAlim	Acacia cognata 'Limelight'	Limelight	0.5m	0.5m	150mm	0 Plants/sq m		
ASPaus	Asplenium australasicum	Birds Nest Fern	1.2m	1.0m	300mm	0 Plants/sq m		
ASPnid	Asplenium nidus	Birds Nest Fern	1.2m	1.0m	300mm	0 Plants/sq m		
BAUrub	Bauera rubioides	River dog rose	1.0m	0.8m	200mm	0 Plants/sq m		
BORser	Boronia serrulata	Native rose	1.0m	0.8m	200mm	0 Plants/sq m		
CAScou	Casuarina glauca 'Cousin It'	Casuarina 'Cousin It'	0.1m	0.5m	200mm	0 Plants/sq m		
CLImin	Clivia miniata	Bush Lily	0.6m	0.5m	140mm	0 Plants/sq m		
CRIped	Crinum pedunculatum	Swamp Lily, River Lily	2.0m	0.7m	300mm	0 Plants/sq m		
CROexe	Crowea exalata	Waxflower	1.0m	0.6m	200mm	0 Plants/sq m		
DIArev	Dianella revoluta 'Little Rev'	Blue Flax-lily	0.4m	0.4m	140mm	0 Plants/sq m		
HIBsca	Hibbertia scandens	Climbing Guinea flowers	3.0m	2.5m	140mm	0 Plants/sq m		
LOMcon	Lomandra confertifolia	Mat-rush	0.4m	0.4m	Tubestock	0 Plants/sq m		
LOMhys	Lomandra hystrix	Mat Rush	1.0m	1.5m	Native Tube	0 Plants/sq m		
PLAlan	Platysace lanceolata 'Edna Walling Flower Girl'	Edna Walling Flower Gir	1.0m	0.5m		0 Plants/sq m		
RULher	Rulingia hermanniifolia	Wrinkled Kerrawang	1.0m	0.5m		0 Plants/sq m		
PLANTING ZONE B: Park Road Entry with Eastern Suburbs Banksia Shrub Species								
Area:	**495.69m2**							
L 200mm	L 200mm	Large-Grass,Shrub,Fern	0	0.6m	0.6m	200mm	2 Plants/sq m	30%
M 140mm	M 140mm	Medium-Grass,Shrub,Fern	0	0.3m	0.3m	140mm	4 Plants/sq m	40%
S Ts	S Ts	Small-Forestry Tubestock	0	0.3m	0.1m	Ts	6 Plants/sq m	30%
ACTmin	Actinotus minor	Lesser flannel flowwer	1.0m	0.5m		0 Plants/sq m		
BAEimb	Baeckea imbricata	Heath myrtle	1.0m	0.5m		0 Plants/sq m		
BANeri	Banksia ericifolia	Heath-leaved Banksia	4.0m	3.0m	200mm	0 Plants/sq m		
BANobl	Banksia oblongifolia	Fern-leaved Banksia	1.3m	1.1m	200mm	0 Plants/sq m		
BANrob	Banksia robur	Swamp Banksia, Large-leaf Banks	1.5m	1.5m	140mm	0 Plants/sq m		
BANhon	Banksia spinulosa 'Honey Pot'	Honey Pot Banksia	0.9m	0.9m	140mm	0 Plants/sq m		
CAScou	Casuarina glauca 'Cousin It'	Casuarina 'Cousin It'	0.1m	0.5m	200mm	0 Plants/sq m		
CHRdes	Chrysocephalum apiculatum 'Desert Flame'	Yellow Buttons	0.2m	0.5m	140mm	0 Plants/sq m		
DARfas	Darwinia fascicularis	Darwinia	1.0m	0.5m		0 Plants/sq m		
DIArev	Dianella revoluta 'Little Rev'	Blue Flax-lily	0.4m	0.4m	140mm	0 Plants/sq m		
EREgla	Eremophila glabra 'Kalbarri Carpet'	Kalbarri Carpet	0.2m	0.7m	140mm	0 Plants/sq m		
ERIaus	Eriostemon australasius	Pink Wax flower	1.5m	0.8m	300mm	0 Plants/sq m		
GREgol	Grevillea juniperina 'Gold Cluster'	Grevillea	0.3m	1.0m		0 Plants/sq m		
GYMsph	Gymnoschoenus sphaerocephalus	Button grass	1.0m	0.5m		0 Plants/sq m		
LEPjun	Leptospermum juniperinum	Prickly Tea Tree	1.0m	0.5m		0 Plants/sq m		
LEPhor	Leptospermum juniperinum 'Horizontalis'	Leptospermum 'Horizontalis	1.0m	0.5m		0 Plants/sq m		
LEPsqu	Leptospermum squarrosum	Pink Tea Tree	1.0m	0.5m		0 Plants/sq m		
LOMcon	Lomandra confertifolia	Mat-rush	0.4m	0.4m	Tubestock	0 Plants/sq m		
LOMgla	Lomandra glauca 'Aussie Blue Grass'	Aussie Blue Grass	1.0m	1.5m	Native Tube	0 Plants/sq m		
LOMtan	Lomandra longifolia 'Tanika'	Lomandra	0.6m	0.6m	Tubestock	0 Plants/sq m		
MELthy	Melaleuca thymifolia	Thyme Honey-myrtle	0.8m	0.8m	200mm	0 Plants/sq m		
MONell	Monotoca elliptica	Broom Heath	1.0m	0.5m		0 Plants/sq m		
MYOyar	Myoporum parvifolium 'Yareena'	Carpet Spreading Myoporum	0.2m	0.5m	140mm	0 Plants/sq m		
PHIbux	Philotheca buxifolia	Box-Leaf Wax flower	1.5m	0.8m	300mm	0 Plants/sq m		
PIMlin	Pimelea linifolia	Flax-leafed riceflower	1.0m	0.5m		0 Plants/sq m		
PLAlan	Platysace lanceolata 'Edna Walling Flower Girl'	Edna Walling Flower Gir	1.0m	0.5m		0 Plants/sq m		
RHAfla	Rhagodia spinescens 'Aussie Flat Bush'	Aussie Flat Bush	0.5m	1.0m	200mm	0 Plants/sq m		
RULher	Rulingia hermanniifolia	Wrinkled Kerrawang	1.0m	0.5m		0 Plants/sq m		
THEaus	Themeda australis	Kangaroo grass	1.0m	0.5m		0 Plants/sq m		
XYLpyr	Xylomelum pyriforme	Woody pear	1.0m	0.5m		0 Plants/sq m		
XYRgra	Xyris gracilis	Slender Yellow-eye	1.0m	0.5m		0 Plants/sq m		
PLANTING ZONE C: Belmont Street Car Park Planting								
Area:	**37.31m2**							
L 200mm	L 200mm	Large-Grass,Shrub,Fern	0	0.6m	0.6m	200mm	2 Plants/sq m	10%
M 140mm	M 140mm	Medium-Grass,Shrub,Fern	0	0.3m	0.3m	140mm	4 Plants/sq m	60%
S Ts	S Ts	Small-Forestry Tubestock	0	0.3m	0.1m	Ts	6 Plants/sq m	30%
BANcoa	Banksia spinulosa 'Coastal Cushion'	Coastal Cushion	0.9m	0.9m	140mm	0 Plants/sq m		
LOMcon	Lomandra confertifolia	Mat-rush	0.4m	0.4m	Tubestock	0 Plants/sq m		
RULher	Rulingia hermanniifolia	Wrinkled Kerrawang	1.0m	0.5m		0 Plants/sq m		
PLANTING ZONE D: Sportsfield Bleacher Planting								
Area:	**106.36m2**							
L 200mm	Large-Grass,Shrub,Fern		0.6m	0.6m	200mm	2 Plants/sq m	25%	53
M 140mm	Medium-Grass,Shrub,Fern		0.3m	0.3m	140mm	4 Plants/sq m	400%	1702
S Ts	Small-Forestry Tubestock		0.3m	0.1m	Ts	6 Plants/sq m	35%	223
BANhon	Banksia spinulosa 'Honey Pot'	Honey Pot Banksia	0.9m	0.9m	140mm	0 Plants/sq m		
EREgla	Eremophila glabra 'Kalbarri Carpet'	Kalbarri Carpet	0.2m	0.7m	140mm	0 Plants/sq m		
HIBsca	Hibbertia scandens	Climbing Guinea flowers	3.0m	2.5m	140mm	0 Plants/sq m		
RULher	Rulingia hermanniifolia	Wrinkled Kerrawang	1.0m	0.5m		0 Plants/sq m		
PLANTING ZONE E: Wetland with indigenous Usage Focus								
Area:	**519.45m2**							
XL 45L	Large-Extra Large Shrub,Grass,Fern		1.0m	1.0m	45L	2 Plants/sq m	15%	156
L 200mm	Large-Grass,Shrub,Fern		0.6m	0.6m	200mm	3 Plants/sq m	30%	468
M 140mm	Medium-Grass,Shrub,Fern		0.3m	0.3m	140mm	4 Plants/sq m	30%	623
S Ts	Small-Forestry Tubestock		0.3m	0.1m	Ts	6 Plants/sq m	25%	779
ACTmin	Actinotus minor	Lesser flannel flowwer	1.0m	0.5m		0 Plants/sq m		
BANaem	Banksia aemula	Wallum Banksia	1.5m	1.5m	140mm	0 Plants/sq m		
BANobl	Banksia oblongifolia	Fern-leaved Banksia	1.3m	1.1m	200mm	0 Plants/sq m		
BANrob	Banksia robur	Swamp Banksia, Large-leaf Banks	1.5m	1.5m	140mm	0 Plants/sq m		
BANhon	Banksia spinulosa 'Honey Pot'	Honey Pot Banksia	0.9m	0.9m	140mm	0 Plants/sq m		
BILsca	Billardiera scandens	Apple berry	1.0m	0.5m		0 Plants/sq m		
BULbul	Bulbine bulbosa	Bulbine Lily	0.5m	0.3m	140mm	0 Plants/sq m		
BURumb	Burchardia umbellata	Milkmaids	1.0m	0.5m		0 Plants/sq m		
DIAcon	Dianella congesta	Beach Flax lily	0.4m	0.4m	140mm	0 Plants/sq m		
DORexc	Doryanthes excelsa	Gymea Lily	3.0m	1.5m	140mm	0 Plants/sq m		
FICnod	Ficinia nodosa	knobby club-rush	0.5m	0.5m	Native Tube	0 Plants/sq m		
GOOpan	Goodenia paniculata	Braches goodeina	1.0m	0.5m		0 Plants/sq m		
GREgol	Grevillea juniperina 'Gold Cluster'	Grevillea	0.3m	1.0m		0 Plants/sq m		
GYMsph	Gymnoschoenus sphaerocephalus	Button grass	1.0m	0.5m		0 Plants/sq m		
ISOcer	Isolepis cernua	Low bulrush	0.5m	0.5m	Native Tube	0 Plants/sq m		
JUNkra	Juncus kraussi	Salt marsh reed	1.0m	0.5m		0 Plants/sq m		
LEPhor	Leptospermum juniperinum 'Horizontalis'	Leptospermum 'Horizontalis	1.0m	0.5m		0 Plants/sq m		
LOMtan	Lomandra longifolia 'Tanika'	Lomandra	0.6m	0.6m	Tubestock	0 Plants/sq m		
MELsqu	Melaleuca squamea	Swamp honey myrtle	1.0m	0.5m		0 Plants/sq m		
MELthy	Melaleuca thymifolia	Thyme Honey-myrtle	0.8m	0.8m	200mm	0 Plants/sq m		
MONell	Monotoca elliptica	Broom Heath	1.0m	0.5m		0 Plants/sq m		
MYOyar	Myoporum parvifolium 'Yareena'	Carpet Spreading Myoporum	0.2m	0.5m	140mm	0 Plants/sq m		
PELaus	Pelargonium australe	Austral storksbill	1.0m	0.5m		0 Plants/sq m		
PERlin	Persoonia linearis	Narrow-leaved geebung	1.0m	0.5m		0 Plants/sq m		
PLAlan	Platysace lanceolata 'Edna Walling Flower Girl'	Edna Walling Flower Gir	1.0m	0.5m		0 Plants/sq m		
PTEesc	Pteridium esculentum	Austral bracken	1.0m	0.5m		0 Plants/sq m		
RHAfla	Rhagodia spinescens 'Aussie Flat Bush'	Aussie Flat Bush	0.5m	1.0m	200mm	0 Plants/sq m		
RULher	Rulingia hermanniifolia	Wrinkled Kerrawang	1.0m	0.5m		0 Plants/sq m		
TETtet	Tetragonia tetragonioides	Warrigal greens	1.0m	0.5m		0 Plants/sq m		
THYtub	Thysanotus tuberosus	Common fringe-lily	1.0m	0.5m		0 Plants/sq m		
XANres	Xanthorrhoea resinosa	Grass tree	1.0m	0.5m	45L	0 Plants/sq m		
XYLpyr	Xylomelum pyriforme	Woody pear	1.0m	0.5m		0 Plants/sq m		

