

# FINAL REPORT

## Assessment of Surface and Sub-surface Conditions

Proposed Lilyfield Skate Plaza, Leichhardt Park, 70 Mary Street  
Lilyfield NSW

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## Executive Summary

Inner West Council (the Council) are proposing to redevelop part of the south-western area of Leichhardt Park (the Site) into a skateboarding and cycling area, referred to as a 'Skate Plaza'. The Site has been and is currently occupied for use for open space and recreational land uses, as part of the large Leichhardt Park, and is currently covered with grassed areas with some stands of trees. The construction of the Skate Plaza will comprise the installation of various concrete surfaces, retaining walls, paved, soft landscaping areas and asphalt carparking as well as some drainage and lighting associated with the plaza (the Works). The Works will require some disturbance via excavation of surface and shallow sub-surface soils across the Site to depths of up to approximately 1 metre below the current ground surface.

Leichhardt Park, on which the Site is located, has been utilised for open space and recreational purposes for more than a century. Historical information indicates that large areas of Leichhardt Park were subject to filling activities between the 1960s and 1970s to achieve its current levels. Previous investigations on other parts of Leichhardt Park have identified the presence of fill materials that had a large proportion of building and demolition wastes that contained a range of contaminants (primarily heavy metals, polynuclear aromatic hydrocarbons, heavy fraction petroleum hydrocarbons and asbestos containing materials). Given the historical filling elsewhere on Leichhardt Park, there is a potential for contamination to be present in the surface and sub-surface soils on the Site.

Whilst the suitability of the Site for open space and recreational land use is achieved through the operation and implementation of Council's *Long-term Environmental Management Plan for Parks and Playgrounds, Inner West Council NSW* prepared by CONSARA (latest revision dated 7 September 2020) (the LTEMP), Council determined that, in planning for the Skate Plaza, that the conditions of the surface and sub-surface on the Site should be assessed to inform construction planning and to ensure that the Site will remain suitable for open space recreational land use once the Works are completed. This report documents the intrusive investigation works completed by CONSARA to assess the surface and sub-surface conditions across the Site. These works comprised the completion of test-pits across the Site to the maximum depth required during the construction of the proposed Skate Plaza, being between 1 to 1.2 metres below ground surface (m bgs).

The results of this assessment have identified that the Site is underlain by fill materials to at least the maximum depth of the assessment being between 1 to 1.2 m bgs. The fill materials are generally comprised of sandy to silty soils that grade with depth to clays to sandy clays. Building, demolition and foreign waste materials were present within the soil matrix at all test-pits and comprised of variable proportions of bricks, tiles, slag, ash, glass and sandstone rocks.

The results of the assessment have also identified that the contaminants of concern in the fill materials present in the sub-surface on the Site are limited to the presence of carcinogenic PAHs and asbestos with no evidence of the presence or potential presence of gross or significant chemical contamination, odours, staining, sheens, putrescible waste or perched groundwaters in the fill materials.

Based on the results of this assessment it is considered that there is unlikely to be any specific point sources of contamination to the surface and sub-surface environment on the Site but rather, the contamination is directly associated with the presence of historically placed fill materials in the sub-surface and as such its distribution would be likely to be variable through the sections of the sub-surface where fill materials were present on the Site.

The results of this assessment have not identified conditions or potential conditions that are considered to affect the suitability of the Site for the proposed Skate Plaza. The management of risks to workers and the surrounding community and environment during construction of the Works is recommended to be managed through a Construction Environmental Management Plan.

Overall, it is considered that the Site is suitable for the uses as set out in the plans provided in Appendix A and for ongoing open space and recreational land use subject to the implementation of Council's LTEMP.

# 1 Introduction

CONSARA Pty Ltd (CONSARA) has been commissioned by SJB Planning on behalf of Inner West Council (the Council) to undertake an assessment of the surface and sub-surface soil conditions at an area proposed to be developed into a skateboarding and cycling area, referred to as a 'Skate Plaza', located on the south-western part of Leichhardt Park at 70 Mary Street, Lilyfield NSW (the Site). The location of the Site is provided at Figure 1 and the layout of the proposed works are provided on the plans in Appendix A.

The Site has been and is currently occupied for used for open space and recreational land uses, as part of the large Leichhardt Park, and is currently covered with grassed areas with some stands of trees. The construction of the Skate Plaza will comprise the installation of various concrete surfaces, retaining walls, paved, soft landscaping areas and asphalt carparking as well as some drainage and lighting associated with the plaza as detailed in Appendix A (the Works). The Works will require some disturbance via excavation of surface and shallow sub-surface soils across the Site to depths of up to approximately 1 metre below the current ground surface.

Leichhardt Park, on which the Site is located, has been utilised for open space and recreational purposes for more than a century. Historical information indicates that large areas of Leichhardt Park were subject to filling activities between the 1960s and 1970s to achieve its current levels. Previous investigations on other parts of Leichhardt Park have identified the presence of fill materials that had a large proportion of building and demolition wastes that contained a range of contaminants (primarily heavy metals, polynuclear aromatic hydrocarbons, heavy petroleum hydrocarbons and asbestos containing materials). It is understood that some recent works completed by Council on the sporting fields located directly to the north of the Site, required excavations to depths of up to 1.5 metres below the current ground surface and that there was no evidence of building and demolition waste materials, including no visual observation of asbestos containing materials. Notwithstanding this, given the historical filling elsewhere on Leichhardt Park, there remains a potential for contamination to be present in the surface and sub-surface soils on the Site.

Currently, the suitability of the Site for open space and recreational land use is achieved through the operation and implementation of Council's *Long-term Environmental Management Plan for Parks and Playgrounds, Inner West Council NSW* prepared by CONSARA (latest revision dated 7 September 2020) (the LTEMP). The LTEMP sets out the control measures and procedures that are required to be implemented to manage the potential risks to human health associated with the presence and potential presence of contamination in surface and sub-surface fill materials that may be present in Council owned and operated areas, including the Site.

In accordance with the LTEMP, when planning for the proposed Skate Plaza, Council has sought advice from CONSARA as to how the potential contamination, that maybe disturbed during the works, can be managed. In addition, given that the proposed Skate Plaza does not constitute nor requires a change in the land use for the Site, Council has also sought confirmation from CONSARA that the proposed finished surface treatments will be sufficient to maintain suitability of the Site for open space and recreational land use subject to the ongoing implementation of the LTEMP.

In addition to the above, Council determined that in planning for the Skate Plaza that the conditions of the surface and sub-surface on the Site should be assessed to inform construction planning and to ensure that the Site will remain suitable for open space recreational land use once the Works are completed.

This report documents the intrusive investigation works completed by CONSARA to assess the surface and sub-surface conditions across the Site. This report has been prepared, where possible and relevant, with reference to the relevant requirements of the *National Environment Protection (Assessment of Site Contamination) Measure (NEPM) – Schedule B 1999 as Amended 2013* (ASC NEPM) National Environment Protection Council (NEPC) and the NSW Environment Protection Authority (NSW EPA, 2020) *Contaminated Land Guidelines - Consultants Reporting on Contaminated Sites* and other relevant guidance made or endorsed by NSW EPA.

## 1.1 Objective

The objectives of the assessment works are as follows:

- Adequately characterise the surface and sub-surface environment on the Site such that identified potential areas of environmental concern (AEC) and potential contaminants of concern (COC) are assessed; and
- Assess the suitability of the Site for continued open space and recreational land use subject to the implementation of the LTEMP.

## 1.2 Data Quality Objectives

To ensure that data of appropriate types and reliability were collected and assessed for the additional investigation of the Site, the seven-step Data Quality Objective (DQO) approach was adopted, in accordance with Appendix B of Schedule B2 of the *National Environment Protection (Assessment of Site Contamination) Measure 1999* (NEPC, 2013) (the NEPM). The DQOs have set quality assurance and quality control parameters for the relevant parts of the works. The DQOs adopted for the works are presented in Appendix B. Attainment of the DQOs has been assessed by reference to the data quality indicators (DQIs) in Appendix C.

## 1.3 Scope of Works

The scope of work that was undertaken in order to meet the objectives described above was as follows:

- Preliminary works:
  - Complete an inspection of the Site;
  - Prepare a sampling and analytical program appropriate to achieve the objectives of the works;
- Intrusive Investigations:
  - Prepare relevant Work, Health and Safety documentation;
  - Implement the sampling, analytical and quality plan by firstly undertaking field investigations which comprised the following works:
    - Completion of test-pits at x locations to the depth at which excavation works are expected to extend during the Works, being between 1 to 1.2 metres below ground surface;
    - Collection of representative samples of fill materials and natural soil (if present) at each of the test-pit locations;
    - Completion of detailed environmental logging of each test-pit for evidence of contamination (e.g. by reference to staining, odour, presence of materials of anthropogenic materials), fill materials and soil properties;
  - Submission of selected samples of fill materials, natural soils and field quality control samples to National Association of Testing Authorities (NATA) accredited laboratories for variable analysis for the following suite of analytes:
    - Metals (Arsenic, Cadmium, Copper, Chromium, Nickel, Lead, Zinc and Mercury);
    - Total Petroleum Hydrocarbons (TPH as Total Recoverable Hydrocarbons (TRH));
    - Benzene, Toluene, Ethylbenzene and Xylenes (BTEX);
    - Polycyclic Aromatic Hydrocarbons (PAHs);

- Organochlorine Pesticides (OCPs);
  - Organophosphate Pesticides (OPPs);
  - Polychlorinated Biphenyls (PCBs);
  - Asbestos;
- Completion of quality control chemical analyses carried out at the primary and secondary commercial laboratories registered by NATA;
- Assessment of the reliability of the field and laboratory procedures according to the requirements of the NEPM; and
- Preparation of this report detailing the program of works undertaken, methodologies adopted, the field and analytical results, reliability of the data (by reference to the DQOs and DQIs), interpretation of the results with respect to achievement of the objectives of the assessment.

## 2 Conceptual Site Model

### 2.1 Site Condition and Surrounding Environment

#### 2.1.1 Site Identification

The Site is located approximately 6 km to the west of the Sydney central business district. The Site is a rectangular shaped parcel of land that is approximately 2800 m<sup>2</sup> in area and is located within the south-western corner of a larger area known as Leichhardt Park that comprises Leichhardt Park Aquatic Centre, Leichhardt Oval, various other playing fields and other open space recreational areas. Leichhardt Park, including the Site, is owned by Council.

#### 2.1.2 Current and Proposed Use

The Site is currently used for public open space and recreational purposes and is grassed with some stands of trees. This use would continue after the Works are completed. The plans for the Works are provided in Appendix A.

#### 2.1.3 Surrounding Land Use

The Site is located within the larger Leichhardt Park and the primary land uses surrounding the Site are either open space and recreational use or residential land uses. Iron Cove is located to the west along the boundaries of the peninsula on which Leichhardt Park is located.

#### 2.1.4 Topography, Surface Water, Drainage and Flood Potential

The surface of the Site and the surrounding areas of the park are generally flat with an elevation of approximately 2 metres Australian Height Datum (m AHD). A steep embankment is located to the east. Constructed seawalls form the boundary of the larger Leichhardt Park.

Stormwater and surface water drainage from the Site drains to the local stormwater network which is expected to discharge to Iron Cove to the west of the Site.

Given the location of the Site on a tidally influenced river it is considered that the risk of flooding is low.

#### 2.1.5 Soils, Geology and Hydrogeology

The Site is located in an area that has been subject to significant disturbance and historical filling and reclamation activities since the late 1800s. The Soils Landscapes of the Sydney 1:100000 Sheet (SCS, 2009) indicates that the natural soils on the Site have been subject to significant disturbance by human activity and that filling materials comprising rocks, building and waste materials are likely to be present. Prior to filling, the soil landscape of the Site is likely to have been comprised of rugged rolling to very steep hills and rocky outcrops dominated by shallow lithosols and siliceous sands with some podzolic soils present in less exposed areas (SCS, 2009).

The fill materials and soils at the Site and surrounding area are underlain by Quaternary aged deposits of sands which would then be underlain by Middle Triassic aged Hawkesbury Sandstone of the Wianamatta Group (DMR, 1991). The Hawkesbury Sandstone consists of medium to coarse-grained quartz sandstone, very minor shale, siltstone and laminite lenses.

The 1:25 000 Prospect/Parramatta River Acid Sulfate Soil Risk Map (DLWC, 1997) indicates that there is a low probability of the occurrence of acid sulfate soils within the soil profile located on the Site. However, it is understood that Council have had an Acid Sulphate Soil Management Plan prepared for the Works should such conditions be encountered.

Regional groundwater is expected to be present at depth within the Hawkesbury Sandstone underlying the Site and is likely to be present as flow through fractures such as joints and bedding plane partings or via permeable lenses of siltstone or laminate. Thus, the transmissivity of the sandstone aquifer is dependent on the frequency, openness and orientation of the fracturing present. Groundwater present in sandstone is expected to be generally of reasonable quality with low salinity, whilst groundwater present in any siltstone and laminite lenses is expected to be of higher salinity (Pells 1985). Based on local topography and surface drainage, groundwater in the bedrock is expected to flow to the west to north-west toward Iron Cove. Locally, it is not expected that perched groundwater would be encountered to be present in fill materials or shallow sub-surface soils.

Given that minimal excavation works are required for the Works on the Site, neither perched groundwaters nor potential acid sulphate soils are expected to be encountered during the construction works.

## 2.2 Potential Areas and Contaminants of Concern

Given the history of Leichhardt Park, fill materials present in the surface or shallow sub-surface of the Site could contain soils that are potentially contaminated with polycyclic aromatic hydrocarbons, petroleum hydrocarbons, heavy metals or asbestos-containing materials (ACM) or fibrous asbestos (AF/FA). However, Council have reported that during recent intrusive works on the sporting fields located directly to the north of the Site that there was no evidence of building and demolition waste materials, including no visual observation of asbestos containing materials. Given this and that the Site is located on the same topographic level as the sporting fields, the potential for contamination to be present in the surface and shallow sub-surface soils to considered to be low.

It is noted that any contamination potentially present on the Site would likely be classified as diffuse contamination and maybe heterogeneous in its nature and extent. Given the history of the area it is expected that such contamination or potential for contamination is not unique to the Site and would be present underlying the properties directly surrounding the Site.

## 2.3 Potential Receptors

The proposed Skate Park does not affect the use of the Site and it will continue for open space recreational land use. However, what will change are the surface coverings which is change from grasses and vegetation to primarily hardstands. Given the proposed surface coverings of the Skate Park, the potential receptors for potential contaminants sourced from the Site are considered below.

### 2.3.1 Human Receptors

Given that the Site will be continue to be used for open space and recreational land use and that the surface coverings that will comprise various concrete surfaces, retaining walls, paved, soft new landscaping areas and asphalt carparking, with respect to human use the potential future receptors (and the associated exposure pathways) for potential contaminants sourced from the Site include the following:

- Occupiers and users (Children through to Adults) of the Site who have access to the Site – inhalation of vapours (outdoors) from subsurface sources (though the risk of volatile compounds being present is considered to be low to negligible); dermal contact from surface soils (given surface coverings this is considered to be low to negligible risk); ingestion from surface soils or dusts generated from surface soils (given surface coverings this is considered to be low to negligible risk);
- Workers involved in intrusive maintenance works on the Site– inhalation of vapours (outdoors) from subsurface sources (though given previous results the risk of volatile compounds being present is considered to be low to negligible), dermal contact from surface or sub-surface soils/perched groundwaters; ingestion from surface soils or dusts generated from surface/sub-surface soils or from perched groundwaters.

It is noted that currently and under the future use of the Site that the nearest off-site human receptors would be in residential properties located directly to the south- east.

### 2.3.2 Environmental Receptors

Given the location of the Site the environmental receptors (aquatic and terrestrial) for potential contaminants sourced from the Site are the groundwater aquifers present either as a perched/shallow system and/or at depth beneath the Site and the local area, which are ultimately expected to discharge to Iron Cove.

It is considered that the local area, including the local creeks, are located within a highly disturbed environment and has been the receiving body for historical wastes, wastewaters and discharges from domestic and industrial sources that historically occupied and currently occupy the local area. Whilst the quality of the waters and sediments in such catchments have been demonstrated to have improved over the past few decades, mainly due to increased regulation around discharges from industrial sites and urban areas, these creeks still receive significant flows of stormwater and surface water runoff from the surrounding industrial and urban areas. In addition, with respect to human use, groundwater beneath and in the local region surrounding the Site is known to be unsuitable for any beneficial purpose and is not accessed for beneficial use. The value of this groundwater resource is considered to be low.

### 3 Data Gap and Uncertainty Assessment

The Conceptual Site Model for the Site has identified that the Site had a long history of use as public open space and was unlikely to have been used for any specific contaminating activities. However, the Site has been subject to historical filling to achieve the current surface levels. Investigations on other parts of Leichhardt Park have identified the presence of fill materials that contain some building and demolition wastes that contained some polycyclic aromatic hydrocarbons, petroleum hydrocarbons, heavy metals and/or asbestos-containing materials (ACM), however, recent works completed by Council on the sports field adjacent to the Site is reported to not have identified any potential contaminated fill materials.

Whilst there is no evidence of gross or point source contamination on the Site or in the surrounding areas of Leichhardt Park, to date, no intrusive investigations have been completed on the Site and as such uncertainty exists in understanding of the surface and sub-surface environment on the Site and in particular the nature and extent of the fill materials present in the surface and in the sub-surface that maybe contaminated. As such it was considered that this uncertainty be addressed via an assessment that comprised the implementation of an appropriately designed intrusive investigation.

A sampling, analytical and quality plan was then prepared to set out the investigations required to address the uncertainty identified as an outcome of this conceptual site model. The works completed for this assessment are documented in Section 4 of this report.



## 4 Sampling and Analytical Plan

The sampling and analytical plan undertaken by CONSARA for this assessment were in accordance with relevant guidelines endorsed by NSW EPA and with NEPM guidelines (NEPC, 1999 and as updated in the NEPC, 2013) and with the methodologies that were generated as the outcome of the seven-step DQO process as described in Appendix A. The field and analytical works conducted for the assessment are presented in detail below.

### 4.1 Sampling Plan

The sampling plan developed for the assessment works was designed to provide sufficient sampling locations to achieve the following:

- Provide sufficient information such that the uncertainty in relation to the surface and sub-surface conditions across the Site and to the vertical depth of the Work is addressed;
- Provide adequate characterisation of the condition of the surface and sub-surface soils to the vertical depth of the Work.

The Conceptual Site Model considered that there is no specific point sources of contamination to the surface and sub-surface environment on the Site but rather, if present, the contamination would be directly associated with the presence of fill materials which are assumed to be heterogeneous. Such conditions would then likely result in a variable distribution of contamination through the sections of the sub-surface where fill materials are present. However, similarly, if consistent conditions are encountered in the fill materials then this could result in a consistent/predictable distribution of contamination.

Given the above a generally grid-based sampling pattern was adopted across the Site with eight test-pits completed which is consistent with the NSW EPA (1995) *Sampling Design Guidelines* recommendations for a site with an area of between 2000 to 3000 m<sup>2</sup>. The density of sampling locations was selected to provide adequate coverage for the objectives of the assessment to be achieved. Sampling locations were all completed as test-pits using an 8-tonne excavator.

The sampling locations completed for this assessment are provided on Figure 2.

If evidence of gross or significant chemical related contamination was identified during the works or if substantive perched groundwater were encountered in the fill materials consideration was to be given to undertaking an assessment of groundwater. No gross or significant chemical related contamination was identified nor were highly moist to wet conditions or other conditions indicative of the presence of perched groundwater was encountered during the intrusive investigation and therefore no groundwater monitoring was required to be completed.

The works undertaken and the results are documented in the following sections.

#### 4.1.1 Field Methodology

The intrusive investigation works were undertaken by CONSARA Principal Environmental Scientists Rebecca Organo who has over 20 years' experience in contaminated land assessments and remediation. The investigation works were completed between 17 May 2021. The weather was dry, no wind, partly cloudy and approximately 10 to 15 degrees Celsius. The sampling methods used follow the procedures and methodology set out in the tables below and were conducted with reference to the relevant guidelines endorsed by NSW EPA.

**Table 1: Investigation Methodology**

Activity	Details
Service Location	Underground service location was not required as all services on the Site were either no longer active or their location was already known.

Activity	Details
Excavation of Test-pits into surface and sub-surface	<p>Test-pits were advanced using an excavator from the current ground surface and into the sub-surface. The test-pit was excavated to a depth of between 1 to 1.2 metres below ground surface (m bgs) which is understood to be the maximum depth of trenching and/or excavation required during the construction of the Works at the Site.</p> <p>During excavation activities, excavated materials was stockpiled adjacent to the test-pit and were used for reinstatement at completion of sampling works.</p>
Soil Sampling	<p>Samples collected from test-pits completed from the current ground surface were collected directly from the walls and base of the test-pit or from the undisturbed materials present in the centre of the excavator bucket from each different layer or horizon of materials present or at regular intervals, depending on the sub-surface conditions.</p> <p>New nitrile gloves were used for the collection of each sample.</p> <p>Samples for chemical analysis were collected into laboratory-supplied 150 mL glass jars with lids, which were carefully filled to minimise the amount of headspace in the jar. The soil samples for chemical analysis were immediately stored on ice in a secured esky.</p> <p>Samples for asbestos field screening and/or analysis were collected by hand protected by a disposal nitrile glove into a clean bucket. In some location's samples of bonded fibre cement sheeting that was visually considered to be asbestos containing or where it was not certain, were collected by hand protected by a disposal nitrile glove into a laboratory supplied sealable bag for asbestos analysis.</p> <p>Field intra-laboratory and inter-laboratory duplicates of the soil samples to be submitted for chemical analysis were prepared in the field by collecting separate samples from the test-pit from the same depth as the primary sample at a rate of one per 10 primary samples and one per 20 primary samples, respectively. Samples were not mixed or homogenised during collection or splitting. Where possible, samples for duplicate analyses were selected from sampling locations showing the highest probability of containing contaminants of concern, i.e. samples characterised by the presence of foreign materials, staining or odour.</p>
Field Screening	<p>Asbestos Screening - Soil samples collected for asbestos screening and analysis included, where practicable, the collection of a 0.5 L and 10L sample from each sampling location. In accordance with the WA DoH (2009), the 10 L sample was screened manually on-site through a &lt; 7 mm sieve. The 10 L sample was retained and not analysed, however, the 0.5 L sample for these locations was placed into a zip-locked plastic bag and were sent to a laboratory NATA accredited for weighing and asbestos analysis.</p> <p>Volatile Organic Compound (VOC) Screening - It is noted that as there was no field evidence of (visual or olfactory) of the presence of volatile contaminants (no odours or gross contamination) CONSARA considered that there was no requirement to conduct VOC Screening with a Photo-ionisation Detector (PID). It is noted that the analytical results confirmed the field observations with concentrations of volatile compounds reported at less than the laboratory detection limits</p>
Field Logging	<p>Recording of logs for test-pits was conducted in the field in accordance with the Unified Soil Classification System (USCS), including observation of any anthropogenic material (i.e. stained soil, hydrocarbon or other chemical odours, asbestos cement (AC) sheeting etc.).</p>

Activity	Details
Sample Labelling, Storage and Transport	All sample containers were clearly labelled with unique sample identification numbers consisting of the date, sample location, depth of sample (where relevant) and samplers initials. In the case of field intra-laboratory duplicates and inter-laboratory duplicates and other field quality control samples, the sample containers were labelled so as to not reveal their purpose or sample location to the laboratory. All samples for chemical analysis were kept chilled in an ice-filled esky prior to dispatch and during transport to the nominated laboratory under chain-of-custody procedures. Samples for analysis for asbestos were kept in an esky prior to dispatch and during transport to the NATA registered laboratory under chain-of-custody procedures.
Decontamination	Given that samples for chemical analysis were collected directly from undisturbed walls and base of test-pits or from the undisturbed materials present in the centre of the excavator bucket using single-use gloves and no reusable sampling equipment came into contact with the soil sampled the collection of rinsate blanks was not necessary.
Reinstatement of boreholes and excess soils.	Soil cuttings from test-pitting works was stockpiled adjacent to the test-pit location and was used to reinstate the excavation with the reinstatement of materials occurring in the reverse order that they were excavated out.

## 4.2 Analytical Plan

The analytical plan adopted for the assessment was to ensure that the objectives were met. Given the variable fill conditions across the Site the analytical plan adopted included only analysis of representative samples of the natural clays but all samples of fill materials were subject to analysis.

### 4.2.1 Analytical Schedule

The following sample analysis schedule was adopted for the investigation works:

- Representative samples of fill materials present in the surface and sub-surface environments were analysed for the following:
  - Metals (Arsenic, Cadmium, Copper, Chromium, Nickel, Lead, Zinc and Mercury);
  - Total Petroleum Hydrocarbons (TPH as Total Recoverable Hydrocarbons (TRH));
  - Benzene, Toluene, Ethylbenzene and Xylenes (BTEX);
  - Polycyclic Aromatic Hydrocarbons (PAHs);
  - Organochlorine Pesticides (OCPs);
  - Organophosphate Pesticides (OPPs);
  - Polychlorinated Biphenyls (PCBs);
  - Asbestos;
- Field Quality Control Samples completed for the soil sampling program:
  - Intra-laboratory duplicate samples were analysed at a rate of one per ten primary samples (10%) for the suite of analytes applied to the primary samples (this excluded asbestos);
  - Inter-laboratory duplicates samples were analysed at a rate of one per twenty primary samples (5%) for the suite of analytes applied to the primary samples (this excluded asbestos); and

- A laboratory prepared trip spike and trip blank was submitted for analysis for BTEX.

## 4.2.2 Analytical Laboratory Methodology

Primary, intra-laboratory duplicate and other field quality control samples were submitted to Envirolab Laboratory (Envirolab), located at Chatswood, Sydney, a NATA registered and accredited laboratory for the analysis required (NATA accreditation number 2901). Envirolab's analytical procedures are based on established internationally-recognised procedures such as those published by the US EPA, APHA, AS and NEPM (2013). Envirolab also adopt in house procedures where required.

Inter-laboratory duplicate samples were submitted to Australian Laboratory Services (ALS), located at Smithfield Sydney, a NATA registered and accredited laboratory for the analysis required (NATA accreditation number 825). ALS's analytical procedures are based on established internationally-recognised procedures such as those published by the US EPA, APHA, AS and NEPM (2013). ALS also adopt in house procedures where required.

Laboratory analysis was conducted in accordance with the requirements of NEPM and are referenced to USEPA and APHA methods. The analytical schedule, laboratory methods, laboratory PQLs and reference methods applied for the validation works were appropriate to meet the project DQOs and DQIs. The analytical laboratory methods adopted for the works are presented in the table below.

**Table 2: Analytical Laboratory Methods**

Analyte	Envirolab Practical Quantitation Limit	Reference Method	ALS Laboratory Limit of Detection	Reference Method
BTEX and Naphthalene	0.2 – 1 mg/kg	Extraction with methanol and Purge and Trap GC-MS	0.2-1 mg/kg	Extraction with methanol and Purge and Trap GC-MS
TRHs (C6-C10)	25 mg/kg	Extraction with methanol and Purge and Trap GC-MS	10 mg/kg	Extraction with methanol and Purge and Trap GC-MS
TRHs (C10-C40)	50-100 mg/kg	Extraction with Dichloromethane/Acetone and analysed by GC-FID	50-100 mg/kg	Extraction with Dichloromethane/Acetone and analysed by GC-FID
PAHs (Including Naphthalene)	0.05-0.2 mg/kg	Extraction with Dichloromethane/Acetone and analysed by GC-MS	0.5 mg/kg	Extraction with Dichloromethane/Acetone and analysed by GC-MS
Metals – Arsenic, Cadmium, Chromium, Copper, Lead, Nickel, Zinc	0.4-4 mg/kg	ICP-AES	1-5 mg/kg	ICP-AES
Mercury	0.1 mg/kg	Cold vapour AAS	0.5 mg/kg	Cold vapour AAS
OCPs/OPPs/PCBs	0.1 mg/kg	Extraction with Dichloromethane/Acetone and analysed by GC with dual ECDs	0.1 mg/kg	Extraction with Dichloromethane/Acetone and analysed by GC with dual ECDs

Analyte	Envirolab Practical Quantitation Limit	Reference Method	ALS Laboratory Limit of Detection	Reference Method
Asbestos	mg/kg (0.001%w/w) to 0.1g/kg (0.01%w/w)	Polarised Light Microscopy and Dispersion Staining Techniques.		

Notes to Table:

GC= Gas Chromatography      CP-AES =Inductively Coupled Plasma Atomic Emission Spectrometry

AAS = Atomic Absorption Spectroscopy MS = Mass Spectrometry    FID = Flame Ionisation Detector

## 5 Site Assessment Criteria

The current assessment criteria used in NSW to assess soil quality are based on the following guidelines:

- NSW EPA *Guidelines on the Duty to Report Contamination under the Contaminated Land Management Act 1997* (NSW EPA, 2015);
- NSW EPA *Guidelines for the NSW Site Auditor Scheme-3rd Edition* (NSW EPA, 2017);
- National Environment Protection Council (NEPC) *National Environment Protection (Assessment of Site Contamination) Measure* (NEPM, 1999) and as amended *National Environment Protection (Assessment of Site Contamination) Measure* (NEPM, 2013) (the ASC NEPM); and
- Western Australian Department of Health *Guidelines for the Assessment, Remediation and Management of Asbestos-Contaminated Sites in Western Australia* (WA DOH, 2009).

Application of these guidelines to this Additional Investigation is briefly described below.

### 5.1 Soil Assessment Criteria

The guidelines to evaluate soil analytical results currently applied in NSW, as listed in above, presents a range of Health-Based Investigation Levels (HILs), Health-based Screening Levels (HSLs) and Ecological Investigation Levels (EILs) and Ecological Screening Levels (ESLs) for urban redevelopment sites in NSW.

It is noted that EILs and ESLs apply principally to contaminants in the top 2 m of soil at the finished surface/ground level which corresponds to the root zone and habitation zone of many species (ASC NEPM) and that as such the EILs and ESLs will only be applied to soil analytical results for samples collected at less than 2 m bgs.

Given that the Skate Park will result in the ongoing use of the Site for open space and recreational land uses, the Site is required to be assessed for open space and recreational land use. Given this proposed use the soil analytical results will be assessed against the following criteria:

- Metals, Total PAH and Benzo(a)pyrene, PCBs, OCPs/OPPs results:
  - Heath-based Investigation Level (HIL) C (Recreational C land use) (ASC NEPM);
  - Ecological Investigation Level (EIL) Urban Residential/public open space land use (for As, Cu, Cr(III), naphthalene, Ni, Pb and Zn) (ASC NEPM); and
  - Ecological Screening Level (ESL) Urban Residential/Public Open Space land use (Fine Soil Texture) (Benzo(a)pyrene only) (ASC NEPM);
- TPH, BTEX and Naphthalene results:
  - Health-based Screening Level (HSL) C (recreational/open space C land use) (Sand, Silt and Clay and Depth range dependant) (ASC NEPM);
  - Ecological Screening Level (ESL) Urban Residential/Public Open Space land use (Fine Soil Texture) (TPH and BTEX only) (ASC NEPM);
- Asbestos results:
  - FA and AF: 0.001 % w/w and no visible FA and/or AF in surface soils (top 100 mm of soils)(ASC NEPM);
  - Recreational C land uses ACM: 0.02 % w/w and no visible ACM in surface soils (top 100 mm of soils) (ASC NEPM).

## 6 Quality Assurance and Quality Control (QA/QC)

### 6.1 Data Validation

The quality assurance and quality control plan adopted for the assessment works were designed to achieve pre-determined data quality indicators that have demonstrated the precision, accuracy, representativeness, completeness and comparability of the data set and that the data set is of acceptable quality to meet the objectives for the investigation works.

The QA/QC program implemented for the assessment works was generated as the outcome of the seven-step DQO process, as presented in Appendix B.

The achievement of the project DQOs was demonstrated by reference to the Data Quality Indicators (DQIs), precision, accuracy, representativeness, completeness and comparability. Details of the QA/QC data validation are presented in Appendix C.

### 6.2 Data Useability

The data validation procedure employed in the assessment of the field and laboratory QA/QC data indicated that the reported field and analytical results are representative of the conditions at the sample locations and that the field and analytical data can be relied upon for the purpose of the assessment works. It is concluded that overall, the quality of the field and analytical data produced is reliable for the purpose of the assessment works.

It is concluded that the overall quality of the information provided is reliable to meet the objectives of the assessment.

## 7 Results

The results of the field works and analytical laboratory analysis of soil samples collected for the assessment are provided in detail below.