ID	Botanical Name	Common Name	Mature Height	Mature Spread	Pot Size	Rate/Spacing	Ratio	Qty
PLANTING ZONE F: Raingarden and Fern Gully								
Area:	**226.76m2**							
XL 45L	Large-Extra Large Shrub,Grass,Fern		1.0m	1.0m	45L	1 Plants/sq m	10%	23
L 200mm	Large-Grass,Shrub,Fern		0.6m	0.6m	200mm	2 Plants/sq m	20%	91
M 140mm	Medium-Grass,Shrub,Fern		0.3m	0.3m	140mm	4 Plants/sq m	30%	272
S Ts	Small-Forestry Tubestock		0.3m	0.1m	Ts	6 Plants/sq m	40%	544
ALPcae	Alpinia caerulea	Native Ginger	2.0m	1.5m	200mm	0 Plants/sq m		
ASPaus	Asplenium australasicum	Birds Nest Fern	1.2m	1.0m	300mm	0 Plants/sq m		
BANaem	Banksia aemula	Wallum Banksia	1.5m	1.5m	140mm	0 Plants/sq m		
CHOcym	Chorizandra cymbaria	Heron bristle rush	1.0m	0.5m		0 Plants/sq m		
CHRdes	Chrysocephalum apiculatum 'Desert Flame'	Yellow Buttons	0.2m	0.5m	140mm	0 Plants/sq m		
DENspe	Dendrobium speciosum	Rock Orchid, King Orchid	2.7m	1.0m	140mm	0 Plants/sq m		
DOOasp	Doodia aspera	Prickly Rasp Fern	0.7m	0.2m	140mm	0 Plants/sq m		
DORexc	Doryanthes excelsa	Gymea Lily	3.0m	1.5m	140mm	0 Plants/sq m		
EPAobt	Epacris obtusifolia	Common Heath	1.0m	0.5m		0 Plants/sq m		
FICnod	Ficinia nodosa	knobby club-rush	0.5m	0.5m	Native Tube	0 Plants/sq m		
GYMsph	Gymnoschoenus sphaerocephalus	Button grass	1.0m	0.5m		0 Plants/sq m		
HELgla	Helmholtzia glaberrima	Stream Lily	1.5m	1.0m	140mm	0 Plants/sq m		
HIStri	Histiopteris incisa	Water Fern	1.0m	0.5m		0 Plants/sq m		
ISOcer	Isolepis cernua	Low bulrush	0.5m	0.5m	Native Tube	0 Plants/sq m		
JUNkra	Juncus kraussi	Salt marsh reed	1.0m	0.5m		0 Plants/sq m		
RHAfla	Rhagodia spinescens 'Aussie Flat Bush'	Aussie Flat Bush	0.5m	1.0m	200mm	0 Plants/sq m		
PLANTING ZONE G: Shady Fern Garden								
Area:	**410.91m2**							
XL 45L	Large-Extra Large Shrub,Grass,Fern		1.0m	1.0m	45L	1 Plants/sq m	15%	61
L 200mm	Large-Grass,Shrub,Fern		0.6m	0.6m	200mm	2 Plants/sq m	20%	164
M 140mm	Medium-Grass,Shrub,Fern		0.3m	0.3m	140mm	4 Plants/sq m	40%	657
S Ts	Small-Forestry Tubestock		0.3m	0.1m	Ts	6 Plants/sq m	25%	616
ALPcae	Alpinia caerulea	Native Ginger	2.0m	1.5m	200mm	0 Plants/sq m		
ASPaus	Asplenium australasicum	Birds Nest Fern	1.2m	1.0m	300mm	0 Plants/sq m		
ASPnid	Asplenium nidus	Birds Nest Fern	1.2m	1.0m	300mm	0 Plants/sq m		
ATRfit	Atractocarpus fitzalani	Yellow mangosteen	1.0m	0.5m		0 Plants/sq m		
BLEind	Blechnum indicum	Swamp water fern	1.0m	0.5m		0 Plants/sq m		
BLEnud	Blechnum nudum	Fishbone Water Fern	0.5m	0.5m	140mm	0 Plants/sq m		
CALdub	Calochlaena dubia	False bracken	1.0m	0.5m		0 Plants/sq m		
CYAcoo	Cyathea cooperi	Scaly Tree Fern, Coin Pod Tree Fe	13.0m	0.8m	45L	0 Plants/sq m		
DAVjer	Davidsonia jerseyana	Davidson's Plum	1.0m	0.5m		0 Plants/sq m		
DIArev	Dianella revoluta 'Little Rev'	Blue Flax-lily	0.4m	0.4m	140mm	0 Plants/sq m		
DICrep	Dichondra repens	Kidney Weed	0.2m	0.3m		0 Plants/sq m		
DICant	Dicksonia antarctica	Soft Tree Fern	4.0m	5.0m		0 Plants/sq m		
DOOasp	Doodia aspera	Prickly Rasp Fern	0.7m	0.2m	140mm	0 Plants/sq m		
HELgla	Helmholtzia glaberrima	Stream Lily	1.5m	1.0m	140mm	0 Plants/sq m		
LOMcon	Lomandra confertifolia	Mat-rush	0.4m	0.4m	Tubestock	0 Plants/sq m		
LOMhys	Lomandra hystrix	Mat Rush	1.0m	1.5m	Native Tube	0 Plants/sq m		
PLAbif	Platycerium bifurcatum	Elkhorn	1.0m	0.5m		0 Plants/sq m		
PLAsup	Platycerium superbum	Staghorn	1.0m	0.5m		0 Plants/sq m		
SCLbif	Scleranthus biflorus	Cushion-bush	1.0m	0.5m		0 Plants/sq m		
TELsha	Telopdea 'Shady Lady' crimson	Waratah	1.0m	1.6m	300mm	0 Plants/sq m		
VIOhed	Viola hederacea	Native Violet	0.2m	1.8m		0 Plants/sq m		
XYLpyr	Xylomelum pyriforme	Woody pear	1.0m	0.5m		0 Plants/sq m		
PLANTING ZONE H: Palm Grove								
Area:	**257.26m2**							
L 200mm	Large-Grass,Shrub,Fern		0.6m	0.6m	200mm	2 Plants/sq m	30%	154
M 140mm	Medium-Grass,Shrub,Fern		0.3m	0.3m	140mm	4 Plants/sq m	35%	360
S Ts	Small-Forestry Tubestock		0.3m	0.1m	Ts	6 Plants/sq m	35%	540
ALPcae	Alpinia caerulea	Native Ginger	2.0m	1.5m	200mm	0 Plants/sq m		
ASPaus	Asplenium australasicum	Birds Nest Fern	1.2m	1.0m	300mm	0 Plants/sq m		
ASPnid	Asplenium nidus	Birds Nest Fern	1.2m	1.0m	300mm	0 Plants/sq m		
BLEnud	Blechnum nudum	Fishbone Water Fern	0.5m	0.5m	140mm	0 Plants/sq m		
CANtro	Canna 'Tropicanna'	Canna	1.0m	0.5m		0 Plants/sq m		
CRIped	Crinum pedunculatum	Swamp Lily, River Lily	2.0m	0.7m	300mm	0 Plants/sq m		
DENspe	Dendrobium speciosum	Rock Orchid, King Orchid	2.7m	1.0m	140mm	0 Plants/sq m		
DIArev	Dianella revoluta 'Little Rev'	Blue Flax-lily	0.4m	0.4m	140mm	0 Plants/sq m		
DICrep	Dichondra repens	Kidney Weed	0.2m	0.3m		0 Plants/sq m		
DORexc	Doryanthes excelsa	Gymea Lily	3.0m	1.5m	140mm	0 Plants/sq m		
PLAsup	Platycerium superbum	Staghorn	1.0m	0.5m		0 Plants/sq m		
RULher	Rulingia hermanniifolia	Wrinkled Kerrawang	1.0m	0.5m		0 Plants/sq m		
SCLbif	Scleranthus biflorus	Cushion-bush	1.0m	0.5m		0 Plants/sq m		-
PLANTING ZONE I: Preschool Garden								
Area:	**671.63m2**							
XL 45L	Large-Extra Large Shrub,Grass,Fern		1.0m	1.0m	45L	1 Plants/sq m	15%	101
L 200mm	Large-Grass,Shrub,Fern		0.6m	0.6m	200mm	2 Plants/sq m	20%	268
M 140mm	Medium-Grass,Shrub,Fern		0.3m	0.3m	140mm	4 Plants/sq m	45%	1209
S Ts	Small-Forestry Tubestock		0.3m	0.1m	Ts	6 Plants/sq m	20%	805
ALPcae	Alpinia caerulea	Native Ginger	2.0m	1.5m	200mm	0 Plants/sq m		
ASPaus	Asplenium australasicum	Birds Nest Fern	1.2m	1.0m	300mm	0 Plants/sq m		
ASPnid	Asplenium nidus	Birds Nest Fern	1.2m	1.0m	300mm	0 Plants/sq m		
BLEind	Blechnum indicum	Swamp water fern	1.0m	0.5m		0 Plants/sq m		
BLEnud	Blechnum nudum	Fishbone Water Fern	0.5m	0.5m	140mm	0 Plants/sq m		
CALdub	Calochlaena dubia	False bracken	1.0m	0.5m		0 Plants/sq m		
CYAcoo	Cyathea cooperi	Scaly Tree Fern, Coin Pod Tree Fe	13.0m	0.8m	45L	0 Plants/sq m		
DIArev	Dianella revoluta 'Little Rev'	Blue Flax-lily	0.4m	0.4m	140mm	0 Plants/sq m		
DICrep	Dichondra repens	Kidney Weed	0.2m	0.3m		0 Plants/sq m		
DICant	Dicksonia antarctica	Soft Tree Fern	4.0m	5.0m		0 Plants/sq m		
DOOasp	Doodia aspera	Prickly Rasp Fern	0.7m	0.2m	140mm	0 Plants/sq m		
DORexc	Doryanthes excelsa	Gymea Lily	3.0m	1.5m	140mm	0 Plants/sq m		
HIBsca	Hibbertia scandens	Climbing Guinea flowers	3.0m	2.5m	140mm	0 Plants/sq m		
LOMcon	Lomandra confertifolia	Mat-rush	0.4m	0.4m	Tubestock	0 Plants/sq m		
LOMgla	Lomandra glauca 'Aussie Blue Grass'	Aussie Blue Grass	1.0m	1.5m	Native Tube	0 Plants/sq m		
MYOyar	Myoporum parvifolium 'Yareena'	Carpet Spreading Myoporum	0.2m	0.5m	140mm	0 Plants/sq m		
PLAbif	Platycerium bifurcatum	Elkhorn	1.0m	0.5m		0 Plants/sq m		
PLAsup	Platycerium superbum	Staghorn	1.0m	0.5m		0 Plants/sq m		
SCLbif	Scleranthus biflorus	Cushion-bush	1.0m	0.5m		0 Plants/sq m		
TELsha	Telopdea 'Shady Lady' crimson	Waratah	1.0m	1.6m	300mm	0 Plants/sq m		
VIOhed	Viola hederacea	Native Violet	0.2m	1.8m		0 Plants/sq m		
PLANTING ZONE J: Community Garden Plots								
Area:	**58.88m2**							
L 200mm	Large-Grass,Shrub,Fern		0.6m	0.6m	200mm	2 Plants/sq m	20%	24
M 140mm	Medium-Grass,Shrub,Fern		0.3m	0.3m	140mm	4 Plants/sq m	30%	72
S Ts	Small-Forestry Tubestock		0.3m	0.1m	Ts	6 Plants/sq m	50%	177
BETvul	Beta vulgaris	Beetroot	1.0m	0.5m		0 Plants/sq m		
CYMcit	Cymbopogon citratus	Lemon Grass	1.0m	0.5m		0 Plants/sq m		
LAUnob	Laurus nobilis	Bay Tree	1.0m	0.5m		0 Plants/sq m		
MENpip	Mentha piperita	Peppermint	1.0m	0.5m		0 Plants/sq m		
MICaus	Microcitrus australasica	Finger Lime	4.0m	3.0m		0 Plants/sq m		
OCIbas	Ocimum basilicum	Basil	1.0m	0.5m		0 Plants/sq m		
ORImaj	Origanum majorana	Marjoram	1.0m	0.5m		0 Plants/sq m		
ORIvul	Origanum vulgar	Oregano	1.0m	0.5m		0 Plants/sq m		
PASedu	Passiflora edulis	Passion Fruit	1.0m	0.5m		0 Plants/sq m		
PETcri	Petroselinum crispum	Parsley	1.0m	0.5m		0 Plants/sq m		
RHErha	Rheum rhabarbarum	Rhubarb	1.0m	0.5m		0 Plants/sq m		
ROSoff	Rosmarinus officinalis	Rosemary	2.5m	1.8m		0 Plants/sq m		
SPIole	Spinacia oleracea	Spinach	1.0m	0.5m		0 Plants/sq m		
THYcit	Thymus citriodorus	Lemmon Thyme	1.0m	0.5m		0 Plants/sq m		
THYvul	Thymus vulgaris	Common Thyme	1.0m	0.5m		0 Plants/sq m		

ID	Botanical Name	Common Name	Mature Height	Mature Spread	Pot Size	Rate/Spacing	Ratio	Qty
PLANTING ZONE K: Native Kitchen Garden								
Area:	**88.03m2**							
L 200mm	Large-Grass,Shrub,Fern		0.6m	0.6m	200mm	2 Plants/sq m	25%	44
M 140mm	Medium-Grass,Shrub,Fern		0.3m	0.3m	140mm	4 Plants/sq m	50%	176
S Ts	Small-Forestry Tubestock		0.3m	0.1m	Ts	6 Plants/sq m	25%	131
BULbul	Bulbine bulbosa	Bulbine Lily	0.5m	0.3m	140mm	0 Plants/sq m		
DAUglo	Daucus glochidiatus	Native Carrot	1.0m	0.5m		0 Plants/sq m		
DIAcon	Dianella congesta	Beach Flax lily	0.4m	0.4m	140mm	0 Plants/sq m		
MICaus	Microcitrus australasica	Finger Lime	4.0m	3.0m		0 Plants/sq m		
PELaus	Pelargonium australe	Austral storksbill	1.0m	0.5m		0 Plants/sq m		
PROinc	Prostanthera incisa	Native Thyme	1.0m	0.5m		0 Plants/sq m		
RHAfla	Rhagodia spinescens 'Aussie Flat Bush'	Aussie Flat Bush	0.5m	1.0m	200mm	0 Plants/sq m		
SOLcen	Solanum centrale	Bush Tomato	1.0m	0.5m		0 Plants/sq m		
TETtet	Tetragonia tetragonioides	Warrigal greens	1.0m	0.5m		0 Plants/sq m		
TRAinc	Trachymene incisa	Wild Parsnip	1.0m	0.5m		0 Plants/sq m		
PLANTING ZONE L: Belmont Street Entry								
Area:	**10.82m2**							
L 200mm	Large-Grass,Shrub,Fern		0.6m	0.6m	200mm	2 Plants/sq m		6
M 140mm	Medium-Grass,Shrub,Fern		0.3m	0.3m	140mm	4 Plants/sq m		30

ID	Botanical Name	Common Name	Mature Height	Mature Spread	Installation	Pot Size	Qty
PLANTING ZONE A: Fitness Trail Buckland Street							
PLANTING ZONE B: Park Road Entry with Eastern Suburbs Banksia Shrub Species							
TREES							
EUCter	Eucalyptus tereticornis	Forest Red Gum, Burringoa	30.0m	F7m		200L	6
LIVaus-t	Livistona australis	Cabbage-tree Palm	18.0m	F7m	3m clear trunk		4
TOOci	Toona ciliata	Red Cedar	30.0m	F7m		1000L	3
XANaus	Xanthorrhoea australis	Grass Tree	2.0m	F7m		45L	12
PLANTING ZONE C: Belmont Street Car Park Planting							
EUCter	Eucalyptus tereticornis	Forest Red Gum, Burringoa	30.0m	8.0m		200L	6
LIVaus-t	Livistona australis	Cabbage-tree Palm	18.0m	6.0m	3m clear trunk		4
TOOci	Toona ciliata	Red Cedar	30.0m	5.0m		1000L	3
XANaus	Xanthorrhoea australis	Grass Tree	2.0m	1.0m		45L	12
PLANTING ZONE D: Sportsfield Bleacher Planting							
FLaus	Flindersia australis	Crows Ash	12.0m	7.0m		200L	11
PLANTING ZONE E: Wetland with indigenous Usage Focus							
BANint	Banksia integrifolia	Coastal Banksia	9.0m	5.0m		75 Ltr	4
EUCter	Eucalyptus tereticornis	Forest Red Gum, Burringoa	30.0m	8.0m		200L	2
MELqui	Melaleuca quinquenervia	Broad-leafed Paperbark	15.0m	6.0m		75 Ltr	1
STEsin-	Stenocarpus sinuatus	Firewheel Tree	23.0m	10.0m		200L	3
PLANTING ZONE F: Raingarden and Fern Gully							
CYAcoo	Cyathea cooperi	Scaly Tree Fern, Coin Pod Tree Fe	13.0m	3.0m		45L	8
LIVaus-t	Livistona australis	Cabbage-tree Palm	18.0m	6.0m	3m clear trunk		4
PLANTING ZONE G: Shady Fern Garden							
BUCcel	Buckinghamia celsissima	Ivory Curl Tree	8.0m	4.5m		75L	4
CYAcoo	Cyathea cooperi	Scaly Tree Fern, Coin Pod Tree Fe	13.0m	3.0m		45L	8
TELspe	Telopea speciosissima	NSW Waratah	3.0m	3.0m		25L	3
PLANTING ZONE H: Palm Grove							
LIVaus-t	Livistona australis	Cabbage-tree Palm	18.0m	6.0m	3m clear trunk		18
PLANTING ZONE I: Preschool 'Avatar' Garden							
BUCcel	Buckinghamia celsissima	Ivory Curl Tree	8.0m	4.5m		75L	1
CALser	Callicoma serratifolia	Black Wattle	8.0m	4.5m		75L	5
CYAcoo	Cyathea cooperi	Scaly Tree Fern, Coin Pod Tree Fe	13.0m	3.0m		45L	3
TELspe	Telopea speciosissima	NSW Waratah	3.0m	3.0m		25L	3
PLANTING ZONE J: Community Garden Plots							
EUCter	Eucalyptus tereticornis	Forest Red Gum, Burringoa	30.0m	8.0m		200L	1
PLANTING ZONE K: Native Kitchen Garden							
EUCter	Eucalyptus tereticornis	Forest Red Gum, Burringoa	30.0m	8.0m		200L	1
PLANTING ZONE L: Belmont Street Entry							

B

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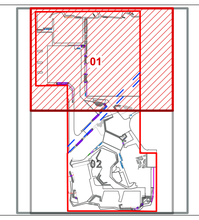
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LEGEND