### 7.1 Surface and Sub-surface Observations and Conditions

The surface and sub-surface conditions encountered at the Site comprised shallow silty topsoils which were underlain by sandy to clayey fill materials to the vertical extent of the intrusive investigations. The test-pits were completed to depths that ranged from 1 to 1.2 m bgs.

The composition of fill materials varied across the Site but primarily was comprised of sandy to silty soils that contained some minor building and demolition wastes throughout. The fill materials in the test-pits completed in the southern parts of the Site were observed to contain a higher proportion of building and demolition wastes such as bricks, tiles, slag, ash and glass, than the test-pits present in the central and northern parts of the Site. With depth the fill materials at the majority of the locations comprised clays to sandy clays with a high proportion of bricks and small to medium sized sandstone rocks. Fragments of asbestos containing materials (ACM) were observed to be present at test-pit TP02 in fill materials at a depth of 0.3-0.4 m bgs.

No other evidence of significant or gross contamination, odours, staining, sheens, putrescible waste, perched groundwaters or significant voids were identified in the topsoils or fill materials on the Site.

Detailed descriptions of the surface and sub-surface conditions encountered are described on the logs provided in Appendix D and photographs are provided in Appendix E.

### 7.2 Analytical Results

Analytical results for the 20 soil samples (primary and field intra and inter laboratory duplicates) selected for analysis are presented in Tables 3, 4 and 5. Final laboratory analytical results are provided in Appendix F. A summary of the soil analytical results when compared to the adopted soil investigation criteria is as follows:

- Chemical Results
  - Concentrations of metals (Arsenic, Cadmium, Copper, Chromium, Nickel, Lead, Zinc and Mercury), TPH, BTEX, OCPs, OPPs and PCBs in the topsoils and fill materials were either less than the laboratory detection limits or were less than the adopted criteria;
  - Concentrations of PAHs in the topsoils and fill materials were either less than the laboratory detection limits or were less than the adopted criteria, with the exception of the following:
    - Concentrations of carcinogenic PAHs were greater than the health based investigation criteria in ten of the twenty samples analysed;
    - Concentrations of benzo(a)pyrene were greater than the ecological screening criteria in fifteen of the twenty samples analysed
- Asbestos Results
  - Asbestos either as ACM > 7mm or AF and FA was not detected at greater than the laboratory detection limits or at greater than the adopted criteria in all ten samples analysed;
  - Chrysotile asbestos was identified in fibrous matted material in two samples, TP03\_0.4-0.5 and TP05\_0.3-0.4 but the concentrations were reported as estimates and were less than the laboratory reporting limits and the criteria;



- Fragments of ACM were visually observed at TP02 at a depth of 0.3-0.4 and were sampled and analysed with Chrysotile asbestos identified to be present in the fragments.

## 8 Discussion and Recommendations

### 8.1 Discussion of Results

The results of this assessment have identified that the Site is underlain by fill materials to at least the maximum depth of the assessment being between 1 to 1.2 m bgs. The fill materials are generally comprised of sandy to silty soils that grade with depth to clays to sandy clays. Building, demolition and foreign waste materials were present within the soil matrix at all test-pits and comprised of variable proportions of bricks, tiles, slag, ash and glass. Fragments of ACM were only visually identified in fill materials at one test-pit, TP03 at a depth of 0.3 to 0.4 m bgs, where there was a higher proportion of building and demolition wastes. In addition, asbestos was also identified, through laboratory analysis, to be present within small pieces of fibrous matted materials within the fill materials at TP03 and TP05 at depths of between 0.4 to 0.5 m bgs.

Fill materials that contained the highest proportion of building, demolition and foreign materials were present in the test-pits completed along the southern part of the Site, with the test-pits completed in the centre and to the north containing fill materials with a lower proportion of these types of waste materials. At depth in the majority of the test-pits, a large number of medium to larger sized sandstone rocks and bricks were presented within the clay to sandy clay soils that were present at these depths.

The results of the sampling and analysis of the fill materials have identified concentrations of carcinogenic PAHs greater than the open space and recreational land use criteria in half of the samples analysed. In addition, concentrations of benzo (a) pyrene were also greater than the ecological screening level in the majority of samples. Concentrations of the other potential chemical contaminants of concern analysed were all reported at either less than the laboratory detection limits or less than the open space and recreational land use criteria. It is considered that the source of the concentrations of PAHs is likely to the presence of minor ash and slag in the silty sandy fill materials. The presence of ash and slag in fill materials used in this area of Sydney is common as such materials were generated as a result of the historical combustion of coal in both domestic and industrial settings. It is well understood that concentrations of PAHs present in such materials have a low propensity to leach and an associated very low to negligible potential for the generation or migration of contaminated leachates from the Site to Iron Cove.

Based on the results of this assessment the contaminants of concern in the fill materials present in the sub-surface on the Site are limited to the presence of carcinogenic PAHs and asbestos with no evidence of the presence or potential presence of gross or significant chemical contamination, odours, staining, sheens, putrescible waste or perched groundwaters in the fill materials at the locations sampled.

Given the level topography of the Site and the surrounding area it is highly likely that the presence, depth and general condition of fill materials encountered during this assessment would be generally consistent across the Site.

The results of this assessment, has confirmed the CSM which identified that there is unlikely to be any specific point sources of contamination to the surface and sub-surface environment on the Site but rather, the contamination, if present, would be directly associated with the presence of fill materials in the sub-surface and as such its distribution would be likely to be variable through the sections of the sub-surface where fill materials were present on the Site.

### 8.2 Assessment of Site Suitability for the Proposed Use

The proposed Skate Plaza will require some minor trenching and excavation works and then the construction of various surface treatments and structures such as concrete surfaces, retaining walls, paved, soft landscaping areas and asphalt carparking as well as some drainage and lighting associated with the plaza as detailed in Appendix A (the Works).

The scope of the redevelopment for the Skate Plaza will ensure that a range of new surface coverings will be installed across the Site. The presence of these surface coverings will preclude access by occupiers and users of the Site to underlying retained fill materials present in the sub-surface environment. Notwithstanding this, it is considered that with respect to human use, the potential receptors (and the associated exposure pathways) for potential contaminants sourced from the Site to comprise the following:

- Workers involved in intrusive works on Site during construction – inhalation of dusts generated from surface/sub-surface soils; ingestion from surface soils or dusts generated from surface/sub-surface soils. dermal contact from sub-surface soils;; and
- Workers involved in intrusive maintenance works on future/new surface treatments on Site– inhalation of dusts generated from sub-surface soils dermal contact from sub-surface soils; ingestion from soils or dusts generated from sub-surface soils.

The results of this assessment have not identified conditions or potential conditions that are considered to affect the suitability of the Site for the proposed Skate Plaza. The management of risks to workers during construction is detailed in Section 8.3 below and the ongoing management of risk to future works involved in intrusive maintenance works is via the Council's *Long-term Environmental Management Plan for Parks and Playgrounds, Inner West Council Area* prepared by CONSARA (latest revision dated 7 September 2020) (the LTEMP).

Overall, it is considered that the Site is suitable for the uses as set out in the plans provided in Appendix A and for ongoing open space and recreational land use subject to the implementation of Council's LTEMP.

It is noted that ongoing suitability of Leichhardt Park, and other parks and reserves within the Council area including areas such as the Site, for open space and recreational land use are also managed under the Council's LTEMP.

### 8.3 Requirements for Construction Works

The construction of the Works will require some disturbance of the fill materials present in the surface and sub-surface of the Site. Given the identified presence of PAHs and asbestos in the fill materials there is a risk posed to the surrounding environment through the migration of soils or surface waters from the Site to off-site areas, as well as to health of construction personnel working on the Works and to the occupiers of nearby residential and commercial properties as well as to users of the immediately surrounding areas of the Site. It is considered that during construction works these potential risks be managed via the implementation of a specific Construction Environmental Management Plan (CEMP).

The CEMP will set out the environmental management measures that are required to be implemented during construction works in order to manage identified risks to Site personnel and the environment to ensure that:

- Comprehensive control measures are implemented to prevent the migration of materials or waters off-site or within the Site;
- Works that require disturbance of existing fill materials, natural soils or bedrock are undertaken in a manner that protects the health of the workers and users of the Site;
- Any materials excavated from the Site are appropriately stored, handled and, where required, either beneficially re-used on the Site or disposed of off-Site;
- Imported materials can be demonstrated to satisfy the appropriate requirements for use on the Site; and
- Any unexpected surface or sub-surface conditions are appropriately managed in accordance with the relevant guidelines, regulation and legislation.

## 9 Limitations

This report has been prepared for the sole purpose of documenting the assessment works completed on the Site in accordance with generally accepted consulting practice. No other warranty or guarantee, expressed or implied is made as to the advice indicated in this report.

This report should not be used for any other purpose without our prior written consent. Accordingly, neither CONSARA nor any member or employee of CONSARA accepts responsibility or liability in any way whatsoever for the use of this report for any purpose other than that for which it has been prepared.

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If further information becomes available, or additional assumptions need to be made, CONSARA reserves its right to amend any statements or opinions made in this report.

## 10 References

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## Figures

**Figure 1: Site Location**

**Figure 2: Sampling Locations**





PROJECT No.	C201016
FILE NAME	F001
DATE	15.06.21
DRAWN	RR
APPROVED	RO



SOURCE: GOOGLE MAPS

CLIENT

**SJB PLANNING on behalf of  
INNER WEST COUNCIL**

PROJECT

**ASSESSMENT OF SURFACE AND  
SUB-SURFACE CONDITIONS,  
PROPOSED LILYFIELD SKATE PLAZA,  
LEICHHARDT PARK, 70 MARY ST,  
LILYFIELD, NSW**

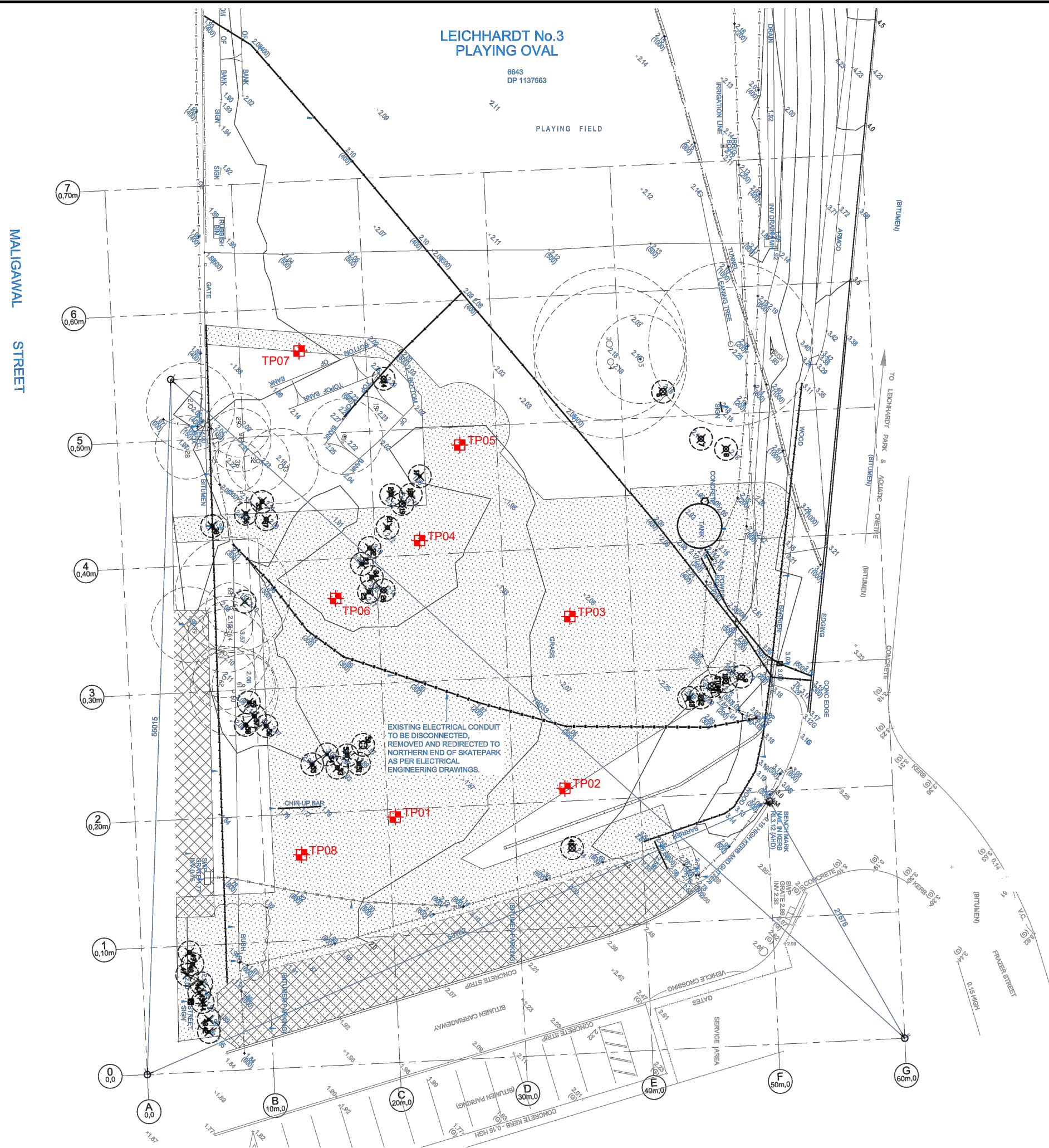
TITLE

**SITE LOCATION**


FIGURE No.

**1**










PROJECT No.	C201016
FILE NAME	F002
DATE	15.06.21
DRAWN	RR
APPROVED	RO

LEGEND  
 TP01 TEST PIT LOCATION

### DEMOLITION LEGEND

- 
 HATCH INDICATES OUTLINE OF PROPOSED SPOTPAVE, EXCAVATE TO REQUIRED DEPTH FOR PROPOSED WORKS. SEE ALSO NOTE 02.
- 
 EXISTING ASPHALT PATH/PAVEMENT TO BE DEMOLISHED AND REMOVED
- 
 REMOVE/RELOCATE/STORE STREET SIGN AS PER SUPERINTENDENT'S INSTRUCTIONS
- 
 TREE TO BE REMOVED, STUMP TO BE GROUND SMOOTH AND ALL WASTE TO BE REMOVED FROM SITE AND AREA MADE GOOD.
- 
 PROTECT AND RETAIN ALL NOMINATED VEGETATION (TREES AND SHRUBS) FOR THE DURATION OF WORKS ON SITE. CONTRACTOR TO SUBMIT A WORKS METHOD STATEMENT FOR THE PROTECTION OF TREES AND ROOT ZONES MARKED ON SITE PLAN AS 'SIGNIFICANT'.
- + 215  
2.00
- EXISTING SPOT LEVEL      3.00      PROPOSED SPOT LEVEL
- EXISTING CONTOUR - MAJOR      3.00      PROPOSED CONTOUR - MAJOR
- EXISTING CONTOUR - MINOR      3.20      PROPOSED CONTOUR - MINOR
- — — — — EXTENT OF WORKS.      — — — — — OUTLINE OF PROPOSED SPOTPAVE



0 2.5 5 7.5 10 12.5  
(metres)

CLIENT  
**SJB PLANNING** on behalf of  
**INNER WEST COUNCIL**

PROJECT  
ASSESSMENT OF SURFACE AND  
SUB-SURFACE CONDITIONS,  
PROPOSED LILYFIELD SKATE PLAZA,  
LEICHHARDT PARK, 70 MARY ST,  
LILYFIELD, NSW

TITLE  
**SAMPLING LOCATION PLAN**

FIGURE No.

2



## Tables

**Table 3: Soil Analytical Results –TPH, BTEX, PAHs and Metals**

**Table 4: Soil Analytical Results –OCP, OPPs, PCBs**

**Table 5: Soil Analytical Results –Asbestos**

**Table 6: Soil RPDs**

**Table 3 - Soil Analytical Results - BTEX, TPH, PAHs and Metals**

Test-pit Location							TP01				
Depth (m)							0.0-0.2	0.2-0.4	QC01 (Intra-Lab Dup of TP01_0.2-0.4)	QC02 (Inter-Lab Dup of TP01_0.2-0.4)	0.5-0.7
Date Sampled							17/05/2021	17/05/2021		17/05/2021	
Compounds	Unit	PQL	Health Based Levels - Open Space/Recreational and Commercial/Industrial				NEPM (2013) HIL C	NEPM (2013) ESL C & EIL C <sup>1</sup>			
			NEPM (2013) HSL C (SAND/SILT/CLAY 0-1m bgs)	NEPM (2013) HSL C (SAND/SILT/CLAY Y 1 to <2m bgs)	NEPM (2013) Soil Saturation SAND/SILT/CLAY (Cat)						
<b>BTEX</b>											
Benzene	mg/kg	0.2	NL	NL	360/440/430	65	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	mg/kg	0.5	NL	NL	560/640/630	105	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	0.5	NL	NL	64/69/68	125	<1	<1	<1	<0.5	<1
Xylene (m & p)	mg/kg	0.5	-	-	-	-	<2	<2	<2	<0.5	<2
Xylene (o)	mg/kg	0.5	-	-	-	-	<1	<1	<1	<0.5	<1
Xylene Total	mg/kg	0.5	NL	NL	300/330/330	45	<3	<3	<3	<0.5	<3
Naphthalene	mg/kg	0.5	NL	NL	9/10/10	170	<1	<1	<1	<1	<1
<b>TPHs</b>											
C6 - C9 Fraction	mg/kg	10	-	-	-	-	<25	<25	<25	<10	<25
C10 - C14 Fraction	mg/kg	50	-	-	-	-	<50	<50	<50	<50	<50
C15 - C28 Fraction	mg/kg	100	-	-	-	-	<100	120	320	180	<100
C29 - C36 Fraction	mg/kg	100	-	-	-	-	170	430	730	220	<100
C6 - C10 Fraction	mg/kg	10	-	-	-	-	<25	<25	<25	<10	<25
C6 - C10 Fraction minus BTEX (F1)	mg/kg	10	NL	NL	950/910/850	180	<25	<25	<25	<10	<25
<C10 - C16 Fraction	mg/kg	50	-	-	-	-	<50	<50	<50	<50	<50
<C16 - C34 Fraction	mg/kg	100	-	-	-	1300	160	310	640	320	<100
>C34 - C40 Fraction	mg/kg	100	-	-	-	5600	<100	240	380	160	<100
>C10 - C16 Fraction minus Naphthalene (F2)	mg/kg	50	NL	NL	560/570/560	120	<50	<50	<50	<50	<50
<b>PAHs</b>											
Naphthalene	mg/kg	0.5	NL	NL	9/10/10	170	<0.1	<0.1	0.1	<0.5	<0.1
Acenaphthylene	mg/kg	0.5	-	-	-	-	0.3	0.6	0.7	0.7	<0.1
Acenaphthene	mg/kg	0.5	-	-	-	-	<0.1	<0.1	<0.1	<0.5	<0.1
Fluorene	mg/kg	0.5	-	-	-	-	<0.1	<0.1	0.1	<0.5	<0.1
Phenanthrene	mg/kg	0.5	-	-	-	-	1.3	1.2	1.6	3.3	0.2
Anthracene	mg/kg	0.5	-	-	-	-	0.5	0.7	1	1.3	<0.1
Fluoranthene	mg/kg	0.5	-	-	-	-	3.3	4	5.4	8.3	<0.1
Pyrene	mg/kg	0.5	-	-	-	-	3.4	4.2	5.8	8.3	0.4
Benzo[a]anthracene	mg/kg	0.5	-	-	-	-	2.1	2.7	4	4.1	0.2
Chrysene	mg/kg	0.5	-	-	-	-	2.3	2.4	3.4	3.9	0.2
Benzo[b,k]fluoranthene	mg/kg	0.5	-	-	-	-	2	4.9	6.7	8.8	0.4
Benzo[a]pyrene	mg/kg	0.5	-	-	-	0.7	2.3	2.9	4	5	0.2
Indeno[1,2,3-c,d]pyrene	mg/kg	0.5	-	-	-	-	1.4	1.7	2.3	2.5	0.1
Dibenzo[a,h]anthracene	mg/kg	1	-	-	-	-	<0.1	0.4	0.6	0.6	<0.1
Dibenzo[g,h,i]perylene	mg/kg	0.5	-	-	-	300	1.7	2.1	2.9	2.6	0.1
Total <=6PAH's	mg/kg	0.5	-	-	-	3	21	28	39	49.4	1.8
Benzo[a]pyrene TEQ calc (zero)	mg/kg	0.5	-	-	-	3	2.9	4.3	6	7.2	<0.5
Benzo[a]pyrene TEQ calc(half)	mg/kg	0.5	-	-	-	3	3	4.3	6	7.2	<0.5
Benzo[a]pyrene TEQ calc(PQL)	mg/kg	0.5	-	-	-	3	3	4.3	6	7.2	<0.5
<b>Metals</b>											
Arsenic	mg/kg	5	-	-	-	300	100	9	5	8	10
Cadmium	mg/kg	1	-	-	-	90	190 <sup>1</sup>	<0.4	0.5	1	<1
Chromium	mg/kg	2	-	-	-	300 <sup>1</sup>	560 <sup>1</sup>	12	12	13	19
Copper	mg/kg	5	-	-	-	17000	560 <sup>1</sup>	39	77	88	141
Lead	mg/kg	5	-	-	-	600	1100	120	150	200	300
Mercury	mg/kg	0.1	-	-	-	80	350 <sup>1</sup>	0.1	0.1	0.2	0.3
Nickel	mg/kg	2	-	-	-	1200	350 <sup>1</sup>	20	26	20	18
Zinc	mg/kg	5	-	-	-	30000	960	150	190	260	248

NOTES:

HIL - C: Health-based Investigation Levels for Open Space and Recreational Use - Table 1A(1) (NEPM, 2013)

ESLs and EILs - Ecological Screening Levels and Ecological Investigation Levels for Open Space and Recreational Land Use - Table 1 B (1)-(6) (NEPM, 2013) - Only applicable to soils present at less than 2 m bgs and Fine soil texture.

Cat - Soil saturation concentrations at which the porewater phase cannot dissolve any more of the individual chemical - Table 1A(1) (NEPM, 2013)

NL - If derived soil HSL exceeds Cat, a soil vapour source concentration for a petroleum mixture could not exceed a level that would result in the maximum allowable vapour risk - For these scenarios no HSL is presented, the HSL is shown as 'Not Limiting' or 'NL'  
All concentrations are in mg/kg

NC - Non Calculable

NA - Not Analysed

1. Guideline is for Chromium (VI)

2. Guideline is for Chromium (III)

\*- indicates that the criteria is not applicable for these analytes

Y EILs and ESLs are applied only to samples collected from between the surface and 2m bgs, as per NEPC (2013)

± EIL correlates to 1% clay content and is most conservative EIL defined in NEPC (2013) for Urban Open Space land use

\*EIL correlates to 7.5pH as defined in NEPC (2013) for Urban Open Space land use

• EIL correlates to 30 cmolc/kg CEC as defined in NEPC (2013) for Urban Open Space land use

• EIL correlates to 8pH and 30 cmolc/kg CEC as defined in NEPC (2013) for Urban Open Space land use

**Table 3 - Soil Analytical Results - BTEX, TPH, PAHs and Metals**

Test-pit Location							TP02		TP03		TP04
Depth (m)							0.3-0.4	0.9-1.0	0.4-0.5	0.9-1.0	0.5-0.6
Date Sampled							17/05/2021	17/05/2021	17/05/2021	17/05/2021	17/05/2021
Compounds	Unit	PQL	Health Based Levels - Open Space/Recreational and Commercial/Industrial								
			NEPM (2013) HSL C (SAND/SILT/CLAY 0-1m bgs)	NEPM (2013) HSL C (SAND/SILT/CLAY 1 to <2m bgs)	NEPM (2013) Soil Saturation SAND/SILT/CLAY (Cat)	NEPM (2013) HIL C					
<b>BTEX</b>											
Benzene	mg/kg	0.2	NL	NL	360/440/430	65	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	mg/kg	0.5	NL	NL	560/640/630	105	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	0.5	NL	NL	64/69/68	125	<1	<1	<1	<1	<1
Xylene (m & p)	mg/kg	0.5	-	-	-	-	<2	<2	<2	<2	<2
Xylene (o)	mg/kg	0.5	-	-	-	-	<1	<1	<1	<1	<1
Xylene Total	mg/kg	0.5	NL	NL	300/330/330	45	<3	<3	<3	<3	<3
Naphthalene	mg/kg	0.5	NL	NL	9/10/10	170	<1	<1	<1	<1	<1
<b>TPHs</b>											
C6 - C9 Fraction	mg/kg	10	-	-	-	-	<25	<25	<25	<25	<25
C10 - C14 Fraction	mg/kg	50	-	-	-	-	<50	<50	<50	<50	<50
C15 - C28 Fraction	mg/kg	100	-	-	-	-	160	550	290	360	120
C29 - C36 Fraction	mg/kg	100	-	-	-	-	280	340	390	400	200
C6 - C10 Fraction	mg/kg	10	-	-	-	-	<25	<25	<25	<25	<25
C6 - C10 Fraction minus BTEX (F1)	mg/kg	10	NL	NL	950/910/850	180	<25	<25	<25	<25	<25
<C10 - C16 Fraction	mg/kg	50	-	-	-	-	<50	<50	<50	<50	<50
<C16 - C34 Fraction	mg/kg	100	-	-	-	1300	290	690	470	570	220
>C34 - C40 Fraction	mg/kg	100	-	-	-	5600	130	160	200	170	100
>C10 - C16 Fraction minus Naphthalene (F2)	mg/kg	50	NL	NL	560/570/560	120	<50	<50	<50	<50	<50
<b>PAHs</b>											
Naphthalene	mg/kg	0.5	NL	NL	9/10/10	170	0.2	1.3	0.2	0.2	0.4
Acenaphthylene	mg/kg	0.5	-	-	-	-	0.9	6.1	0.6	0.9	0.6
Acenaphthene	mg/kg	0.5	-	-	-	-	<0.1	1.2	0.4	0.3	<0.1
Fluorene	mg/kg	0.5	-	-	-	-	0.2	5.2	0.4	0.3	0.1
Phenanthrene	mg/kg	0.5	-	-	-	-	3.2	32	6.5	8.8	1.9
Anthracene	mg/kg	0.5	-	-	-	-	1.2	7.8	1.9	4.2	0.8
Fluoranthene	mg/kg	0.5	-	-	-	-	6.7	44	11	26	5.3
Pyrene	mg/kg	0.5	-	-	-	-	6.9	41	10	27	10
Benzo(a)anthracene	mg/kg	0.5	-	-	-	-	4.5	20	6.7	17	4.1
Chrysene	mg/kg	0.5	-	-	-	-	3.7	16	7	13	3.3
Benzo(b,h,k)fluoranthene	mg/kg	0.5	-	-	-	-	6.6	24	5	24	6.4
Benzo(a)pyrene	mg/kg	0.5	-	-	-	0.7	4.6	17	6.4	14	3.4
Indeno(1,2,3-c,d)pyrene	mg/kg	0.5	-	-	-	-	2.2	8.2	3.4	5.3	2.2
Dibenzo(a,h)anthracene	mg/kg	1	-	-	-	-	0.6	2.1	1	1.4	0.6
Benzo(g,h,i)perylene	mg/kg	0.5	-	-	-	-	2.7	9.5	4	6.5	2.7
Total <=9PAH's	mg/kg	0.5	-	-	-	300	44	240	65	150	37
Benzo(a)pyrene TEQ calc (zero)	mg/kg	0.5	-	-	-	3	6.5	25	9	20	5.3
Benzo(a)pyrene TEQ calc (half)	mg/kg	0.5	-	-	-	3	6.5	25	9	20	5.3
Benzo(a)pyrene TEQ calc (PQL)	mg/kg	0.5	-	-	-	3	6.5	25	9	20	5.3
<b>Metals</b>											
Arsenic	mg/kg	5	-	-	-	300	100	6	5	5	6
Cadmium	mg/kg	1	-	-	-	90	1	<0.4	<0.4	<0.4	1
Chromium	mg/kg	2	-	-	-	300 <sup>1</sup>	190 <sup>1</sup>	17	10	18	15
Copper	mg/kg	5	-	-	-	17000	560*	88	18	130	86
Lead	mg/kg	5	-	-	-	600	1100	160	100	210	190
Mercury	mg/kg	0.1	-	-	-	80	0.1	0.2	0.4	0.5	0.2
Nickel	mg/kg	2	-	-	-	1200	350 <sup>+</sup>	13	5	10	15
Zinc	mg/kg	5	-	-	-	30000	960	220	90	260	220

NOTES:

HIL - C: Health-based Investigation Levels for Open Space and Recreational Use - Table 1A(1) (NEPM, 2013)

ESLs - C: Health-based Screening Levels for vapour intrusion for Open Space and Recreational - Table 1A(3) (NEPM, 2013)

ESLs and EILs - Ecological Screening Levels and Ecological Investigation Levels for Open Space and Recreational Land Use - Table 1 B (1)-(6) (NEPM, 2013) - Only applicable to soils present at less than 2 m bgs and Fine soil texture.

Cat - Soil saturation concentrations at which the porewater phase cannot dissolve any more of the individual chemical - Table 1A(1) (NEPM, 2013)

NL - If derived soil HSL exceeds Cat, a soil vapour source concentration for a petroleum mixture could not exceed a level that would result in the maximum allowable vapour risk - For these scenarios no HSL is presented, the HSL is shown as 'Not Limiting' or 'NL'

All concentrations are in mg/kg

NC - Non Calculable

NA - Not Analysed

1. Guideline is for Chromium (VI)

2. Guideline is for Chromium (III)

\*- indicates that the criteria is not applicable for these analytes

Y EILs and ESLs are applied only to samples collected from between the surface and 2m bgs, as per NEPC (2013)

± EIL correlates to 1% clay content and is most conservative EIL defined in NEPC (2013) for Urban Open Space land use

\*EIL correlates to 7.5pt as defined in NEPC (2013) for Urban Open Space land use

+ EIL correlates to 30 cmolc/kg CEC as defined in NEPC (2013) for Urban Open Space land use

# EIL correlates to 8pt and 30 cmolc/kg CEC as defined in NEPC (2013) for Urban Open Space land use

**Table 3 - Soil Analytical Results - BTEX, TPH, PAHs and Metals**

Test-pit Location							TP05		TP06		
Depth (m)							0.3-0.4	0.9-1.0	0.4-0.5	0.7-0.8	
Date Sampled							17/05/2021	17/05/2021	17/05/2021	17/05/2021	
Compounds	Unit	PQL	Health Based Levels - Open Space/Recreational and Commercial/Industrial				NEPM (2013) HIL C	NEPM (2013) EIL C & EIL C <sup>+</sup>			
			NEPM (2013) HSL C (SAND/SILT/CLAY 0-0.1m bgs)	NEPM (2013) HSL C (SAND/SILT/CLAY 1 to 1.2m bgs)	NEPM (2013) Soil Saturation SAND/SILT/CLAY (Cat)						
<b>BTEX</b>											
Benzene	mg/kg	0.2	NL	NL	360/440/430	65	<0.2	<0.2	<0.2	<0.2	
Toluene	mg/kg	0.5	NL	NL	560/640/630	105	<0.5	<0.5	<0.5	<0.5	
Ethylbenzene	mg/kg	0.5	NL	NL	64/69/68	125	<1	<1	<1	<1	
Xylene (m & p)	mg/kg	0.5	-	-	-	-	<2	<2	<2	<2	
Xylene (o)	mg/kg	0.5	-	-	-	-	<1	<1	<1	<1	
Xylene Total	mg/kg	0.5	NL	NL	300/330/330	45	<3	<3	<3	<3	
Naphthalene	mg/kg	0.5	NL	NL	9/10/10	170	<1	<1	<1	<1	
<b>TPHs</b>											
C6 - C9 Fraction	mg/kg	10	-	-	-	-	<25	<25	<25	<25	
C10 - C14 Fraction	mg/kg	50	-	-	-	-	<50	<50	<50	<50	
C15 - C28 Fraction	mg/kg	100	-	-	-	-	<100	<100	200	<100	
C29 - C36 Fraction	mg/kg	100	-	-	-	-	<100	<100	210	<100	
C6 - C10 Fraction	mg/kg	10	-	-	-	-	<25	<25	<25	<25	
C6 - C10 Fraction minus BTEX (F1)	mg/kg	10	NL	NL	950/910/850	180	<25	<25	<25	<25	
>C10 - C16 Fraction	mg/kg	50	-	-	-	-	<50	<50	<50	<50	
>C16 - C34 Fraction	mg/kg	100	-	-	-	1300	<100	<100	300	<100	
>C34 - C40 Fraction	mg/kg	100	-	-	-	5600	<100	<100	100	<100	
>C10 - C16 Fraction minus Naphthalene (F2)	mg/kg	50	NL	NL	560/570/560	120	<50	<50	<50	<50	
<b>PAHs</b>											
Naphthalene	mg/kg	0.5	NL	NL	9/10/10	170	<0.1	<0.1	0.3	<0.1	
Acenaphthylene	mg/kg	0.5	-	-	-	-	0.2	<0.1	1	0.1	
Acenaphthene	mg/kg	0.5	-	-	-	-	<0.1	<0.1	0.2	<0.1	
Fluorene	mg/kg	0.5	-	-	-	-	<0.1	<0.1	0.3	<0.1	
Phenanthrene	mg/kg	0.5	-	-	-	-	0.4	0.1	5.3	0.3	
Anthracene	mg/kg	0.5	-	-	-	-	0.2	<0.1	2.3	0.1	
Fluoranthene	mg/kg	0.5	-	-	-	-	1.9	0.6	12	0.9	
Pyrene	mg/kg	0.5	-	-	-	-	2.1	0.6	12	1	
Benzo(a)anthracene	mg/kg	0.5	-	-	-	-	1.2	0.4	7.8	0.6	
Chrysene	mg/kg	0.5	-	-	-	-	1.2	0.4	7.4	0.6	
Benzo(b,j,k)fluoranthene	mg/kg	0.5	-	-	-	-	2.7	0.8	5.1	0.5	
Benzo(a)pyrene	mg/kg	0.5	-	-	-	-	1.7	0.52	5.7	0.62	
Indeno(1,2,3-c,d)pyrene	mg/kg	0.5	-	-	-	-	0.9	0.3	2.6	0.3	
Dibenzo(a,h)anthracene	mg/kg	1	-	-	-	-	0.2	<0.1	0.7	<0.1	
Dibenzo(g,h,i)perylene	mg/kg	0.5	-	-	-	-	1	0.3	2.9	0.4	
Total +vePAH's	mg/kg	0.5	-	-	-	300	14	4	65	5.3	
Benzo(a)pyrene TEQ calc (zero)	mg/kg	0.5	-	-	-	3	2.4	0.7	8.1	0.8	
Benzo(a)pyrene TEQ calc(half)	mg/kg	0.5	-	-	-	3	2.4	0.7	8.1	0.8	
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	0.5	-	-	-	3	2.4	0.8	8.1	0.9	
<b>Metals</b>											
Arsenic	mg/kg	5	-	-	-	300	100	10	<4	8	9
Cadmium	mg/kg	1	-	-	-	90	190 <sup>+</sup>	<0.4	<0.4	1	0.4
Chromium	mg/kg	2	-	-	-	300 <sup>+</sup>	190 <sup>+</sup>	10	8	13	63
Copper	mg/kg	5	-	-	-	17000	560 <sup>+</sup>	23	6	65	13
Lead	mg/kg	5	-	-	-	600	1100	68	22	180	85
Mercury	mg/kg	0.1	-	-	-	80		0.1	<0.1	0.2	0.1
Nickel	mg/kg	2	-	-	-	1200	350 <sup>+</sup>	5	2	9	3
Zinc	mg/kg	5	-	-	-	30000	960	84	16	300	62

NOTES:  
HIL - C - Health-based Investigation Levels for Open Space and Recreational Use - Table 1A(1) (NEPM, 2013)

HSLs - C - Health-based Screening Levels for vapour intrusion for Open Space and Recreational Land Use - Table 1A(3) (NEPM, 2013)

ESLs and EILs - Ecological Screening Levels and Ecological Investigation Levels for Open Space and Recreational Land Use - Table 1 B (1)-(6) (NEPM, 2013) - Only applicable to soils present at less than 2 m bgs and fine soil texture.