- SITE / PROPERTY BOUNDARY
- T21 — EXISTING TREE TO BE RETAINED — TPZ SHOWN
- T41 — EXISTING TREE TO BE REMOVED
- PROPOSED TREE
- RL 13.75 — PROPOSED FINISHED GROUND LEVEL
- TW 13.75 — PROPOSED TOP OF WALL LEVEL
- MASSED PLANTING
- PT01a — PAVING TYPE 1 - Coloured Concrete — REFER TO MATERIALS SCHEDULE
- PT02 — PAVING TYPE 2 - Feature Paving — REFER TO MATERIALS SCHEDULE
- PT03 — PAVING TYPE 3 - Asphalt — REFER TO MATERIALS SCHEDULE
- PT04 — PAVING TYPE 4 - Feature Unit Paving — REFER TO MATERIALS SCHEDULE
- PT05 — PAVING TYPE 5 - Timber Decking — REFER TO MATERIALS SCHEDULE
- PT06 — PAVING TYPE 6 - Sandstone Crazy Pave — REFER TO MATERIALS SCHEDULE
- PT07 — PAVING TYPE 7 - FlexiPave — REFER TO MATERIALS SCHEDULE
- PT08 — PAVING TYPE 8 - Synthetic Turf (19mm) — REFER TO MATERIALS SCHEDULE
- PT09 — PAVING TYPE 9 - Synthetic Turf (25mm) — REFER TO MATERIALS SCHEDULE
- PT10 — PAVING TYPE 10 - Softfall — REFER TO MATERIALS SCHEDULE
- PT16 — PAVING TYPE 11 - Precast Concrete — REFER TO MATERIALS SCHEDULE
- PT12 — PAVING TYPE 12 - Granite Cobble — REFER TO MATERIALS SCHEDULE
- PT13 — PAVING TYPE 13 - Playground Mulch — REFER TO MATERIALS SCHEDULE
- PT14 — PAVING TYPE 14 - Exp. Aggr. Concrete — REFER TO MATERIALS SCHEDULE
- PT15 — PAVING TYPE 15 - Sandstone — REFER TO MATERIALS SCHEDULE
- W01 — WALL TYPE 1 - 300mm wide — REFER TO MATERIALS SCHEDULE
- W02 — WALL TYPE 2 - 200mm wide — REFER TO MATERIALS SCHEDULE
- W03 — WALL TYPE 3 - 600mm wide (W3a: 800mm) — REFER TO MATERIALS SCHEDULE
- W04 — WALL TYPE 4 - 480mm wide concrete — REFER TO MATERIALS SCHEDULE
- W05 — WALL TYPE 5 - 400mm wide — REFER TO MATERIALS SCHEDULE
- ED1 — EDGE TYPE 1 - Steel — REFER TO MATERIALS SCHEDULE
- ED2 — EDGE TYPE 2 - Concrete — REFER TO MATERIALS SCHEDULE
- PROPOSED GRATED DRAIN — REFER TO ENGINEER'S DETAILS
- ST01 — STAIR TYPE 1 — REFER TO MATERIALS SCHEDULE
- F01 — FENCE TYPE 1 - Sports Dynmic Fence — REFER TO MATERIALS SCHEDULE
- F02 — FENCE TYPE 2 - Bastille Fence — REFER TO MATERIALS SCHEDULE
- F03 — FENCE TYPE 3 - Relocated Palisade Fence — REFER TO MATERIALS SCHEDULE
- F04 — FENCE TYPE 4 - Existing Coreten Fence — REFER TO MATERIALS SCHEDULE
- F05 — FENCE TYPE 5 - New Palisade Fence — REFER TO MATERIALS SCHEDULE
- F06 — FENCE TYPE 6 - Safety Fence around Basi — TBC
- HR1a — HANDRAIL TYPE 1a - fixed to wall — TBC
- HR1b — HANDRAIL TYPE 1b - freestanding, fixed to ground surface — TBC
- BA1a — BALUSTRADE TYPE 1 - fixed to wall — TBC
- TACTILE INDICATORS — TBC

KEY PLAN



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NOT FOR CONSTRUCTION

ISSUE	DESCRIPTION	BY	APP'D	DATE
A	ISSUE FOR TENDER	CK	HD	28/8/18

NORTH / SCALE
Scale 1:250

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CLIENT NAME
DEPARTMENT OF EDUCATION

PROJECT
ALEXANDRIA PARK COMMUNITY SCHOOL
PARK ROAD, ALEXANDRIA 2015

DRAWING TITLE
GENERAL ARRANGEMENT 01 OF 02
GROUND FLOOR

CREATED	DATE	CHECKED	PROJECT STAGE	SHEET SIZE
CK	27/08/18	HD	TENDER	A1

PROJECT NUMBER	DRAWING NUMBER	ISSUE
16585	L-TD-031-00	A

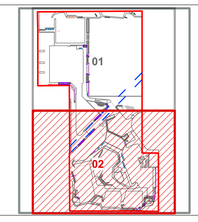
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- PT06 PAVING TYPE 6 - Sandstone Crazy Pave REFER TO MATERIALS SCHEDULE
- PT07 PAVING TYPE 7 - FlexiPave REFER TO MATERIALS SCHEDULE
- PT08 PAVING TYPE 8 - Synthetic Turf (19mm) REFER TO MATERIALS SCHEDULE
- PT09 PAVING TYPE 9 - Synthetic Turf (25mm) REFER TO MATERIALS SCHEDULE
- PT10 PAVING TYPE 10 - Softfall REFER TO MATERIALS SCHEDULE
- PT16 PAVING TYPE 11 - Precast Concrete REFER TO MATERIALS SCHEDULE
- PT12 PAVING TYPE 12 - Granite Cobble REFER TO MATERIALS SCHEDULE
- PT13 PAVING TYPE 13 - Playground Mulch REFER TO MATERIALS SCHEDULE
- PT14 PAVING TYPE 14 - Exp. Aggr. Concrete REFER TO MATERIALS SCHEDULE
- PT15 PAVING TYPE 15 - Sandstone REFER TO MATERIALS SCHEDULE
- W01 WALL TYPE 1 - 300mm wide REFER TO MATERIALS SCHEDULE
- W02 WALL TYPE 2 - 200mm wide REFER TO MATERIALS SCHEDULE
- W03 WALL TYPE 3 - 600mm wide (W3a: 800mm REFER TO MATERIALS SCHEDULE
- W04 WALL TYPE 4 - 480mm wide concrete REFER TO MATERIALS SCHEDULE
- W05 WALL TYPE 5 - 400mm wide REFER TO MATERIALS SCHEDULE
- ED1 EDGE TYPE 1 - Steel REFER TO MATERIALS SCHEDULE
- ED2 EDGE TYPE 2 - Concrete REFER TO MATERIALS SCHEDULE
- PROPOSED GRATED DRAIN REFER TO ENGINEER'S DETAILS
- ST01 STAIR TYPE 1 REFER TO MATERIALS SCHEDULE
- F01 FENCE TYPE 1 - Sports Dynmic Fence REFER TO MATERIALS SCHEDULE
- F02 FENCE TYPE 2 - Bastille Fence REFER TO MATERIALS SCHEDULE
- F03 FENCE TYPE 3 - Relocated Palisade Fence REFER TO MATERIALS SCHEDULE
- F04 FENCE TYPE 4 - Existing Coreten Fence REFER TO MATERIALS SCHEDULE
- F05 FENCE TYPE 5 - New Palisade Fence REFER TO MATERIALS SCHEDULE
- F06 FENCE TYPE 6 - Safety Fence around Basi TBC
- HR1a HANDRAIL TYPE 1a - fixed to wall TBC
- HR1b HANDRAIL TYPE 1b - freestanding, fixed to ground surface TBC
- BA1a BALUSTRADE TYPE 1 - fixed to wall TBC
- TACTILE INDICATORS TBC

KEY PLAN



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ISSUE	DESCRIPTION	BY	APP'D	DATE
A	ISSUE FOR TENDER	CK	HD	28/8/18

NORTH / SCALE
Scale 1:250
N

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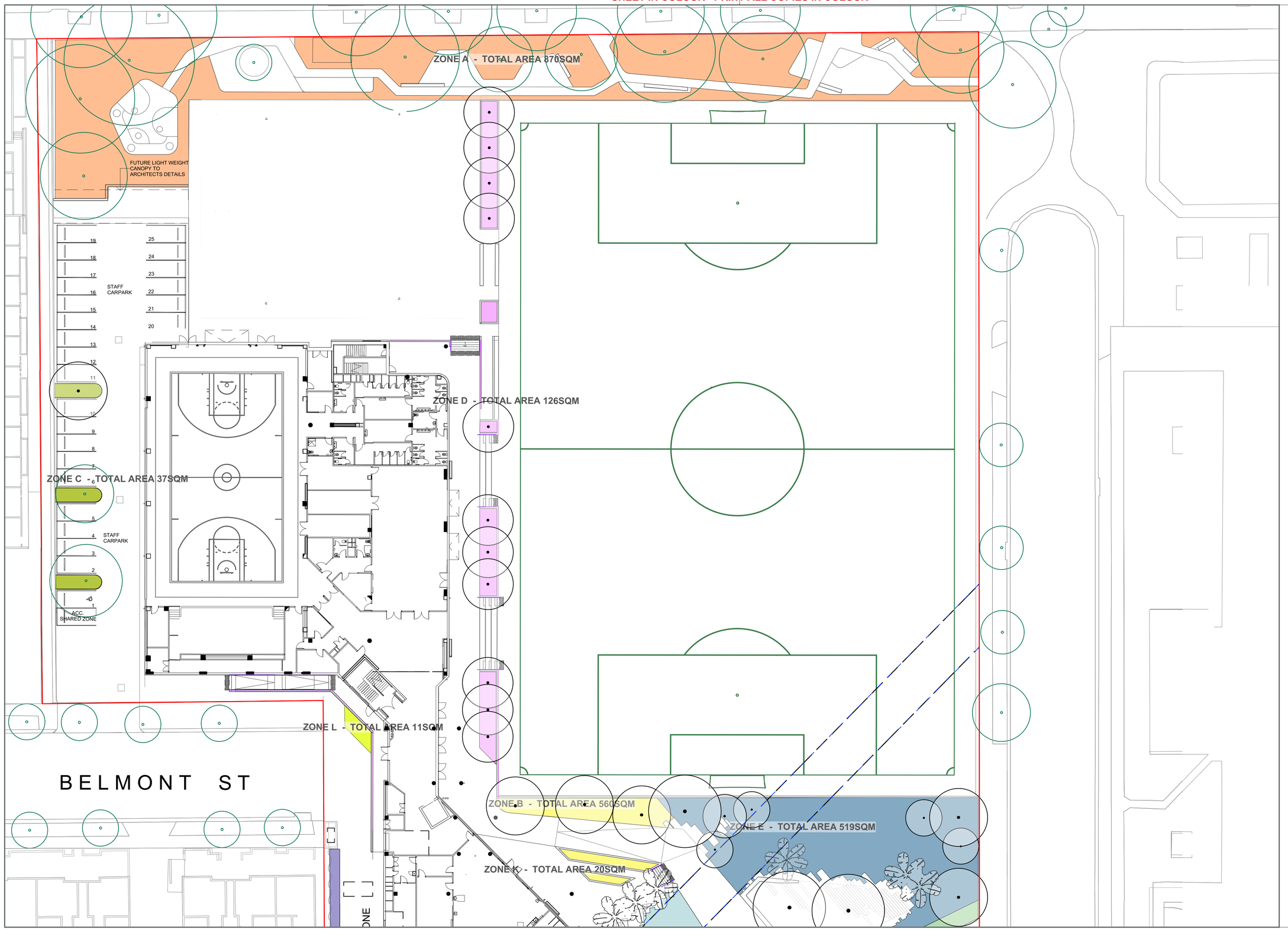
PROJECT
ALEXANDRIA PARK COMMUNITY SCHOOL
PARK ROAD, ALEXANDRIA 2015

DRAWING TITLE
GENERAL ARRANGEMENT 01 OF 02
GROUND FLOOR

CREATED	DATE	CHECKED	PROJECT STAGE	SHEET SIZE
CK	27/08/18	HD	TENDER	A1

PROJECT NUMBER	DRAWING NUMBER	ISSUE
16585	L-TD-032-00	A

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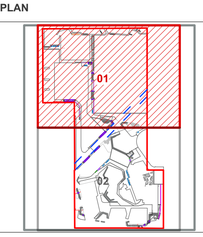


LEGEND

- **ZONE A - 870SQM** FITNESS POD - BUCKLAND STREET
- **ZONE B - 560SQM** PARK ROAD ENTRY WITH EASTERN SUBURBS BANKSIA SHRUB SPECIES
- **ZONE C - 37SQM** BELMONT ST CAR PARK PLANTING
- **ZONE D - 126SQM** SPORTS FIELD BLEACHER PLANTING
- **ZONE E - 519SQM** WETLAND WITH INDIGENOUS USAGE FOCUS
- **ZONE F - 227SQM** RAINGARDEN AND FERN GULLY
- **ZONE G - 269SQM** SHADY FERN GARDEN
- **ZONE H - 257SQM** PALM GROVE
- **ZONE I - 672SQM** PRESCHOOL 'AVATAR' GARDEN
- **ZONE J - 63SQM** COMMUNITY GARDEN PLOTS
- **ZONE K - 20SQM** NATIVE KITCHEN GARDEN
- **ZONE L - 11SQM** BELMONT ST ENTRY
- **PROPOSED TREE**
- **EXISTING TREE TO BE RETAINED**

NOTE. REFER TO SCHEDULES ON L-TD-022-00 FOR INDICATIVE SPECIES, QUANTITIES AND RATES

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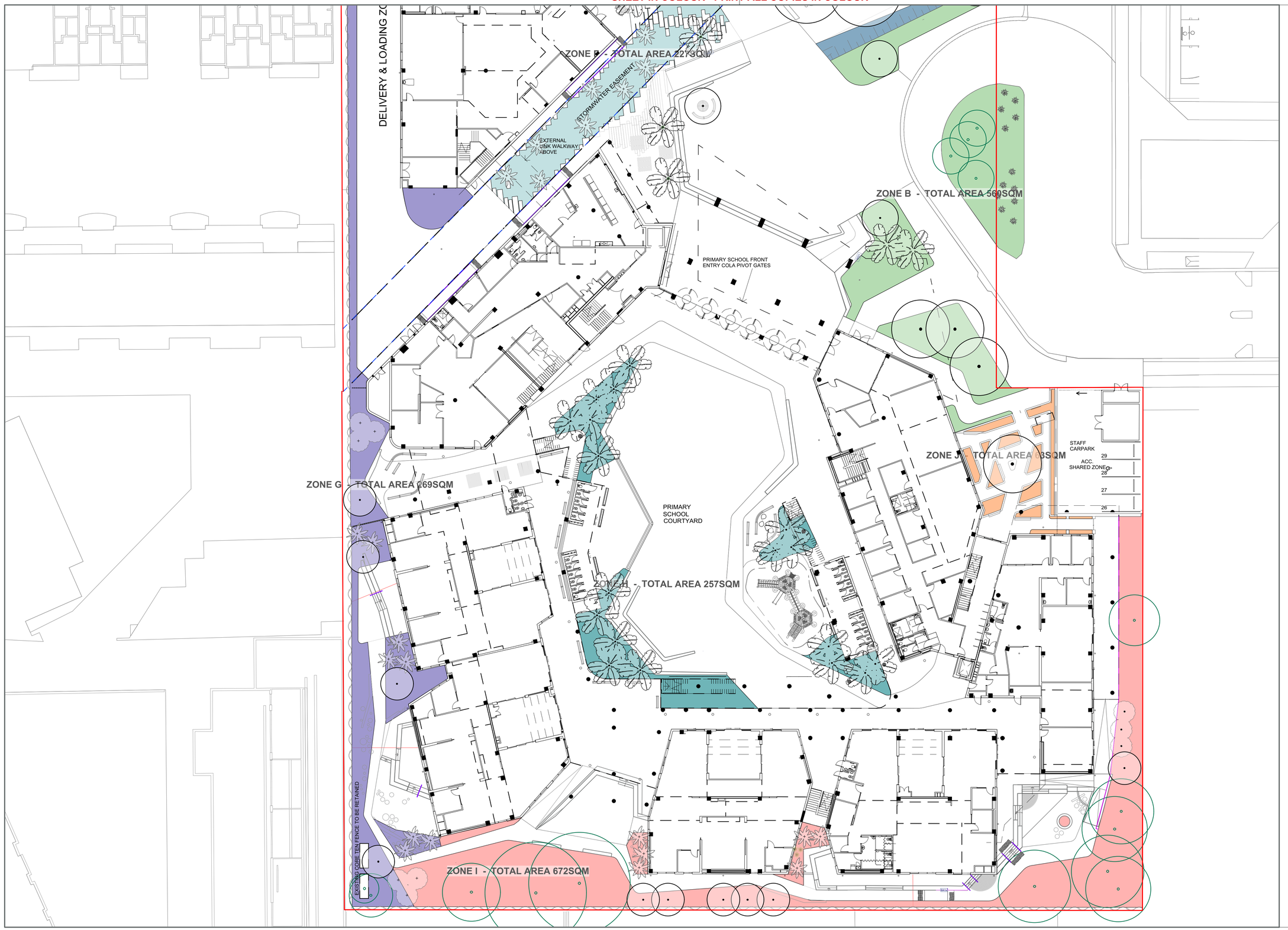
PROJECT
ALEXANDRIA PARK COMMUNITY SCHOOL
PARK ROAD, ALEXANDRIA 2015

DRAWING TITLE
PLANTING ZONES 01 OF 02
GROUND FLOOR

CREATED	DATE	CHECKED	PROJECT STAGE	SHEET SIZE
CK	27/08/18	HD	TENDER	A1

PROJECT NUMBER	DRAWING NUMBER	ISSUE
16585	L-TD-041-00	A

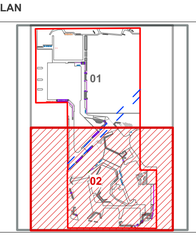
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LEGEND

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- ZONE B - 560SQM — PARK ROAD ENTRY WITH EASTERN SUBURBS BANKSIA SHRUB SPECIES
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KEY PLAN



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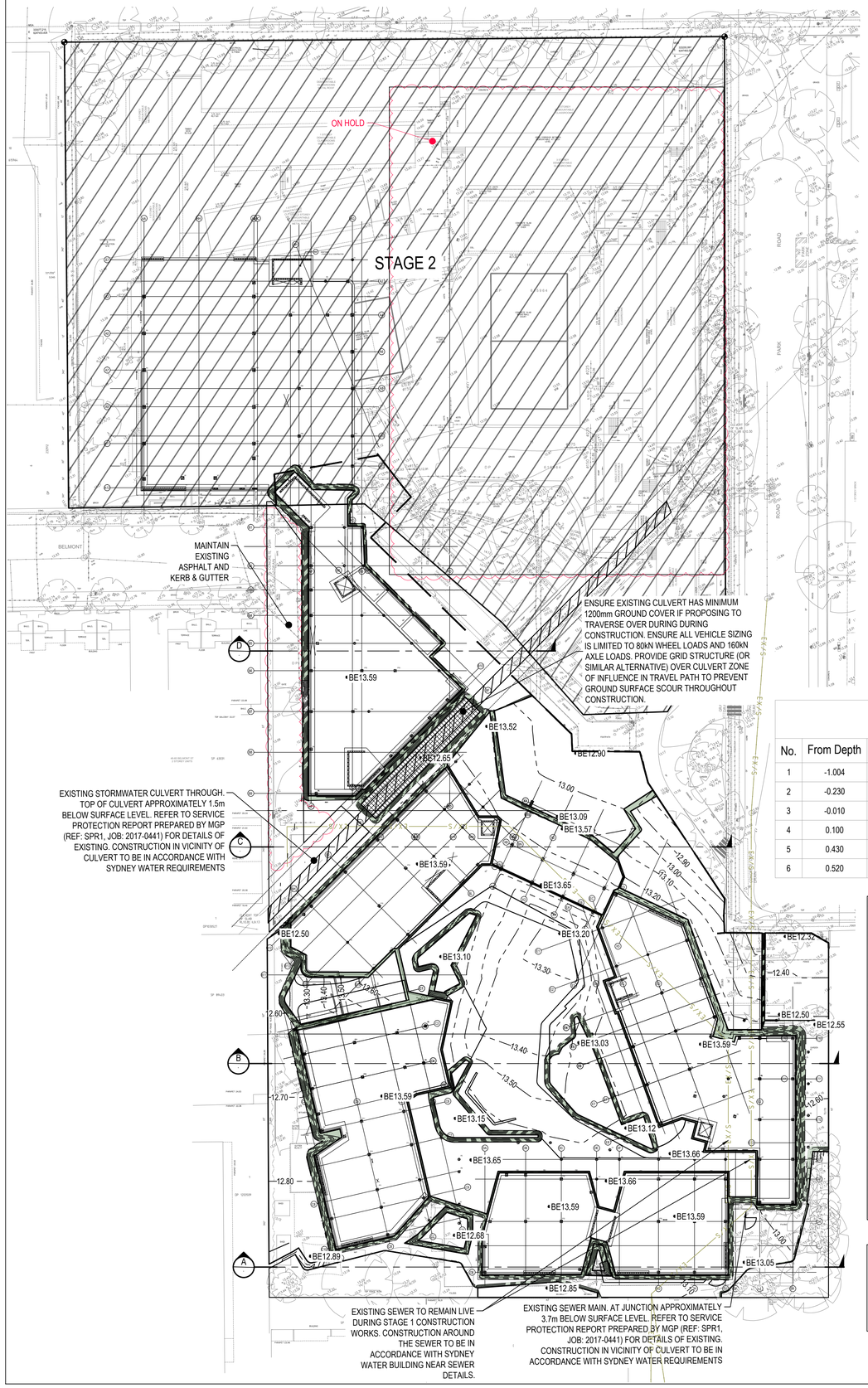
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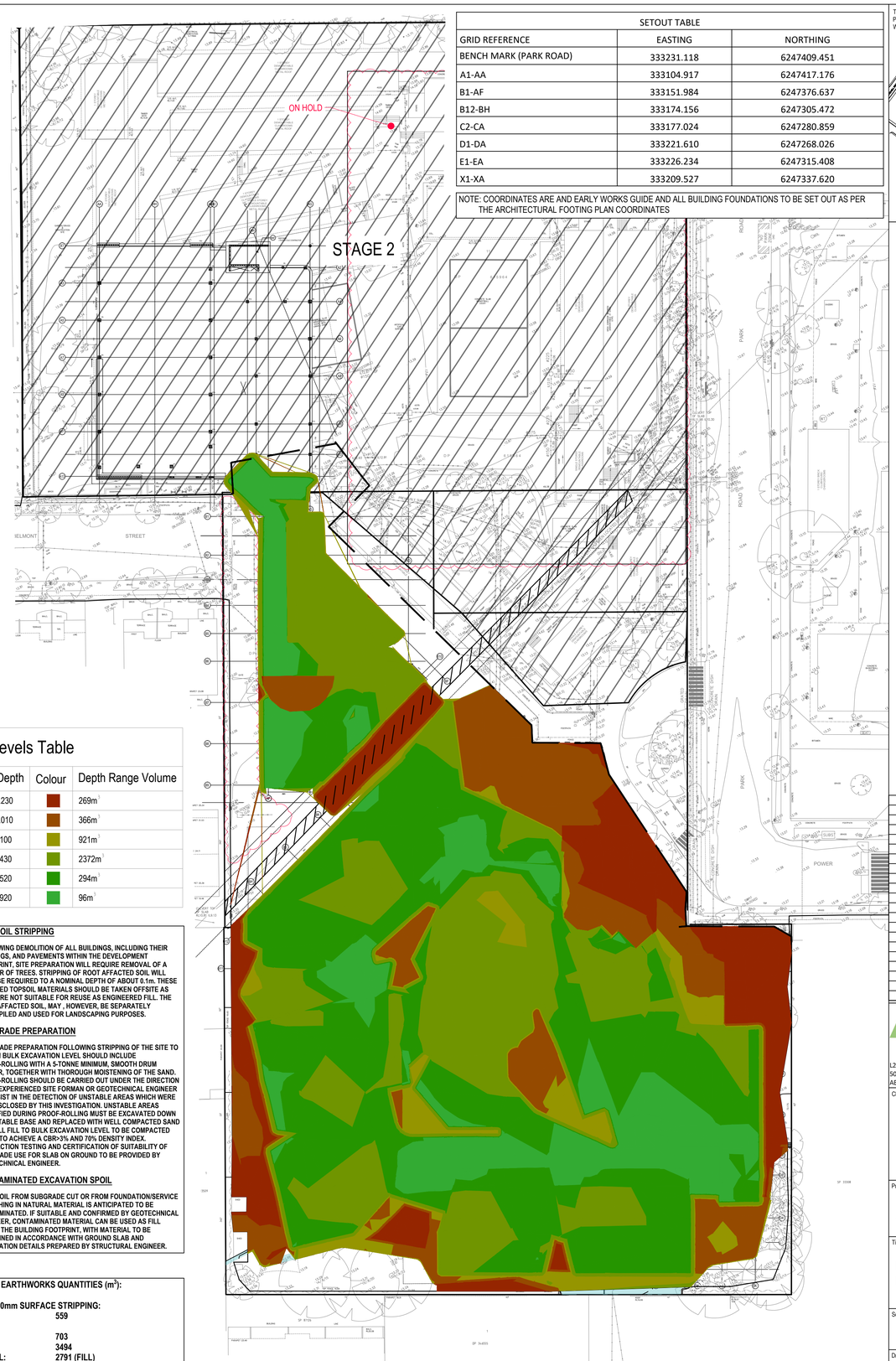
PROJECT
ALEXANDRIA PARK COMMUNITY SCHOOL
PARK ROAD, ALEXANDRIA 2015

DRAWING TITLE
PLANTING ZONES 02 OF 02
GROUND FLOOR

CREATED	DATE	CHECKED	PROJECT STAGE	SHEET SIZE
CK	27/08/18	HD	TENDER	A1

PROJECT NUMBER	DRAWING NUMBER	ISSUE
16585	L-TD-042-00	A





SETOUT TABLE		
GRID REFERENCE	EASTING	NORTHING
BENCH MARK (PARK ROAD)	333231.118	6247409.451
A1-AA	333104.917	6247417.176
B1-AF	333151.984	6247376.637
B12-BH	333174.156	6247305.472
C2-CA	333177.024	6247280.859
D1-DA	333221.610	6247268.026
E1-EA	333226.234	6247315.408
X1-XA	333209.527	6247337.620

NOTE: COORDINATES ARE AND EARLY WORKS GUIDE AND ALL BUILDING FOUNDATIONS TO BE SET OUT AS PER THE ARCHITECTURAL FOOTING PLAN COORDINATES

Levels Table

No.	From Depth	To Depth	Colour	Depth Range Volume
1	-1.004	-0.230		269m^3
2	-0.230	-0.010		366m^3
3	-0.010	0.100		921m^3
4	0.100	0.430		2372m^3
5	0.430	0.520		294m^3
6	0.520	0.920		96m^3

TOP SOIL STRIPPING

FOLLOWING DEMOLITION OF ALL BUILDINGS, INCLUDING THEIR FOOTINGS, AND PAVEMENTS WITHIN THE DEVELOPMENT FOOTPRINT, SITE PREPARATION WILL REQUIRE REMOVAL OF A NUMBER OF TREES. STRIPPING OF ROOT AFFACTED SOIL WILL ALSO BE REQUIRED TO A NOMINAL DEPTH OF ABOUT 0.1m. THESE STRIPPED TOPSOIL MATERIALS SHOULD BE TAKEN OFFSITE AS THEY ARE NOT SUITABLE FOR REUSE AS ENGINEERED FILL. THE ROOT AFFACTED SOIL, MAY , HOWEVER, BE SEPARATELY STOCKPILED AND USED FOR LANDSCAPING PURPOSES.

SUBGRADE PREPARATION

SUBGRADE PREPARATION FOLLOWING STRIPPING OF THE SITE TO DESIGN BULK EXCAVATION LEVEL SHOULD INCLUDE PROOF-ROLLING WITH A 5-TONNE MINIMUM, SMOOTH DRUM ROLLER, TOGETHER WITH THOROUGH MOISTENING OF THE SAND. PROOF-ROLLING SHOULD BE CARRIED OUT UNDER THE DIRECTION OF AN EXPERIENCED SITE FORMAN OR GEOTECHNICAL ENGINEER TO ASSIST IN THE DETECTION OF UNSTABLE AREAS WHICH WERE NOT DISCLOSED BY THIS INVESTIGATION. UNSTABLE AREAS IDENTIFIED DURING PROOF-ROLLING MUST BE EXCAVATED DOWN TO A STABLE BASE AND REPLACED WITH WELL COMPACTED SAND FILL. ALL FILL TO BULK EXCAVATION LEVEL TO BE COMPACTED INSITU TO ACHIEVE A CBR>3% AND 70% DENSITY INDEX. COMPACTION TESTING AND CERTIFICATION OF SUITABILITY OF SUBGRADE USE FOR SLAB ON GROUND TO BE PROVIDED BY GEOTECHNICAL ENGINEER.

CONTAMINATED EXCAVATION SPOIL

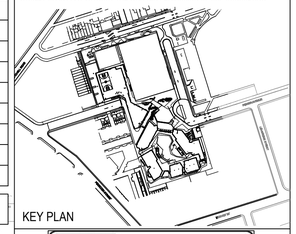
ALL SPOIL FROM SUBGRADE CUT OR FROM FOUNDATION/SERVICE TRENCHING IN NATURAL MATERIAL IS ANTICIPATED TO BE CONTAMINATED. IF SUITABLE AND CONFIRMED BY GEOTECHNICAL ENGINEER, CONTAMINATED MATERIAL CAN BE USED AS FILL UNDER THE BUILDING FOOTPRINT, WITH MATERIAL TO BE CONTAINED IN ACCORDANCE WITH GROUND SLAB AND FOUNDATION DETAILS PREPARED BY STRUCTURAL ENGINEER.

BULK EARTHWORKS QUANTITIES (m^3):

TOP 50mm SURFACE STRIPPING: 559

CUT:	**703**
FILL:	**3494**
TOTAL:	**2791 (FILL)**

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KEY PLAN

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NORTH

NOTE:

- QUANTITIES DO NOT ALLOW FOR BULKING OR COMPACTION FACTORS
- QUANTITIES HAVE NO ALLOWANCES FOR UNSUITABLE OR CONTAMINATED MATERIAL LOST
- SURFACE STRIPPING DEPTH IS AN ESTIMATED ASSUMPTION. DEPTH MAY VARY DEPENDING ON LEVEL OF DEMOLITION AND AREA OF SITE
- TEMPORARY BULK EARTHWORKS BATTER TO BE MAXIMUM 1(V):2(H)

Rev	Revision Description	Date
07	ISSUE FOR CC2	28/05/2019
06	ISSUE FOR CC2	15/05/2019
05	ISSUE FOR TENDER	10/05/2019
04	ISSUE FOR TENDER	03/05/2019
03	ISSUE FOR TENDER	15/04/2019
02	ISSUE FOR TENDER	11/04/2019
01	ISSUE FOR INFORMATION	09/04/2019

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Client: RICHARD CROOKES CONSTRUCTIONS

NSW GOVERNMENT Education School Infrastructure

Project: **ALEXANDRIA PARK COMMUNITY SCHOOL**

Title: **BULK EARTHWORKS PLAN AND DETAILS - STAGE 1**

Scale: 0 10000 25000
1:500 at A1

Drawn	Checked	Approved	
BH	JB	---	

Project Number	Drawing Number	Revision
180168	SCP-CV-DWG-1300	07

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SCP Consulting File Path: K:\180168 Alexandria Park Community School\01 Civil\BIM\Drawings\SCP-CV-DWG-1300-1302-BULK EW.dwg

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Appendix B – Review of Previous Reports