Csat - Soil saturation concentrations at which the porewater phase cannot dissolve any more of the individual chemical - Table 1A(1) (NEPM, 2013)

NL - If derived soil HSL exceeds Csat, a soil vapour source concentration for a petroleum mixture could not exceed a level that would result in the maximum allowable vapour risk - For these scenarios no HSL is presented, the HSL is shown as 'Not Limiting' or 'NL'

All concentrations are in mg/kg

NC - Non Calculable

NA - Not Analyzed

1. Guideline is for Chromium (VI)

2. Guideline is for Chromium (III)

-/- indicates that the criteria is not applicable for these analytes

± EILs and ESLs are applied only to samples collected from between the surface and 2m bgs, as per NEPC (2013)

± EIL correlates to 1% clay content and is most conservative EIL defined in NEPC (2013) for Urban Open Space land use

\*EIL correlates to 7.5pH as defined in NEPC (2013) for Urban Open Space land use

+ EIL correlates to 30 cmol/kg CEC as defined in NEPC (2013) for Urban Open Space land use

# EIL correlates to 8pH and 30 cmol/kg CEC as defined in NEPC (2013) for Urban Open Space land use

**Table 3 - Soil Analytical Results - BTEX, TPH, PAHs and Metals**

Test-pit Location								TP07		TP08				
Depth (m)								0.3-0.4	0.9-1.0	0.3-0.4	0.5-0.6	QC03(Intra-Lab Dup of TP08_0.5-0.6)	0.9-1.0	
Date Sampled								17/05/2021	17/05/2021	17/05/2021	17/05/2021	17/05/2021	17/05/2021	
Compounds	Unit	PQL	Health Based Levels - Open Space/Recreational and Commercial/Industrial											
			NEPM (2013) HSL C (SAND/SILT/CLAY 0-<1m bgs)	NEPM (2013) HSL C (SAND/SILT/CLAY Y 1 to <2m bgs)	NEPM (2013) Soil Saturation SAND/SILT/CLAY (Cat)	NEPM (2013) HIL C	NEPM (2013) ESL C & EIL C <sup>1</sup>							
BTEX														
Benzene	mg/kg	0.2	NL	NL	360/440/430	65	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2		
Toluene	mg/kg	0.5	NL	NL	560/640/630	105	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5		
Ethylbenzene	mg/kg	0.5	NL	NL	64/69/68	125	<1	<1	<1	<1	<1	<1		
Xylene (m & p)	mg/kg	0.5	-	-	-	-	<2	<2	<2	<2	<2	<2		
Xylene (o)	mg/kg	0.5	-	-	-	-	<1	<1	<1	<1	<1	<1		
Xylene Total	mg/kg	0.5	NL	NL	300/330/330	45	<3	<3	<3	<3	<3	<3		
Naphthalene	mg/kg	0.5	NL	NL	9/10/10	170	<1	<1	<1	<1	<1	<1		
TPHs														
C6 - C9 Fraction	mg/kg	10	-	-	-	-	<25	<25	<25	<25	<25	<25		
C10 - C14 Fraction	mg/kg	50	-	-	-	-	<50	<50	<50	<50	<50	<50		
C15 - C28 Fraction	mg/kg	100	-	-	-	-	<100	<100	100	<100	<100	<100		
C29 - C36 Fraction	mg/kg	100	-	-	-	-	<100	<100	230	<100	<100	<100		
C6 - C10 Fraction	mg/kg	10	-	-	-	-	<25	<25	<25	<25	<25	<25		
C6 - C10 Fraction minus BTEX (F1)	mg/kg	10	NL	NL	950/910/850	180	<25	<25	<25	<25	<25	<25		
>C10 - C16 Fraction	mg/kg	50	-	-	-	-	<50	<50	<50	<50	<50	<50		
>C16 - C34 Fraction	mg/kg	100	-	-	-	-	<100	<100	220	<100	<100	<100		
>C34 - C40 Fraction	mg/kg	100	-	-	-	-	<100	<100	100	<100	<100	<100		
>C10 - C16 Fraction minus Naphthalene (F2)	mg/kg	50	NL	NL	560/570/560	120	<50	<50	<50	<50	<50	<50		
PAHs														
Naphthalene	mg/kg	0.5	NL	NL	9/10/10	170	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1		
Acenaphthylene	mg/kg	0.5	-	-	-	-	<0.1	<0.1	0.5	0.1	<0.1	0.2		
Acenaphthene	mg/kg	0.5	-	-	-	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1		
Fluorene	mg/kg	0.5	-	-	-	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1		
Phenanthrene	mg/kg	0.5	-	-	-	-	<0.1	<0.1	1.1	1.1	0.2	0.4		
Anthracene	mg/kg	0.5	-	-	-	-	<0.1	<0.1	0.5	0.3	<0.1	0.2		
Fluoranthene	mg/kg	0.5	-	-	-	-	0.2	0.2	3.8	2.2	0.8	1.1		
Pyrene	mg/kg	0.5	-	-	-	-	0.2	0.2	4.2	2.2	0.9	1.1		
Benzo(a)anthracene	mg/kg	0.5	-	-	-	-	0.1	0.2	2.8	1.3	0.5	0.8		
Chrysene	mg/kg	0.5	-	-	-	-	0.2	0.2	2.9	1.2	0.6	0.7		
Benzo(b,h,i)fluoranthene	mg/kg	0.5	-	-	-	-	0.3	<0.2	2.5	2	1	1		
Benzo(a)pyrene	mg/kg	0.5	-	-	-	-	0.7	0.2	0.2	3.2	1.4	0.71		
Indeno(1,2,3-c,d)pyrene	mg/kg	0.5	-	-	-	-		<0.1	<0.1	1.7	0.6	0.3		
Dibenzo(a,h)anthracene	mg/kg	1	-	-	-	-		<0.1	<0.1	0.5	0.1	<0.1		
Benzo(g,h,i)perylene	mg/kg	0.5	-	-	-	-		0.1	0.1	2.2	0.7	0.3		
Total ∑16PAH's	mg/kg	0.5	-	-	-	300		1.4	1.1	26	13	5.3		
Benzo(a)pyrene TEQ calc (zero)	mg/kg	0.5	-	-	-	3		<0.5	<0.5	4.4	1.9	0.9		
Benzo(a)pyrene TEQ calc(half)	mg/kg	0.5	-	-	-	3		<0.5	<0.5	4.4	1.9	1		
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	0.5	-	-	-	3		<0.5	<0.5	4.4	1.9	1		
Metals														
Arsenic	mg/kg	5	-	-	-	300	100	11	9	9	4	9		
Cadmium	mg/kg	1	-	-	-	90		0.5	0.5	0.8	0.6	0.6		
Chromium	mg/kg	2	-	-	-	300 <sup>2</sup>	190 <sup>2</sup>	23	20	15	7	13		
Copper	mg/kg	5	-	-	-	17000	560 <sup>4</sup>	23	4	44	16	31		
Lead	mg/kg	5	-	-	-	600	1100	28	31	130	84	94		
Mercury	mg/kg	0.1	-	-	-	80		<0.1	<0.1	0.1	<0.1	0.2		
Nickel	mg/kg	2	-	-	-	1200	350 <sup>4</sup>	6	2	15	3	6		
Zinc	mg/kg	5	-	-	-	30000	960	53	20	140	60	87		

**NOTES:**

HIL - C - Health-based Investigation Levels for Open Space and Recreational Use - Table 1A(1) (NEPM, 2013)

HSLs - C - Health-based Screening Levels for vapour intrusion for Open Space and Recreational - Table 1A(3) (NEPM, 2013)

ESLs and EILs - Ecological Screening Levels and Ecological Investigation Levels for Open Space and Recreational Land Use - Table 1 B (1)-(6) (NEPM, 2013) - Only applicable to soils present at less than 2 m bgs and fine soil texture.

Cat - Soil saturation concentrations at which the porewater phase cannot dissolve any more of the individual chemical - Table 1A(1) (NEPM, 2013)

NL - If derived soil HSL exceeds Cat, a soil vapour source concentration for a petroleum mixture could not exceed a level that would result in the maximum allowable vapour risk - For these scenarios no HSL is presented, the HSL is shown as 'Not Limiting' or 'NL'

All concentrations are in mg/kg

NC - Non Calculable

NA - Not Analysed

1. Guideline is for Chromium (VI)

2. Guideline is for Chromium (III)

"-" indicates that the criteria is not applicable for these analytes

Y EILs and ESLs are applied only to samples collected from between the surface and 2m bgs, as per NEPC (2013)

± EIL correlates to 1% clay content and is most conservative EIL defined in NEPC (2013) for Urban Open Space land use

\*EIL correlates to 7.5pH as defined in NEPC (2013) for Urban Open Space land use

° EIL correlates to 30 cmolc/kg CEC as defined in NEPC (2013) for Urban Open Space land use

° EIL correlates to 3pH and 30 cmolc/kg CEC as defined in NEPC (2013) for Urban Open Space land use

**Table 3 - Soil Analytical Results - BTEX, TPH, PAHs and Metals**

Test-pit Location							QC100	QC101	
Depth (m)							Trip Blank	Trip Spike	
Date Sampled							17/05/2021	17/05/2021	
Compounds	Unit	PQL	Health Based Levels - Open Space/Recreational and Commerical/Industrial						
			NEPM (2013) HSL C (SAND/SILT/CLAY 0-1m bgs)	NEPM (2013) HSL C (SAND/SILT/CLAY 1 to <2m bgs)	NEPM (2013) Soil Saturation (SAND/SILT/CLAY (Coat)	NEPM (2013) HIL C	NEPM (2013) ESL C & EIL C <sup>1</sup>		
<b>BTEX</b>									
Benzene	mg/kg	0.2	NL	NL	360/440/430	65	<0.2	118%	
Toluene	mg/kg	0.5	NL	NL	560/640/630	105	<0.5	125%	
Ethylbenzene	mg/kg	0.5	NL	NL	64/69/68	125	<1	117%	
Xylene (m & p)	mg/kg	0.5	-	-	-	-	<2	118%	
Xylene (o)	mg/kg	0.5	-	-	-	-	<1	117%	
Xylene Total	mg/kg	0.5	NL	NL	300/330/330	45	NA	NA	
Naphthalene	mg/kg	0.5	NL	NL	9/10/10	170	NA	NA	
<b>TPHs</b>									
C6 - C9 Fraction	mg/kg	10	-	-	-	-	NA	NA	
C10 - C14 Fraction	mg/kg	50	-	-	-	-	NA	NA	
C15 - C28 Fraction	mg/kg	100	-	-	-	-	NA	NA	
C29 - C36 Fraction	mg/kg	100	-	-	-	-	NA	NA	
C6 - C10 Fraction	mg/kg	10	-	-	-	-	NA	NA	
C6 - C10 Fraction minus BTEX (F1)	mg/kg	10	NL	NL	950/910/850	180	NA	NA	
<C10 - C16 Fraction	mg/kg	50	-	-	-	-	NA	NA	
>C16 - C34 Fraction	mg/kg	100	-	-	-	1300	NA	NA	
>C34 - C40 Fraction	mg/kg	100	-	-	-	5600	NA	NA	
>C10 - C16 Fraction minus Naphthalene (F2)	mg/kg	50	NL	NL	560/570/560	120	NA	NA	
<b>PAHs</b>									
Naphthalene	mg/kg	0.5	NL	NL	9/10/10	170	NA	NA	
Acenaphthylene	mg/kg	0.5	-	-	-	-	NA	NA	
Acenaphthene	mg/kg	0.5	-	-	-	-	NA	NA	
Fluorene	mg/kg	0.5	-	-	-	-	NA	NA	
Phenanthrene	mg/kg	0.5	-	-	-	-	NA	NA	
Anthracene	mg/kg	0.5	-	-	-	-	NA	NA	
Fluoranthene	mg/kg	0.5	-	-	-	-	NA	NA	
Pyrene	mg/kg	0.5	-	-	-	-	NA	NA	
Benzo(a)anthracene	mg/kg	0.5	-	-	-	-	NA	NA	
Chrysene	mg/kg	0.5	-	-	-	-	NA	NA	
Benzo(b,j,k)fluoranthene	mg/kg	0.5	-	-	-	-	NA	NA	
Benzo(a)pyrene	mg/kg	0.5	-	-	-	0.7	NA	NA	
Indeno(1,2,3-c,d)pyrene	mg/kg	0.5	-	-	-	-	NA	NA	
Dibenzo(a,h)anthracene	mg/kg	1	-	-	-	-	NA	NA	
Benzo(g,h,i)perylene	mg/kg	0.5	-	-	-	-	NA	NA	
Total ∑vePAH's	mg/kg	0.5	-	-	-	300	NA	NA	
Benzo(a)pyrene TEQ calc (zero)	mg/kg	0.5	-	-	-	3	NA	NA	
Benzo(a)pyrene TEQ calc(half)	mg/kg	0.5	-	-	-	3	NA	NA	
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	0.5	-	-	-	3	NA	NA	
<b>Metals</b>									
Arsenic	mg/kg	5	-	-	-	300	100	NA	NA
Cadmium	mg/kg	1	-	-	-	90		NA	NA
Chromium	mg/kg	2	-	-	-	300 <sup>1</sup>	190 <sup>1</sup>	NA	NA
Copper	mg/kg	5	-	-	-	17000	560 <sup>2</sup>	NA	NA
Lead	mg/kg	5	-	-	-	600	1100	NA	NA
Mercury	mg/kg	0.1	-	-	-	80		NA	NA
Nickel	mg/kg	2	-	-	-	1200	350 <sup>2</sup>	NA	NA
Zinc	mg/kg	5	-	-	-	30000	960	NA	NA

NOTES:

HIL - C- Health-based Investigation Levels for Open Space and Recreational Use - Table 1A(1) (NEPM, 2013)

ESLs - C- Health-based Screening Levels for vapour intrusion for Open Space and Recreational - Table 1A(3) (NEPM, 2013)

ESLs and EILs - Ecological Screening Levels and Ecological Investigation Levels for Open Space and Recreational Land Use - Table 1 B (1)-(6) (NEPM, 2013) - Only applicable to soils present at less than 2 m bgs and fine soil texture.

Coat - Soil saturation concentrations at which the porewater phase cannot dissolve any more of the individual chemical - Table 1A(1) (NEPM, 2013)

NL - If derived soil HSL exceeds Coat, a soil vapour source concentration for a petroleum mixture could not exceed a level that would result in the maximum allowable vapour risk - For these scenarios no HSL is presented, the HSL is shown as 'Not Limiting' or 'NL'  
All concentrations are in mg/kg

NC - Non Calculable

NA - Not Analyzed

1. Guideline is for Chromium (VI)

2. Guideline is for Chromium (III)

\*- Indicates that the criteria is not applicable for these analytes

Y EILs and ESLs are applied only to samples collected from between the surface and 2m bgs, as per NEPM (2013)

± EIL correlates to 1% clay content and is most conservative EIL defined in NEPM (2013) for Urban Open Space land use

\*EIL correlates to 7.5pH as defined in NEPM (2013) for Urban Open Space land use

+ EIL correlates to 30 cmolc/kg CEC as defined in NEPM (2013) for Urban Open Space land use

# EIL correlates to 8pH and 30 cmolc/kg CEC as defined in NEPM (2013) for Urban Open Space land use

Table 4- Soil Analytical Results - OCPs, OPPs, PCBs

Test-pit Location				TP01				TP02		TP04
Depth				0.2-0.4	QC01 (Intra-Lab Dup of TP01_0.2-0.4)		0.5-0.7	0.3-0.4	0.9-1.0	0.5-0.6
Date Sampled				17/05/2021			17/05/2021	17/05/2021	17/05/2021	17/05/2021
Compounds	Units	PQL	NEPM (2013) HIL C							
<b>Organochlorine Pesticides</b>										
alpha-BHC	mg/kg	0.1	-	<0.1	<0.1	<0.05	<0.1	<0.1	<0.1	<0.1
HCB	mg/kg	0.1	10	<0.1	<0.1	<0.05	<0.1	<0.1	<0.1	<0.1
beta-BHC	mg/kg	0.1	-	<0.1	<0.1	<0.05	<0.1	<0.1	<0.1	<0.1
gamma-BHC	mg/kg	0.1	-	<0.1	<0.1	<0.05	<0.1	<0.1	<0.1	<0.1
Heptachlor	mg/kg	0.1	10	<0.1	<0.1	<0.05	<0.1	<0.1	<0.1	<0.1
delta-BHC	mg/kg	0.1	-	<0.1	<0.1	<0.05	<0.1	<0.1	<0.1	<0.1
Heptachlor Epoxide	mg/kg	0.1	-	<0.1	<0.1	<0.05	<0.1	<0.1	<0.1	<0.1
gamma-Chlordane	mg/kg	0.1	70	<0.1	<0.1	<0.05	<0.1	<0.1	<0.1	<0.1
alpha-chlordane	mg/kg	0.1	-	<0.1	<0.1	<0.05	<0.1	<0.1	<0.1	<0.1
Endosulfan I	mg/kg	0.1	-	<0.1	<0.1	<0.05	<0.1	<0.1	<0.1	<0.1
Endosulfan II	mg/kg	0.1	340	<0.1	<0.1	<0.05	<0.1	<0.1	<0.1	<0.1
Endosulfan Sulphate	mg/kg	0.1	-	<0.1	<0.1	<0.05	<0.1	<0.1	<0.1	<0.1
pp-DDE	mg/kg	0.1	-	<0.1	<0.1	<0.05	<0.1	<0.1	<0.1	<0.1
Aldrin	mg/kg	0.1	10	<0.1	<0.1	<0.05	<0.1	<0.1	<0.1	<0.1
Dieldrin	mg/kg	0.1	-	<0.1	<0.1	<0.05	<0.1	<0.1	<0.1	<0.1
Endrin	mg/kg	0.1	20	<0.1	<0.1	<0.05	<0.1	<0.1	<0.1	<0.1
pp-DDD	mg/kg	0.1	-	<0.1	<0.1	<0.05	<0.1	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	0.1	-	<0.1	<0.1	<0.05	<0.1	<0.1	<0.1	<0.1
pp-DDT	mg/kg	0.1	-	<0.1	<0.1	<0.05	<0.1	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	0.1	400	<0.1	<0.1	<0.2	<0.1	<0.1	<0.1	<0.1
Total +ve DDT+DDD+DDE	mg/kg	-	400	<0.1	<0.1	<0.05	<0.1	<0.1	<0.1	<0.1
<b>Organophosphate Pesticides</b>										
Dichlorvos	mg/kg	0.1	-	<0.1	<0.1	<0.05	<0.1	<0.1	<0.1	<0.1
Dimethoate	mg/kg	0.1	-	<0.1	<0.1	<0.05	<0.1	<0.1	<0.1	<0.1
Diazinon	mg/kg	0.1	-	<0.1	<0.1	<0.05	<0.1	<0.1	<0.1	<0.1
Chlorpyrifos-methyl	mg/kg	0.1	-	<0.1	<0.1	<0.05	<0.1	<0.1	<0.1	<0.1
Ronnel	mg/kg	0.1	-	<0.1	<0.1	<0.05	<0.1	<0.1	<0.1	<0.1
Fenitrothion	mg/kg	0.1	-	<0.1	<0.1	<0.05	<0.1	<0.1	<0.1	<0.1
Malathion	mg/kg	0.1	-	<0.1	<0.1	<0.05	<0.1	<0.1	<0.1	<0.1
Chlorpyrifos	mg/kg	0.1	250	<0.1	<0.1	<0.05	<0.1	<0.1	<0.1	<0.1
Parathion	mg/kg	0.1	-	<0.1	<0.1	<0.2	<0.1	<0.1	<0.1	<0.1
Bromophos-ethyl	mg/kg	0.1	-	<0.1	<0.1	<0.05	<0.1	<0.1	<0.1	<0.1
Ethion	mg/kg	0.1	-	<0.1	<0.1	<0.05	<0.1	<0.1	<0.1	<0.1
Azinphos-methyl (Guthion)	mg/kg	0.1	-	<0.1	<0.1	<0.05	<0.1	<0.1	<0.1	<0.1
<b>PCBs</b>										
Aroclor 1016	mg/kg	0.1	-	<0.1	<0.1		<0.1	<0.1	<0.1	<0.1
Aroclor 1221	mg/kg	0.1	-	<0.1	<0.1		<0.1	<0.1	<0.1	<0.1
Aroclor 1232	mg/kg	0.1	-	<0.1	<0.1		<0.1	<0.1	<0.1	<0.1
Aroclor 1242	mg/kg	0.1	-	<0.1	<0.1		<0.1	<0.1	<0.1	<0.1
Aroclor 1248	mg/kg	0.1	-	<0.1	<0.1		<0.1	<0.1	<0.1	<0.1
Aroclor 1254	mg/kg	0.1	-	<0.1	<0.1		<0.1	<0.1	<0.1	<0.1
Aroclor 1260	mg/kg	0.1	-	<0.1	<0.1		<0.1	<0.1	<0.1	<0.1
PCBs	mg/kg	-	1	<0.1	<0.1		<0.1	<0.1	<0.1	<0.1

**NOTES:**

< Value = Concentration less than laboratory Practical Quantitation Limit (PQL)

NC - Non Calculable

NA - Not Analysed

Table 4- Soil Analytical Results - OCPs, OPPs, PCBs

Test-pit Location				TP05		TP07	TP08	
Depth				0.3-0.4	0.9-1.0	0.3-0.4	0.5-0.6	QC03(Intra-Lab Dup of TP08_0.5-0.6)
Date Sampled				17/05/2021	17/05/2021	17/05/2021	17/05/2021	
Compounds	Units	PQL	NEPM (2013) HIL C					
<b>Organochlorine Pesticides</b>								
alpha-BHC	mg/kg	0.1	-	<0.1	<0.1	<0.1	<0.1	<0.1
HCB	mg/kg	0.1	10	<0.1	<0.1	<0.1	<0.1	<0.1
beta-BHC	mg/kg	0.1	-	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-BHC	mg/kg	0.1	-	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor	mg/kg	0.1	10	<0.1	<0.1	<0.1	<0.1	<0.1
delta-BHC	mg/kg	0.1	-	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor Epoxide	mg/kg	0.1	-	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-Chlordane	mg/kg	0.1	70	<0.1	<0.1	<0.1	<0.1	<0.1
alpha-chlordane	mg/kg	0.1	-	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan I	mg/kg	0.1	-	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan II	mg/kg	0.1	340	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan Sulphate	mg/kg	0.1	-	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDE	mg/kg	0.1	-	<0.1	<0.1	<0.1	<0.1	<0.1
Aldrin	mg/kg	0.1	10	<0.1	<0.1	<0.1	<0.1	<0.1
Dieldrin	mg/kg	0.1	-	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin	mg/kg	0.1	20	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDD	mg/kg	0.1	-	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	0.1	-	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDT	mg/kg	0.1	-	<0.1	<0.1	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	0.1	400	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve DDT+DDD+DDE	mg/kg	-	400	<0.1	<0.1	<0.1	<0.1	<0.1
<b>Organophosphate Pesticides</b>								
Dichlorvos	mg/kg	0.1	-	<0.1	<0.1	<0.1	<0.1	<0.1
Dimethoate	mg/kg	0.1	-	<0.1	<0.1	<0.1	<0.1	<0.1
Diazinon	mg/kg	0.1	-	<0.1	<0.1	<0.1	<0.1	<0.1
Chlorpyrifos-methyl	mg/kg	0.1	-	<0.1	<0.1	<0.1	<0.1	<0.1
Ronnel	mg/kg	0.1	-	<0.1	<0.1	<0.1	<0.1	<0.1
Fenitrothion	mg/kg	0.1	-	<0.1	<0.1	<0.1	<0.1	<0.1
Malathion	mg/kg	0.1	-	<0.1	<0.1	<0.1	<0.1	<0.1
Chlorpyrifos	mg/kg	0.1	250	<0.1	<0.1	<0.1	<0.1	<0.1
Parathion	mg/kg	0.1	-	<0.1	<0.1	<0.1	<0.1	<0.1
Bromophos-ethyl	mg/kg	0.1	-	<0.1	<0.1	<0.1	<0.1	<0.1
Ethion	mg/kg	0.1	-	<0.1	<0.1	<0.1	<0.1	<0.1
Azinphos-methyl (Guthion)	mg/kg	0.1	-	<0.1	<0.1	<0.1	<0.1	<0.1
<b>PCBs</b>								
Aroclor 1016	mg/kg	0.1	-	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1221	mg/kg	0.1	-	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1232	mg/kg	0.1	-	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1242	mg/kg	0.1	-	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1248	mg/kg	0.1	-	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1254	mg/kg	0.1	-	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1260	mg/kg	0.1	-	<0.1	<0.1	<0.1	<0.1	<0.1
PCBs	mg/kg	-	1	<0.1	<0.1	<0.1	<0.1	<0.1

**NOTES:**

< Value = Concentration less than laboratory Practical Quantitation Limit (PQ)

NC - Non Calculable

NA - Not Analysed



Table 5 - Soil Analytical Results - Asbestos

Test-pit Location				TP01	TP02		TP03	TP04	TP05		TP06	TP07	TP08	
Depth				0.2-0.4	0.3-0.4	Frag 01	0.4-0.5	0.5-0.6	0.3-0.4	0.9-1.0	0.4-0.5	0.3-0.4	0.3-0.4	0.5-0.6
Date Sampled				17/05/2021	17/05/2021	17/05/2021	17/05/2021	17/05/2021	17/05/2021	17/05/2021	17/05/2021	17/05/2021	17/05/2021	17/05/2021
Parameters	Units	PQL	NEPC (2013) HIL C											
Sample mass tested	g	--		472.36	663.13	65x40x7mm	636.32	672.74	585.78	616.87	638.65	473.66	596.24	544.23
Sample Description	-	--		Brown fine-grained soil & rocks	Brown fine-grained soil & rocks	Grey fibre cement material	Brown fine-grained soil & rocks	Brown fine-grained soil & rocks	Brown fine-grained soil & rocks	Brown fine-grained soil & rocks	Brown fine-grained soil & rocks	Brown fine-grained soil & rocks	Brown fine-grained soil & rocks	Brown fine-grained soil & rocks
Asbestos ID in soil	-	--		No asbestos detected at reporting limit of 0.1g/kg; Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg; Organic fibres detected	Chrysotile asbestos detected	No asbestos detected at reporting limit of 0.1g/kg; Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg; Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg; Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg; Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg; Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg; Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg; Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg; Organic fibres detected
Trace Analysis	-	--		No asbestos detected	No asbestos detected		No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected
Asbestos ID in soil <0.1g/kg*				No visible asbestos detected	No visible asbestos detected		Chrysotile asbestos identified in 0.0030 g of fibrous matted material	No visible asbestos detected	Chrysotile asbestos identified in 0.0011 g of fibrous matted material	No visible asbestos detected	No visible asbestos detected	No visible asbestos detected	No visible asbestos detected	No visible asbestos detected
ACM >7mm Estimation*	g	--		--	--		--	--	--	--	--	--	--	--
FA and AF Estimation*	g	--		--	--		0.0026	--	0.0009	--	--	--	--	--
Total Asbestos g/kg #1	g/kg	<0.1		<0.1	<0.1		<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
ACM >7mm Estimation % (w/w)*	%	<0.01	0.02	<0.01	<0.01		<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
FA and AF Estimation % (w/w)*#2	%	<0.001	0.001	<0.001	<0.001		<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Total Asb Est w/w	%	<0.001		<0.001	<0.001		<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001

NOTES:

< Value = Concentration less than laboratory Practical Quantitation Limit (PQL)

#1 - Total Asbestos g/kg (Sum of ACM, >7mm, <7mm and FA/AF) was analysed and reported as per AS4964

#2 - The screening level of 0.001%w/w asbestos in soil for FA and AF only applies where the FA and AF are able to be quantified by gravimetric procedures. The screening level is not applicable to free fibres.