Table A: Summary of Contamination Investigations and Assessments

Report	Scope of Works and Report Findings and Recommendations
Geotechnical Investigation – Proposed Temporary School Buildings, Alexandria Park High School (GeoEnviro Consultancy Pty Ltd, 2016). Ref JG16980A-r1	GeoEnviro was commissioned by Kollanyi Architects Pty Ltd (acting on behalf of the DoE) to conduct a geotechnical investigation for the proposed temporary school buildings within the Alexandria Park Community School oval. The investigation did not include environmental sampling, however provided valuable information on the ground conditions. Twelve (12) boreholes were conducted as part of the investigation. The relevant results of the investigation revealed: • Fill material was encountered in all borehole locations to depths ranging from 0.4m to 3.4m bgs. The fill material predominately consisted of Gravelly Clayey SAND, with some gravelly silty sand and silty sand. Abundant anthropogenic materials were observed in the majority of the boreholes including bricks, concrete and sandstone fragments. • Natural sand was encountered within all of the boreholes from 0.4m to 3.4m bgs. • Groundwater inflow was encountered in BH1 to BH10 at depths varying from 2.4m to 3.7m bgs. • Bedrock was not encountered in the investigation.
Phase 1 and Limited Soil Sampling Investigation – Waterloo High School – Alexandria Park Junior Campus, 7-11 Park Road, Alexandria (Hibbs & Associates Pty Ltd, 2016). Ref: S9179	The report prepared by Hibbs & Associates presents a Phase 1 and limited soil sampling investigation for the sports field located at 7-11 Alexandria Park Road, Alexandria, which comprises the northern part of the APCS. This assessment was prepared prior to the construction of the temporary pop-up school, when the location was a vacant grassed field. The investigation found that there was potential for contamination to be present on site due to the known former industrial activities undertaken on site (furniture manufacturing, office machine development, mechanical industries). The key findings from these investigations are summarised below: • Drilling of five (5) hand augers to depths between 0.9m and 1.6mbgs. • Collection of soil samples from fill and residual soils for chemical analysis for chemicals of potential concern (COPC) identified by Hibbs & Associates, including heavy metals (As, Cd, Cr, Cu, Pb, Ni, Hg and Zn), total recoverable hydrocarbons (TRH) and, monoaromatic hydrocarbons (BTEX). • Ground conditions encountered were described as approximately 200mm of dark brown silty clay topsoil, overlying grey to red to brown silty sand and clay fill to the maximum depth of investigation (1.6m bgs). Natural material was not encountered within the sampling locations. • No odorous or visibly stained/discoloured soils were noted by Hibbs & Associates during the investigation. No visible signs of ACM were noted during the investigations. PID headspace readings recorded concentrations ranging between non detect (presumed to be <0.1ppm) and 0.4ppm, indicating a low likelihood for ionisable VOCs to be present in soil samples collected. • A total of five (5) soil samples were submitted for chemical analysis. In summary, the analysis reported concentrations of organic COPC were

	reported below the adopted health investigation and screening levels for a generic low density residential land use (i.e. HIL A as presented within Schedule B1 of the ASC NEPM (NEPC, 2013). • In conclusion, Hibbs & Associates 'has not encountered any soil conditions that would preclude the continued use of the site' as a school. Hibbs & Associates recommended that 'appropriate controls should be implemented during site development to manage the potential risk associated with the presence of asbestos beneath the site. This should include the development and implementation of an unexpected finds protocol".
Detailed Site Investigation – Alexandria Park Community School, Park Road, Alexandria (Coffey 2017a). Ref SYDEN199382-R01-Rev02	Coffey was commissioned by TKD to undertake a DSI (which included elements of the PSI) for the APCS. As part of the works, Coffey reviewed the following relevant previous assessments which were conducted previously for the site: • Hibbs & Associated, 2016; Phase 1 and Limited Soil Sampling Investigation: Waterloo High School; and • GeoEnviro Consultancy Pty Ltd, 2016; Geotechnical Investigation: Proposed Temporary School Buildings, Alexandria Park High School, Park Road, Alexandria NSW. Coffey completed an intrusive investigation within the site, which comprised the following: • Excavation of six (6) test pits (denoted TP3 to TP8) to depths ranging between 1.4m and 2.4m bgs; • Drilling of seven (7) hand auger holes (denoted HA1 to HA7), which extended to a maximum depth of 1.1m bgs; • Drilling of three (3) boreholes (BH1 to BH3) to maximum depths of 6.0m bgs, and conversion of each borehole into monitoring wells (MW1 to MW3) • Soil and groundwater sampling from each soil bore / groundwater well location for a range of contaminants of potential concern (CoPC) to assess soil and groundwater quality beneath the site. The lithology recorded during the investigation revealed a layer of fill (maximum thickness of 1.8m) overlying natural Botany Sands. A large quantity of foreign (or anthropogenic) materials were observed within the fill, including bonded asbestos cement fragments, which were observed and noted in various locations and depths within fill across the site. With the exception of the ACM, no other visual or olfactory indications of significant contamination were noted during the investigation. Anecdotal evidence from the construction manager of a temporary pop up school on the APCS site, and visual observations within open service trenches (65m to 90m in length) during the site walkover revealed asbestos (bonded) fragments were located within fill material. Standing water levels within MW1 to MW3 ranged from 10.683mAHD (MW3) to 9.533mAHD (MW1) which indicated groundwater flow was towards the south-west. No odours, visible sheens or non-aqueous phase liquid (NAPL) were noted in the three groundwater wells that were sampled.

	The conceptual site model which was developed based on the results of the investigations identified several plausible pollutant linkages with regards to the proposed APCS redevelopment, including contaminant sources: • Bonded ACM within fill across the site; • Lead within fill; and • Volatile halogenated compounds (VHCs) within groundwater, which have the potential to present an indoor air vapour risk. The DSI also identified the following chemicals which exceeded ecological investigation criteria: • Fill materials containing concentrations of Benzo(a)pyrene[1] that exceeds ecological criteria. • Copper in all three monitoring wells and total recoverable hydrocarbons (TRH) C_6-C_{10} fraction within MW2 that exceed the ANZECC (2000) marine aquatic criteria. It was assessed within the CSM, that the above ecological criteria would not present an unacceptable risk to environmental health, with regard to the proposed APCS redevelopment. Based on the data obtained from the APCS site, a preliminary waste classification for the fill material on the site indicated a classification of General Solid Waste, to be managed as Special Waste (Asbestos). It was concluded that the site could be made suitable for the proposed development, subject to the preparation of a Remedial Action Plan (RAP) to mitigate the health risks associated with the pollutant linkages identified. As a result of the identification of VHCs in groundwater, it was further recommended that a soil vapour investigation be conducted to determine if an unacceptable indoor vapour risk may be present.
Soil Vapour Investigation – Alexandria Park Community School, Park Road, Alexandria (Coffey 2017b). Ref: SYDEN199382-L02	Coffey was commissioned by TKD to undertake an intrusive soil vapour investigation at the APCS. The objectives of the investigation were to: • Identify the presence of volatile organic compounds (VOCs), including VHCs at the location where VHCs were detected in groundwater (MW2); • Attempt to delineate the VOC vapours (if present); and • Preliminary assessment of the indoor vapour risk posed to future occupants of site buildings. Seven intrusive soil vapour locations (SS1 to SS7) were positioned in areas surrounding MW2. A soil vapour sample was collected from each location using 1.4L Suma canisters, which were sent to a NATA accredited laboratory for analysis for VOCs. The findings of the investigation did not identify the presence of VOCs at location MW2 (represented by SS1), however trichloroethene[2] (TCE) was detected above the adopted soil vapour screening levels at SS3 and SS7. A

[1] A polycyclic aromatic hydrocarbon (PAH).
[2] Also known as trichloroethylene.

	subsequent preliminary health risk assessment revealed that the potential future indoor vapour risk associated with a slab on ground building is considered to be low, and acceptable at those locations. The report also detailed the finding of a previously unknown UST within the north eastern section of the APCS (outside of the temporary pup-up preschool site) where a temporary pop up school was being constructed to house secondary and primary school students during redevelopment, however due to access constraints caused by the construction activities at the time, the area around the UST could not be assessed. The UST, and other possible sources within the site (or adjacent sites) was recommended to be considered further within a RAP for the APCS.
Acid Sulfate Soils Assessment – Proposed New School Facilities, Alexandria Park Community School (EIS, 2017). Ref: E30907Klet-ASS	As noted above a limited Acid Sulfate Soil Assessment was conducted for the APCS by EIS (Ref: E30907Klet-ASS, dated 23 October 2017). EIS were commissioned by TKD to conduct the works. The findings of the assessment are summarised below: • Acid sulfate soil samples were collected from two borehole locations (BH1 in northern part of site and BH7 in southern part of APCS). • The investigation did not identify the presence of actual acid sulfate soils (AASS) in the soil samples collected. • However, the investigation identified potential acid sulfate soils (PASS) within two soil samples, with peroxide oxidisable sulfur (SPOS) detected up to 0.2% w/w. The two soils samples collected are within soil strata located below RL5m AHD. • An Acid Sulfate Soils Management Plan (ASSMP) was recommended to be prepared, should the soil below RL5mAHD be disturbed as part of the proposed development of the APCS.
Acid Sulfate Soils Management Plan – Alexandria Park Community School, Park Road, Alexandria (Coffey 2017c). Ref: SYDEN199382-L03-Rev01	Coffey was subsequently commissioned by TKD to prepare an Acid Sulfate Soils Management Plan for the APCS, to detail the appropriate management procedures should the soils beneath RL5mAHD be disturbed as part of the proposed redevelopment, or if the groundwater table is lowered beneath RL5mAHD. It was assessed that, based on the information provided to Coffey with regards to the proposed development, it was unlikely that soils beneath RL5mAHD would be disturbed, or that the water table would be lowered beneath RL5mAHD. The document contains an approach to manage the identified PASS below RL5mAHD should it be encountered (assessed to be unlikely).
Remedial Action Plan – Alexandria Park Community School Park Road, Alexandria NSW (Coffey 2017d). Red: SYDEN199382-R03	Coffey was commissioned by TKD to prepare a Remedial Action Plan (RAP) for the redevelopment of the APCS site. The RAP was required to manage ground contamination identified within the Coffey (2017) DSI in order to render the site suitable for the proposed redevelopment. The objectives of the RAP were to: • Set remediation goals and objectives; • Consider several remediation options and outline the preferred remedial strategy that will mitigate contamination risks and facilitate redevelopment of the site for its intended use;

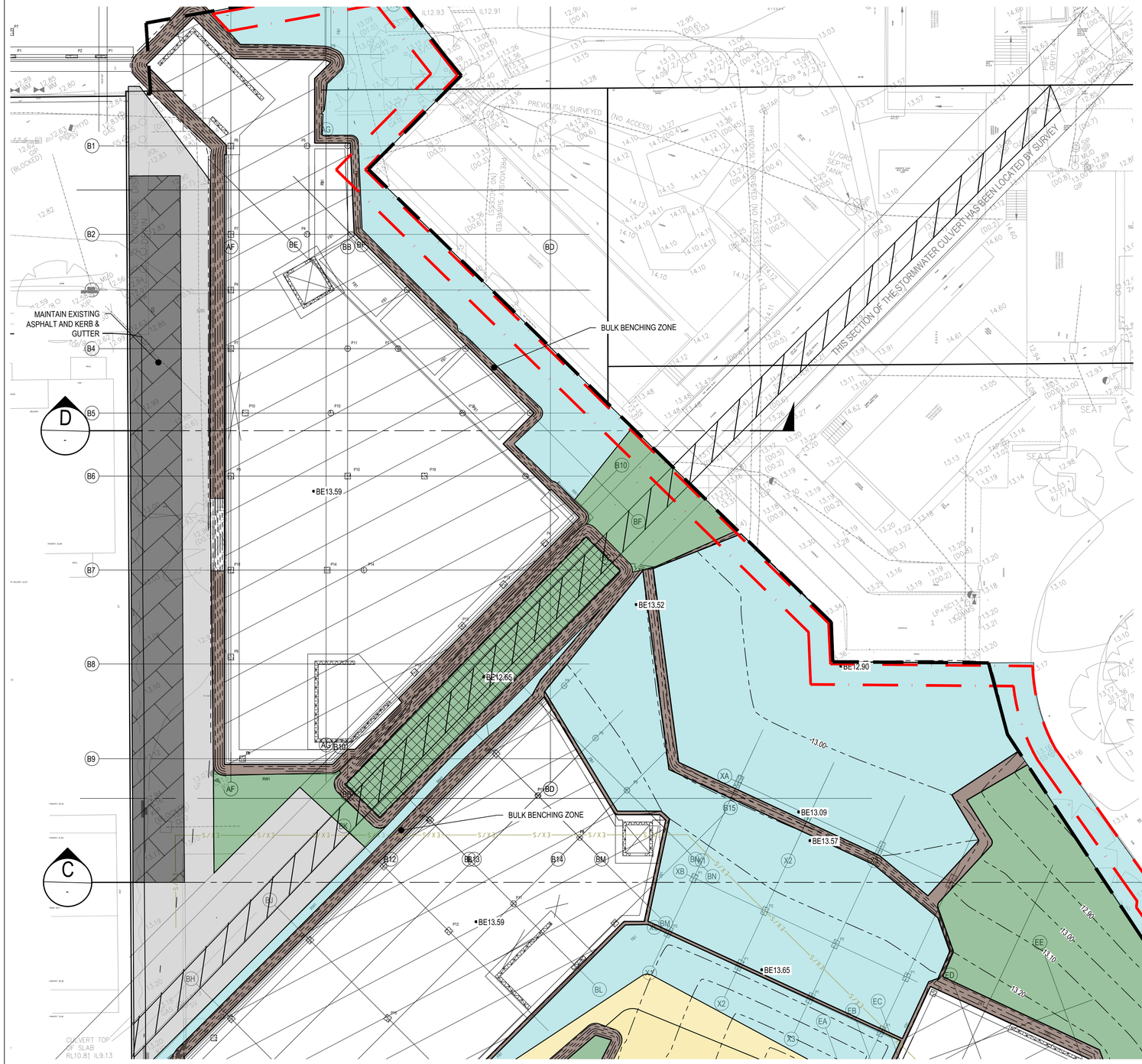
	• Provide procedures and plans for implementation of the proposed remedial works; • Outline minimum controls necessary to complete the proposed remedial works in a manner that minimises risks to worker health and safety and the environment; and • An additional objective of the RAP was to assist TKD in meeting the minimum requirements of the UPSS (2014) Regulations with regard to the decommissioning, remediation and validation of the UST identified during the construction of the pop-up school 2. The RAP was developed to manage contamination which was determined to potentially pose an unacceptable risk to human health, namely: • Asbestos and lead within fill across the APCS; and • Potential hydrocarbon impacts associated with the UST discovered at the pop-up school 2 area (north-eastern portion of the APCS). The preferred remedial options were as follows: • Capping and on-going management of the fill; and • Decommissioning, excavation and removal of the UST offsite. The RAP identified various data gaps, including: • Quality of fill within inaccessible areas (namely the southern portion of the APCS, where existing buildings prevented test pit sampling); and • The quality of groundwater, primarily along the western edge of the APCS (also where future buildings will be constructed). The RAP concluded that subject to the successful implementation of the measures detailed within the document, it would be considered that the APCS could be made suitable for the proposed land-use as a school.

Interim Advice 1 – Review of Existing Environmental Reports, APCS Redevelopment – Temporary Preschool, 7-11 Park Road, Alexandria NSW (Zoic, 2018), dated 22 March 2018, ref: 18052.	Rebekah Hall of Zoic Environmental Pty Ltd (Zoic) was appointed by TKD Architects Pty Ltd (TKD), on behalf of the DoE, as the NSW EPA Accredited Auditor for the construction of a temporary pop-up preschool, within the APCS grounds. This interim advice related to reviews of existing contamination documentation for the whole APCS. Various comments were provided relating to the temporary pop-up preschool, however comments were also made for the whole APCS (the site). These comments included the recognition of various data gaps for the whole APCS, including:
	
	• Further groundwater assessment for:
	  • Areas of the site previously inaccessible (southern portion of the site);
	  • Western side of the site; and
	  • Downgradient of the identified UST
	• Further assessment of soil in areas of the site previously inaccessible for test pitting (southern part of the site).
	• Assessment of bulk ground gases within the site.

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Appendix C – Capping Details

NOTE: REFER TO PAVEMENT PLAN FOR SPECIFICATIONS OF RESPECTIVE PAVEMENTS USED AS PART OF CAPPING STRATEGY.



LEGEND

PROPOSED BUILDING ZONE

150 / 100

PROPOSED BUILDING SLAB WITH 150mm CONCRETE SLAB

100mm SUB BASE LAYER, COMPACTED DGB20

MARKER LAYER

EXISTING ASPHALT UPGRADE

205

ASPHALT CAPPING LAYER MIN 25mm

180mm EXISTING ASPHALT ROAD WITH ROAD BASE

TREE PROTECTION ZONES

200

LAYER OF RECYCLED MULCH APCS PREVIOUSLY REMOVED TREES

TREE PROTECTION ZONES
NOTE: IF TESTING REVEALS NO ASBESTOS

PLANTING ZONES

500

MIN 500mm VENM

MARKER LAYER
EXISTING COMPACTED CONTAMINATED SUBGRADE
NOTE: REFER TO VEGETATION LANDSCAPING PLAN

SOFT SCAPE ZONES

200

MAX 50mm FOR BEDDING AND SURFACE FINISH PAVEMENT
(REFER TO LANDSCAPE PLANS FOR DETAILS)
150mm COMPACTED DGB20 BASE COURSE TO ENGINEERS'S DETAIL
MARKER LAYER
EXISTING COMPACTED CONTAMINATED SUBGRADE

HARD SCAPE ZONES

200

50mm SURFACE FINISH PAVEMENT
(REFER TO LANDSCAPE PLANS FOR DETAILS)
100mm REINFORCED CONCRETE
50mm DGB20 BASE COURSE TO ENGINEER'S DETAIL
MARKER LAYER
EXISTING COMPACTED CONTAMINATED SUBGRADE

CULVERT REPLACEMENT ZONES

500

500mm VENM

TOP OF REPLACED CULVERT
MARKER LAYER TO BELOW REPLACED CULVERT

TRAFFICABLE PAVEMENT ZONES

390

ASPHALT CAPPING 40mm
150mm COMPACTED DGB20 BASECOURSE
200mm COMPACTED DSG40 SUBBASE
MARKER LAYER
EXISTING COMPACTED CONTAMINATED SUBGRADE

TRENCHES AND SWEPT PATH TEMPORARY ROAD AREA

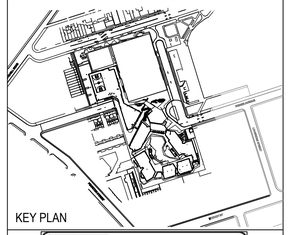
200mm/500mm CAPPING LAYER ABOVE DEPENDING ON PAVEMENT FINISH
NEW LAYER OF MAKER LAYER
DSG40 OR APPROVED EQUIVALENT FILL
CONTAMINATED SUBGRADE

HOARDING LOCATIONS

CURRENT HOARDING LEGS 900mm WITHIN PHASE 1

NEW LOCATION OF HOARDING FOR PHASE 2, 1800mm WIDE

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Rev	Revision Description	Date
05	ISSUE FOR CC2	28/05/2019
04	ISSUE FOR CC2	15/05/2019
03	ISSUE FOR TENDER	10/05/2019
02	ISSUE FOR TENDER	06/05/2019
01	ISSUE FOR TENDER	11/04/2019

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Client: RICHARD CROOKES CONSTRUCTIONS
NSW GOVERNMENT Education School Infrastructure

Project: **ALEXANDRIA PARK COMMUNITY SCHOOL**

Title: **BULK EARTHWORKS PLAN B1**

Scale: 0 4000 10000
1:200 @ A1

Drawn	Checked	Approved	
BH	JB	---	

Project Number	Drawing Number	Revision
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NOTE: REFER TO PAVEMENT PLAN FOR SPECIFICATIONS OF RESPECTIVE PAVEMENTS USED AS PART OF CAPPING STRATEGY.

HOARDING LOCATIONS

CURRENT HOARDING LEGS 900mm WITHIN PHASE 1

NEW LOCATION OF HOARDING FOR PHASE 2, 1800mm WIDE

CULVERT REPLACEMENT ZONES

500mm VENM

TOP OF REPLACED CULVERT
MARKER LAYER TO BELOW REPLACED CULVERT

TRAFFICABLE PAVEMENT ZONES

390

ASPHALT CAPPING 40mm
150mm COMPACTED DGB20 BASECOURSE
200mm COMPACTED DSG40 SUBBASE
MARKER LAYER
EXISTING COMPACTED CONTAMINATED SUBGRADE

TRENCHES AND SWEPT PATH TEMPORARY ROAD AREA

200mm/500mm CAPPING LAYER ABOVE DEPENDING ON PAVEMENT FINISH
NEW LAYER OF MAKER LAYER
DSG40 OR APPROVED EQUIVALENT FILL
CONTAMINATED SUBGRADE

PROPOSED BUILDING ZONE

150
100

PROPOSED BUILDING SLAB WITH 150mm CONCRETE SLAB
100mm SUB BASE LAYER, COMPACTED DGB20
MARKER LAYER

EXISTING ASPHALT UPGRADE

205

ASPHALT CAPPING LAYER MIN 25mm
180mm EXISTING ASPHALT ROAD WITH ROAD BASE

TREE PROTECTION ZONES

200

LAYER OF RECYCLED MULCH APCS PREVIOUSLY REMOVED TREES
TREE PROTECTION ZONES
NOTE: IF TESTING REVEALS NO ASBESTOS

PLANTING ZONES

500

MIN 500mm VENM
MARKER LAYER
EXISTING COMPACTED CONTAMINATED SUBGRADE
NOTE: REFER TO VEGETATION LANDSCAPING PLAN

SOFT SCAPE ZONES

200

MAX 50mm FOR BEDDING AND SURFACE FINISH PAVEMENT
(REFER TO LANDSCAPE PLANS FOR DETAILS)
150mm COMPACTED DGB20 BASE COURSE TO ENGINEERS'S DETAIL
MARKER LAYER
EXISTING COMPACTED CONTAMINATED SUBGRADE

HARD SCAPE ZONES

200

50mm SURFACE FINISH PAVEMENT
(REFER TO LANDSCAPE PLANS FOR DETAILS)
100mm REINFORCED CONCRETE
50mm DGB20 BASE COURSE TO ENGINEER'S DETAIL
MARKER LAYER
EXISTING COMPACTED CONTAMINATED SUBGRADE

BULK BENCHING ZONE

BULK BENCHING ZONE

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Client: RICHARD CROOKES CONSTRUCTIONS
NSW GOVERNMENT Education School Infrastructure

Project: ALEXANDRIA PARK COMMUNITY SCHOOL

Title: BULK EARTHWORKS PLAN B2

Scale: 0 4000 10000
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BH	JB	---	

Project Number	Drawing Number	Revision
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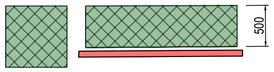
NOTE: REFER TO PAVEMENT PLAN FOR SPECIFICATIONS OF RESPECTIVE PAVEMENTS USED AS PART OF CAPPING STRATEGY.

HOARDING LOCATIONS

CURRENT HOARDING LEGS 900mm WITHIN PHASE 1

NEW LOCATION OF HOARDING FOR PHASE 2, 1800mm WIDE

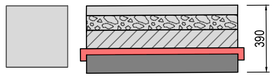
CULVERT REPLACEMENT ZONES



500mm VENM

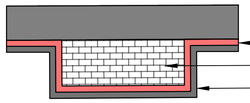
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MARKER LAYER TO BELOW REPLACED CULVERT

TRAFFICABLE PAVEMENT ZONES



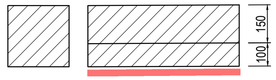
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150mm COMPACTED DGB20 BASECOURSE
200mm COMPACTED DSG40 SUBBASE
MARKER LAYER
EXISTING COMPACTED CONTAMINATED SUBGRADE

TRENCHES AND SWEPT PATH TEMPORARY ROAD AREA



200mm/500mm CAPPING LAYER ABOVE DEPENDING ON PAVEMENT FINISH
NEW LAYER OF MAKER LAYER
DSG40 OR APPROVED EQUIVALENT FILL
CONTAMINATED SUBGRADE

PROPOSED BUILDING ZONE

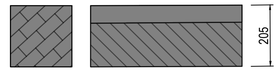


PROPOSED BUILDING SLAB WITH 150mm CONCRETE SLAB

100mm SUB BASE LAYER, COMPACTED DGB20

MARKER LAYER

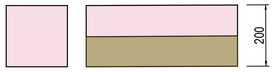
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ASPHALT CAPPING LAYER MIN 25mm

180mm EXISTING ASPHALT ROAD WITH ROAD BASE

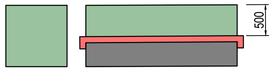
TREE PROTECTION ZONES



LAYER OF RECYCLED MULCH APCS PREVIOUSLY REMOVED TREES

TREE PROTECTION ZONES
NOTE: IF TESTING REVEALS NO ASBESTOS

PLANTING ZONES



MIN 500mm VENM

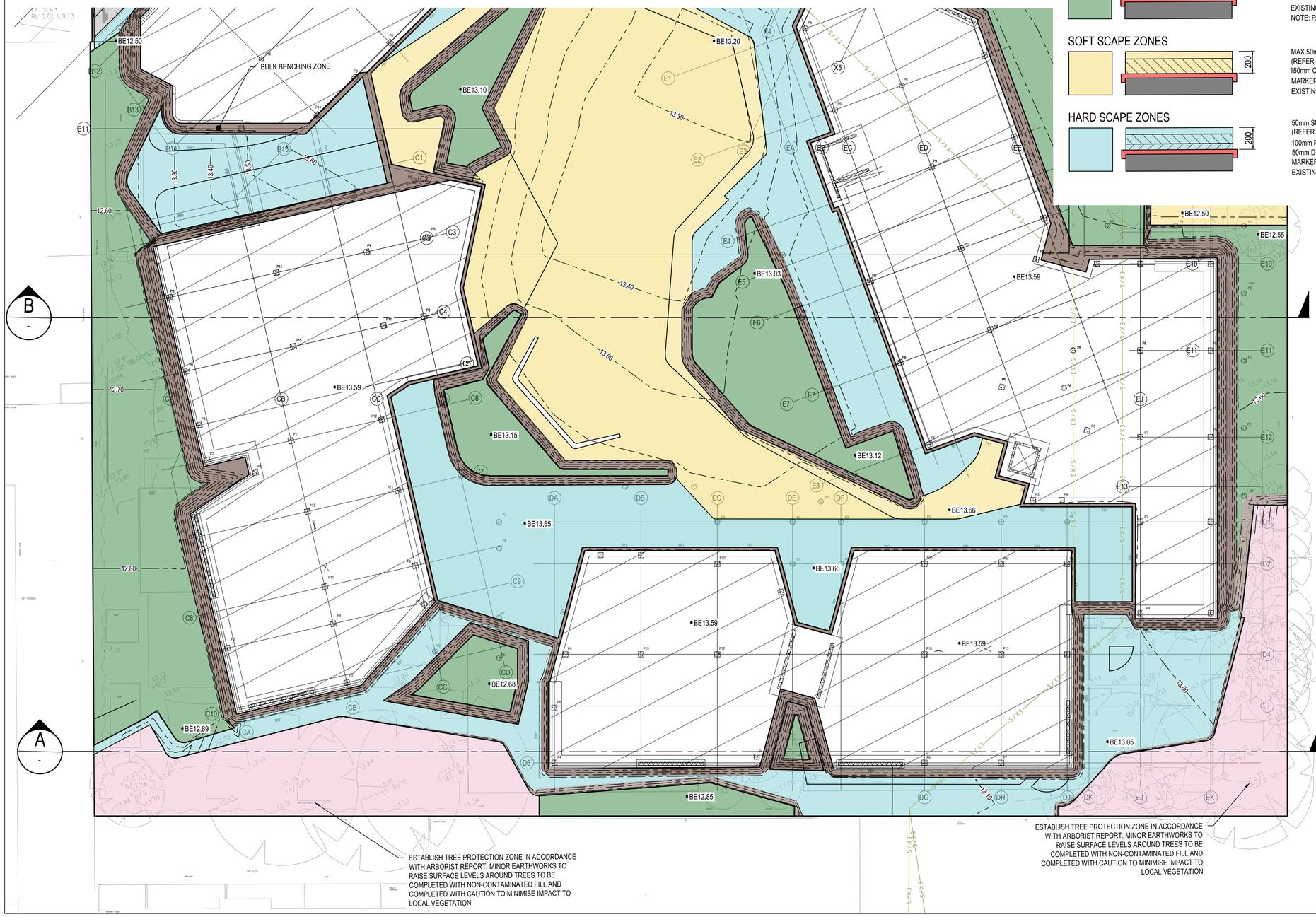
MARKER LAYER
EXISTING COMPACTED CONTAMINATED SUBGRADE
NOTE: REFER TO VEGETATION LANDSCAPING PLAN

SOFT SCAPE ZONES

MAX 50mm FOR BEDDING AND SURFACE FINISH PAVEMENT
(REFER TO LANDSCAPE PLANS FOR DETAILS)
150mm COMPACTED DGB20 BASE COURSE TO ENGINEERS'S DETAIL
MARKER LAYER
EXISTING COMPACTED CONTAMINATED SUBGRADE

HARD SCAPE ZONES

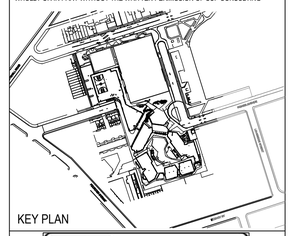
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(REFER TO LANDSCAPE PLANS FOR DETAILS)
100mm REINFORCED CONCRETE
50mm DGB20 BASE COURSE TO ENGINEER'S DETAIL
MARKER LAYER
EXISTING COMPACTED CONTAMINATED SUBGRADE



ESTABLISH TREE PROTECTION ZONE IN ACCORDANCE WITH ARBORIST REPORT. MINOR EARTHWORKS TO RAISE SURFACE LEVELS AROUND TREES TO BE COMPLETED WITH NON-CONTAMINATED FILL AND COMPLETED WITH CAUTION TO MINIMISE IMPACT TO LOCAL VEGETATION

ESTABLISH TREE PROTECTION ZONE IN ACCORDANCE WITH ARBORIST REPORT. MINOR EARTHWORKS TO RAISE SURFACE LEVELS AROUND TREES TO BE COMPLETED WITH NON-CONTAMINATED FILL AND COMPLETED WITH CAUTION TO MINIMISE IMPACT TO LOCAL VEGETATION

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Client: RICHARD CROOKES CONSTRUCTIONS
NSW GOVERNMENT Education School Infrastructure

Project: **ALEXANDRIA PARK COMMUNITY SCHOOL**

Title: **BULK EARTHWORKS PLAN C**

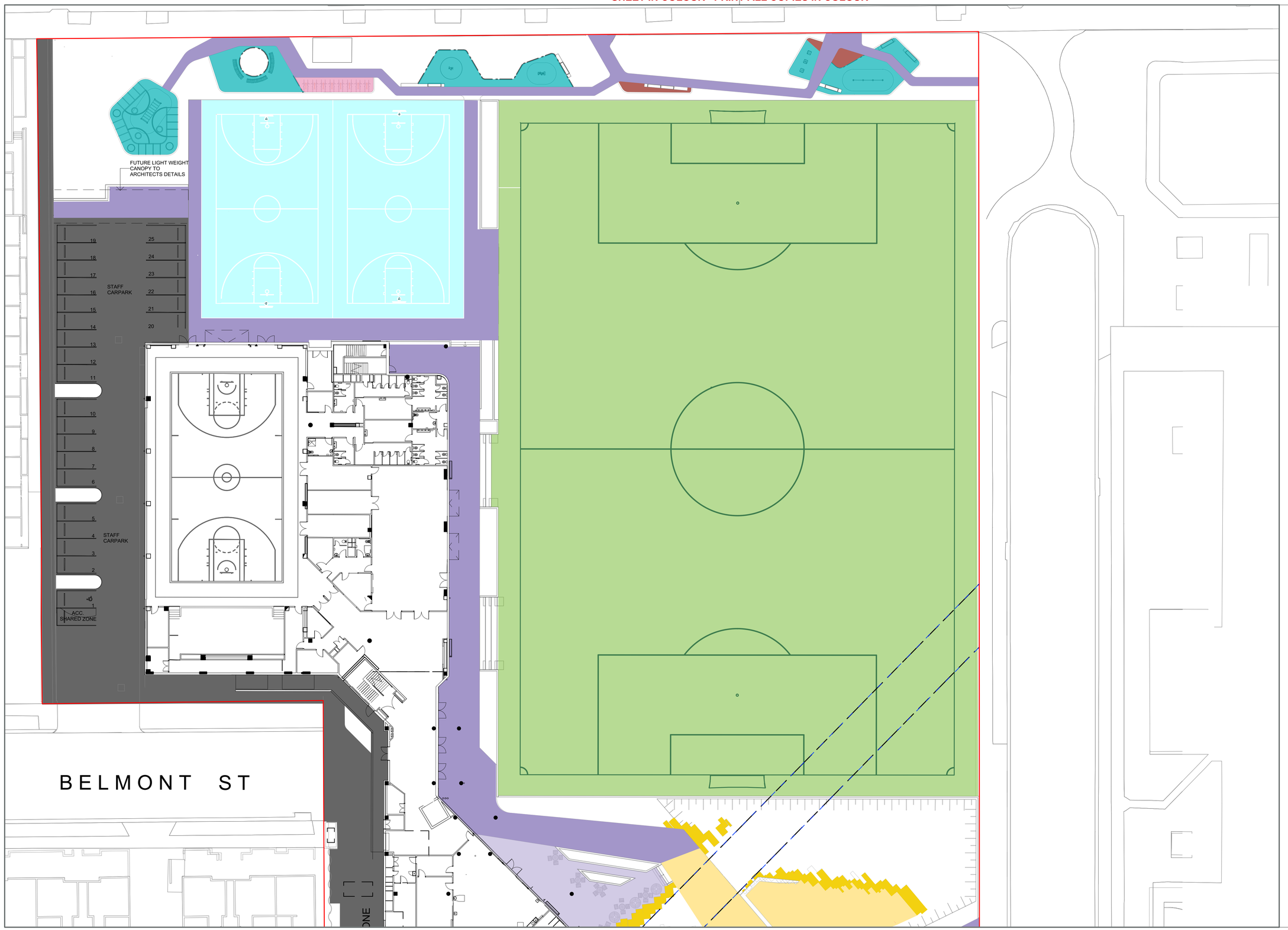
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Drawn	Checked	Approved	
BH	JB	---	

Project Number	Drawing Number	Revision
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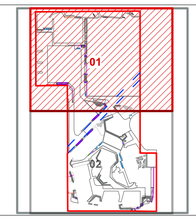
SHEET IN COLOUR - PRINT ALL COPIES IN COLOUR