"-" - no visible asbestos identified using polarised light microscopy and dispersion staining techniques

\* - Results reported are outside NATA Accreditation scope

NC - Non Calculable

NA - Not Analysed

Table 6 - Soil RPD Values - BTEX, TPH, PAHs, Metals

Location ID			TP02						TP08		
Sample ID			0.2-0.4	QC01 (Intra-Lab Dup of TP01_0.2-0.4)	RPD	0.2-0.4	QC02 (Inter-Lab Dup of TP01_0.2-0.4)	RPD	0.5-0.6	QC03 (Intra-Lab Dup of TP08_0.5-0.6)	RPD
Date Sampled			17/05/2021			17/05/2021			17/05/2021		
Compounds	Units	PQL									
<b>BTEX</b>											
Benzene	mg/kg	1	<0.2	<0.2	NC	<0.2	<0.2	NC	<0.2	<0.2	NC
Toluene	mg/kg	1	<0.5	<0.5	NC	<0.5	<0.5	NC	<0.5	<0.5	NC
Ethylbenzene	mg/kg	1	<1	<1	NC	<1	<0.5	NC	<1	<1	NC
Xylene (m & p)	mg/kg	2	<2	<2	NC	<2	<0.5	NC	<2	<2	NC
Xylene (o)	mg/kg	1	<1	<1	NC	<1	<0.5	NC	<1	<1	NC
Xylene Total	mg/kg		<3	<3	NC	<3	<0.5	NC	<3	<3	NC
Naphthalene	mg/kg	1	<1	<1	NC	<1	<1	NC	<1	<1	NC
<b>TPH</b>											
C6 - C9 Fraction	mg/kg	10	<25	<25	NC	<25	<10	NC	<25	<25	NC
C10 - C14 Fraction	mg/kg	10	<50	<50	NC	<50	<50	NC	<50	<50	NC
C15 - C28 Fraction	mg/kg	10	120	320	90.9%	120	180	40.0%	<100	<100	NC
C29 - C36 Fraction	mg/kg	50	430	730	51.7%	430	220	64.6%	<100	<100	NC
C6 - C10 Fraction	mg/kg	100	<25	<25	NC	<25	<10	NC	<25	<25	NC
C6 - C10 Fraction minus BTEX (F1)	mg/kg	100	<25	<25	NC	<25	<10	NC	<25	<25	NC
>C10 - C16 Fraction	mg/kg	50	<50	<50	NC	<50	<50	NC	<50	<50	NC
>C16 - C34 Fraction	mg/kg	50	310	640	69.5%	310	320	3.2%	<100	<100	NC
>C34 - C40 Fraction	mg/kg	100	240	380	45.2%	240	160	124.5%	<100	<100	NC
>C10 - C16 Fraction minus Naphthalene (F2)	mg/kg	100	<50	<50	NC	<50	<50	NC	<50	<50	NC
<b>PAHs</b>											
Naphthalene	mg/kg	0.1	<0.1	0.1	0.0%	<0.1	<0.5	NC	<0.1	<0.1	NC
Acenaphthylene	mg/kg	0.1	0.6	0.7	15.4%	0.6	0.7	15.4%	0.1	<0.1	NC
Acenaphthene	mg/kg	0.1	<0.1	<0.1	NC	<0.1	<0.5	NC	<0.1	<0.1	NC
Fluorene	mg/kg	0.1	<0.1	0.1	NC	<0.1	<0.5	NC	<0.1	<0.1	NC
Phenanthrene	mg/kg	0.1	1.2	1.6	28.6%	1.2	3.3	93.3%	1.1	0.2	138.5%
Anthracene	mg/kg	0.1	0.7	1.0	35.3%	0.7	1.3	60.0%	0.3	<0.1	NC
Fluoranthene	mg/kg	0.1	4.0	5.4	29.8%	4.0	8.3	69.9%	2.2	0.8	93.3%
Pyrene	mg/kg	0.1	4.2	5.8	32.0%	4.2	8.3	65.6%	2.2	0.9	83.9%
Benzo(a)anthracene	mg/kg	0.1	2.7	4.0	38.8%	2.7	4.1	41.2%	1.3	0.5	88.9%
Chrysene	mg/kg	0.1	2.4	3.4	34.5%	2.4	3.9	47.6%	1.2	0.6	66.7%
Benzo(b+k)fluoranthene	mg/kg	0.2	4.9	6.7	31.0%	4.9	8.8	56.9%	2.0	1.0	66.7%
Benzo(a)pyrene	mg/kg	0.1	2.9	4.0	31.9%	2.9	5.0	53.2%	1.4	0.7	65.4%
Indeno(1,2,3-c,d)pyrene	mg/kg	0.1	1.7	2.3	30.0%	1.7	2.5	38.1%	0.6	0.3	66.7%
Dibenzo(a,h)anthracene	mg/kg	0.1	0.4	0.6	40.0%	0.4	0.6	40.0%	0.1	<0.1	0.0%
Benzo(g,h,i)perylene	mg/kg	0.1	2.1	2.9	32.0%	2.1	2.6	21.3%	0.7	0.3	80.0%
<b>Metals</b>											
Arsenic	mg/kg	1	5	8	46.2%	5	10	66.7%	4	9	76.9%
Cadmium	mg/kg	0.1	0.5	1.0	66.7%	0.5	<1	66.7%	0.6	0.6	0.0%
Chromium	mg/kg	1	12	13	8.0%	12	19	45.2%	7	13	60.0%
Copper	mg/kg	1	77	88	13.3%	77	141	58.7%	16	31	63.8%
Lead	mg/kg	1	150	200	28.6%	150	300	66.7%	84	94	11.2%
Mercury	mg/kg	0.05	0.1	0.2	66.7%	0.1	0.3	0.0%	<0.1	0.2	0.0%
Nickel	mg/kg	1	26	20	26.1%	26	18	36.4%	3	6	66.7%
Zinc	mg/kg	1	190	260	31.1%	190	248	26.5%	60	87	36.7%

**NOTES:**

RPD result exceeding acceptance criteria for organics - 50%; Inorganics - 30%

RPD results exceeding the acceptance criteria but were disregarded if primary or duplicate sample results were <5 x EQL

< Value = Concentration less than laboratory Practical Quantitation Limit (PQL)

NC - Non Calculable

NA - Not Analysed

‡ EILs and ESLs are applied only to samples collected from between the surface and 2m bgs, as per NEPC (2013)

± EIL correlates to 1% clay content and is most conservative EIL defined in NEPC (2013) for Urban Residential land use

\*EIL correlates to 6.5pH as defined in NEPC (2013) for Urban Residential land use

+ EIL correlates to 10 cmolc/kg CEC as defined in NEPC (2013) for Urban Residential land use

# EIL correlates to 6.5pH and 10 cmolc/kg CEC as defined in NEPC (2013) for Urban Residential land use

# Appendix A: Plans for the Proposed Skate Plaza

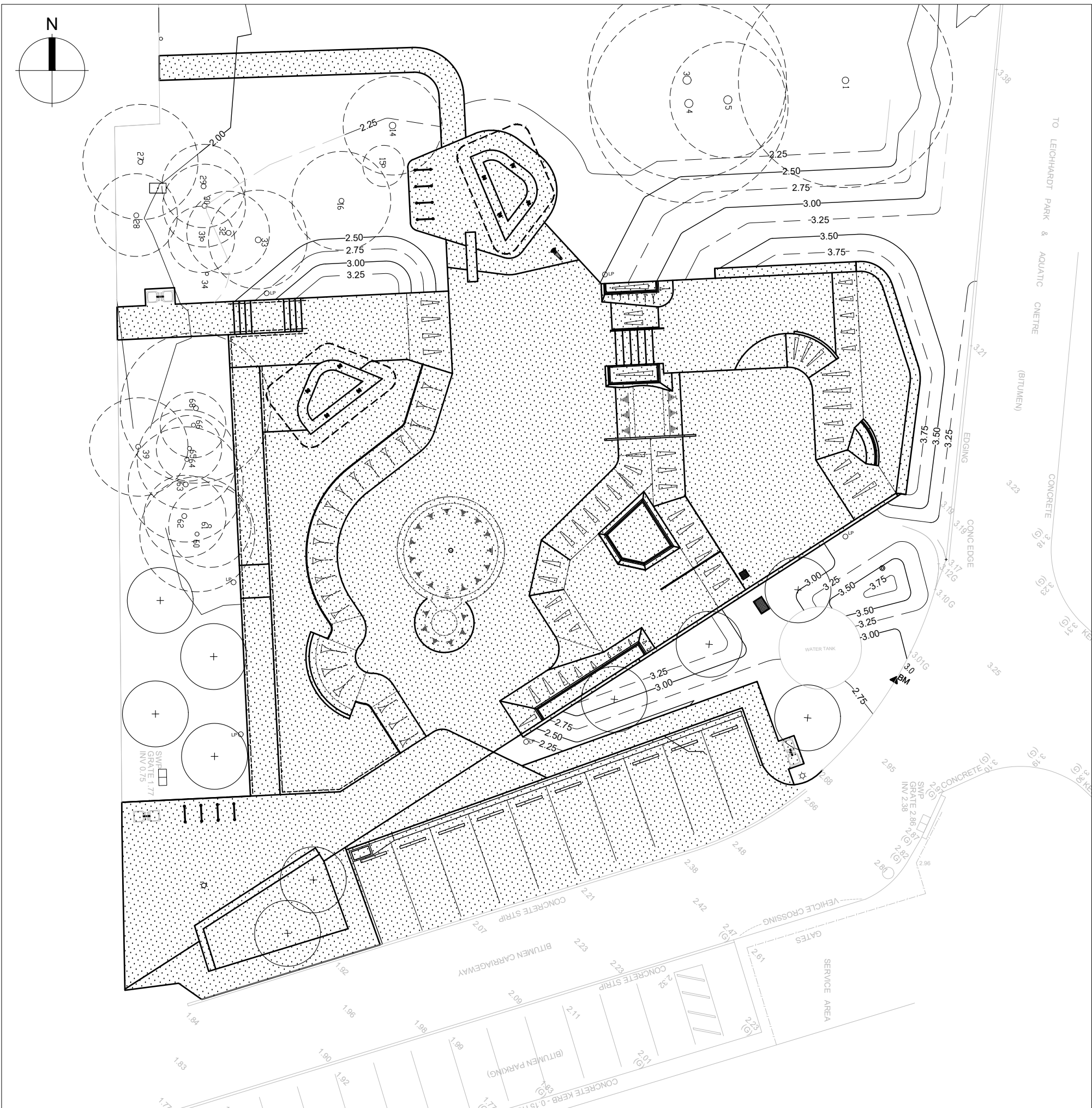
# LEICHHARDT PARK SKATE PARK

## CONSTRUCTION DRAWINGS //

// Maliyawul St, Lilyfield NSW 2040



LOCATION MAP



OVERALL PLAN - SCALE: 1:250

DRAWING LIST:			
Title Page & Drawing Index		DETAILS	
General Notes	1821_CD001	Engineering Details 01	1821_CD200
CONSTRUCTION PLANS		Engineering Details 02	1821_CD201
Existing Conditions Plan	1821_CD002	Engineering Details 03	1821_CD202
Demolition Plan	1821_CD003	Engineering Details 04	1821_CD203
Site Plan	1821_CD004	Engineering Details 05	1821_CD204
Surface Finishes Plan	1821_CD006-A	Drainage Details 01	1821_CD205
Surface Finishes Plan	1821_CD006-B	Carpark Details 01	1821_CD210
Levels Plan	1821_CD007-A	FABRICATION	
Levels Plan	1821_CD007-B	Steel Shelter Details 01	1821_CD300
Drainage Plan	1821_CD008	Steel Shelter Details 02	1821_CD301
Setout Plan	1821_CD009-A	Balustrade/Handrail Plan	1821_CD310
Setout Plan	1821_CD009-B	Balustrade Details 01	1821_CD311
Dimensions Plan	1821_CD010-A	Entrance Signage	1821_CD320
Dimensions Plan	1821_CD010-B	LANDSCAPE WORKS	
Steel Plan	1821_CD011	Planting Plan	1821_CD400
Concrete Joints Plan	1821_CD012-A	Planting Details	1821_CD401
Concrete Joints Plan	1821_CD012-B		
SECTIONS			
Section Key Plan	1821_CD100		
Sections 01	1821_CD101		
Sections 02	1821_CD102		
Retaining Wall Plan	1821_CD110		
Retaining Wall Sections	1821_CD111		

**- WARNING -**  
CONTRACTOR TO VERIFY LOCATION, DEPTH/CLEARANCE AND ALIGNMENT OF OVERHEAD AND UNDERGROUND SERVICES. CONTRACTOR TO ACQUIRE CURRENT AND RELEVANT DIAL BEFORE YOU DIG/ONE CALL SERVICES DRAWINGS AND ADHERE TO ALL REQUIREMENTS FOR WORKS NEAR SERVICES INCLUDING CLEARANCES, EASEMENTS AND INFORMING SERVICE AUTHORITIES PRIOR TO COMMENCEMENT OF WORKS. THE LOCATIONS OF UNDERGROUND SERVICES INDICATED IN THIS SET OF DRAWINGS ARE INDICATIVE ONLY. PIT LOCATIONS HAVE BEEN SURVEYED BY A LICENSED SURVEYOR.

**- SITE DIMENSIONS -**  
CONTRACTOR TO SATISFY THEMSELVES OF SITE CONDITIONS, CHANGES IN LEVEL AND DIMENSIONS PRIOR TO FABRICATION OF SITE SPECIFIC ITEMS OR PRIOR TO ORDERING/PURCHASING MATERIALS. WHERE DISCREPANCIES EXIST BETWEEN DRAWINGS AND SITE CONDITIONS CONTRACTOR TO NOTIFY SUPERINTENDENT PRIOR TO COMMENCEMENT OF WORKS.

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**DRAWING STATUS:**

## FOR COMMENT

REVISION STATUS:		
05	For Comment	18.01.22
04	For Construction	27.08.21
03	For Construction	04.08.21
02B	For Review	25.06.21
02A	For Review	24.06.21

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NOTES / LEGEND:	

**CLIENT NAME:**

**INNER WEST COUNCIL**  
7-15 Wetherill Street, Leichhardt  
NSW 2040

**PROJECT NAME:**

**LEICHHARDT PARK SKATE PARK**  
70 Mary Street,  
Lilyfield NSW 2040

**DRAWING TITLE:**

**Drawing Index**

<b>SCALE:</b>	<b>DATE OF ISSUE:</b> 18.01.2022
<b>FORMAT / SIZE:</b> A1	<b>REFERENCE NO:</b> 1821
<b>DESIGN REVIEW:</b> ND	<b>APPROVAL:</b> JM

<b>DRAWING NUMBER:</b>	<b>REVISION:</b>
1821_CD 000	05



GENERAL NOTES // ON SITE WORKS					
G01	ALL WORKS TO BE PERFORMED TO COMPLY WITH THE OCCUPATIONAL HEALTH AND SAFETY ACT 2004 AND THE OCCUPATIONAL HEALTH AND SAFETY REGULATIONS 2007.	C08	FORMWORK AND BACK PROPPING SHALL BE DESIGNED, CONSTRUCTED AND STRIPPED IN ACCORDANCE WITH AS3610. REFER TO DRAWINGS AND SPECIFICATION FOR CLASS OF SURFACE FINISHES.	P1	ALL PAVEMENT SLABS TO BE POURED OVER AN APPROPRIATE SUBGRADE MATERIAL IN COMPLIANCE WITH THE RECOMMENDATIONS PREPARED BY THE GEOTECHNICAL REPORT SUPPLIED BY CIVIL TEST PTY LTD - REPORT NO. 1190944-1. EARTHWORKS SHALL BE COMPLETED IN ACCORDANCE WITH REQUIREMENTS OF AS 3798 - "GUIDELINES ON EARTHWORKS FOR COMMERCIAL AND RESIDENTIAL DEVELOPMENTS"
G02	TRAFFIC / PEDESTRIAN MANAGEMENT PLANS AS REQUIRED FOR WORKS - ON SITE ONLY - TO BE SUBMITTED TO SUPERINTENDENT PRIOR TO THE COMMENCEMENT OF WORKS. REFER TO G32.	C09	UNO CONCRETE COMPONENTS AND QUALITY SHALL BE AS FOLLOWS: PRECAST CROSSING UNITS PRECAST PAVERS CONCRETE KERB AND CHANNEL CONCRETE SLAB NOMINATED FOR SPORTS FACILITY CONNECTING ROADSIDE DRIVE PATHWAYS: (MAXIMUM AGGREGATE SIZE SHALL BE 20MM) OR AS NOTED.	P2	PROVIDE FILL UNDER SLAB WHERE REQUIRED TO PRODUCE FINISHED LEVELS AS SHOWN ON PLANS
G03	ALL SERVICE AUTHORITIES TO BE NOTIFIED AND RELEVANT PERMITS RECEIVED PRIOR TO THE COMMENCEMENT OF ANY WORKS.	C10	CONCRETE DESIGN STRENGTH (f <sub>c</sub> AT 28 DAYS) AND BASIC MIX DETAILS UNO SHALL BE AS FOLLOWS: GRADE N32 SLUMP 100MM AGGREGATE 20MM FOR FOOTINGS. GRADE N32 SLUMP 80MM AGGREGATE 20MM FOR PAVEMENT SLABS/WALLS.	P3	CLEAR AREA UNDER SLAB OF ALL TOP SOIL CONTAINING HUMUS AND VEGETABLE MATTER 100MM MIN
G04	SETOUT AS PER DETAILS SHOWN ON SET OUT DRAWINGS.	C11	ALL CEMENT IS TO BE GENERAL PURPOSE "PORTLAND GREY CEMENT" UNLESS OTHERWISE STATED IN THE DRAWINGS AND SPECIFICATION.	P4	PIPELINES, PREVIOUS CONSTRUCTION AND OTHER MATERIALS UNSUITABLE FOR INCORPORATION IN THE WORKS. TOP SOIL MAY BE STOCKPILED FOR LATER USE. ALL OTHER MATERIAL TO BE REMOVED FROM SITE OTHER THAN BEST OF FILL, SUFFICIENT OF WHICH SHALL BE RETAINED TO BALANCE EARTHWORKS.
G05	ALL CO-ORDINATES ARE TO A LOCAL GRID SET OUT USING THE TRIANGULATION OF 3 KNOWN MGA GRID POINTS. REFER TO SITE PLAN CD004. ALL LEVELS TO AHD.	C12	CONCRETE SLUMP TO BE A MAXIMUM OF 80MM UNLESS OTHERWISE STATED ON THE DRAWINGS.	P5	PRIOR TO PLACEMENT OF ANY FILL MATERIAL, THE EXPOSED SURFACE IS TO BE PROOF ROLLED WITH FULLY LOADED TANDEM TIPPER WITH TYRES INFLATED TO APPROX. 550 KPA. ALL "SOFT SPOTS" OR AREAS SHOWING MOVEMENT TO BE EXCAVATED AND REPLACED WITH CONTROLLED FILL - IN LAYERS NOT EXCEEDING 150MM FOR LEVEL PAVEMENT AND 200MM FOR BUILT UP AREAS - FOR RETESTING.
G07	ALL SIDE ENTRY & JUNCTION PIT LIDS, VALVE COVERS, ETC WITHIN THE WORK AREA ARE TO BE ADJUSTED TO SUIT NEW DESIGN LEVELS.	C13	FREE DROPPING OF CONCRETE FROM A HEIGHT GREATER THAN 1000MM IS NOT PERMITTED.	P6	RELATIVE COMPACTION OF COMPLETED WORKS SHALL BE AS FOLLOWS: ROAD, DRIVEWAY AND PAVEMENT AREAS > 0.3 M BELOW PAVEMENT SUBGRADE COMPACTED IN 150MM MAX LAYERS TO 98% OF THE MAXIMUM MODIFIED DRY DENSITY (M.M.D.D.) WHEN TESTED IN ACCORDANCE WITH AS 1289. < 0.3 BELOW PAVEMENT SURFACE SHALL BE WITHIN 85% TO 115% OF OPTIMUM MOISTURE CONTENT AND TO BE PROPERLY COMPACTED TO 98% M.M.D.D
G08	ROAD CONSTRUCTION AND LANDSCAPING MATERIALS TO BE IN ACCORDANCE WITH THE SPECIFICATION.	C14	SURFACES RECEIVING GROUT SHALL BE LEFT ROUGH AND FREE OF LAITANCE.	P7	FILL MATERIAL SHALL BE IMPORTED GRANULAR MATERIAL, SANDSTONE, MUDSTONE OR STABLE SILURIAN CLAY. SAMPLES AND SOURCE SHALL BE PROVIDED FOR APPROVAL OF CONSULTING ENGINEER. MATERIAL IN STOCKPILES MAY BE USED
G09	ALL SOFT LANDSCAPING MATERIALS TO BE IN ACCORDANCE WITH THE SPECIFICATION.	C15	CONCRETE MUST BE CURED BY AN APPROVED METHOD IN ACCORDANCE WITH THE SPECIFICATION FOR SEVEN DAYS AFTER POURING.	P8	ALLOW FOR THREE COMPACTION TESTS ON COMPLETED WORKS
G10	ALL LINEMARKING TO BE LONG-LIFE, THERMOPLASTIC PRODUCT AND METHOD TO BE SUPPLIED TO SUPERINTENDENT FOR APPROVAL.	C16	REINFORCEMENT IS REPRESENTED DIAGRAMMATICALLY AND NOT NECESSARILY SHOWN IN TRUE PROJECTION OF SCALE.	P9	ENSURE THAT WORKS ARE KEPT FREE DRAINING ALL TIMES. CONSTRUCT TEMPORARY SURFACE DRAINS AS REQUIRED
G11	THESE DRAWINGS SHALL BE READ IN CONJUNCTION WITH ALL ENGINEERING AND OTHER CONSULTANTS DRAWINGS. THE SPECIFICATIONS AND WITH SUCH OTHER WRITTEN INSTRUCTIONS AS MAY BE ISSUED DURING THE COURSE OF THE CONTRACT.	C17	REINFORCEMENT SYMBOLS: N = NORMAL DUCTILITY CLASS HOT ROLLED DEFORMED BARS 500N GRADE OR MESH TO AS1302 & AS/NZS 4671 WITH FSY EQUAL TO 500MPA. R = NORMAL DUCTILITY CLASS 250N PLAIN ROUND BAR TO AS/NZS 4671 WITH FSY EQUAL TO 250MPA. L = LOW DUCTILITY CLASS 500L REINFORCING MESH OR BAR TO AS/NZS 4671 WITH FSY EQUAL TO 500MPA.	P10	UNLESS NOTED ON PLAN, NO TREES TO BE REMOVED WITHOUT THE CONSENT OF THE SUPERINTENDENT.
G12	ANY DISCREPANCIES BETWEEN THE DRAWINGS OR THE DRAWINGS AND/OR SPECIFICATION AND/OR THE SPECIFIED STANDARDS MUST BE REPORTED TO THE SUPERINTENDENT AND A WRITTEN INSTRUCTION RECEIVED PRIOR TO PROCEEDING WITH THE WORKS. DURING THE TENDERING PROCESS TENDERS SHALL ASSUME THE LARGER OR GREATER CRITERIA IN TERMS OF COST IN THE ABSENCE OF THE OTHER INSTRUCTION.	C18	WELDING OF REINFORCEMENT SHALL NOT BE PERMITTED WITHOUT THE APPROVAL OF THE SUPERINTENDENT.	P11	EXTERNAL PAVEMENT AREA ARE SUBJECTED TO VARYING MOISTURE CONDITIONS, MOVEMENT OF THE PAVEMENT IS TO BE EXPECTED OVER TIME. IN AREAS WHERE MOVEMENT IS BEYOND EXPECTABLE SERVICEABLE LEVELS, ADJACENT PORTION OF THE CONCRETE PAVEMENT IS EITHER TO BE REPAIRED OR REMOVED AND REPLACE TO RETURN THE AFFECTED AREA TO AN EXPECTABLE CONDITION.
G13	THE CONTRACTOR SHALL REPORT TO THE SUPERINTENDENT ANY DIFFERENCE IN SITE CONDITIONS TO THOSE INDICATED ON THE DRAWINGS.	C19	MINIMUM CONCRETE COVER TO ALL REINFORCEMENT (FINISHES NOT INCLUDED): SLABS (TOP) 30MM SLABS (BOTTOM) 50MM WALLS AND FOOTINGS 50MM	TREE NOTES	
G14	THE DRAWINGS DO NOT SHOW ALL DETAILS OF FIXTURES, INSERTS, SLEEVES, OPENING ETC, REQUIRED BY THE VARIOUS TRADES. ALL SUCH DETAILS, INCLUDING OPENINGS FOR CONSTRUCTION PURPOSES, MUST BE APPROVED BY THE SUPERINTENDENT AND A WRITTEN INSTRUCTION RECEIVED PRIOR TO PROCEEDING WITH THE WORKS.	C20	ALL REINFORCEMENT SHALL BE SECURELY SUPPORTED IN ITS CORRECT POSITION DURING CONCRETING BY APPROVED BAR CHAIRS, SPACERS OR SUPPORT BARS AT 1000MM MAXIMUM CENTRES. THE CHAIR MATERIAL SHALL SUIT THE EXPOSURE CONDITIONS.	T1	CAREFUL AND CONTINUOUS ATTENTION SHOULD BE PAID IN THE PLACEMENT OF TREES, GARDENING AND RELATED ACTIVITIES WITHIN A BUILDING LOT AS WELL AS ITS IMMEDIATE ADJOINING PROPERTIES. THE OWNER'S ATTENTION IS DRAWN TO APPENDIX B OF AS 2870 (PERFORMANCE REQUIREMENTS AND FOUNDATION MAINTENANCE)
G15	ALL WORKMANSHIP AND MATERIALS SHALL BE IN ACCORDANCE WITH THE RELEVANT CURRENT AUSTRALIAN STANDARD INCLUDING ALL AMENDMENTS, AND THE REQUIREMENTS OF THE LOCAL STATUTORY AUTHORITY, EXCEPT WHERE VARIED BY THE CONTRACT DOCUMENTS. ANY DISCREPANCIES BETWEEN THE DRAWINGS/SPECIFICATION AND THE SPECIFIED STANDARDS MUST BE REPORTED TO THE SUPERINTENDENT AND A WRITTEN INSTRUCTION RECEIVED PRIOR TO PROCEEDING WITH THE WORKS.	C21	REINFORCEMENT FOR ANY ONE POND SHALL BE PLACED AND TIED PRIOR TO INSPECTION BY SUPERINTENDENT PRIOR TO PROCEEDING WITH POURING OF SLAB OR WALL. CONTRACTOR SHALL NOTIFY SUPERINTENDENT 24HOURS PRIOR TO POURING OF SLAB OF PLANNED OR LIKELY REQUIREMENT FOR INSPECTION. CONTRACTOR SHALL NOTIFY SUPERINTENDENT 3HRS PRIOR TO POURING OF SLAB CONFIRMATION OF INSPECTION.	BULK EXCAVATION AND PAVEMENT NOTES	
G16	ALL DIMENSION ARE IN MILLIMETERS UNLESS NOTED OTHERWISE. ALL LEVELS ARE IN METERS UNLESS OTHERWISE NOTED.	C22	2 X N12 DIAGONAL CORNER BARS 1200MM LONG ARE REQUIRED AT ALL RE-ENTRANT CORNERS OF OPENINGS IN SLABS AND WALLS.	B01	TOPSOIL (NOMINAL DEPTH 150MM) SHALL BE STRIPPED WITHIN THE LIMITS OF EARTHWORKS. QUANTITIES OF SELECTED TOPSOIL MATERIAL FOR FUTURE LANDSCAPE WORKS SHALL BE STOCKPILED AS DIRECTED BY THE SUPERINTENDENT.
G17	ALL DIMENSIONS RELEVANT TO SETTING OUT AND OFF-SITE WORKS SHALL BE VERIFIED BY THE CONTRACTOR BEFORE CONSTRUCTION OR FABRICATION IS COMMENCED. THE ENGINEER'S DRAWINGS SHALL NOT BE SCALED.	C23	REINFORCEMENT LENGTHS ARE IN MILLIMETERS AND ARE PLAN LENGTH ONLY. TURN DOWNS AND CRANKS ARE NOT INCLUDED IN THE DIMENSION.	B02	AFTER BULK EXCAVATION HAS BEEN COMPLETED THE FORMED SURFACE SHALL BE PROOF ROLLED AND TESTED IN ACCORDANCE WITH THE SPECIFICATION.
G18	THE CONTRACTOR MUST MAINTAIN THE CONSTRUCTION AREA IN A SAFE CONDITION AND MUST ENSURE THAT ADEQUATE BARRIERS, LIGHT AND SIGNS ARE INSTALLED AND MAINTAINED WHERE NECESSARY IN ACCORDANCE WITH AS1742.3-1996.	C24	BARs SHOWN STAGGERED ON PLAN SHALL BE PLACED ALTERNATELY.	B03	ALL FILLING IS TO BE CARRIED OUT IN 150MM LAYERS UNLESS OTHERWISE STATED & COMPACTED TO 98% OF MAXIMUM MODIFIED DRY DENSITY. FILLING IN ROAD RESERVES IS TO BE CARRIED OUT USING APPROVED CLAY FILL. TOPSOIL & ALL VEGETATION MATTER TO BE STRIPPED FROM SITE PRIOR TO FILLING. ALL FILLING TO COMPLY WITH AS3798.
G19	TRENCHES THROUGH NATURE STRIPS AND SOFT LANDSCAPED AREAS TO BE FINISHED WITH MIN 100MM TOPSOIL AND GRASSED TO MATCH ADJACENT SURFACE LEVELS.	C25	BARs SHALL BE EVENLY DISTRIBUTED OVER THE WIDTH OF THE STRIP INDICATED ON THE DRAWINGS UNLESS NOTED OTHERWISE.	B04	EARTHWORKS WITHIN ROAD RESERVES AND LOTS SHALL BE TESTED BY A NATA REGISTERED GEOTECHNICAL LABORATORY IN ACCORDANCE WITH AS3798 AND AS1289 AND MEET THE REQUIREMENTS OF COUNCIL.
G20	THE FULL WIDTH AND DEPTH OF TRENCH ABOVE OVERLAY ZONE AS DEFINED BY AS 3725 TO BE BACKFILLED AND COMPACTED TO 98% MODIFIED DRY DENSITY (SMDD).	C26	ALL EMBEDMENT'S SHALL BE HOT DIP GALVANISED.	B05	COMPACTION TESTING AND PROOF ROLLING OF EACH PAVEMENT LAYER TO BE IN ACCORDANCE WITH AS 3798 AND AS 1289 AND SHALL MEET THE FOLLOWING STANDARDS, UNLESS OTHERWISE SPECIFIED: I - SUB GRADE 98% MODIFIED DRY DENSITY II - BASE COURSE LAYERS 98% MODIFIED DRY DENSITY III - ASPHALT 100% MODIFIED DRY DENSITY
G21	ALL CONCRETE PIPES TO BE STEEL REINFORCED CLASS 2, RRU UNLESS NOTED OTHERWISE.	C27	DURING THE CONSTRUCTION OF SUSPENDED OR CANTILEVERED CONCRETE ELEMENTS THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING THE STRUCTURE IN A STABLE CONDITION AND ENSURING NO PART SHALL BE OVERSTRESSED UNDER CONSTRUCTION ACTIVITIES.	B06	SOFT SPOTS OR HEAVE AREAS IN SUB GRADE SHALL BE EXCAVATED TO A SUITABLE FOUNDATION APPROVED BY SUPERINTENDENT, BACKFILLED WITH APPROVED GRANULAR MATERIAL OR CONTROLLED FILL IN 150MM LAYERS FOR LEVEL SLAB AND 200MM FOR BUILT UP AREAS AND COMPACTED TO 98% M.M.D.D.
G22	ALL EXISTING AREAS OF PAVEMENT, PAVING, K&C, FOOTPATH MUST BE SAW-CUT NEATLY BEFORE EXCAVATION.	C28	THE STRUCTURAL WORK SHOWN ON THESE DRAWINGS HAVE BEEN DESIGNED FOR MINIMUM LIVE LOADS AS FOLLOWS: PAVEMENT 3.0KPa SHADE STRUCTURES/SHelters 0.25KPa	B07	REFER TO RC WALLS AND MINOR STRUCTURE TYPICAL DETAILS FOR MINIMUM BEARING CAPACITY. FOUNDATION MATERIAL FOR RC FOOTINGS TO BE 90KPa UNO.
G23	LOCATION OF UNDERGROUND SERVICES SHOWN ON PLAN ARE INDICATIVE ONLY. NO GUARANTEE IS GIVEN THAT ALL EXISTING SERVICES ARE SHOWN. CONSTRUCTION IS TO CONFIRM DEPTH OF ALL SERVICES CROSSING PROPOSED UNDERGROUND DRAINS PRIOR TO CONSTRUCTION, AND NOTIFY COUNCIL'S SUPERVISING OFFICER OF ANY CONFLICT IMMEDIATELY. CONTRACTOR IS TO ALLOW ADEQUATE TIME IN THEIR WORK PROGRAM FOR COUNCIL TO MODIFY THE DESIGN /ARRANGE MODIFICATIONS OF SERVICE.	C29	CONCRETE SKATEPARK SURFACE TOLERANCES : FLAT SKATE ELEMENTS: MAX. +/- 3 MM DEVIATION OVER A 3 M LONG MACHINE ROLLED STEEL RADIUS. FLAT SKATE ELEMENTS: MAX. +/- 3MM DEVIATION OVER A 3 M STRAIGHT EDGE AS PER CLASS A.	B08	ON COMPLETION OF WORKS THE CONTRACTOR IS RESPONSIBLE FOR THE REMOVAL AND DISPOSAL OF EXCESS SPOIL FROM THE SITE, AS DIRECTED BY THE SUPERINTENDENT .
G24	TACTILE PAVER TO BE 300MMX300MM POLYURETHANE WARNING TACTILE INDICATOR TILE, COLOUR GREY TO MATCH PREVIOUS PRAM CROSSING TACTILE PAVER, BY GUARDIAN TACTILE SYSTEMS (08) 9240 1888 OR APPROVED EQUIVALENT.	SITE DRAINAGE		B09	ANY SOFT, WET OR UNSUITABLE SUB GRADE MATERIALS AS DEFINED IN THE SPECIFICATION, SHALL BE REMOVED AND REPLACED WITH AN APPROVED MATERIAL AND PROPERLY COMPACTED TO COUNCIL REQUIREMENTS.
G25	ANY VEGETATION TO BE REMOVED OR TRIMMED SHALL BE IN ACCORDANCE WITH PLANNING PERMIT REQUIREMENTS AND SUBJECT TO SUPERINTENDENTS APPROVAL.	SD1	SITES SHOULD BE DRAINED SO THAT WATER CANNOT POND AGAINST OR NEAR PAVED AREAS. THE GROUND IMMEDIATELY ADJACENT TO ANY PAVEMENT OF CONCRETE STRUCTURES SHOULD BE GRADED TO FALL 50MM OVER THE FIRST METRE. WHERE THIS IS IMPRACTICABLE (I.E. ON SEVERAL SLOPING SITES) USE A.G. DRAINS ADJACENT TO THESE AREAS WHERE THE GROUND FALLS TOWARDS THE PAVEMENT OR STRUCTURE.	B10	APPROVED FILL MATERIALS SHALL BE PLACED IN UNIFORMED LAYERS. COMPACTED. TESTED AND PROOF ROLLED IN ACCORDANCE WITH THE SPECIFICATION. THE FINISHED EARTHWORKS LEVELS SHALL BE PROOF ROLLED AND TESTED AS SPECIFIED PRIOR TO PAVEMENT CONSTRUCTION.
G26	EXISTING TREES TO BE RETAINED, UNLESS WHERE SPECIFIED OTHERWISE. CONTRACTOR TO TAKE CARE TO ENSURE THAT NO DAMAGES OCCUR TO TREES TO BE RETAINED AS PER TREE PROTECTION STANDARD AS 4970 2009. CONTRACTOR NOT TO PLACE SPOIL FROM EXCAVATIONS, BULK MATERIALS, HARMFUL MATERIALS OR PARKING/STORAGE MACHINERY WITHIN TREE DRIP LINES.	SD2	DISCHARGE FROM ANY DRAINAGE MUST BE DIRECTED AWAY FROM THE CONSTRUCTION AREAS DURING CONSTRUCTION PROCESS TO ENSURE WATER DOES POND ADJACENT TO AREA OF EXCAVATION OR BUILDING.	B11	DURING CONSTRUCTION THE CONTRACTOR SHALL BE RESPONSIBLE FOR CONSTRUCTING AND MAINTAINING A TEMPORARY SITE DRAINAGE SYSTEM AND TO MAINTAIN THE SITE IN A DRY AND STABLE CONDITION. DETAILS OF THE DRAINAGE SYSTEM SHALL BE SUBMITTED FOR THE APPROVAL OF THE SUPERINTENDENT.
G27	TREE REMOVAL: CONTRACTOR TO CONFIRM AND MARK WITH SPRAY PAINT ALL TREES TO BE REMOVED WITH DESIGNATED COUNCIL SUPERVISING OFFICER ON SITE PRIOR TO COMMENCING ANY WORK. STUMP GRINDING ALL TREES TO A DEPTH OF 500MM. REMOVE ALL DEBRIS OFF SITE AND REINSTATE NATURE STRIP. CONTRACTOR TO TAKE EXTREME CARE NOT TO DAMAGE OTHER RETAINED TREES, SERVICES OR OTHER INFRASTRUCTURE DURING TREE REMOVAL WORKS.	SD3	FOR ALL SITES THE NATURAL GROUND IMMEDIATELY ADJACENT TO THE CONSTRUCTION AREA SHALL BE GRADED TO A UNIFORM FALL OF 50MM MIN. AWAY FROM THE PAVEMENT AND STRUCTURE OVER THE FIRST METRE. THE SURFACE WATER AND SUB-SURFACE WATER IS TO BE DRAINED TO AN APPROPRIATE LEGAL POINT OF DISCHARGE. REFER TO THE ATTACHED SKETCH	B12	UNLESS OTHERWISE STATED ALL BATTERS SHAPED TO FINAL PROFILE SHALL BE CONSTRUCTED AT A MAXIMUM BATTER/SLOPE OF 1 IN 4 IN ACCORDANCE WITH COUNCIL STANDARDS. TEMPORARY CONSTRUCTION LATTOE TO BE LIMITED TO A MAXIMUM OF 1 IN 1.5. STEEPER BATTERS/SLOPES SHALL NOT BE CONSTRUCTED UNLESS APPROVED BY THE SUPERINTENDENT. STABILIZATION AND EROSION PROTECTION SHALL BE PROVIDED AS DIRECTED BY THE SUPERINTENDENT, AT THE CONTRACTOR'S EXPENSES. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE STABILITY OF HIS TEMPORARY WORKS.
G28	WORKS NEAR TREES: WITHIN THE TREE DRIP LINE OR 3 METERS FROM THE TREE TRUNK OR WHICHEVER IS GREATER, THE CONTRACTOR SHALL SEEK APPROVAL FROM THE COUNCIL SUPERVISING OFFICER FOR WORKS INCLUDING CUT AND FILL OPERATIONS. PRIOR TO MACHINE EXCAVATION, USE HAND EXCAVATION TO LOCATE ROOTS IN THE VICINITY OF TREES TO BE RETAINED. CONTRACTOR TO SUBMIT A WORKS METHODS STATEMENT TO COUNCIL FOR APPROVAL PRIOR TO COMMENCEMENT OF CONSTRUCTION.	SD4	WATERING AND LANDSCAPE BEDS ARE NOT PERMITTED ADJACENT TO BUILDING(S) AND ADJACENT TO THE PERIMETER CONCRETE PAVING SLAB. SHALLOW (300MM MAX.) AGRICULTURAL DRAIN IS TO BE INSTALLED BELOW GROUND LEVEL AT THE OUTER PERIMETER OF THE CONCRETE PAVING SLAB CONNECTED TO A GRAVITY FEED LEVEL POINT OF DISCHARGE. SUB-SURFACE WATER IN THE FORM OF PERCHED WATER TABLE MAY OCCUR WHERE SILTY CLAYS AND SANDS OVERLY IMPERMEABLE CLAY. WHERE THIS OCCURS AND AGRICULTURAL DRAIN MUST BE PROVIDED TO DIVERT THE FLOW OF WATER AWAY FROM THE CONCRETE PAVING SLAB & STRUCTURES. THIS DRAIN SHOULD BE EMBEDDED INTO IMPERMEABLE CLAY. SPECIAL ATTENTION SHOULD BE MADE NOT TO UNDERMINE THE FOOTINGS/STRUCTURES	B13	ALL UNDERGROUND SERVICES SHALL BE LAID PRIOR TO FINAL SEALING OF ANY PAVEMENTS.
G29	ALL AREA OF PAVEMENTS, K&C AND FOOTPATHS DISTURBED BY CONTRACTOR DURING CONSTRUCTION OF DRAIN MUST BE REINSTATED TO THE ORIGINAL CONDITION.	SD5	PROVIDE SITE DRAINAGE TO PREVENT SURFACE SOIL SATURATION OR WATER PONDING NEAR PAVEMENT & STRUCTURES	B14	ALL TRENCHES UNDER PAVED SURFACES ARE TO BE BACKFILLED WITH 20MM NOMINAL SIZE CLASS 2 CRUSHED ROCK & COMPACTED TO 98% MAXIMUM MODIFIED DRY DENSITY. REFER TO GEOTECHNICAL REPORT RECOMMENDATIONS.
G30	ALL ADJACENT DISTURBED VALVES, PITS, MANHOLES, SERVICES COVERS ETC TO MATCH NEW FINISHED SURFACE LEVEL.	SD6	CARE SHALL BE TAKEN WITH SURFACE DRAINAGE OF THE ALLOTMENT FROM THE START OF CONSTRUCTION. THE DRAINAGE SYSTEM SHALL BE COMPLETED BY THE FINISH OF CONSTRUCTION	B15	DRAINAGE BEDDING TYPE IS TO BE 'HS2' IN ACCORDANCE WITH AS 3725 UNLESS OTHERWISE SPECIFIED.
G31	ALL SERVICES ARE TO BE PROTECTED DURING CONSTRUCTION. ATTENTION IS DRAWN TO MINIMUM COVER REQUIREMENTS OVER EXISTING SERVICES. FOR ON SITE WORKS (EXCLUDING SUPPLY ONLY CONTRACTS)	SD7	PLUMBING TRENCHES SHALL BE SLOPED AWAY FROM THE BUILDING AND SHALL BE BACKFILLED WITH CLAY IN THE TOP 300MM WITHIN 1.5M OF THE BUILDING. THE CLAY USED FOR BACKFILLING SHALL BE COMPACTED. WHERE PIPES PASS UNDER THE FOOTING & PAVEMENT SYSTEM, THE TRENCH SHALL BE BACKFILLED WITH CLAY OR CONCRETE TO RESTRICT THE INGRESS OF WATER BENEATH	B16	THE SITE IS PREDOMINANTLY FILL. PAVEMENT MAY EXPERIENCE UNCONTROLLED MOVEMENT DUE TO THE GROUND PROFILE UNDER.
G32	WHERE INTERRUPTION OR DIVERSION OF LOCAL TRAFFIC IS REQUIRED TO COMPLETE WORKS, CONTRACTOR TO SUBMIT TRAFFIC MANAGEMENT PLAN TO SUPERINTENDED FOR WRITTEN APPROVAL BY ROAD AUTHORITY - RMS OR RTA- PRIOR TO PROCEEDING.	SD10	REFER TO SECTION 5 AND 6 AS2870-1996 AND AS2870-2011 FOR FULL SET OF DETAILING AND CONSTRUCTION REQUIREMENTS	SIGNAGE AND ROAD LINEMARKING NOTES	
G33	THE SITE IS PREDOMINANTLY FILL. PAVEMENT MAY EXPERIENCE UNCONTROLLED MOVEMENT DUE TO THE GROUND PROFILE UNDER.	SD11	THE FOOTING & CONCRETE PAVEMENT DESIGN IS BASED ON A SITE HAVING PROPER SITE DRAINAGE. IF THE ABOVE DRAINAGE REQUIREMENTS CANNOT BE ACHIEVED CONTACT LANDSCAPE ARCHITECT FOR FURTHER ADVICE.	L01	ALL SIGNAGE TO BE MANUFACTURED IN ACCORDANCE WITH AS1742 "MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES"
CONCRETE NOTES				L02	UNLESS OTHERWISE SHOWN, ALL SIGNS AND LINEMARKINGS TO BE INSTALLED IN ACCORDANCE WITH RMS TRAFFIC ENGINEERING MANUAL VOLUME 2 "SIGN AND LINEMARKING"
C01	ALL WORKMANSHIP AND MATERIALS SHALL BE IN ACCORDANCE WITH AS3600-2009 CONCRETE STRUCTURES EXCEPT WHERE VARIED BY THE CONTRACT DOCUMENTS.			L03	ALL LINEMARKINGS TO BE CARRIED OUT BY A CONTRACTOR APPROVED BY COUNCIL SUPERINTENDENT REPRESENTATIVE.
C02	BEAM DEPTHS ARE WRITTEN FIRST AND INCLUDED SLAB THICKNESS. BEAMS AND SLABS ARE TO BE POURED TOGETHER UNLESS NOTED OTHERWISE.			L04	ALL REDUNDANT LINEMARKING TO BE REMOVED BY GRINDING PRIOR TO THE INSTALLATION ON NEW LINEMARKING.
C03	SIZE OF CONCRETE ELEMENTS DO NOT INCLUDE THICKNESS OF APPLIED FINISHES.				
C04	NO HOLES, CHASES OR EMBEDMENT OF PIPES OTHER THAN THOSE SHOWN ON THE STRUCTURAL DRAWINGS SHALL BE MADE IN CONCRETE MEMBERS WITHOUT PRIOR APPROVAL OF THE SUPERINTENDENT.				
C05	CONSTRUCTION JOINTS SHALL BE PROPERLY FORMED AND USED ONLY WHERE SHOWN ON THE DRAWINGS OR SPECIFICALLY APPROVED BY THE SUPERINTENDENT.				
C06	ALL EXPOSED CONCRETE CORNERS TO HAVE 15MM CHAMFER U.N.O.				
C07	CAMBER OF SUSPENDED SLABS SHALL BE POSITIVE UPWARD CAMBER OF 3MM PER 1000MM SPAN UNLESS OTHERWISE STATED. BEAMS SHALL BE CAMBERED AS SHOWN ON DRAWINGS. NO CAMBER IS REQUIRED TO POST-TENSIONED BEAMS AND SLAB.				

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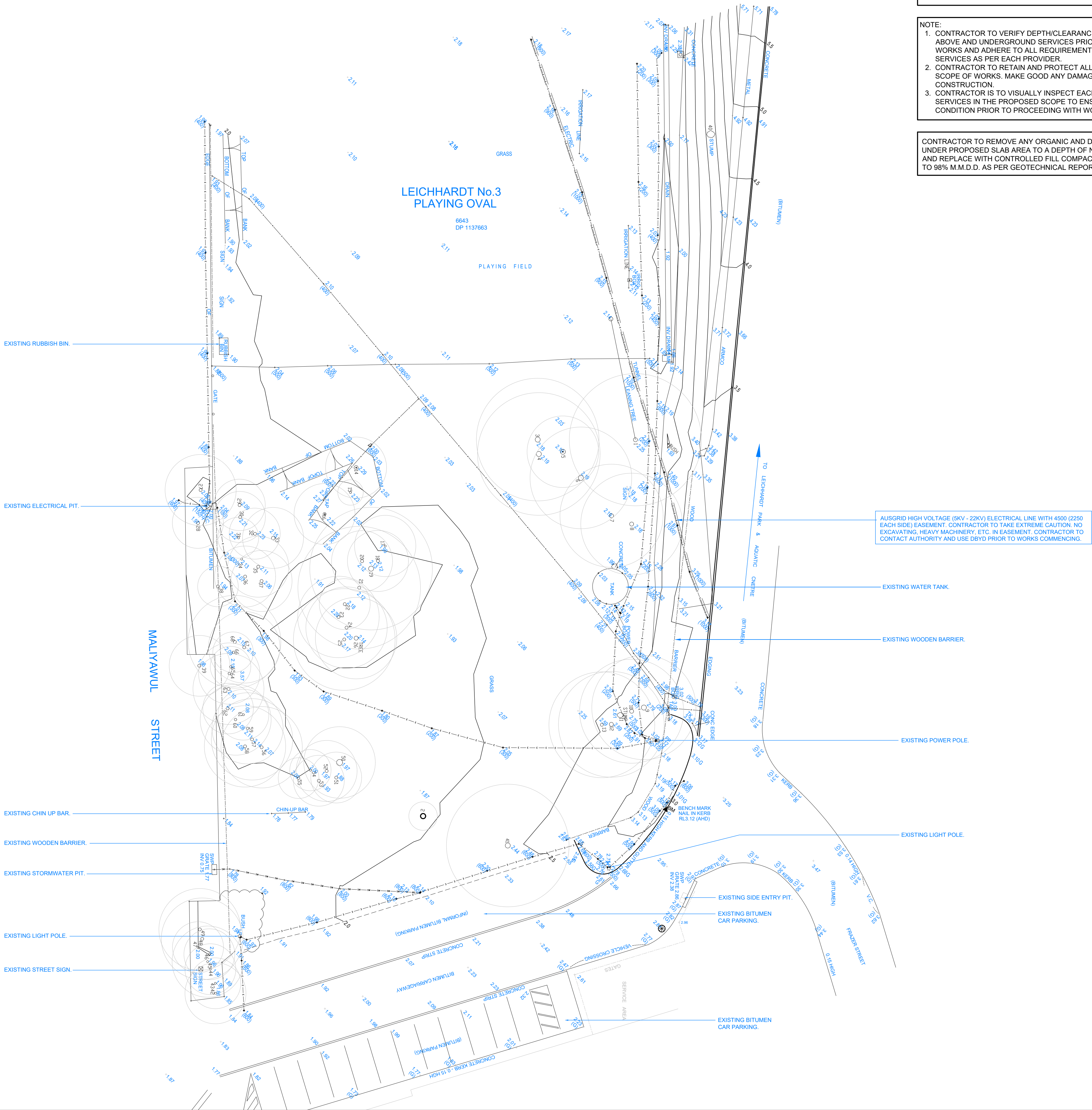
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NOTES / LEGEND:	
SITE SPECIFIC NOTES:	
01. REFER TO GEOTECHNICAL REPORT SUPPLIED BY CIVIL TEST PTY LTD - REPORT NO. 1190944-1, FOR ALL SUBGRADE PREPARATIONS.	





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NOTES / LEGEND:

**EXISTING CONDITIONS NOTES:**  
DIGITAL SURVEY PREPARED BY:  
NORTON SURVEY PARTNERS 28.11.2018  
1. SITE ACCESS TO BE CONDUCTED FROM ADJACENT CAR PARK. ANY DAMAGE INCURRED BY SITE ACCESS TO BE REPAIRED AT CONTRACTORS EXPENSE.

<b>EXISTING CONDITIONS LEGEND:</b>	
	EXISTING TREE. CROSS REFERENCE WITH ARBORICULTURAL DEVELOPMENT ASSESSMENT REPORT FROM MOORE TREES ARBORICULTURAL SERVICES.
	PROTECT AND RETAIN ALL NOMINATED VEGETATION (TREES AND SHRUBS) FOR THE DURATION OF WORKS ON SITE. CONTRACTOR TO SUBMIT A WORKS METHOD STATEMENT FOR THE PROTECTION OF TREES AND ROOT ZONES MARKED ON SITE PLAN AS 'SIGNIFICANT'.
	EXISTING SPOT LEVEL
	PROPOSED SPOT LEVEL
	EXISTING CONTOUR - MAJOR
	PROPOSED CONTOUR - MAJOR
	EXISTING CONTOUR - MINOR
	PROPOSED CONTOUR - MINOR
	UNDERGROUND TELECOM
	WATER MAIN
	POWER LINE
	OVERHEAD POWER LINE
	STORMWATER LINE
	SEWER MAIN
	GAS LINE
	FENCE LINE
	LOT BOUNDARY
	TELECOM PIT
	TELECOM PILLAR
	ELECTRICAL PIT
	POWER POLE
	LIGHT POLE
	STORMWATER MANHOLE
	SET OUT OF GRID POINT 1:2 FROM KNOWN B.M OR CORNER OF NOMINATED PERMANENT INFRASTRUCTURE.

CLIENT NAME:

**INNER WEST COUNCIL**  
7-15 Wetherill Street, Leichhardt  
NSW 2040

PROJECT NAME:

**LEICHHARDT PARK SKATE PARK**  
70 Mary Street,  
Lilyfield NSW 2040

DRAWING TITLE:

**EXISTING CONDITIONS PLAN**

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NOTES / LEGEND:

### DEMOLITION NOTES:

- CONTRACTOR TO VERIFY LOCATION, DEPTH/CLEARANCE AND ALIGNMENT OF ALL OVERHEAD AND UNDERGROUND SERVICES INDICATED ON CURRENT AND RELEVANT DIAL BEFORE YOU DIG ONE CALL SERVICES DRAWINGS. CONTRACTOR TO REQUEST ADDITIONAL SERVICES RECORDS FROM COUNCIL, WHERE SERVICES ACCESS PITS, LIGHT POLES, METRE VALVES ETC EXIST ON SITE. CONTRACTOR TO ASSUME GENERAL ALIGNMENT OF UNDERGROUND PIPES, CONDUITS, CABLES ETC AND VERIFY ALIGNMENT AND MARK ON SITE PRIOR TO COMMENCEMENT OF WORKS.
- LICENSED SURVEYOR TO BE USED TO LOCATE HEIGHT DATUM & SET OUT POINT AS SHOWN ON DRAWINGS PRIOR TO COMMENCEMENT OF WORKS. CONTRACTOR TO SUBMIT A WORKS METHOD STATEMENT FOR THE PROTECTION OF TREES AND ROOT ZONES MARKED ON SITE PLAN AS SIGNIFICANT.
- 150MM (MINIMUM) SITE SCRAPE TO AREA OF SKATEPARK. EXCAVATED TOP SOIL TO BE CLEARED OF VEGETATIVE MATTER AND STOCKPILED ON SITE FOR PLACEMENT ON EMBANKMENTS PRIOR TO LANDSCAPE TREATMENT.
- RETAIN & PROTECT EXISTING TREES WHERE NOMINATED AS PER SPECIFICATIONS.

### DEMOLITION LEGEND:

- HATCH INDICATES OUTLINE OF PROPOSED SKATEPARK. EXCAVATE TO REQUIRED DEPTH FOR PROPOSED WORKS. SEE ALSO NOTE 02.
- EXISTING ASPHALT PATH/PAVEMENT TO BE DEMOLISHED AND REMOVED
- REMOVE/RELOCATE/STORE STREET SIGN AS PER SUPERINTENDENT'S INSTRUCTIONS
- TREE TO BE REMOVED. STUMP TO BE GROUND SMOOTH AND ALL WASTE TO BE REMOVED FROM SITE AND AREA MADE GOOD.
- PROTECT AND RETAIN ALL NOMINATED VEGETATION (TREES AND SHRUBS) FOR THE DURATION OF WORKS ON SITE. CONTRACTOR TO SUBMIT A WORKS METHOD STATEMENT FOR THE PROTECTION OF TREES AND ROOT ZONES MARKED ON SITE PLAN AS SIGNIFICANT.
- EXISTING SPOT LEVEL 2.15 PROPOSED SPOT LEVEL 3.000
- EXISTING CONTOUR - MAJOR 2.00 PROPOSED CONTOUR - MAJOR 3.00
- EXISTING CONTOUR - MINOR 3.20 PROPOSED CONTOUR - MINOR 3.20
- UNDERGROUND TELECOM WATER MAIN
- POWER LINE OVERHEAD POWER LINE
- STORMWATER LINE SEWER MAIN
- GAS LINE
- FENCE LINE
- LOT BOUNDARY
- 35000 SET OUT OF GRID POINT 182 FROM KNOWN B.M OR CORNER OF NOMINATED PERMANENT INFRASTRUCTURE.
- TPIT TELECOM PIT  
TPIL TELECOM PILLAR  
EPIT ELECTRICAL PIT  
EP POWER POLE  
EL LIGHT POLE  
SW STORMWATER MANHOLE

CLIENT NAME:

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NSW 2040

PROJECT NAME:

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70 Mary Street,  
Lilyfield NSW 2040

DRAWING TITLE:

**Demolition Plan**

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LEICHHARDT No.3  
PLAYING OVAL

6643  
DP 1137863

PLAYING FIELD

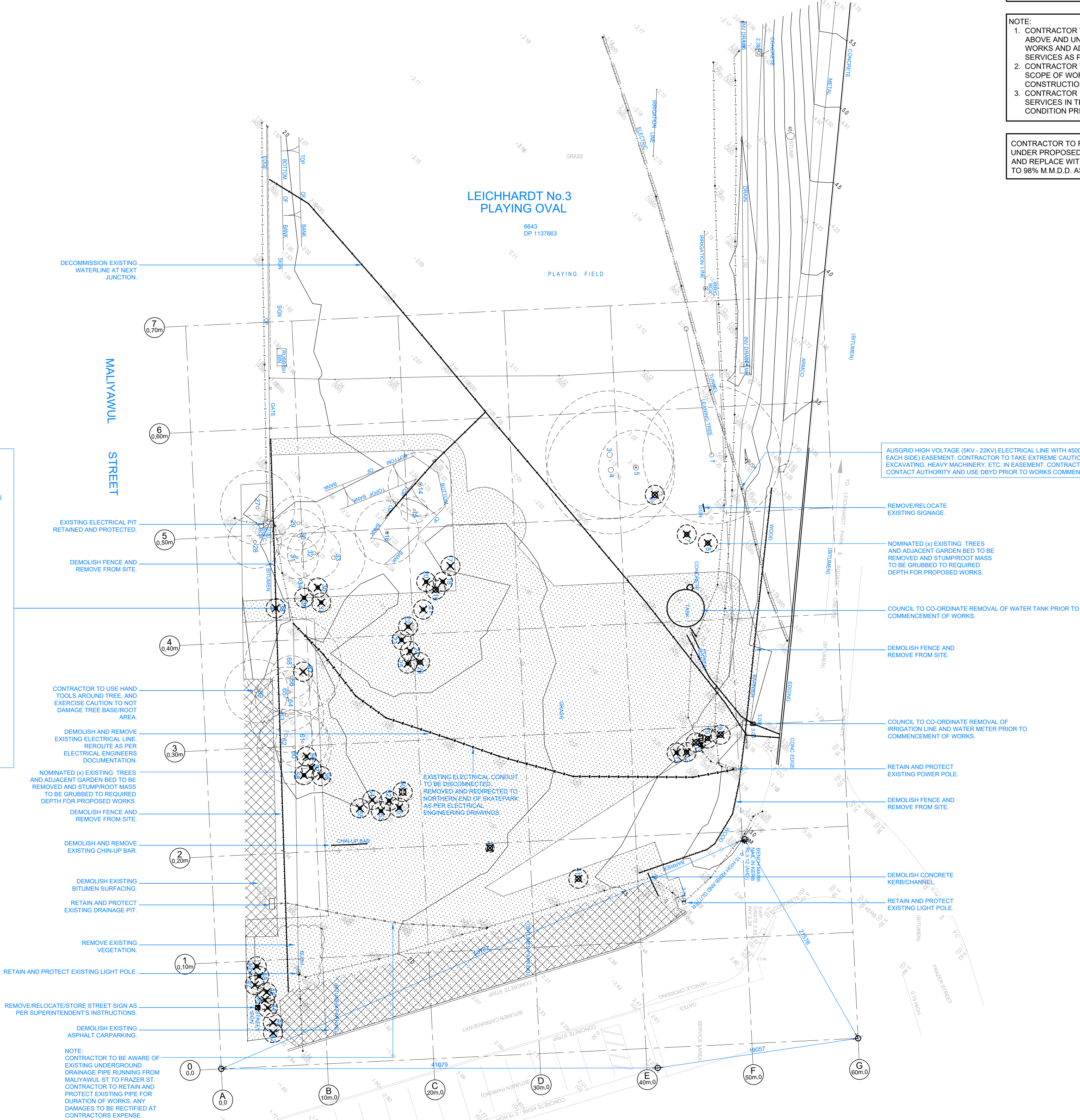
MALYAWUL STREET

### TREE REMOVAL SCHEDULE:

NOTE: CONTRACTOR TO CROSS REFERENCE WITH ABBORICULTURAL REPORT. SEE NOTES AND INCLUDED TENDER INFORMATION.

TREE NO.:

2	38
6	41
7	42
8	43
9	44
10	45
11	46
12	47
13	48
17	49
18	50
19	51
20	52
21	53
22	54
23	55
24	56
25	57
35	58
36	59
37	67





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**NOTES / LEGEND:**

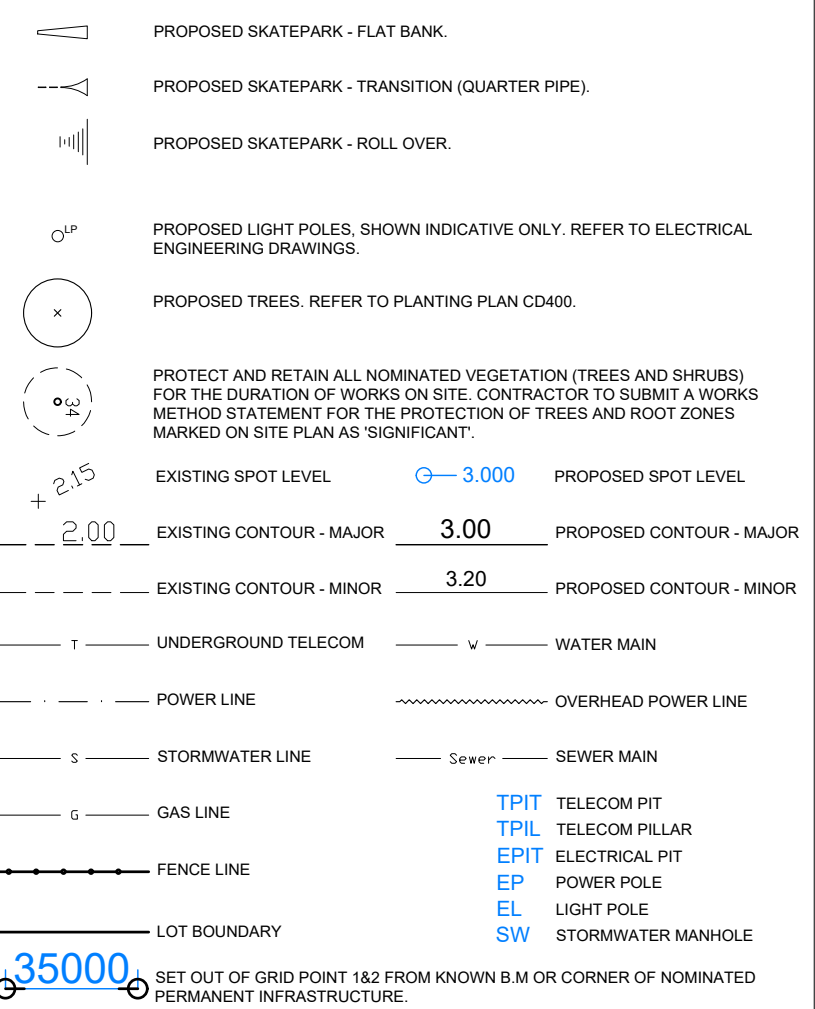
SITE NOTES:

01. CONTRACTOR TO VERIFY LOCATION, DEPTH/CLEARANCE AND ALIGNMENT OF ALL OVERHEAD AND UNDERGROUND SERVICES INDICATED ON CURRENT AND RELEVANT DIAL BEFORE YOU DIG/CUT CALL SERVICES DRAWINGS CONTRACTOR TO REQUEST ADDITIONAL SERVICES RECORDS FROM THE CITY OF SEATTLE FOR SERVICE RECORDS. CONTRACTOR TO EXAMINE ALL EXISTING SITE CONTRACTOR TO ASSURE GENERAL ALIGNMENT OF UNDERGROUND PIPES, CONDUITS, CABLES ETC AND VERIFY ALIGNMENT AND MARK ON SITE PRIOR TO COMMENCEMENT OF WORKS.

02. LICENSED SURVEYOR TO BE USED TO LOCATE HEIGHT DATUM & SET OUT POINT AS SHOWN ON DRAWINGS PRIOR TO COMMENCEMENT OF WORKS. CONTRACTOR TO INFORM SUPERINTENDENT OF ANY DISCREPANCIES PRIOR TO COMMENCING WORKS.

03. 150MM (MINIMUM) SITE GRAPE TO AREA OF SKATEPARK. EXCAVATED TOP SOIL TO BE CLEARED OF VEGETATION AND STOCKPILED ON SITE FOR PLACEMENT ON EMBANKMENTS PRIOR TO LANDSCAPE TREATMENT.