LEGEND

- **PAVING TYPE 1a** Coloured Concrete TOTAL 2544SQM
- **PAVING TYPE 1b** Coloured Concrete TOTAL 525SQM
- **PAVING TYPE 2** Feature Paving TOTAL 672SQM
- **PAVING TYPE 3** Asphalt TOTAL 2024SQM
- **PAVING TYPE 4** Feature Unit Paving TOTAL 324SQM
- **PAVING TYPE 5** Timber Decking TOTAL 118SQM
- **PAVING TYPE 6** Sandstone Crazy Pave TOTAL 231SQM
- **PAVING TYPE 7** FlexiPave TOTAL 1178SQM
- **PAVING TYPE 8** Synthetic Turf (19mm) TOTAL 6342SQM
- **PAVING TYPE 9** Synthetic Turf (25mm) TOTAL 953SQM
- **PAVING TYPE 10** Softfall TOTAL 256SQM
- **PAVING TYPE 11** Precast Concrete TOTAL 261SQM
- **PAVING TYPE 12** Granite Cobble TOTAL 4SQM
- **PAVING TYPE 13** Playground Mulch TOTAL 116SQM
- **PAVING TYPE 14** Exp. Aggr. Concrete TOTAL 241SQM
- **PAVING TYPE 15** Sandstone Logs TOTAL 140SQM
- **PAVING TYPE 16** Concrete Unit Paving TOTAL 389SQM

KEY PLAN



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NOT FOR CONSTRUCTION

ISSUE	DESCRIPTION	BY	APP'D	DATE
A	ISSUE FOR TENDER	CK	HD	28/8/18

NORTH / SCALE
Scale 1:250
N

PROJECT TEAM
TKD Architects
Level 1, 19 Foster Street, Surry Hills

LANDSCAPE ARCHITECT
context
Context Landscape Design Pty Ltd
Level 2, 52-58 William Street, East Sydney NSW 2011
PO Box A866 Sydney South NSW 1235
T. 61 2 8244 8900 F. 61 2 82448988
E. context@context.net.au W. www.context.net.au
ABN: 14 074 411 288

CLIENT NAME
DEPARTMENT OF EDUCATION

PROJECT
ALEXANDRIA PARK COMMUNITY SCHOOL
PARK ROAD, ALEXANDRIA 2015

DRAWING TITLE
HARDWORKS QTS 01 OF 02
GROUND FLOOR

CREATED	DATE	CHECKED	PROJECT STAGE	SHEET SIZE
CK	27/08/18	HD	TENDER	A1

PROJECT NUMBER	DRAWING NUMBER	ISSUE
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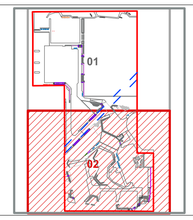
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LEGEND

- **PAVING TYPE 1a** Coloured Concrete TOTAL 2544SQM
- **PAVING TYPE 1b** Coloured Concrete TOTAL 525SQM
- **PAVING TYPE 2** Feature Paving TOTAL 672SQM
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- **PAVING TYPE 15** Sandstone Logs TOTAL 140SQM
- **PAVING TYPE 16** Concrete Unit Paving TOTAL 389SQM

KEY PLAN



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NOT FOR CONSTRUCTION

ISSUE	DESCRIPTION	BY	APP'D	DATE
A	ISSUE FOR TENDER	CK	HD	28/8/18

NORTH / SCALE
Scale 1:250
N

PROJECT TEAM
TKD Architects
Level 1, 19 Foster Street, Surry Hills

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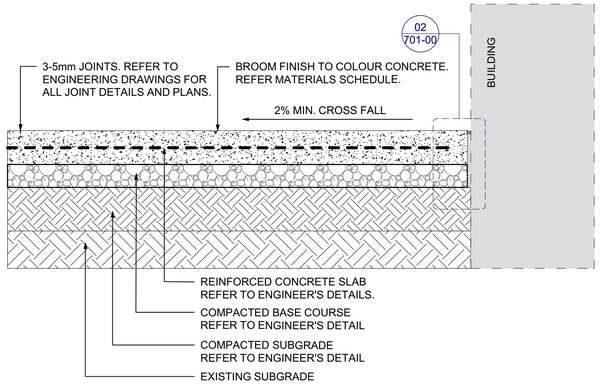
CLIENT NAME
DEPARTMENT OF EDUCATION

PROJECT
ALEXANDRIA PARK COMMUNITY SCHOOL
PARK ROAD, ALEXANDRIA 2015

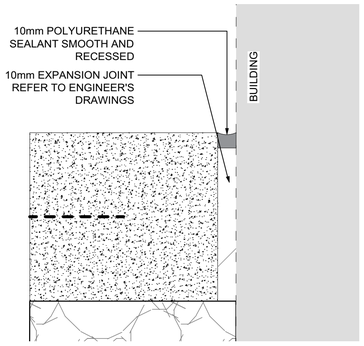
DRAWING TITLE
HARDWORKS QTS 02 OF 02
GROUND FLOOR

CREATED	DATE	CHECKED	PROJECT STAGE	SHEET SIZE
CK	27/08/18	HD	TENDER	A1

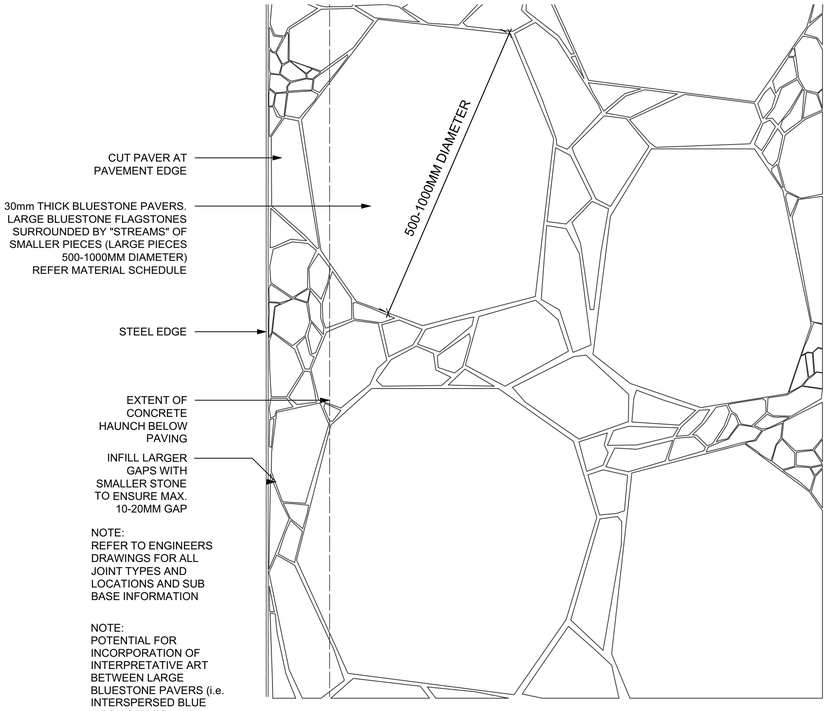
PROJECT NUMBER	DRAWING NUMBER	ISSUE
16585	L-TD-052-00	A



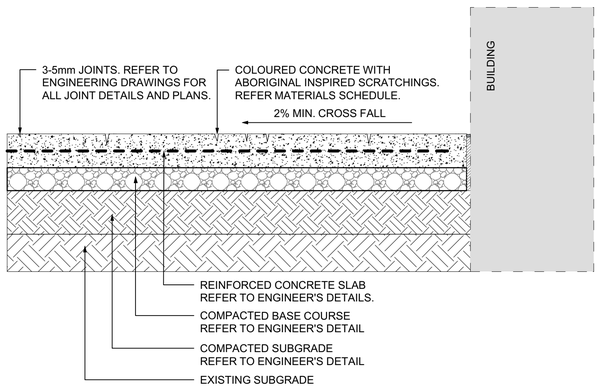
1 PAVEMENT TYPE 1a/b - COLOURED CONCRETE BROOM FINISH
Scale: 1:10



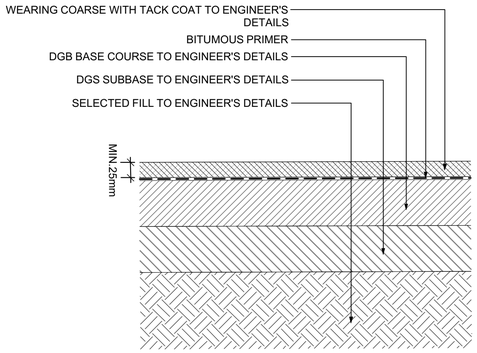
3 COLOURED CONCRETE JOINT DETAIL
Scale: 1:2



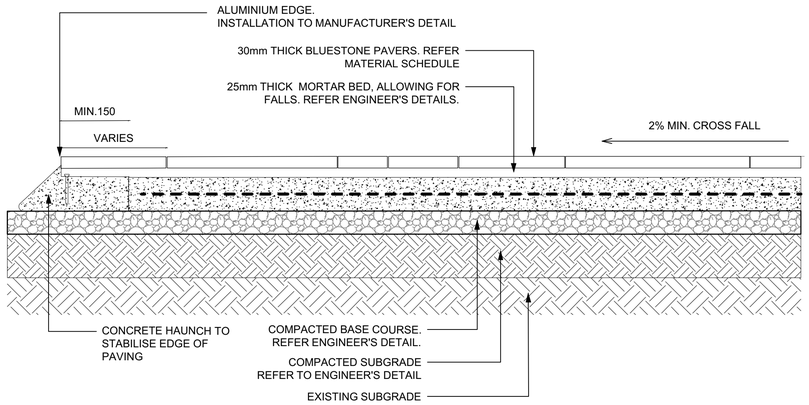
TYPICAL PLAN



2 PAVEMENT TYPE 2 - COLOURED CONCRETE WITH SCRATCHINGS
Scale: 1:10



4 PAVEMENT TYPE 3 - ASPHALT
Scale: 1:10



TYPICAL SECTION

5 PAVEMENT TYPE 4 - TYPICAL SECTION: BLUESTONE CRAZY PAVING
Scale: 1:10

SHEET IN COLOUR - PRINT ALL COPIES IN COLOUR

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ISSUE	DESCRIPTION	BY	APP'D	DATE
			HD	

NORTH / SCALE
Scale NA

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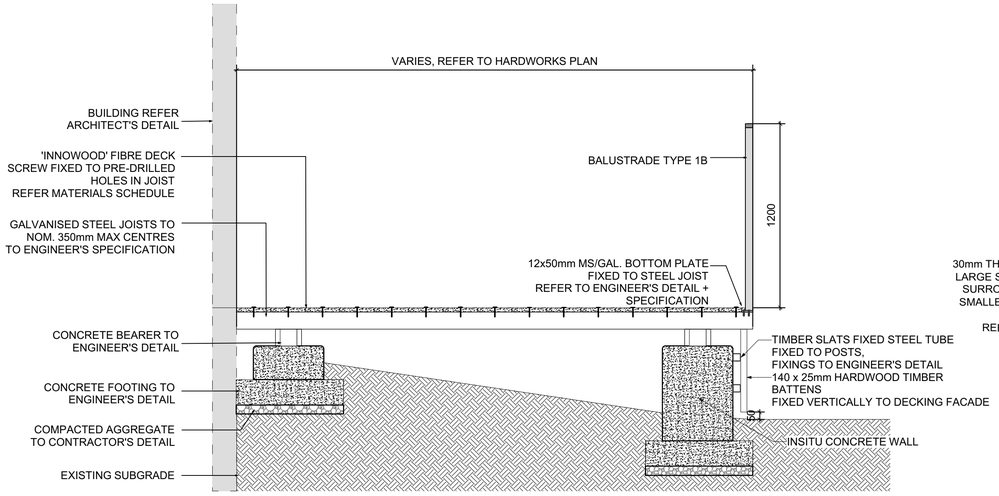
CLIENT NAME
DEPARTMENT OF EDUCATION

PROJECT
ALEXANDRIA PARK COMMUNITY SCHOOL
PARK ROAD, ALEXANDRIA 2015

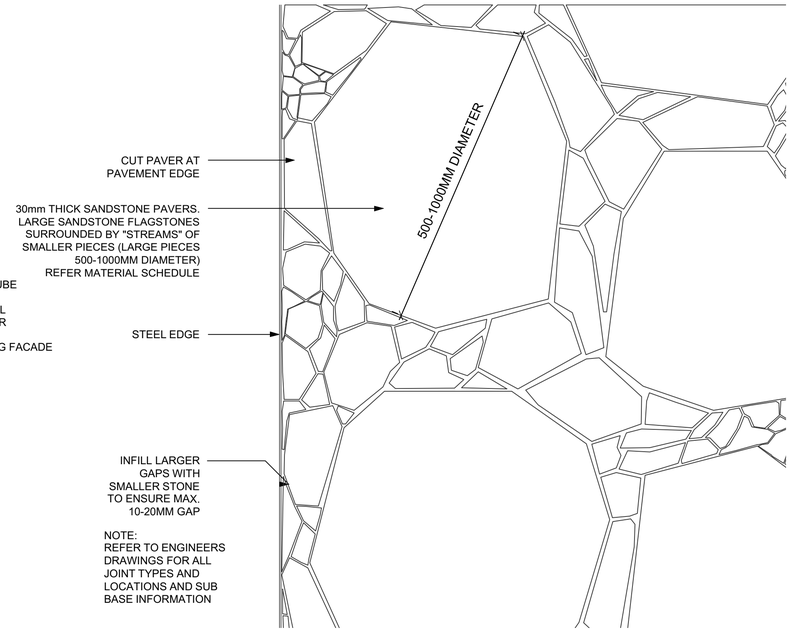
DRAWING TITLE
HARDWORKS DETAIL 01 OF 13
GROUND FLOOR

CREATED	DATE	CHECKED	PROJECT STAGE	SHEET SIZE
CK	27/08/18	HD	TENDER	A1

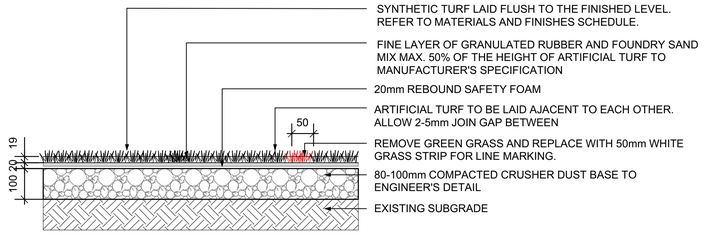
PROJECT NUMBER	DRAWING NUMBER	ISSUE
16585	L-TD-701-00	



1 PAVEMENT TYPE 5 - TIMBER DECKING
Scale: 1:20

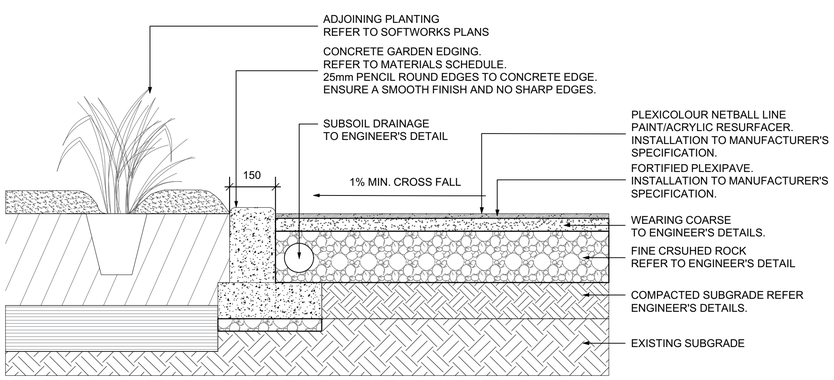


TYPICAL PLAN
PLAN 1:10

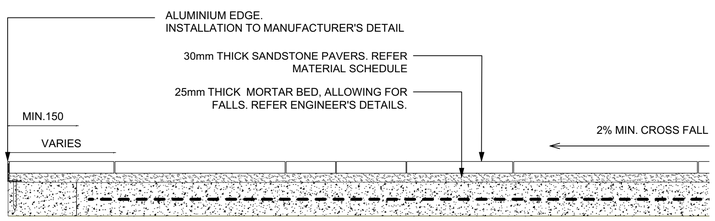


5 PAVEMENT TYPE 8 - SYNTHETIC TURF 19mm PILE
Scale: 1:10

2 PAVEMENT TYPE 7 - PLEXIPAVE ADJ. CONCRETE
Scale: 1:10

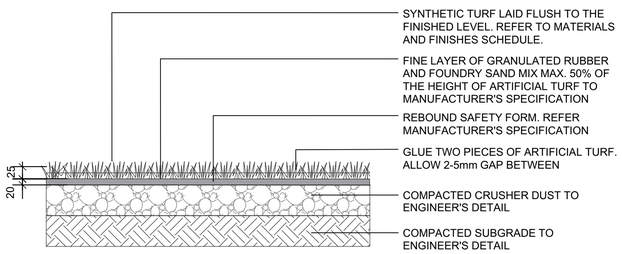


3 PAVEMENT TYPE 7 - PLEXIPAVE ADJ. PLANTING
Scale: 1:10



TYPICAL SECTION

4 PAVING TYPE 6 - SANDSTONE CRAZY PAVING
Scale: 1:10



6 PAVEMENT TYPE 9 - SYNTHETIC TURF 25mm PILE
Scale: 1:10

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ISSUE	DESCRIPTION	BY	APP'D	DATE
			HD	