**SITE LEGEND:**

**CLIENT NAME:**

**INNER WEST COUNCIL**  
7-15 Wetherill Street, Leichhardt  
NSW 2040

PROJECT NAME:

**LEICHHARDT PARK SKATE PARK**  
70 Mary Street,  
Lilyfield NSW 2040

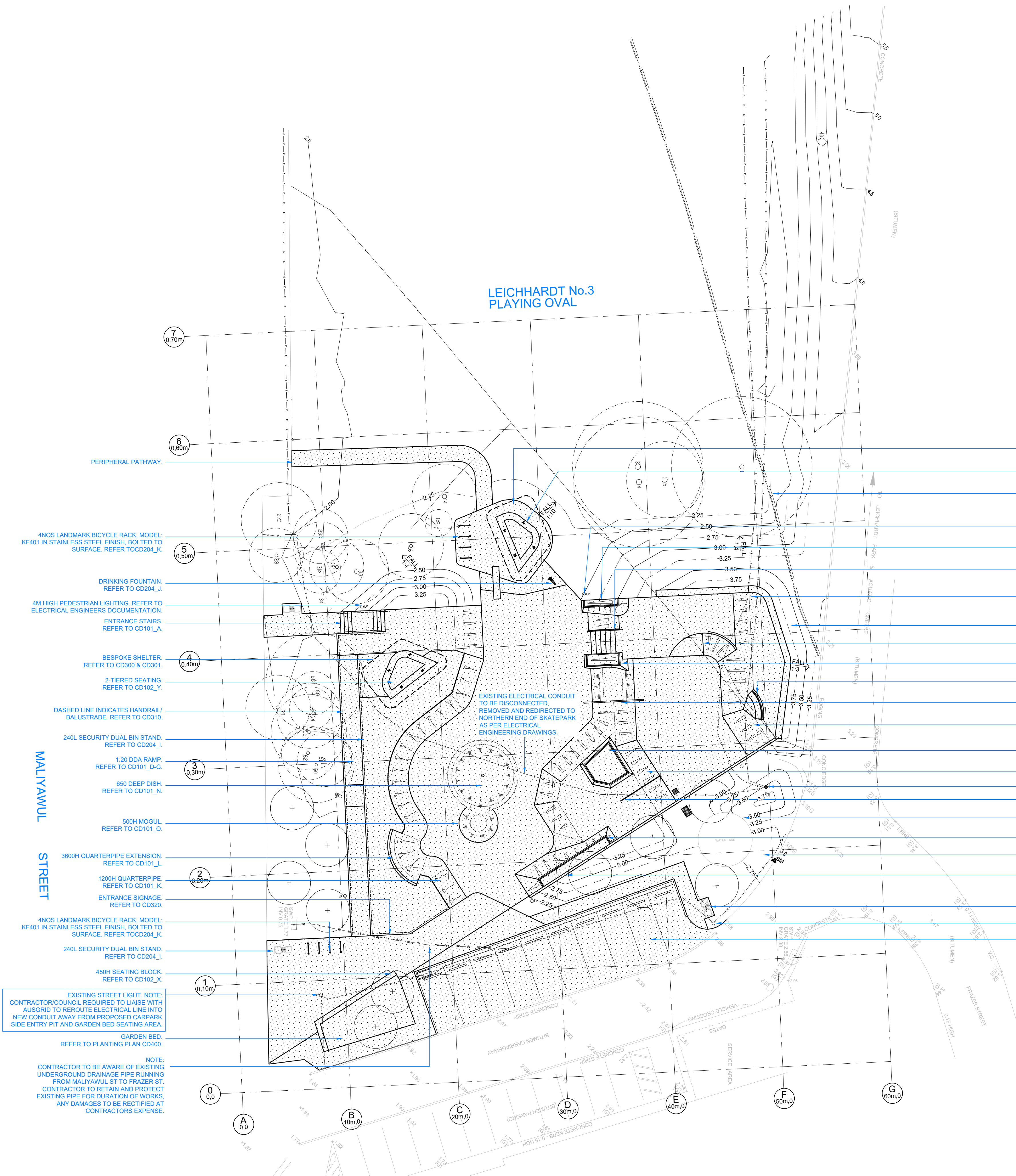
DRAWING TITLE:

## SITE PLAN

<b>SCALE:</b>	1:200	<b>DATE OF ISSUE:</b>	18.01.2022
<b>FORMAT / SIZE:</b>	A1	<b>REFERENCE NO:</b>	1821
<b>DESIGN REVIEW:</b>	ND	<b>APPROVAL:</b>	JM

**DRAWING NUMBER:** **REVISION:**

1821 CD 004 05





NOTE: ALL PROPOSED ELECTRICAL WORKS UNDER 1-100 YEAR FLOOD BENCHMARKS TO BE APPROPRIATELY WATERPROOFED. ALL WORKS THAT ARE **EITHER:**

- A) 450MM ABOVE EXISTING SPOT LEVEL, OR  
B) BELOW AHD 2.240 M

ARE ALL ELECTRICAL CONDUITS, CONDUIT CONNECTIONS, ELECTRICAL PIT (NEW AND EXISTING) CONNECTIONS, AND LOCKABLE SSO AT SW CORNER, AND ARE TO HAVE IP67 RATING (SUBMERGIBLE TO 1M FOR 30 MIN).

NOTE: ALL ELECTRICAL CONDUIT CONNECTIONS IN EXISTING PIT/SERVICES TO BE WATERPROOF.

THIN DASHED BLUE LINE INDICATED PROPOSED ELECTRICAL WORKS. REFER TO WEBB AUSTRALIA'S DOCUMENTATION AND SPECIFICATION.

NOTE: ALL ELECTRICAL CONDUITS, CONDUIT CONNECTIONS AND EXISTING AND NEW PIT CONNECTIONS TO BE IP67 RATED.

LOCKABLE PROPOSED SSO TO BE IP67 RATED

EXISTING STREET LIGHT. NOTE: CONTRACTOR/COUNCIL REQUIRED TO LIAISE WITH AUSGRID TO REROUTE ELECTRICAL LINE INTO NEW CONDUIT AWAY FROM PROPOSED CARPARK SIDE ENTRY PIT AND GARDEN BED SEATING AREA. THICK DASHED BLUE LINE INDICATIVE OF POSSIBLE ROUTING. DRAWINGS HAVE WRITTEN APPROVAL FROM AUSGRID.

NOTE: CONTRACTOR TO BE AWARE OF EXISTING UNDERGROUND DRAINAGE PIPE RUNNING FROM MALIYAWUL ST TO FRAZER ST. CONTRACTOR TO RETAIN AND PROTECT EXISTING PIPE FOR DURATION OF WORKS. ANY DAMAGES TO BE RECTIFIED AT CONTRACTORS EXPENSE.

PLAYING OVAL

EXISTING ELECTRICAL CONDUIT TO BE DISCONNECTED, REMOVED AND REDIRECTED VIA EASTERN END OF SKATEPARK AS PER ELECTRICAL ENGINEERING DRAWINGS

CONTRACTOR TO CROSS REFERENCE ALL PLANS TO ENSURE ALL INFORMATION MATCHES. DESIGNER (ENLOCUS PTY LTD) TO BE CONTACTED WITH ANY DISCREPANCIES OR REQUIRED CLARITY FOR APPROVAL IN WRITING PRIOR TO WORKS COMMENCING/CONTINUING.

- NOTE:
- CONTRACTOR TO VERIFY DEPTH/CLEARANCE AND ALIGNMENT OF ALL ABOVE AND UNDERGROUND SERVICES PRIOR TO COMMENCEMENT OF WORKS AND ADHERE TO ALL REQUIREMENTS FOR WORKS NEAR SERVICES AS PER EACH PROVIDER.
  - CONTRACTOR TO RETAIN AND PROTECT ALL SERVICES OUTSIDE OF SCOPE OF WORKS. MAKE GOOD ANY DAMAGES OCCURRED DURING CONSTRUCTION.
  - CONTRACTOR IS TO VISUALLY INSPECT EACH EXISTING PIT AND SERVICES IN THE PROPOSED SCOPE TO ENSURE IT IS IN GOOD CONDITION PRIOR TO PROCEEDING WITH WORKS.

CONTRACTOR TO REMOVE ANY ORGANIC AND DELETERIOUS MATTER UNDER PROPOSED SLAB AREA TO A DEPTH OF NOT LESS THAN 600MM AND REPLACE WITH CONTROLLED FILL COMPACTED IN LAYERS OF 200MM TO 98% M.M.D.D. AS PER GEOTECHNICAL REPORT RECOMMENDATION.

AUSGRID HIGH VOLTAGE (5KV - 22KV) ELECTRICAL LINE WITH 4500 (2250 EACH SIDE) EASEMENT. CONTRACTOR TO TAKE EXTREME CAUTION. NO EXCAVATING, HEAVY MACHINERY, ETC. IN EASEMENT. CONTRACTOR TO CONTACT AUTHORITY AND USE DBYD PRIOR TO WORKS COMMENCING.

**-WARNING -**  
CONTRACTOR TO VERIFY LOCATION; DEPTH/CLEARANCE AND ALIGNMENT OF OVERHEAD AND UNDERGROUND SERVICES. CONTRACTOR TO ACQUIRE CURRENT AND RELEVANT DIAL BEFORE YOU DIG ONE CALL SERVICES DRAWINGS AND ADHERE TO ALL REQUIREMENTS FOR WORKS NEAR SERVICES INCLUDING CLEARANCES, EASEMENTS AND INFORMING SERVICE AUTHORITIES PRIOR TO COMMENCEMENT OF WORKS. THE LOCATIONS OF UNDERGROUND SERVICES INDICATED IN THIS SET OF DRAWINGS ARE INDICATIVE ONLY. PIT LOCATIONS HAVE BEEN SURVEYED BY A LICENSED SURVEYOR.

**- SITE DIMENSIONS -**  
CONTRACTOR TO SATISFY THEMSELVES OF SITE CONDITIONS, CHANGES IN LEVEL AND DIMENSIONS PRIOR TO FABRICATION OF SITE SPECIFIC ITEMS OR PRIOR TO ORDERING/PURCHASING MATERIALS. WHERE DISCREPANCIES EXIST BETWEEN DRAWINGS AND SITE CONDITIONS CONTRACTOR TO NOTIFY SUPERINTENDENT PRIOR TO COMMENCEMENT OF WORKS.

**- COPYRIGHT AND INTELLECTUAL PROPERTY RIGHTS -**  
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DRAWING STATUS:

FOR  
COMMENT

REVISION STATUS:

05	For Comment	18.01.22
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LANDSCAPE ARCHITECT CONSULTANT:

**enlocus**  
ENLOCUS  
Level 1, 151 St Georges Rd,  
Fitzroy North, Victoria 3066  
T : 03 9482 2202  
W : www.enlocus.com

CONSULTANTS:

STRUCTURAL ENGINEER <b>MATRIX ENGINEERING GROUP P/L</b> 24/37 Kellor Park Drive Kellor Park, Victoria 3042 Tel : +613 9331 7522 www.matrixgroup.net.au	LIGHTING & ELECTRICAL: <b>WEBB AUSTRALIA GROUP</b> Level 6, 128 Exhibition St Melbourne VIC 3000 Tel : +613 9652 0333 www.webbaustralia.com.au
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NOTES / LEGEND:

### SITE NOTES:

01. CONTRACTOR TO VERIFY LOCATION; DEPTH/CLEARANCE AND ALIGNMENT OF ALL OVERHEAD AND UNDERGROUND SERVICES INDICATED ON CURRENT AND RELEVANT DIAL BEFORE YOU DIG ONE CALL SERVICES DRAWINGS CONTRACTOR TO REQUEST ADDITIONAL SERVICES RECORDS FROM COUNCIL, WHERE SERVICES ACCESS PITS, LIGHT POLES, METRE/VALVES ETC EXIST ON SITE. CONTRACTOR TO ASSUME GENERAL ALIGNMENT OF UNDERGROUND PIPES, CONDUITS, CABLES ETC AND VERIFY ALIGNMENT AND MARK ON SITE PRIOR TO COMMENCEMENT OF WORKS.
02. LICENSED SURVEYOR TO BE USED TO LOCATE HEIGHT DATUM & SET OUT POINT AS SHOWN ON DRAWINGS PRIOR TO COMMENCEMENT OF WORKS. CONTRACTOR TO INFORM SUPERINTENDENT OF ANY DISCREPANCIES PRIOR TO COMMENCING WORKS.
03. 150MM (MINIMUM) SITE SCRAPE TO AREA OF SKATEPARK. EXCAVATED TOP SOIL TO BE CLEARED OF VEGETATIVE MATTER AND STOCKPOILED ON SITE FOR PLACEMENT ON EMBANKMENTS PRIOR TO LANDSCAPE TREATMENT.

### SITE LEGEND:

	PROPOSED SKATEPARK - FLAT BANK.
	PROPOSED SKATEPARK - TRANSITION (QUARTER PIPE).
	PROPOSED SKATEPARK - ROLL OVER.
	PROPOSED LIGHT POLES, SHOWN INDICATIVE ONLY. REFER TO ELECTRICAL ENGINEERING DRAWINGS.
	PROPOSED TREES. REFER TO PLANTING PLAN CD400.
	PROTECT AND RETAIN ALL NOMINATED VEGETATION (TREES AND SHRUBS) FOR THE DURATION OF WORKS ON SITE. CONTRACTOR TO SUBMIT A WORKS METHOD STATEMENT FOR THE PROTECTION OF TREES AND ROOT ZONES MARKED ON SITE PLAN AS 'SIGNIFICANT'.
	EXISTING SPOT LEVEL
	PROPOSED SPOT LEVEL
	EXISTING CONTOUR - MAJOR
	PROPOSED CONTOUR - MAJOR
	EXISTING CONTOUR - MINOR
	PROPOSED CONTOUR - MINOR
	UNDERGROUND TELECOM
	WATER MAIN
	POWER LINE
	OVERHEAD POWER LINE
	STORMWATER LINE
	SEWER
	GAS LINE
	FENCE LINE
	LOT BOUNDARY
	TELECOM PIT
	TELECOM PILLAR
	ELECTRICAL PIT
	POWER POLE
	LIGHT POLE
	STORMWATER MANHOLE
	SET OUT OF GRID POINT 1&2 FROM KNOWN B.M OR CORNER OF NOMINATED PERMANENT INFRASTRUCTURE.

CLIENT NAME:

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NSW 2040

PROJECT NAME:

**LEICHHARDT PARK SKATE PARK**  
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Lilyfield NSW 2040

DRAWING TITLE:

### SITE PLAN

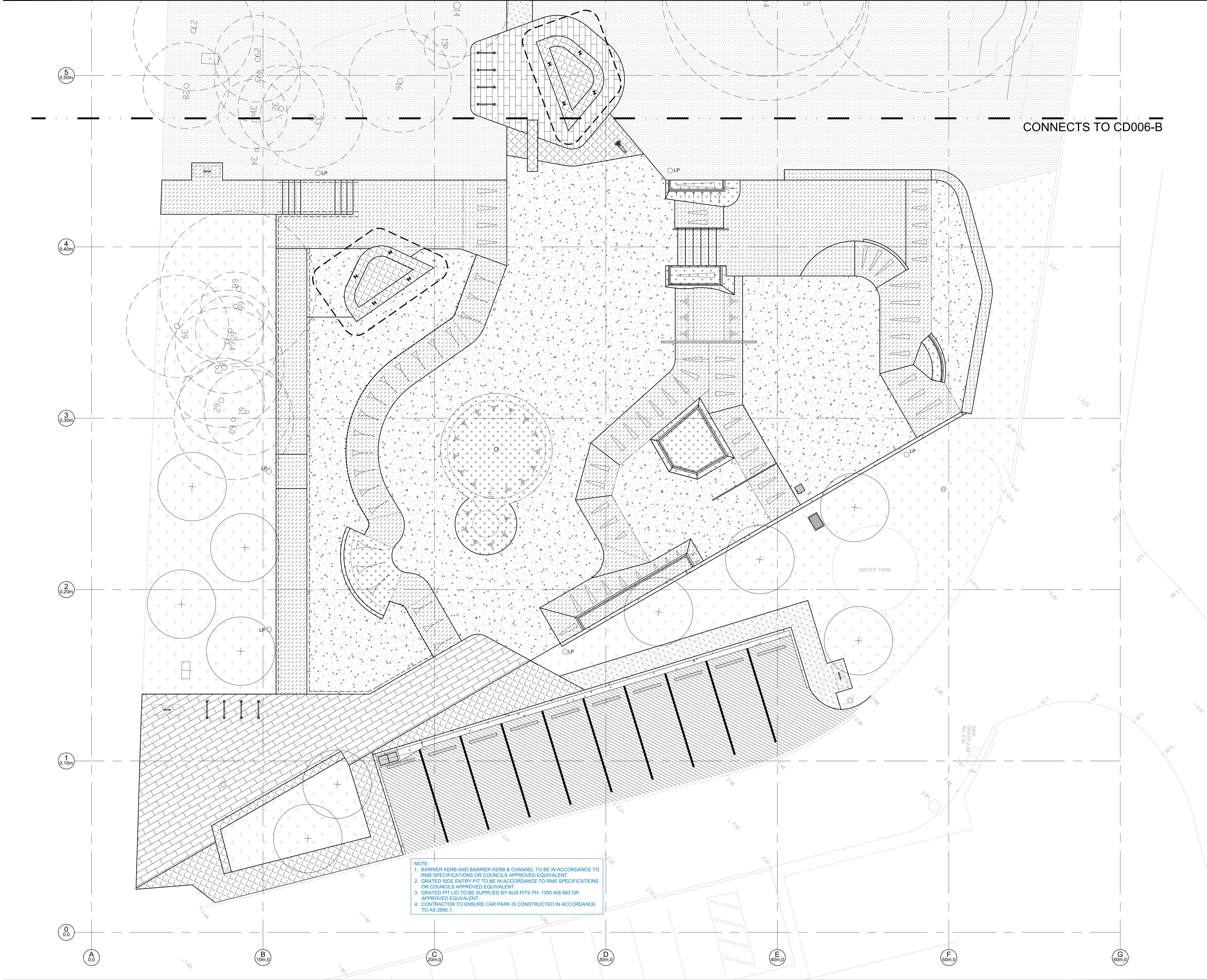
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FORMAT / SIZE: A1 REFERENCE NO: 1821  
DESIGN REVIEW: ND APPROVAL: JM

DRAWING NUMBER: REVISION:

1821\_CD 004

05





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**WEBB AUSTRALIA GROUP**  
Level 6, 128 Exhibition St  
Melbourne VIC 3000  
Tel : +613 9652 0333  
www.webbaustralia.com.au

**NOTES / LEGEND:**

**SURFACE FINISHES NOTES:**

01. TEST PANELS REQUIRED FOR EACH PAVEMENT SURFACE FINISH TYPE. WRITTEN APPROVAL AND ACCEPTANCE OF SURFACE TOLERANCE, COLOUR, FINISH TYPE ETC BY SUPERINTENDENT REQUIRED PRIOR PROCEEDING WITH WORKS. REFER TO ENGINEERING DETAILS AND SPECIFICATION. TEST PANELS APPROVED BY SUPERINTENDENT CAN FORM PART OF FINAL WORKS.
02. ALL FURTHER WORKS TO MATCH STANDARD, COLOUR AND FINISH OF APPROVED TEST PANEL.
03. UNLESS OTHERWISE STATED ALL CONCRETE PAVEMENT TO BE 32MPa. ALL WORKMANSHIP AND MATERIALS SHALL BE IN ACCORDANCE WITH AS3600

**SURFACE FINISHES LEGEND:**

- TYPICAL 100MM DEPTH (125MM TO RC SLAB AT TOP OF TRANSITIONS, FLAT BANKS AND STEPS. ALL TRANSITIONS AND FLAT BANKS 150MM THICK) 32 MPa PORTLAND GREY REINFORCED CONCRETE PAVEMENT - STEEL FLOAT CLASS 1 FINISH. APPLY AVISTA CONCRETE SEALER PRIMER & AVISTA CONCRETE SEALER GENERAL PURPOSE "MATT" FINISH 42 COATS AS PER MANUFACTURERS SPECIFICATION OR APPROVED EQUIVALENT. CONTRACTOR TO APPLY SURFACE HARDENER TO 2MX2M TEST PANEL FOR APPROVAL BY SUPERINTENDENT PRIOR TO PROCEEDING WITH WORKS. REFER CD204.F.
- TYPICAL 100MM DEPTH (125MM TO RC SLAB AT TOP OF TRANSITIONS, FLAT BANKS AND STEPS. ALL TRANSITIONS AND FLAT BANKS 150MM THICK) 32 MPa PORTLAND GREY REINFORCED CONCRETE PAVEMENT - COLOUR OXIDE "MIDNIGHT BLACK 8.30% GC" OR APPROVED EQUIVALENT. STEEL FLOAT CLASS 1 FINISH. APPLY AVISTA CONCRETE SEALER PRIMER & AVISTA CONCRETE SEALER GENERAL PURPOSE "MATT" FINISH 42 COATS AS PER MANUFACTURERS SPECIFICATION OR APPROVED EQUIVALENT. CONTRACTOR TO APPLY SURFACE HARDENER TO 2MX2M TEST PANEL FOR APPROVAL BY SUPERINTENDENT PRIOR TO PROCEEDING WITH WORKS. REFER CD204.F.
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- CLAY PAVEMENT FROM AUSTRAL BRICKS, MODEL: "HAMLET 230L X 76W X 65H MM, IN COLOUR "BOWRAL BLUE" OR APPROVED EQUIVALENT. CONTRACTOR TO APPLY SURFACE HARDENER TO 2MX2M TEST PANEL FOR APPROVAL BY SUPERINTENDENT PRIOR TO PROCEEDING WITH WORKS. REFER CD204.F.
- CONCRETE PAVEMENT - URBAN STONE - "RIVER TOPAZ HONED" COLOUR WITH HONED FINISH OR APPROVED EQUIVALENT. CONTRACTOR TO APPLY SURFACE HARDENER TO 2MX2M TEST PANEL FOR APPROVAL BY SUPERINTENDENT PRIOR TO PROCEEDING WITH WORKS. REFER CD204.F.
- ASPHALT PAVEMENT. REFER CD210.
- TYPICAL 100/125MM DEPTH 25MPa CONCRETE PAVEMENT WITH BRUSH FINISH. REFER CD204.F.
- MULCHED GARDEN BEDS. REFER TO PLANTING PLAN CD400.
- ROLLED TURF. REFER PLANTING PLAN CD400.
- 1650 X 150 X 100MM HIGH ULTIMATE RUBBER WHEEL STOP COLOUR "BLACK" SUPPLIED BY SAFETY XPRESS PH: 1300 949 246 OR APPROVED EQUIVALENT. REFER TO MANUFACTURERS INSTALLATION SPECIFICATION.

**CLIENT NAME:**

**INNER WEST COUNCIL**  
7-15 Wetherill Street, Leichhardt  
NSW 2040

**PROJECT NAME:**

**LEICHHARDT PARK SKATE PARK**  
70 Mary Street,  
Lilyfield NSW 2040

**DRAWING TITLE:**

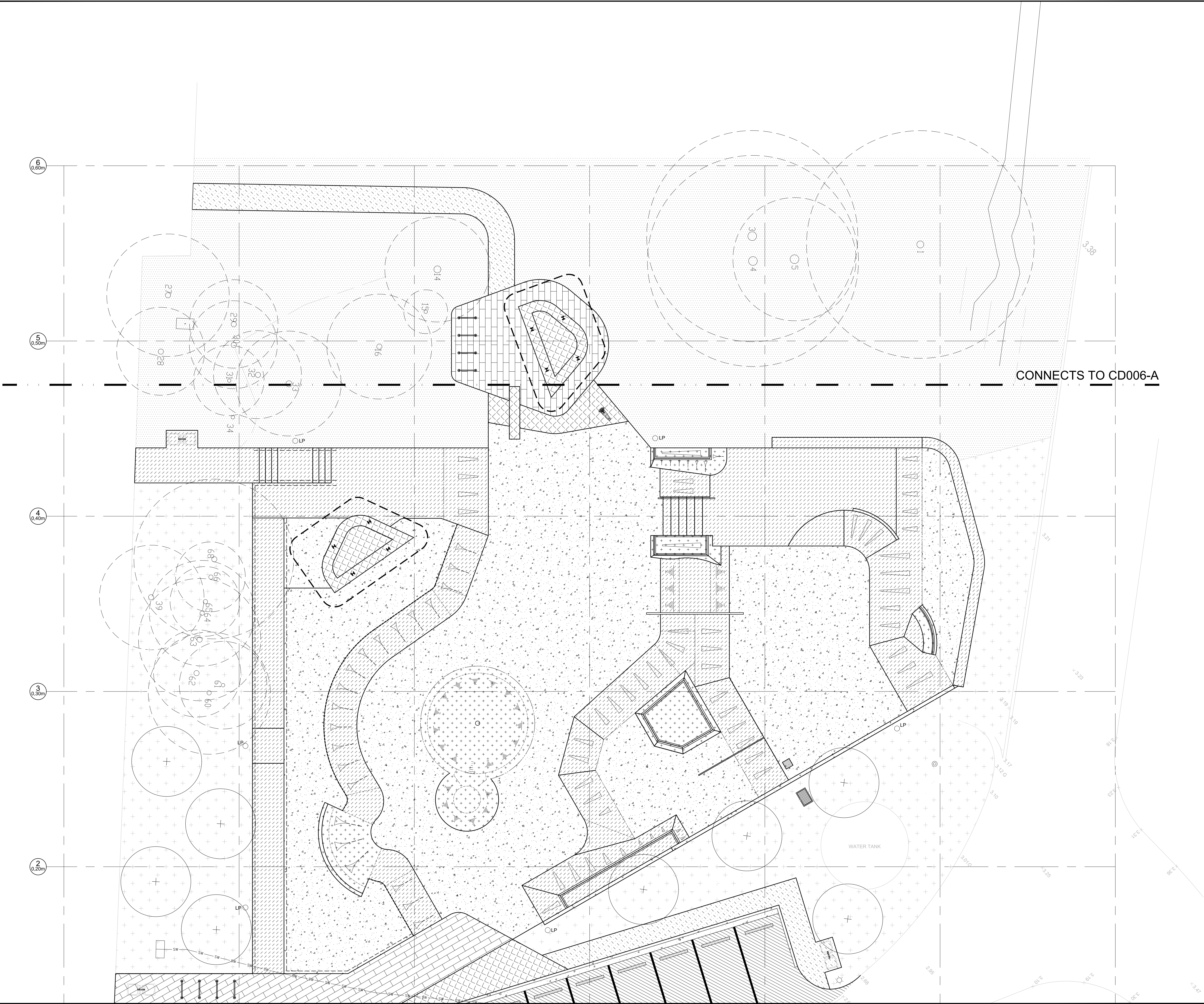
**Surface Finishes Plan**

**SCALE:** 1:100 **DATE OF ISSUE:** 18.01.2022  
**FORMAT / SIZE:** A1 **REFERENCE NO:** 1821  
**DESIGN REVIEW:** ND **APPROVAL:** JM

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**1821\_CD 006-A 05**





**-WARNING -**  
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**DRAWING STATUS:**

# FOR COMMENT

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**LANDSCAPE ARCHITECT CONSULTANT:**

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www.webbaustralia.com.au

**NOTES / LEGEND:**

## SURFACE FINISHES NOTES:

01. TEST PANELS REQUIRED FOR EACH PAVEMENT SURFACE FINISH TYPE. WRITTEN APPROVAL AND ACCEPTANCE OF SURFACE TOLERANCE, COLOUR, FINISH TYPE ETC BY SUPERINTENDENT REQUIRED PRIOR PROCEEDING WITH WORKS. REFER TO ENGINEERING DETAILS AND SPECIFICATION. TEST PANELS APPROVED BY SUPERINTENDENT CAN FORM PART OF FINAL WORKS.
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03. UNLESS OTHERWISE STATED ALL CONCRETE PAVEMENT TO BE 32MPa. ALL WORKMANSHIP AND MATERIALS SHALL BE IN ACCORDANCE WITH AS3000.

## SURFACE FINISHES LEGEND:

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- CLAY PAVEMENT FROM AUSTRAL BRICKS. MODEL: 'HAMLET' 200 x 760 x 65 MM. IN COLOUR 'BONNIE BLUE' OR APPROVED EQUIVALENT. CONTRACTOR TO CREATE 2MX2M TEST PANEL FOR APPROVAL BY SUPERINTENDENT PRIOR TO PROCEEDING WITH WORKS. REFER CD006.F.
- CONCRETE PAVEMENT - URBAN STONE - 'RIVER TOPAZ HONED' COLOUR WITH HONED FINISH OR APPROVED EQUIVALENT. CONTRACTOR TO APPLY SURFACE HARDENER TO 2MX2M TEST PANEL FOR APPROVAL BY SUPERINTENDENT PRIOR TO PROCEEDING WITH WORKS. REFER CD004.F.
- ASPHALT PAVEMENT. REFER CD010.
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- MULCHED GARDEN BEDS. REFER TO PLANTING PLAN CD400.
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**CLIENT NAME:**

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7-15 Wetherill Street, Leichhardt  
NSW 2040

**PROJECT NAME:**

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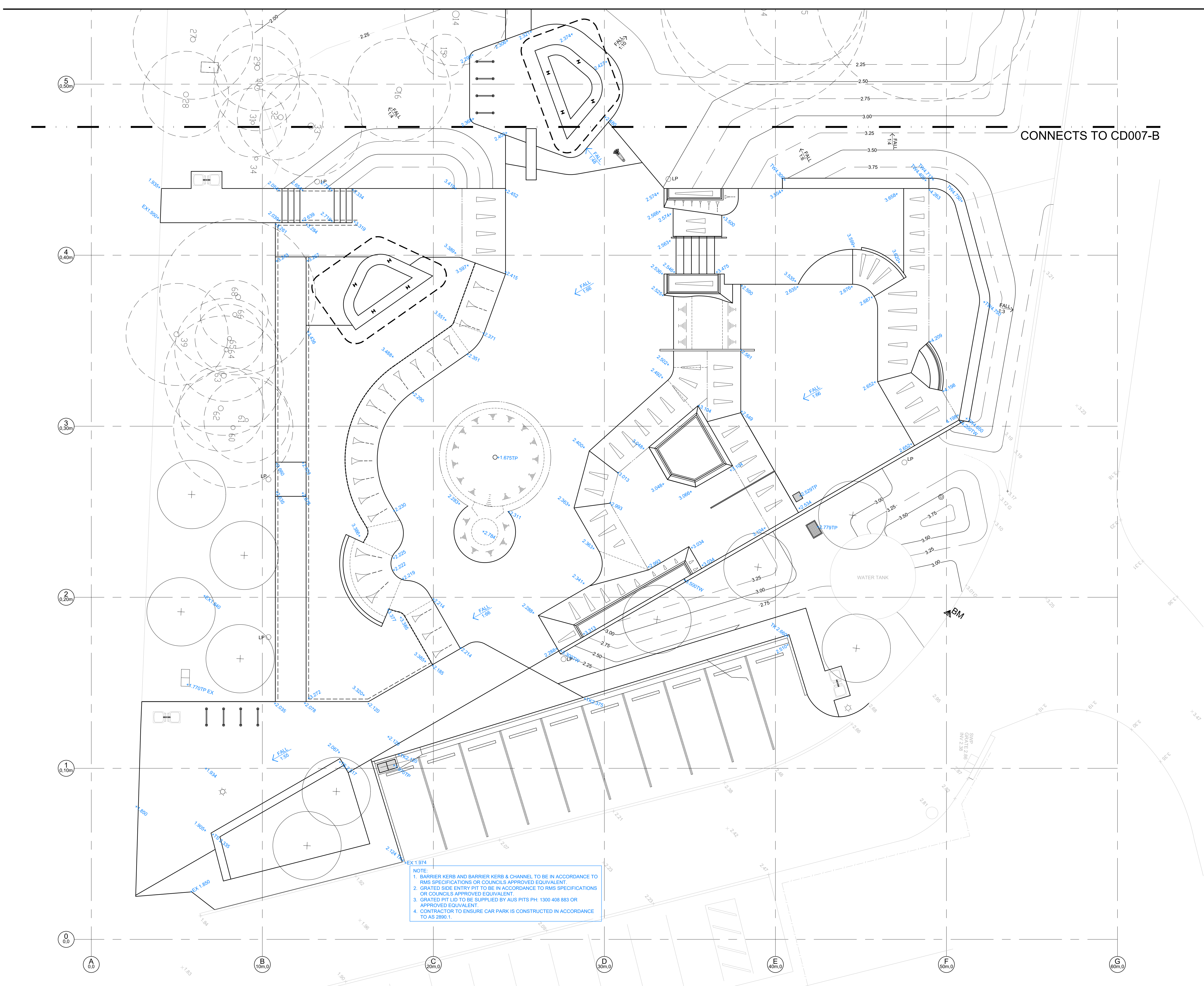
**Surface Finishes Plan**

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**1821\_CD 006-B 05**





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CONSULTANTS:

STRUCTURAL ENGINEER <b>MATRIX ENGINEERING GROUP P/L</b> 24/37 Kellor Park Drive Kellor Park, Victoria 3042 Tel : +613 9331 7522 www.matrixgroup.net.au	LIGHTING & ELECTRICAL: <b>WEBB AUSTRALIA GROUP</b> Level 6, 128 Exhibition St Melbourne VIC 3000 Tel : +613 9652 0333 www.webbaustralia.com.au
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NOTES / LEGEND:

### LEVEL NOTES:

01. ALL LEVELS TO BE READ IN CONJUNCTION WITH SITE & GRADING PLANS AND SECTIONS. DESIGNER (ENLOCUS PTY LTD) TO BE CONTACTED WITH ANY DISCREPANCIES OR REQUIRED CLARITY FOR APPROVAL, IN WRITING PRIOR TO WORKS COMMENCING/CONTINUING.

### LEVELS LEGEND:

	75X125 X 4MM M/S R/H'S 'DURAGAL' COPING.
	50MM N.B. GALVANISED CHS COPING. ALL DIMENSIONS TO FRONT FACE OF COPING.
	50MM ROLL-OVER RADIUS TO TOP OF TRANSITION OR BANK.
	200MM ROLL-OVER RADIUS TO TOP OF BANK.
	RC TRANSITION (QUARTER PIPE). REFER TO SECTIONS CD100.
	RC FLAT BANK. REFER TO SECTIONS CD100.
	74.000 PROPOSED LEVELS SHOWN IN METRES.
	SKATE DRAINAGE PIT. REFER TO CD008.
	DRAINAGE PIT. REFER TO CD008.
	TP 5.45 TOP OF PIT (TP) REFER TO CD008.
	INDICATES SPOT LOCATION FOR ISOLATED HIGH POINT AND DIRECTION (ARROW) OF FALL.

CLIENT NAME:

**INNER WEST COUNCIL**  
7-15 Wetherill Street, Leichhardt  
NSW 2040

PROJECT NAME:

**LEICHHARDT PARK SKATE PARK**  
70 Mary Street,  
Lilyfield NSW 2040

DRAWING TITLE:

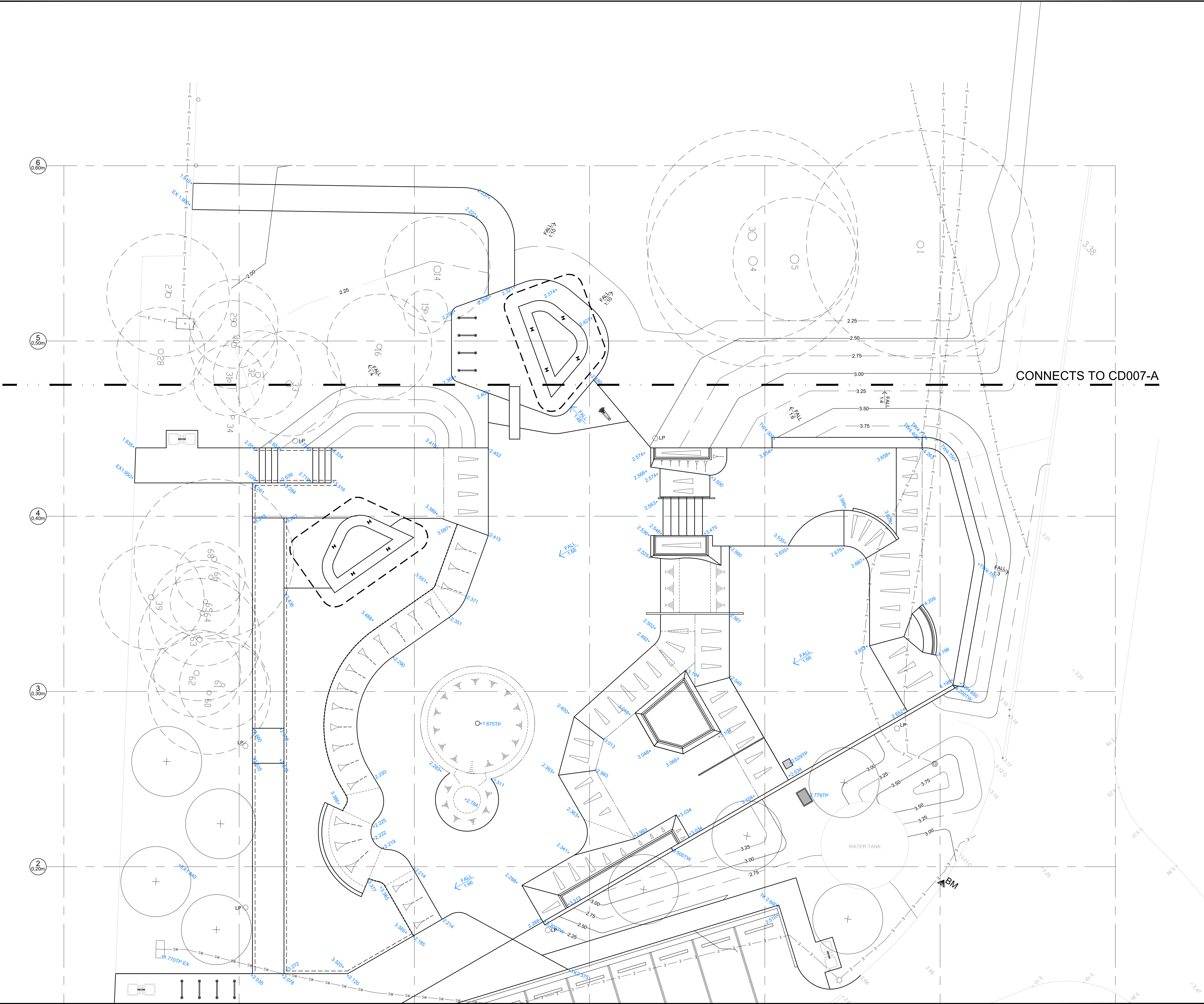
**Levels Plan**

SCALE: 1:100 DATE OF ISSUE: 18.01.2022  
FORMAT / SIZE: A1 REFERENCE NO: 1821  
DESIGN REVIEW: ND APPROVAL: JM

DRAWING NUMBER: REVISION:

**1821\_CD 007-A 05**





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05	For Comment	18.01.22
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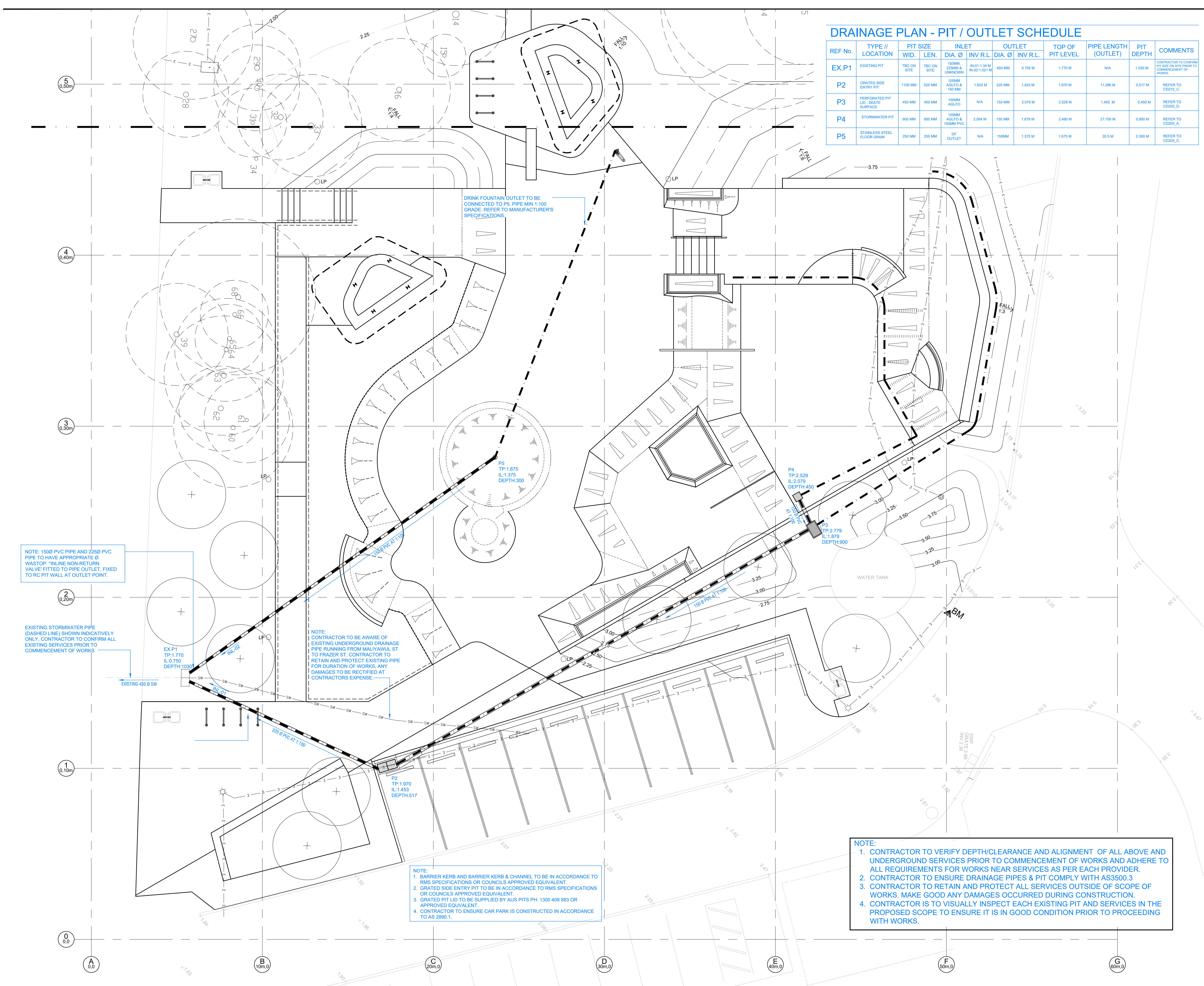
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DRAINAGE PLAN - PIT / OUTLET SCHEDULE

REF No.	TYPE // LOCATION	PIT SIZE		INLET		OUTLET		TOP OF PIT LEVEL	PIPE LENGTH (OUTLET)	PIT DEPTH	COMMENTS
		WID.	LEN.	DIA. Ø	INV R.L.	DIA. Ø	INV R.L.				
EX.P1	EXISTING PIT	TBC ON SITE	TBC ON SITE	150MM 225MM & UNKNOWN	IN-01:1.34 M IN-02:1.021 M	450 MM	0.750 M	1.770 M	N/A	1.030 M	CONTRACTOR TO CONFIRM PIT SIZE ON SITE PRIOR TO COMMENCEMENT OF WORKS
P2	GRATED SIDE ENTRY PIT	1100 MM	525 MM	100MM AGFLO & 150 MM	1.603 M	225 MM	1.453 M	1.970 M	11.286 M	0.517 M	REFER TO CD205, C.
P3	PERFORATED PIT LID - SKATE SURFACE	450 MM	450 MM	100MM AGFLO	N/A	150 MM	2.079 M	2.529 M	1.455 M	0.450 M	REFER TO CD205, D.
P4	STORMWATER PIT	600 MM	900 MM	100MM AGFLO & 150MM PVC	2.064 M	150 MM	1.879 M	2.480 M	27.700 M	0.900 M	REFER TO CD205, A.
P5	STAINLESS STEEL FLOOR DRAIN	250 MM	250 MM	ØF OUTLET	N/A	150MM	1.375 M	1.675 M	20.5 M	0.300 M	REFER TO CD205, C.

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- LICENSED SURVEYOR TO BE USED TO LOCATE HEIGHT DATUM & SET OUT POINT AS SHOWN ON DRAWINGS PRIOR TO COMMENCEMENT OF WORKS. CONTRACTOR TO INFORM SUPERINTENDENT OF ANY DISCREPANCIES PRIOR TO COMMENCING WORKS.

DRAINAGE LEGEND:

- INDICATES 150mm or 225mm Ø STORMWATER PIPE - ENSURE EVEN FALL FROM DRAINAGE PITS TO OUTLET PIPE TO STOP INSIDE PERIMETER TO AVOID EDGE BEAM. REFER TO ENGINEERING DETAILS AND SPECIFICATION.
- 100mm Ø PVC AGFLO HEAVY (AH) SLOTTED FLEXIBLE STORMWATER PIPE BY POLYFABRICS. PIPE TO BE CONNECTED TO DRAINAGE OUTLET. CONTRACTOR TO SET LEVELS AND ENSURE DRAINAGE.
- 150mm FREDRAIN STRIP FILTER BY POLYFABRICS. STRIP FILTER TO EXTEND 3/4 UP TRANSITION FACE AND CONNECT TO 1000 AH PVC PIPE. CONTRACTOR TO SET LEVELS AND ENSURE DRAINAGE.
- STAINLESS STEEL FLOOR DRAIN. REFER TO CD205, C AND SCHEDULE.
- DRAINAGE PIT. REFER TO CD205, A AND SCHEDULE.
- P1 TP 74.45 IL 74.00 PIT NUMBER (P1) TOP OF PIT (TP) AND INVERT LEVELS (IL).
- PROTECT AND RETAIN ALL NOMINATED VEGETATION (TREES AND SHRUBS) FOR THE DURATION OF WORKS ON SITE. CONTRACTOR TO SUBMIT A WORKS METHOD STATEMENT FOR THE PROTECTION OF TREES AND ROOT ZONES MARKED ON SITE PLAN AS 'SIGNIFICANT'.
- EXISTING SPOT LEVEL 2.15 PROPOSED SPOT LEVEL 3.000
- EXISTING CONTOUR - MAJOR 2.00 PROPOSED CONTOUR - MAJOR 3.00
- EXISTING CONTOUR - MINOR 3.20 PROPOSED CONTOUR - MINOR 3.20
- UNDERGROUND TELECOM WATER MAIN
- POWER LINE OVERHEAD POWER LINE
- STORMWATER LINE SEWER SEWER MAIN
- GAS LINE
- FENCE LINE
- LOT BOUNDARY
- TPIT TELECOM PIT  
TPIL TELECOM PILLAR  
EPIT ELECTRICAL PIT  
EP POWER POLE  
EL LIGHT POLE  
SW STORMWATER MANHOLE
- 35000 SET OUT OF GRID POINT 182 FROM KNOWN B.M OR CORNER OF NOMINATED PERMANENT INFRASTRUCTURE.

CLIENT NAME:

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7-15 Wetherill Street, Leichhardt  
NSW 2040

PROJECT NAME:

**LEICHHARDT PARK SKATE PARK**  
70 Mary Street,  
Lilyfield NSW 2040

DRAWING TITLE:

Drainage Plan

SCALE: 1:100 DATE OF ISSUE: 18.01.2022  
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DESIGN REVIEW: ND APPROVAL: JM

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1821\_CD 008 05

NOTE: 1500 PVC PIPE AND 2250 PVC PIPE TO HAVE APPROPRIATE Ø WASTOP. "INLINE NON-RETURN VALVE" FITTED TO PIPE OUTLET, FIXED TO RC PIT WALL AT OUTLET POINT.

EXISTING STORMWATER PIPE (DASHED LINE) SHOWN INDICATIVELY ONLY. CONTRACTOR TO CONFIRM ALL EXISTING SERVICES PRIOR TO COMMENCEMENT OF WORKS

NOTE: CONTRACTOR TO BE AWARE OF EXISTING UNDERGROUND DRAINAGE PIPE RUNNING FROM MALIYAWUL ST TO FRAZER ST. CONTRACTOR TO RETAIN AND PROTECT EXISTING PIPE FOR DURATION OF WORKS. ANY DAMAGES TO BE RECTIFIED AT CONTRACTORS EXPENSE.

NOTE:  
1. BARRIER KERB AND BARRIER KERB & CHANNEL TO BE IN ACCORDANCE TO RMS SPECIFICATIONS OR COUNCILS APPROVED EQUIVALENT  
2. GRATED SIDE ENTRY PIT TO BE IN ACCORDANCE TO RMS SPECIFICATIONS OR COUNCILS APPROVED EQUIVALENT.  
3. GRATED PIT LID TO BE SUPPLIED BY AUS PITS PH: 1300 408 883 OR APPROVED EQUIVALENT.  
4. CONTRACTOR TO ENSURE CAR PARK IS CONSTRUCTED IN ACCORDANCE TO AS 2890.1.

NOTE:  
1. CONTRACTOR TO VERIFY DEPTH/CLEARANCE AND ALIGNMENT OF ALL ABOVE AND UNDERGROUND SERVICES PRIOR TO COMMENCEMENT OF WORKS AND ADHERE TO ALL REQUIREMENTS FOR WORKS NEAR SERVICES AS PER EACH PROVIDER.  
2. CONTRACTOR TO ENSURE DRAINAGE PIPES & PIT COMPLY WITH AS3500.3  
3. CONTRACTOR TO RETAIN AND PROTECT ALL SERVICES OUTSIDE OF SCOPE OF WORKS. MAKE GOOD ANY DAMAGES OCCURRED DURING CONSTRUCTION.  
4. CONTRACTOR IS TO VISUALLY INSPECT EACH EXISTING PIT AND SERVICES IN THE PROPOSED SCOPE TO ENSURE IT IS IN GOOD CONDITION PRIOR TO PROCEEDING WITH WORKS.



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- GENERAL ARRANGEMENT OF SITE TO BE PEGGED OUT AND APPROVAL BY SUPERINTENDENT RECEIVED PRIOR TO PROCEEDING WITH WORKS.

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- GENERAL WORKS SET OUT X & Y CO-ORDINATES. REFER DEMOLITION PLAN CD009 FOR SITE CONSTRUCTION GRID SET OUT. GP POST ANNOTATION REFERS TO CENTER POINT OF POST OR UPRIGHT.
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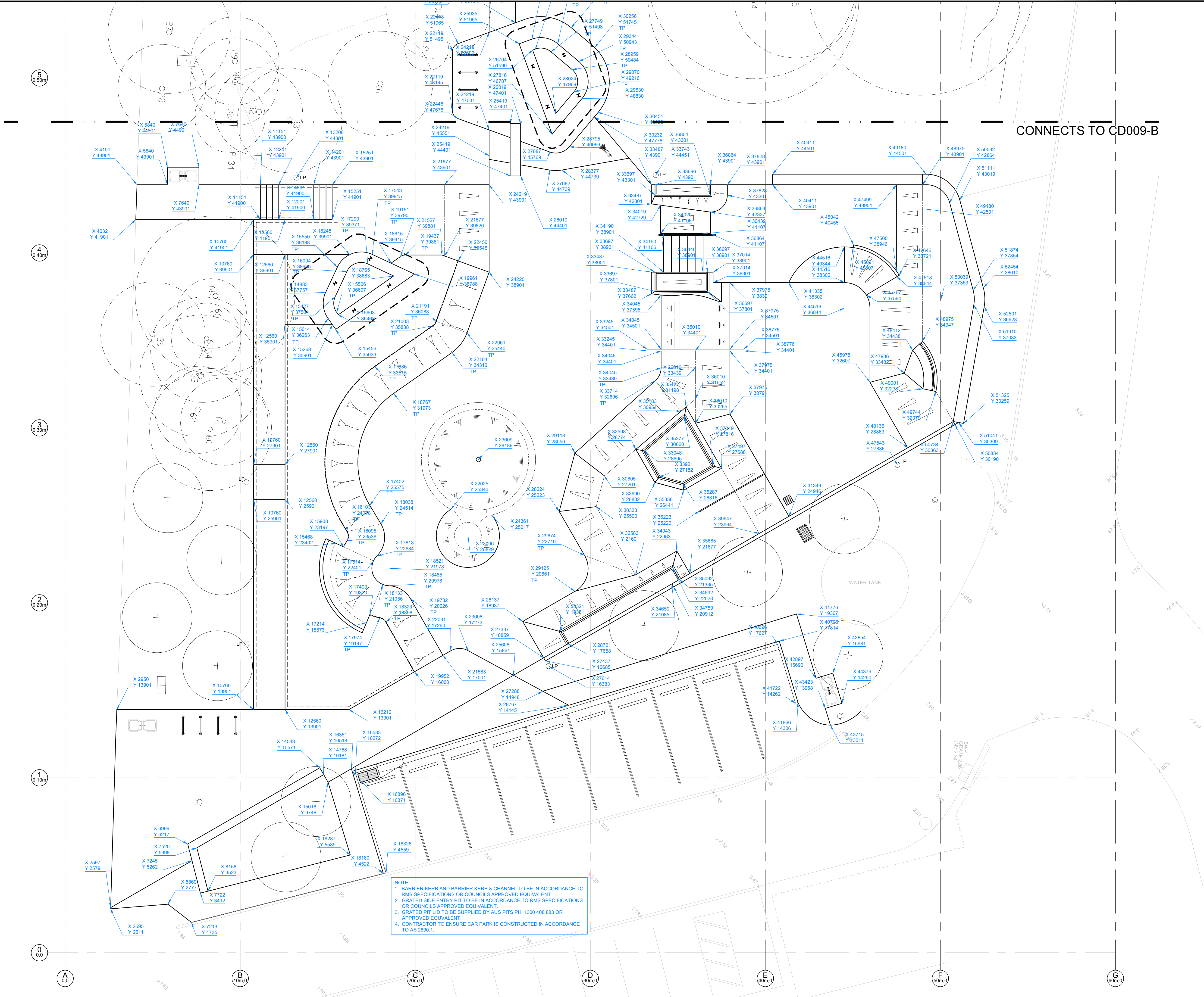
DRAWING TITLE:

Setout Plan

SCALE: 1:100 DATE OF ISSUE: 18.01.2022  
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DESIGN REVIEW: ND APPROVAL: JM

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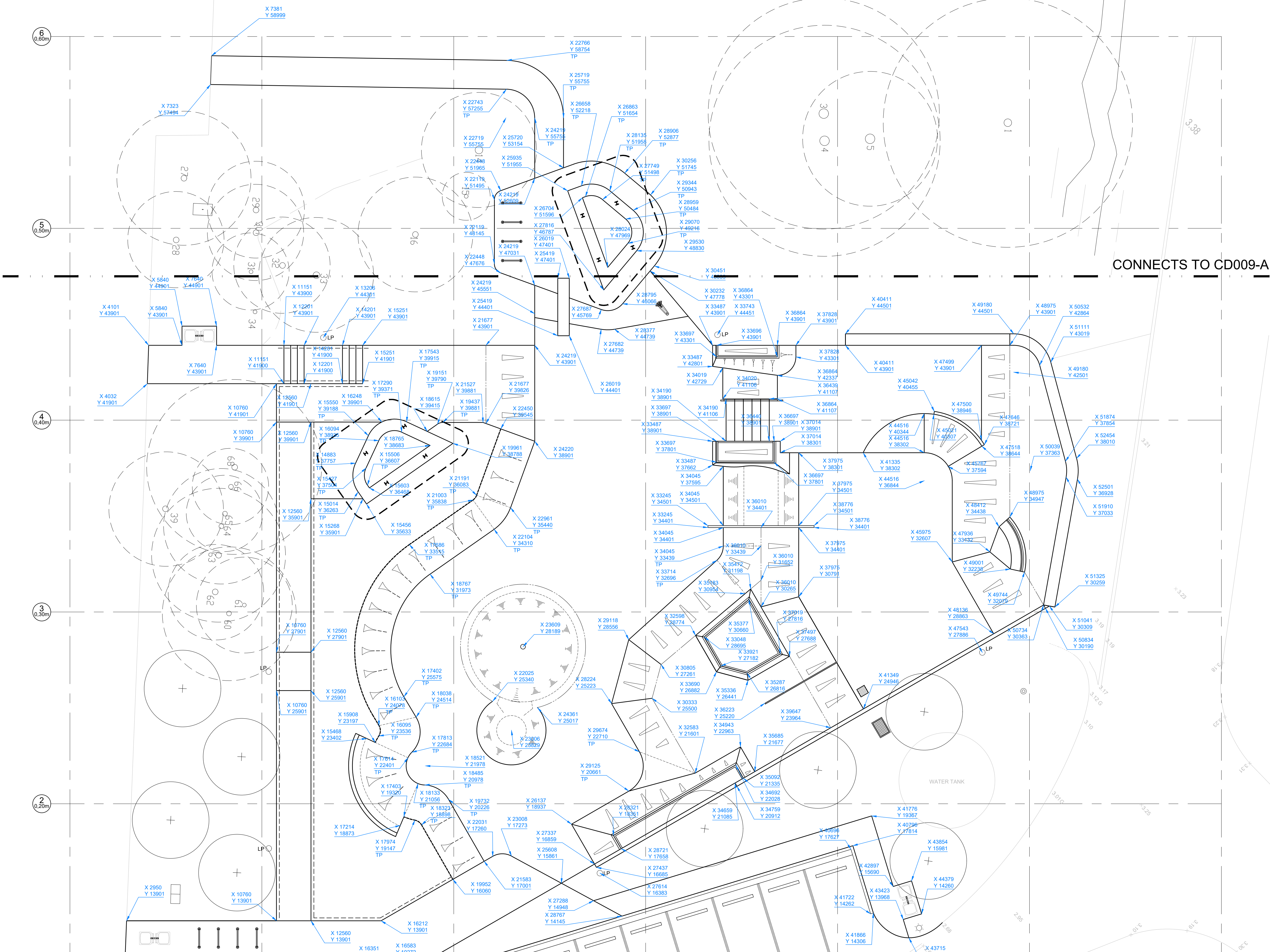
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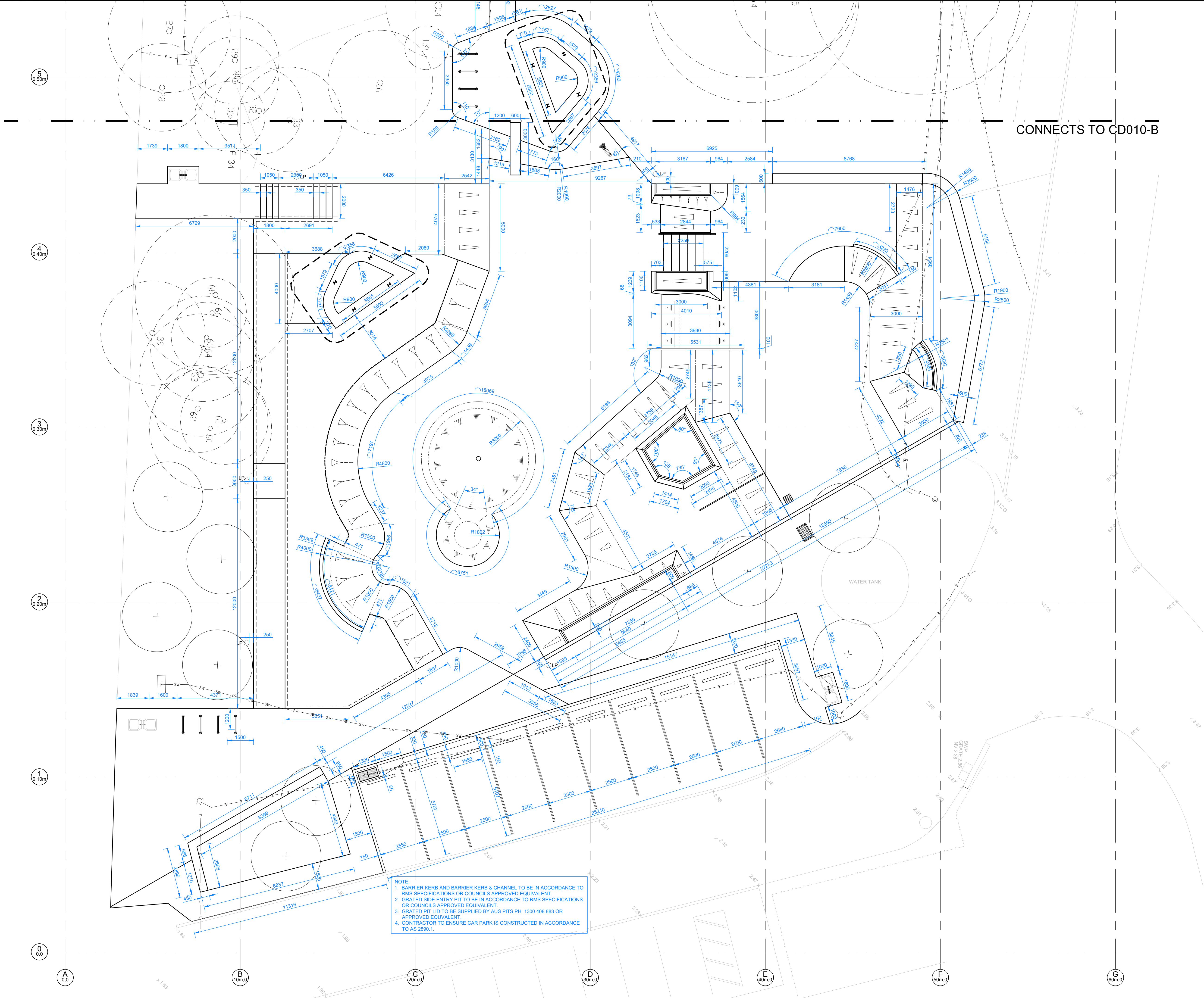
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- CONTRACTOR TO VERIFY ALL DIMENSIONS AND SITE DIMENSIONS. ANY DISCREPANCIES TO BE REPORTED TO SUPERINTENDENT PRIOR TO PROCEEDING WITH WORKS.
- LICENSED SURVEYOR TO BE USED TO LOCATE HEIGHT DATUM & SET OUT POINT AS SHOWN ON DRAWINGS PRIOR TO COMMENCEMENT OF WORKS. CONTRACTOR TO INFORM SUPERINTENDENT OF ANY DISCREPANCIES PRIOR TO COMMENCING WORKS.
- GENERAL ARRANGEMENT OF SITE TO BE PEGGED OUT AND APPROVAL BY SUPERINTENDENT RECEIVED PRIOR TO PROCEEDING WITH WORKS.

### SETOUT AND DIMENSION LEGEND:

- 75X125 X 4MM M/S RHS 'DURAGAL' COPING.
- 50MM N.B. GALVANISED CHS COPING. ALL DIMENSIONS TO FRONT FACE OF COPING.
- 50MM ROLL-OVER RADIUS TO TOP OF TRANSITION OR BANK.
- 200MM ROLL-OVER RADIUS TO TOP OF BANK.
- RC TRANSITION (QUARTER PIPE). REFER TO SECTIONS CD100.
- RC FLAT BANK. REFER TO SECTIONS CD100.
- GENERAL WORKS DIMENSIONS.
- X 2206 Y 1686 GENERAL WORKS SET OUT X & Y CO-ORDINATES. REFER DEMOLITION PLAN CD000 FOR SITE CONSTRUCTION GRID SET OUT. GP POST ANNOTATION REFERS TO CENTER POINT OF POST OR UPRIGHT.
- RADIUS TANGENT POINT.

CLIENT NAME:

**INNER WEST COUNCIL**  
7-15 Wetherill Street, Leichhardt  
NSW 2040

PROJECT NAME:

**LEICHHARDT PARK SKATE PARK**  
70 Mary Street,  
Lilyfield NSW 2040

DRAWING TITLE:

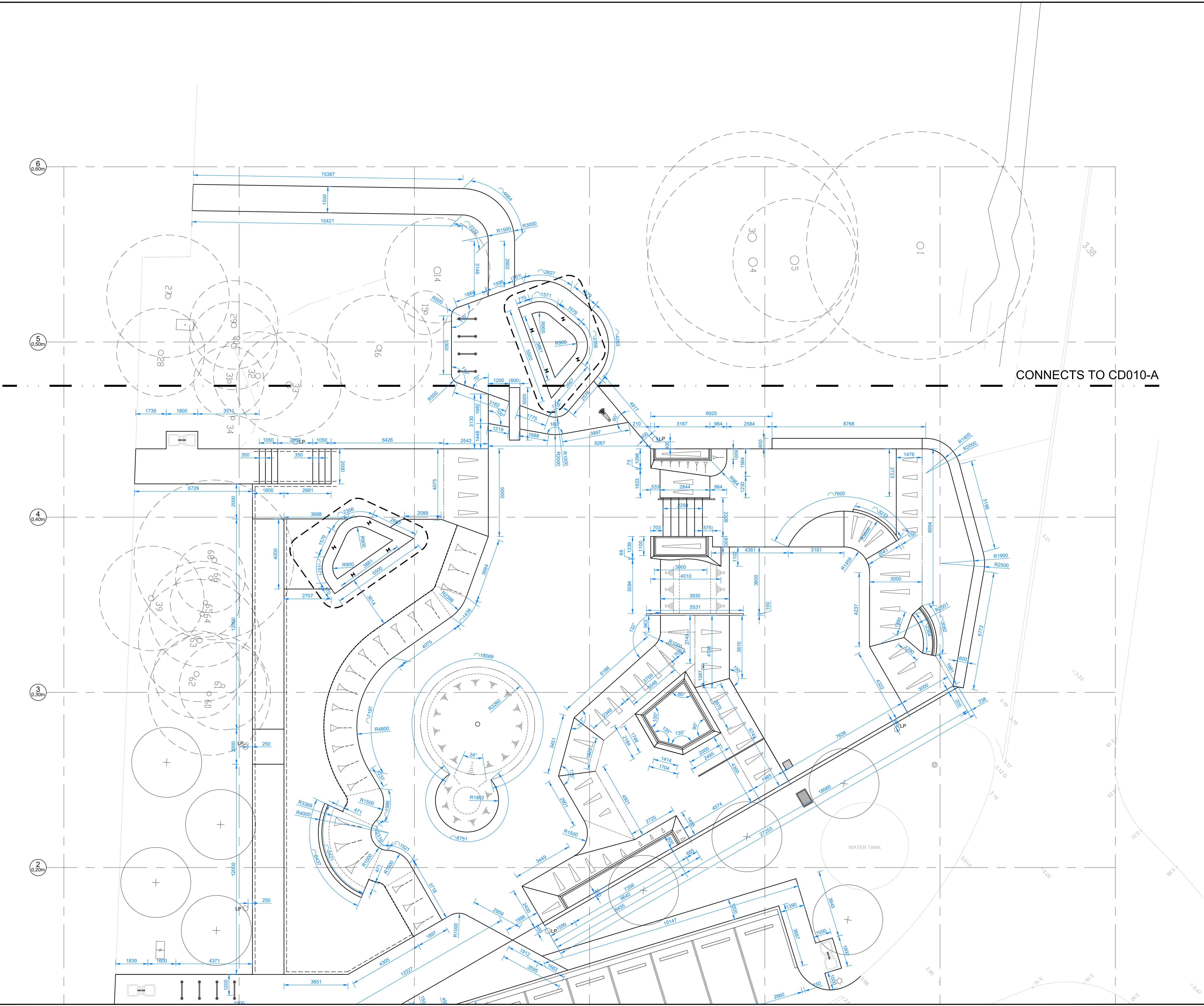
Dimension Plan

SCALE: 1:100 DATE OF ISSUE: 18.01.2022  
FORMAT / SIZE: A1 REFERENCE NO: 1821  
DESIGN REVIEW: ND APPROVAL: JM

DRAWING NUMBER: REVISION:

1821\_CD 010-A 05





**- WARNING -**  
CONTRACTOR TO VERIFY LOCATION; DEPTH/CLEARANCE AND ALIGNMENT OF OVERHEAD AND UNDERGROUND SERVICES. CONTRACTOR TO ACQUIRE CURRENT AND RELEVANT 'DIAL BEFORE YOU DIG' ONE CALL SERVICES DRAWINGS AND ADHERE TO ALL REQUIREMENTS FOR WORKS NEAR SERVICES INCLUDING CLEARANCES, EASEMENTS AND INFORMING SERVICE AUTHORITIES PRIOR TO COMMENCEMENT OF WORKS. THE LOCATIONS OF UNDERGROUND SERVICES INDICATED IN THIS SET OF DRAWINGS ARE INDICATIVE ONLY. PIT LOCATIONS HAVE BEEN SURVEYED BY A LICENSED SURVEYOR.