NORTH / SCALE
Scale NA

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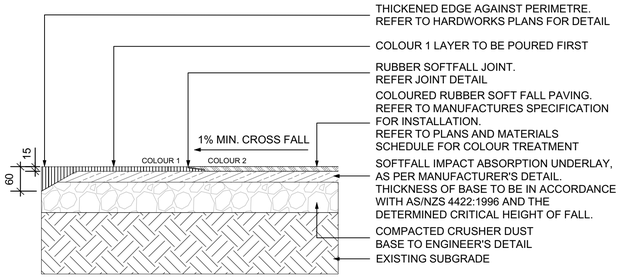
CLIENT NAME
DEPARTMENT OF EDUCATION

PROJECT
ALEXANDRIA PARK COMMUNITY SCHOOL
PARK ROAD, ALEXANDRIA 2015

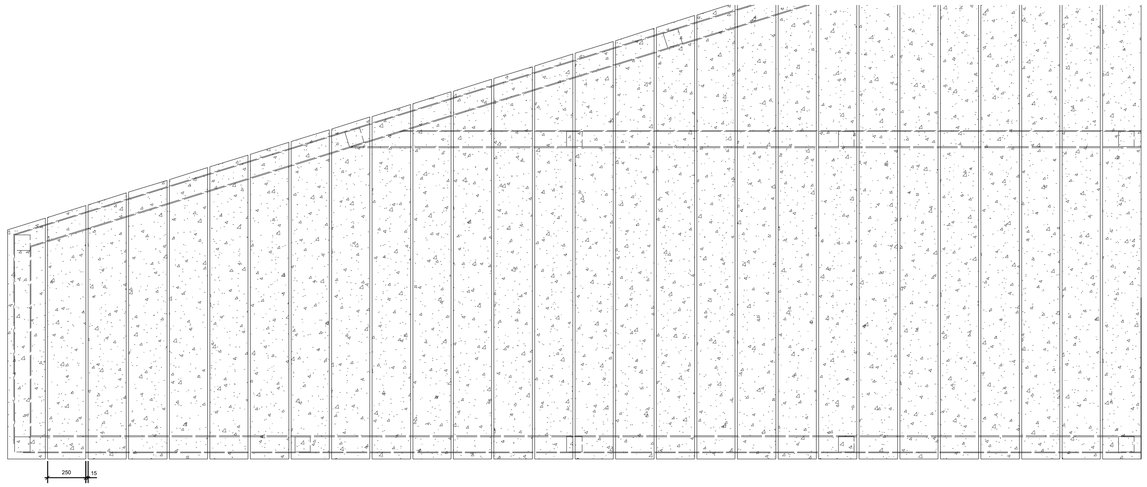
DRAWING TITLE
HARDWORKS DETAIL 02 OF 13
GROUND FLOOR

CREATED	DATE	CHECKED	PROJECT STAGE	SHEET SIZE
CK	27/08/18	HD	TENDER	A1

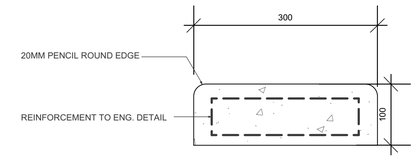
PROJECT NUMBER	DRAWING NUMBER	ISSUE
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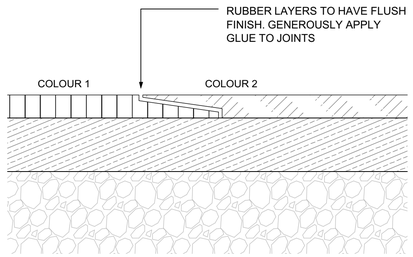
1 PAVEMENT TYPE 10 - SOFTFALL PAVEMENT
Scale: 1:10



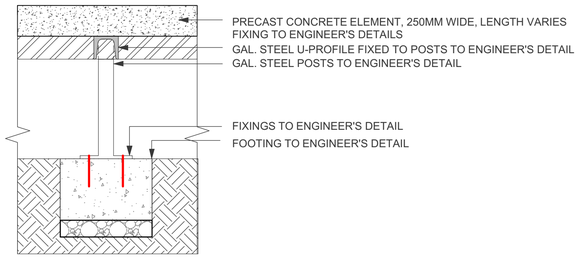
3 PAVEMENT TYPE 11 - PRECAST CONCRETE SLEEPER
Scale: 1:20

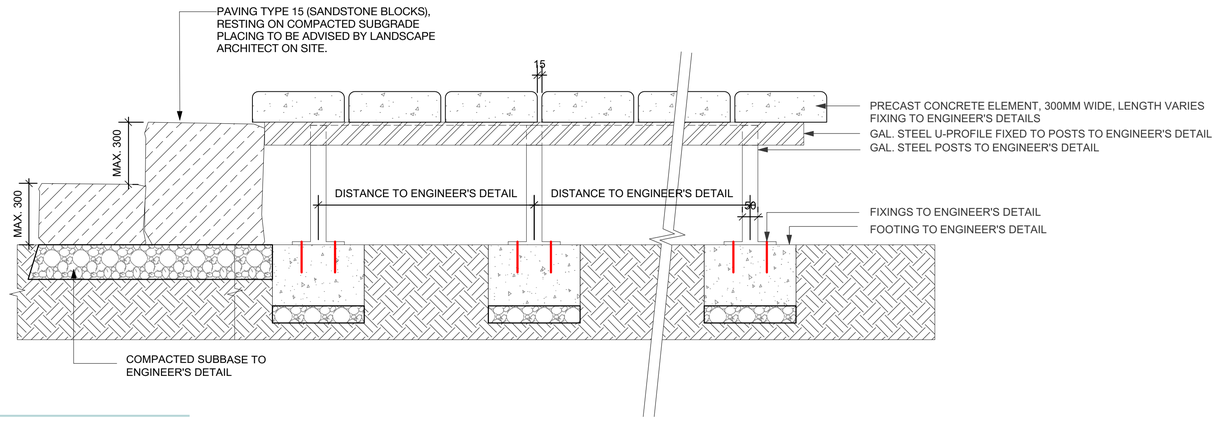


4 PAVEMENT TYPE 11 - PRECAST CONCRETE PROFILE
Scale: 1:5



2 PAVEMENT TYPE 10 - SOFTFALL COLOUR JOINT
Scale: Half Actual Size





5 PAVEMENT TYPE 11 - PRECAST CONCRETE SLEEPER
Scale: 1:5 PROFILE

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NORTH / SCALE
Scale NA

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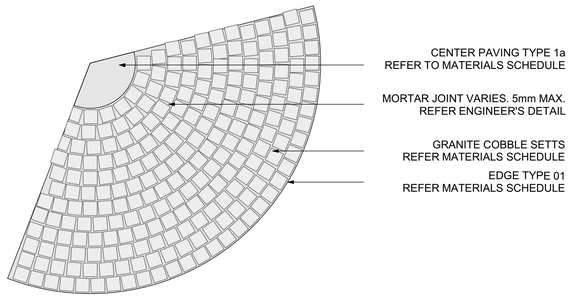
CLIENT NAME
DEPARTMENT OF EDUCATION

PROJECT
ALEXANDRIA PARK COMMUNITY SCHOOL
PARK ROAD, ALEXANDRIA 2015

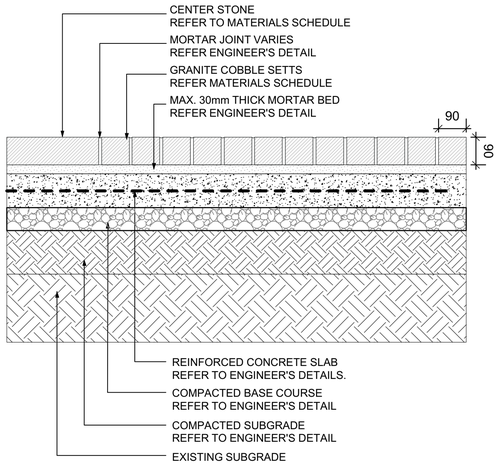
DRAWING TITLE
HARDWORKS DETAIL 03 OF 13
GROUND FLOOR

CREATED	DATE	CHECKED	PROJECT STAGE	SHEET SIZE
CK	27/08/18	HD	TENDER	A1

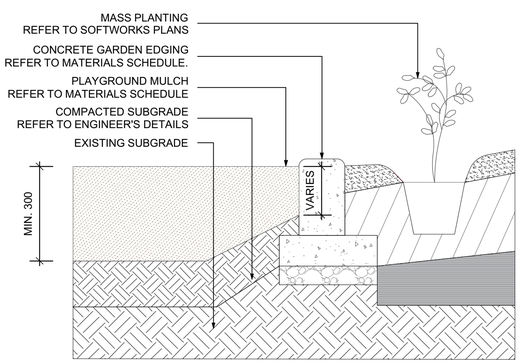
PROJECT NUMBER	DRAWING NUMBER	ISSUE
16585	L-TD-703-00	



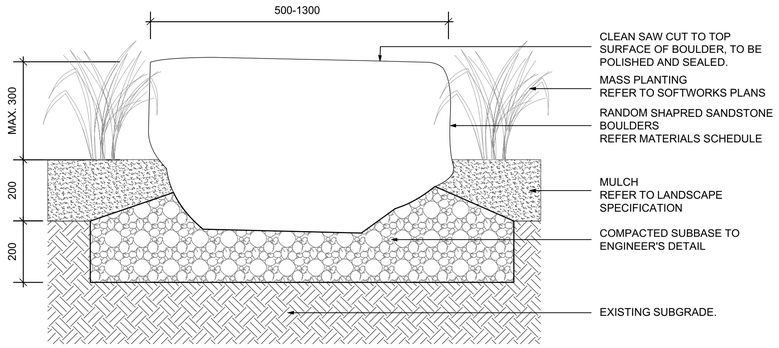
1 PAVEMENT TYPE 12 - GRANITE COBBLE SETTS - PLAN
Scale: 1:20



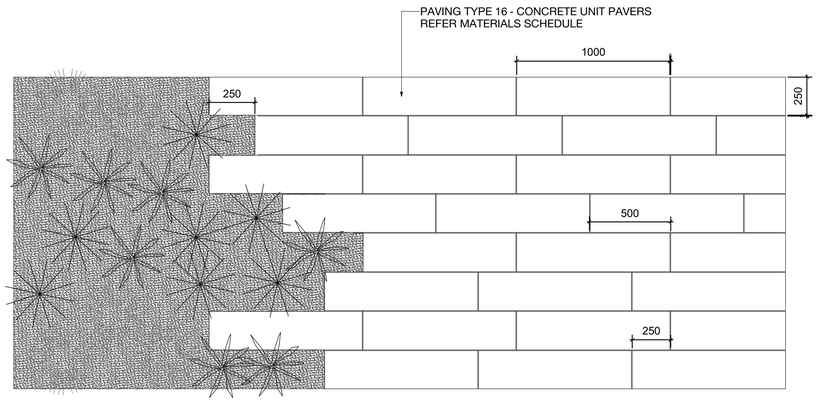
2 PAVEMENT TYPE 12 - GRANITE COBBLE SETTS
Scale: 1:10



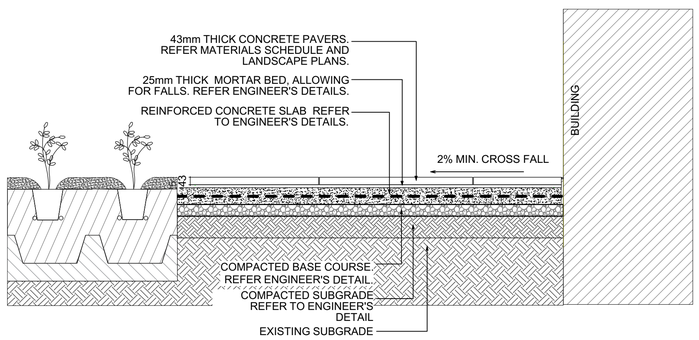
3 PAVEMENT TYPE 13 - PLAYGROUND MULCH
Scale: 1:10



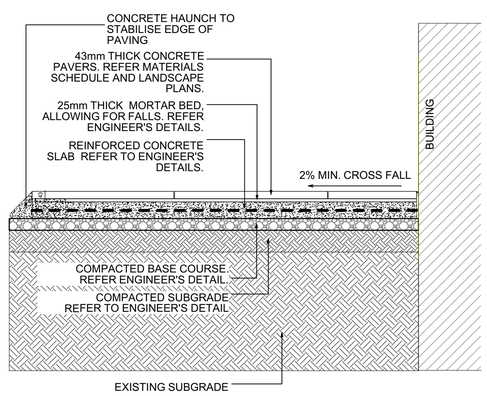
4 PAVING TYPE 15: SANDSTONE LOG
Scale: 1:10



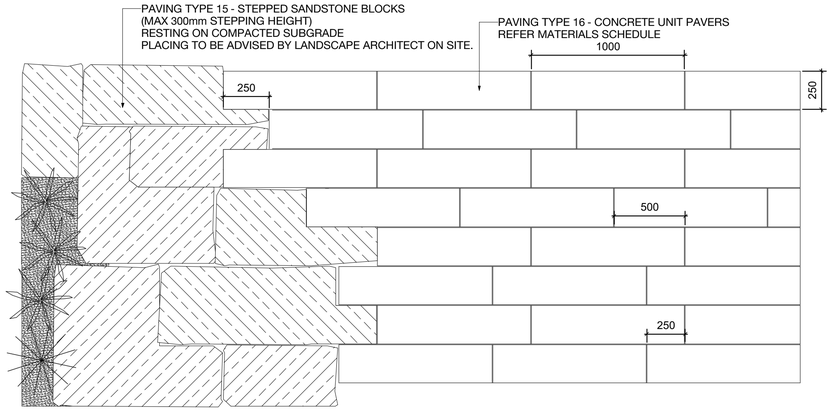
5 PAVING TYPE 16: CONCRETE UNIT PAVING WITH IRREGULAR PLANTING ED
Scale: 1:20



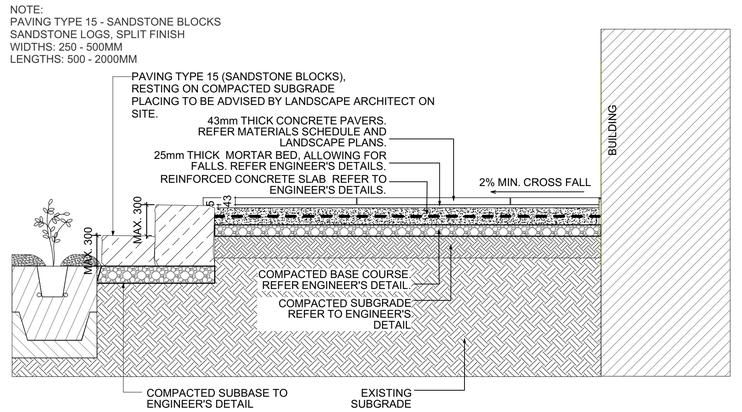
6 PAVING TYPE 16: CONCRETE UNIT PAVING WITH IRREGULAR PLANTING ED
Scale: 1:20



7 PAVING TYPE 16: CONCRETE UNIT PAVING, REGULAR EDGE
Scale: 1:20



8 PAVING TYPE 16: CONCRETE UNIT PAVING WITH SANDSTONE EDGE
Scale: 1:20



9 PAVING TYPE 16: CONCRETE UNIT PAVING WITH SANDSTONE EDGE
Scale: 1:20

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ISSUE	DESCRIPTION	BY	APP'D	DATE
			HD	

NORTH / SCALE
Scale NA

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ABN: 14 074 411 288

CLIENT NAME
DEPARTMENT OF EDUCATION

PROJECT
ALEXANDRIA PARK COMMUNITY SCHOOL
PARK ROAD, ALEXANDRIA 2015

DRAWING TITLE
HARDWORKS DETAIL 04 OF 13
GROUND FLOOR

CREATED	DATE	CHECKED	PROJECT STAGE	SHEET SIZE
CK	27/08/18	HD	TENDER	A1

PROJECT NUMBER
16585

DRAWING NUMBER
L-TD-704-00

ISSUE

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