**- SITE DIMENSIONS -**  
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**DRAWING STATUS:**

# FOR COMMENT

REVISION STATUS:		
05	For Comment	18.01.22
04	For Construction	27.08.21
03	For Construction	04.08.21
02B	For Review	25.06.21
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**LANDSCAPE ARCHITECT CONSULTANT:**

**enlocus**

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Level 1, 151 St Georges Rd,  
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**CONSULTANTS:**

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03. GENERAL ARRANGEMENT OF SITE TO BE PEGGED OUT AND APPROVAL BY SUPERINTENDENT RECEIVED PRIOR TO PROCEEDING WITH WORKS.

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50MM ROLL-OVER RADIUS TO TOP OF TRANSITION OR BANK.

200MM ROLL-OVER RADIUS TO TOP OF BANK.

RC TRANSITION (QUARTER PIPE). REFER TO SECTIONS CD100.

RC FLAT BANK. REFER TO SECTIONS CD100.

GENERAL WORKS DIMENSIONS.

X 2206  
Y 1686  
GENERAL WORKS SET OUT. X & Y COORDINATES. REFER DEMOLITION PLAN CD000 FOR SITE CONSTRUCTION GRID SET OUT. GP POST ANNOTATION REFERS TO CENTER POINT OF POST OR UPRIGHT.

RADIUS TANGENT POINT.

**CLIENT NAME:**

**INNER WEST COUNCIL**  
7-15 Wetherill Street, Leichhardt  
NSW 2040

**PROJECT NAME:**

**LEICHARDT PARK SKATE PARK**  
70 Mary Street,  
Lilyfield NSW 2040

**DRAWING TITLE:**

**Dimension Plan**

**SCALE:** 1:100 **DATE OF ISSUE:** 18.01.2022  
**FORMAT / SIZE:** A1 **REFERENCE NO:** 1821  
**DESIGN REVIEW:** ND **APPROVAL:** JM

**DRAWING NUMBER:** 1821\_CD 010-B **REVISION:** 05



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NOTES / LEGEND:

### STEEL NOTES:

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### STEEL LEGEND:

- 75x125 x 4mm M/S RHS 'DURAGAL' COPING REFER TO SETOUT PLAN CD009.
- GALVANISED 50MM N.B. CHS COPING FRONT FACE. REFER SETOUT PLAN CD009.
- FRONT FACE TANGENT POINT
- FRONT FACE OF COPING LENGTH SHOWN IN MILLIMETRES
- FRONT FACE OF COPING ARC LENGTH SHOWN IN MILLIMETRES
- FRONT FACE OF COPING RADIUS SHOWN IN MILLIMETRES
- SECURITY BIN STAND. REFER TO CD204\_I
- DRINKING FOUNTAIN. REFER TO CD204\_J
- PROPOSED LIGHT POLES. SHOWN INDICATIVE ONLY. REFER TO ELECTRICAL ENGINEERING DRAWINGS.

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PROJECT NAME:

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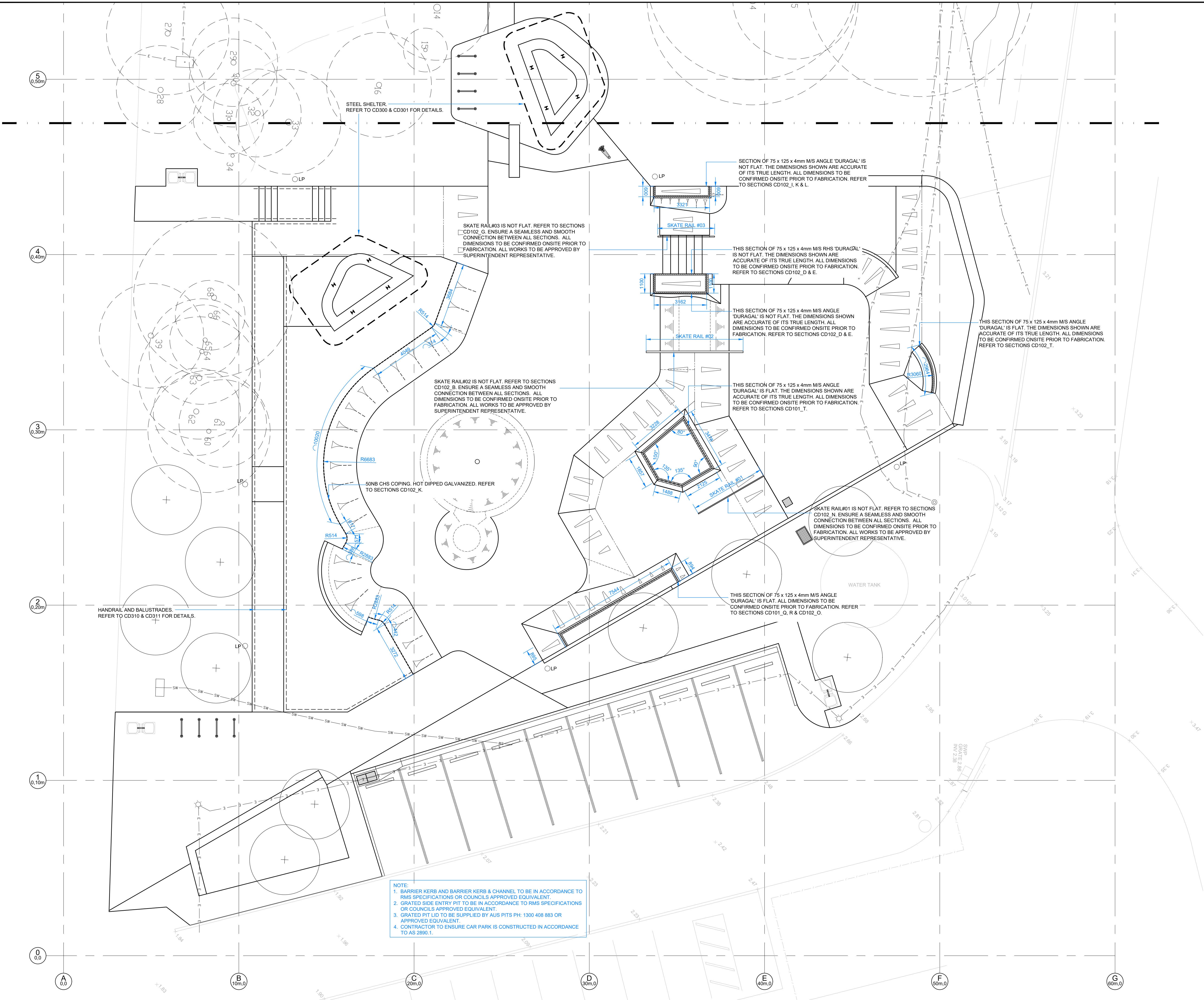
DRAWING TITLE:

Steel Plan

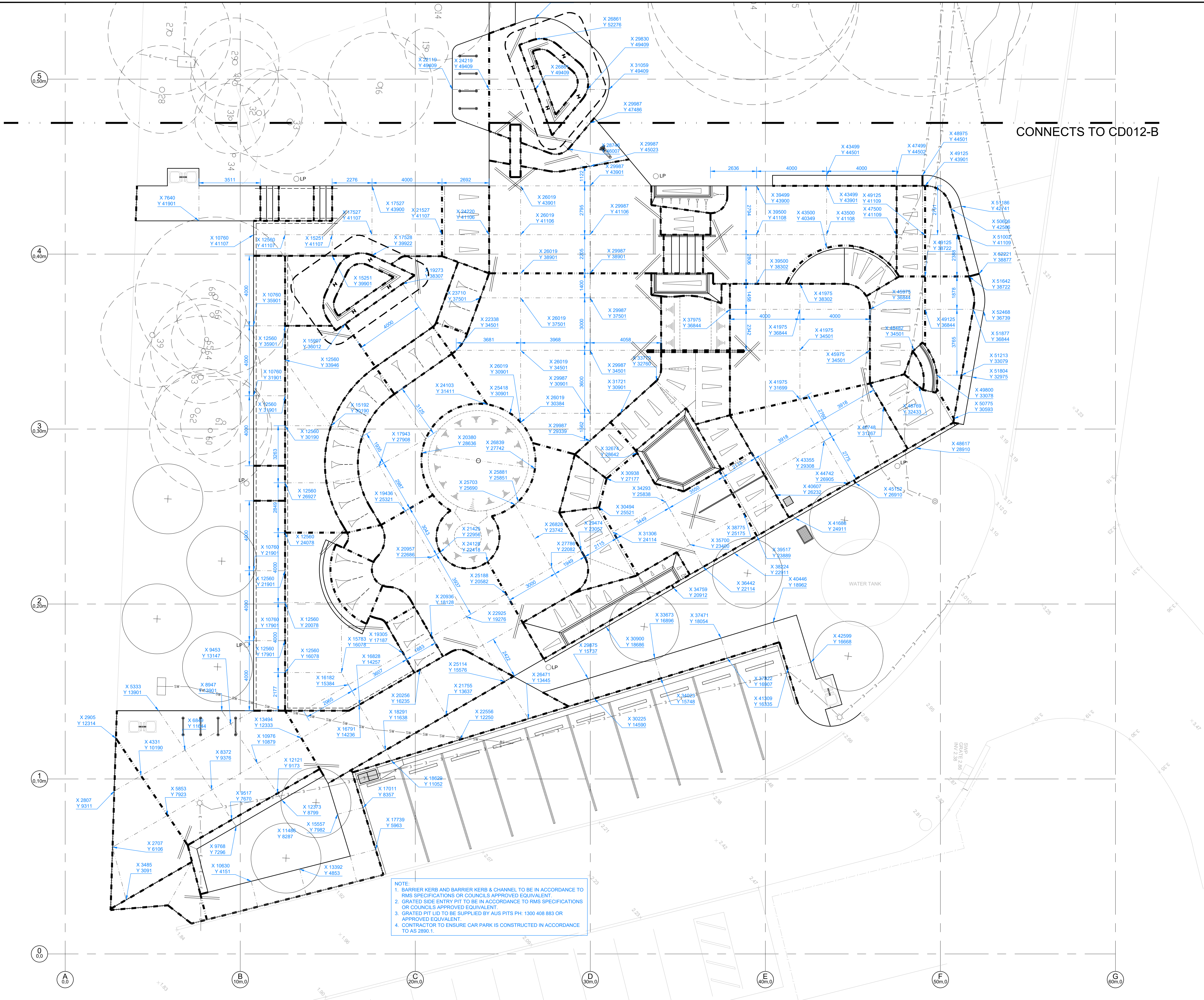
SCALE: 1:100 DATE OF ISSUE: 18.01.2022  
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DRAWING NUMBER: REVISION:

1821\_CD 011 05







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--	---

NOTES / LEGEND:

**CONCRETE JOINTS NOTES:**

01. REFER TO GEOTECHNICAL REPORT SUPPLIED BY CIVIL TEST PTY LTD - REPORT NO. 1190944.1, FOR ALL SURGRADE PREPARATIONS.
02. SAW CUT TO 32MPa RC SLABS MIN 24 AND MAX 48 HRS AFTER POUR.
03. 4MM WIDE SAWCUT, 40MM DEPTH, MACHINE CUT ONLY FOLLOWING CHALKED LINE. CONTRACTOR TO ENSURE STRAIGHT CUTS AS SHOWN.
04. PRIOR TO CONCRETE POUR CUT EVERY SECOND 8MM WIRE IN LOCATION SHOWN FOR SAW CUT. SUPERINTENDENT TO INSPECT CUT WIRE PRIOR TO PROCEEDING WITH WORKS.

**CONCRETE JOINTS LEGEND:**

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- 50MM N.B. GALVANISED CHS COPING. ALL DIMENSIONS TO FRONT FACE OF COPING.
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- 200MM ROLL-OVER RADIUS TO TOP OF BANK.
- RC TRANSITION (QUARTER PIPE). REFER TO SECTIONS CD100.
- RC FLAT BANK. REFER TO SECTIONS CD100.
- CONTROL JOINT 300MM DEPTH SAWCUT AS DIMENSIONED. MACHINE CUT ONLY (NOT HANDHELD CUT SAW). REFER CD200\_P.
- CONSTRUCTION JOINT 300MM THICKENING WITH REINFORCING STEEL AS DETAILED. REFER TO SECTIONS CD100.
- RE-ENTRANT BARS 2/12 BARS 2000MM LONG @45° TIED TO REINFORCEMENT MESH - IN LOCATIONS SHOWN.
- SET OUT DIMENSIONS FOR SAW CUTS.
- X & Y CO-ORDINATES FOR SAW CUT SETOUT.
- RETAINING WALL CONTROL JOINTS. REFER TO CD203\_D.

CLIENT NAME:

**INNER WEST COUNCIL**  
7-15 Wetherill Street, Leichhardt  
NSW 2040

PROJECT NAME:

**LEICHARDT PARK SKATE PARK**  
70 Mary Street,  
Lilyfield NSW 2040

DRAWING TITLE:

**Concrete Joints Plan**

**SCALE:** 1:100 **DATE OF ISSUE:** 18.01.2022  
**FORMAT / SIZE:** A1 **REFERENCE NO:** 1821  
**DESIGN REVIEW:** ND **APPROVAL:** JM

**DRAWING NUMBER:** **REVISION:**

**1821\_CD 012-A 05**

NOTE:  
1. BARRIER KERB AND BARRIER KERB & CHANNEL TO BE IN ACCORDANCE TO RMS SPECIFICATIONS OR COUNCILS APPROVED EQUIVALENT  
2. GRATED SIDE ENTRY PIT TO BE IN ACCORDANCE TO RMS SPECIFICATIONS OR COUNCILS APPROVED EQUIVALENT.  
3. GRATED PIT LID TO BE SUPPLIED BY AUS PITS PH: 1300 408 883 OR APPROVED EQUIVALENT.  
4. CONTRACTOR TO ENSURE CAR PARK IS CONSTRUCTED IN ACCORDANCE TO AS 2890.1.



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PROJECT NAME:

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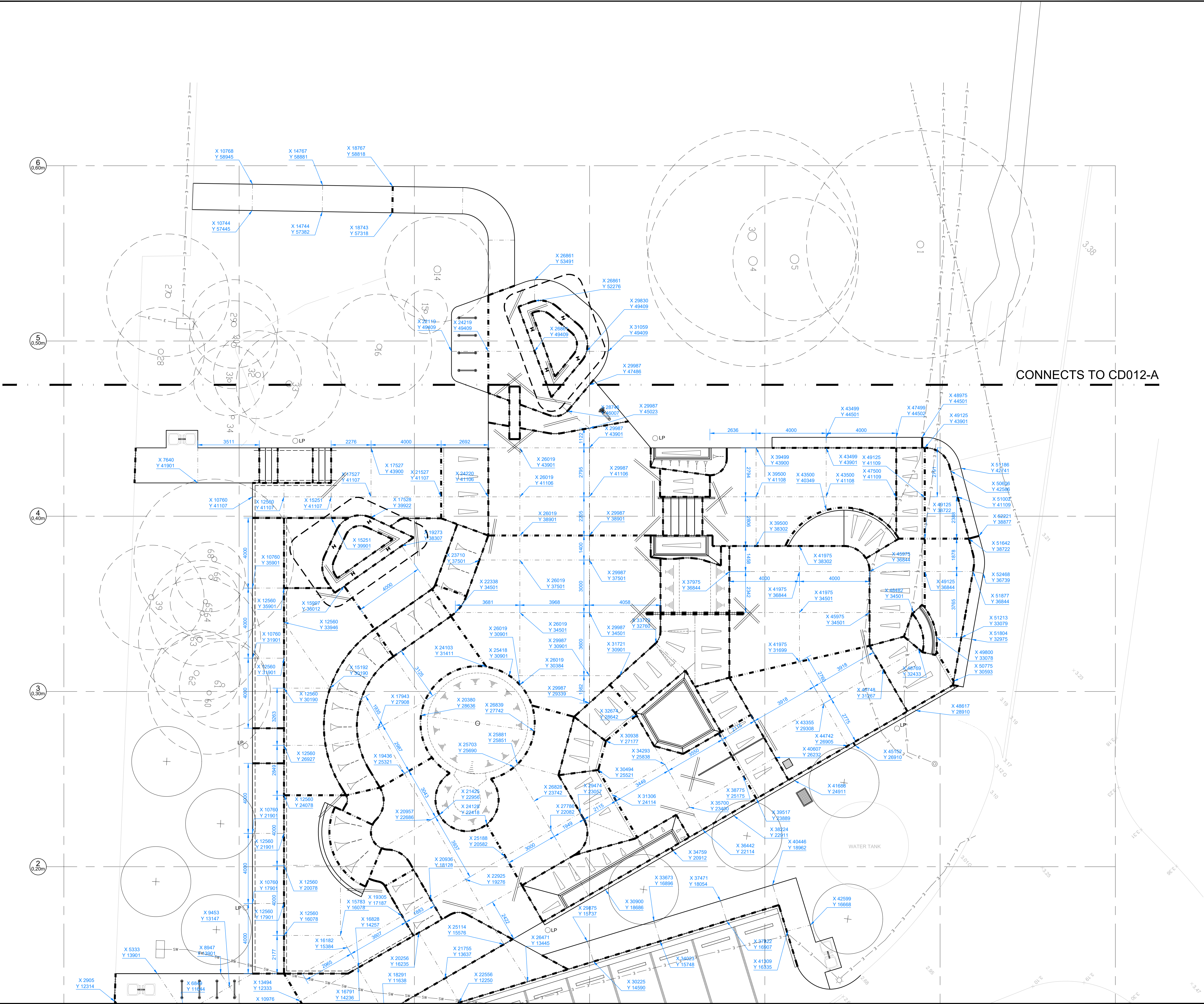
DRAWING TITLE:

**Concrete Joints Plan**

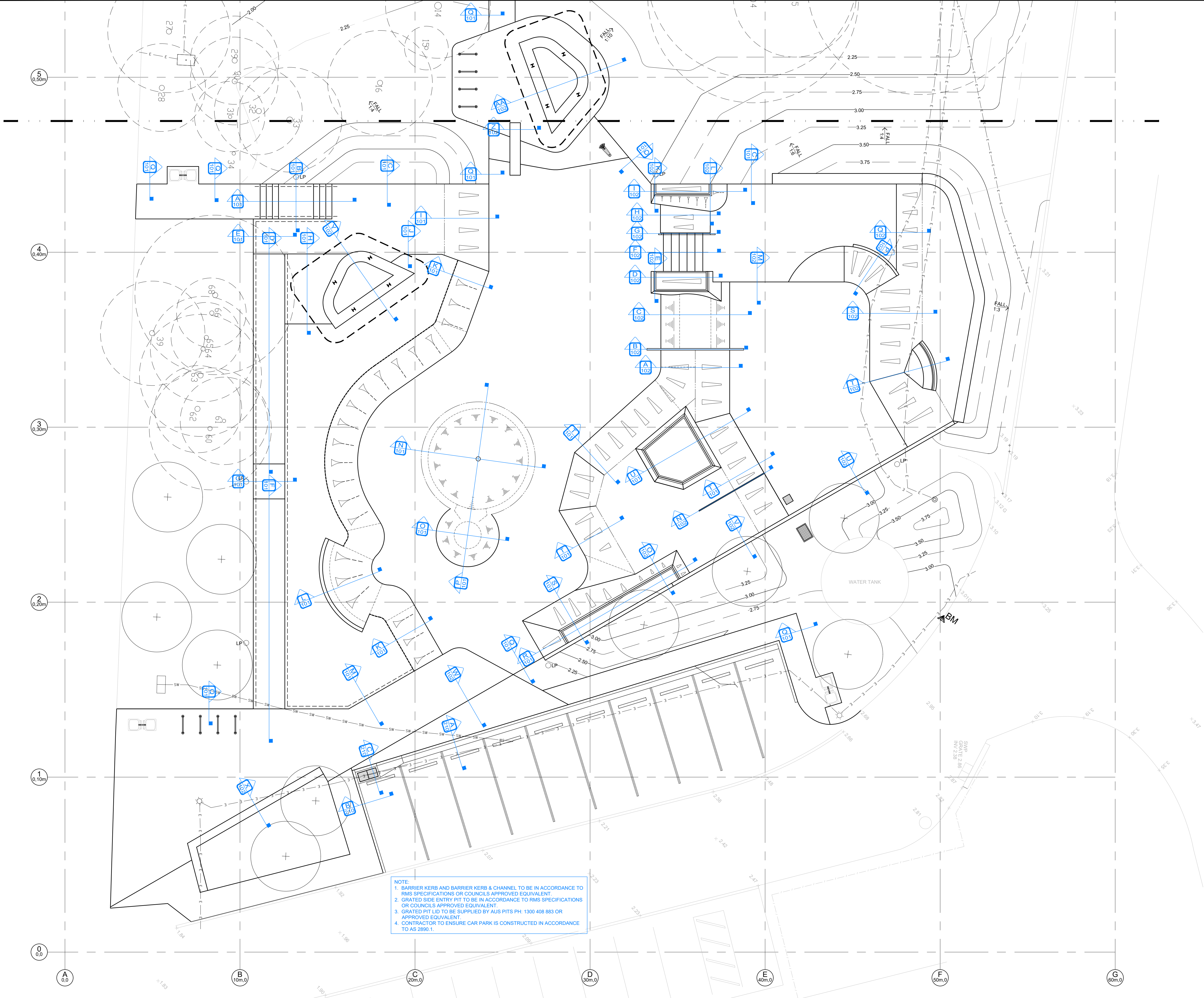
SCALE: 1:100 DATE OF ISSUE: 18.01.2022  
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**1821\_CD 012-B 05**







NOTE:  
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NOTES / LEGEND:

### SECTION KEY NOTES:

01 CONTRACTOR TO VERIFY ALL DIMENSIONS AND SITE DIMENSIONS. ANY DISCREPANCIES TO BE REPORTED TO SUPERINTENDENT PRIOR TO PROCEEDING WITH WORKS.

### SECTION KEY LEGEND:

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	RC TRANSITION (QUARTER PIPE). REFER TO SECTIONS CD100.
	RC FLAT BANK. REFER TO SECTIONS CD100.
	REFER TO SECTIONS CD101 & 102.
	REPRESENTS CONCRETE BLEND BETWEEN VARYING TRANSITIONS. ALL BLEND AREAS TO BE APPROVED BY ENLOCUS PRIOR TO CONCRETE POUR. TO INCLUDE AND NOT LIMITED TO SHAPE OF REQUIRED BATHWORKS. REINFORCEMENT AND PROPOSED SHAPE AND METHOD OF CONSTRUCTION. BLENDS NEED TO BE CONSISTENT AND TO HAVE SEAMLESS CONNECTION TO ADJOINING TRANSITIONS. ANY FINISHED BLENDS OUTSIDE OF THESE TOLERANCES WILL BE DEMOLISHED AND REPOURED AT CONTRACTORS EXPENSE.

CLIENT NAME:

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PROJECT NAME:

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Lilyfield NSW 2040

DRAWING TITLE:

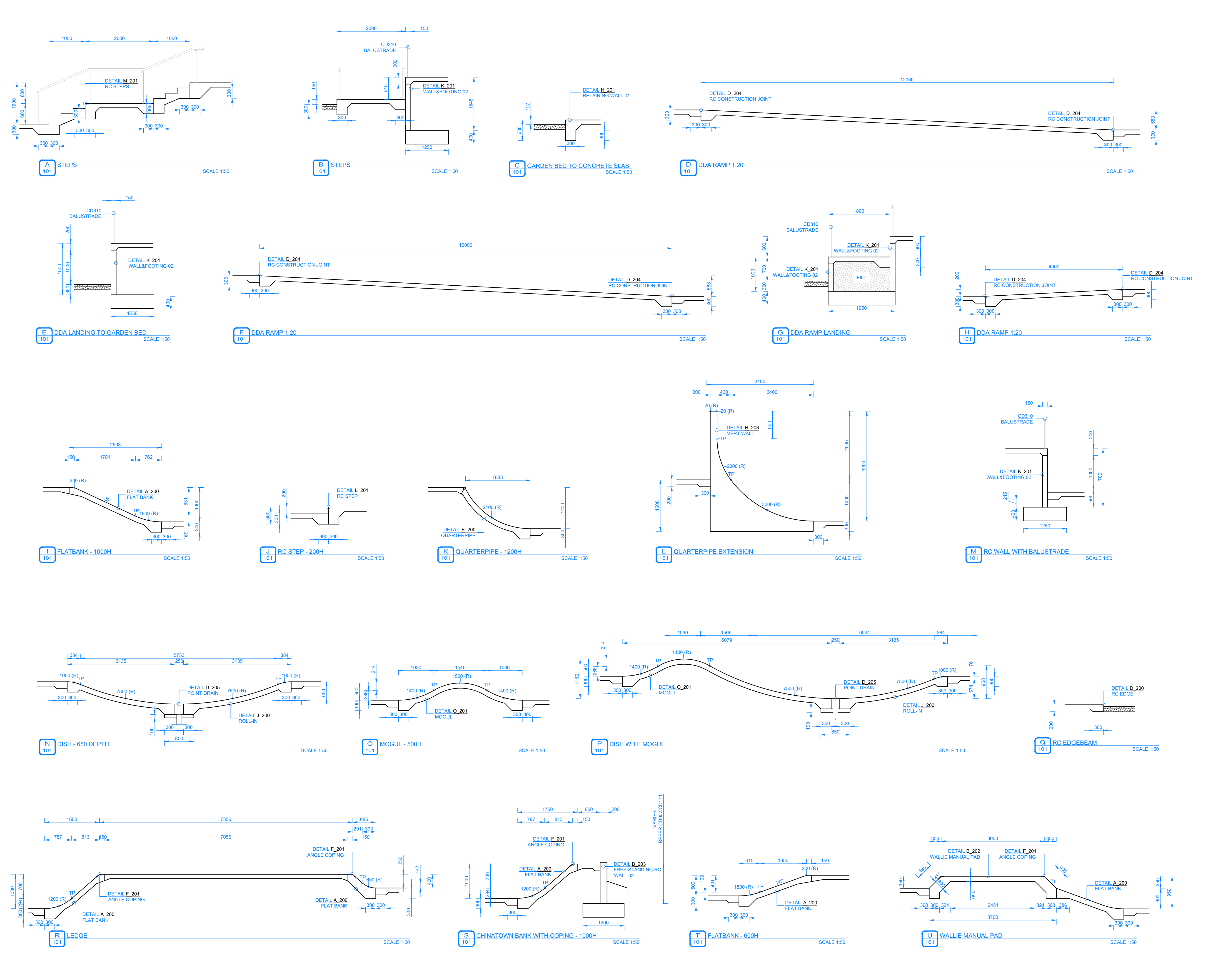
**Section Key Plan**

SCALE: 1:100 DATE OF ISSUE: 18.01.2022  
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**DRAWING STATUS:**

**FOR COMMENT**

**REVISION STATUS:**

05	For Comment	18.01.22
04	For Construction	27.08.21
03	For Construction	04.08.21
02B	For Review	25.06.21
02A	For Review	24.06.21

**LANDSCAPE ARCHITECT CONSULTANT:**

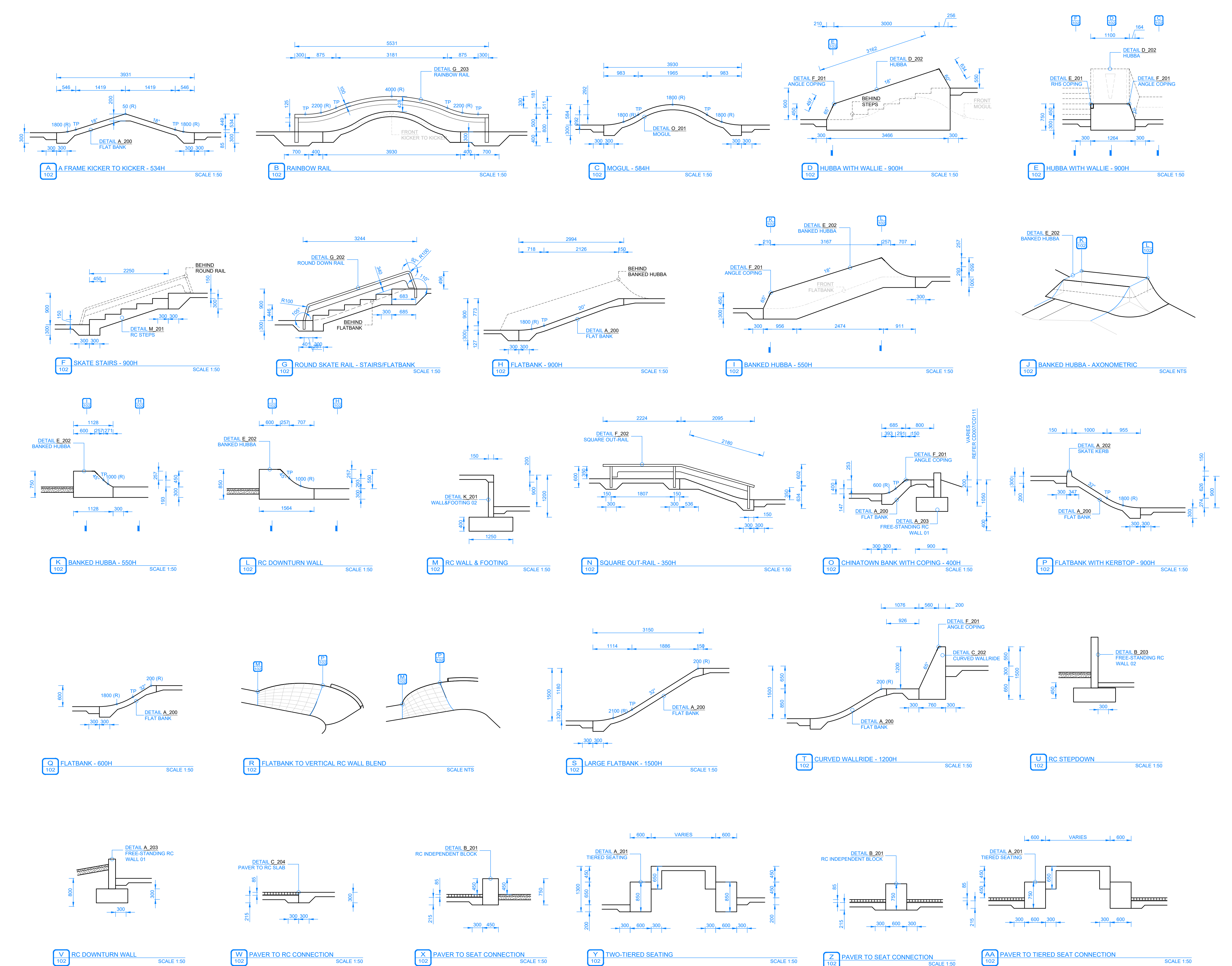
**enlocus**  
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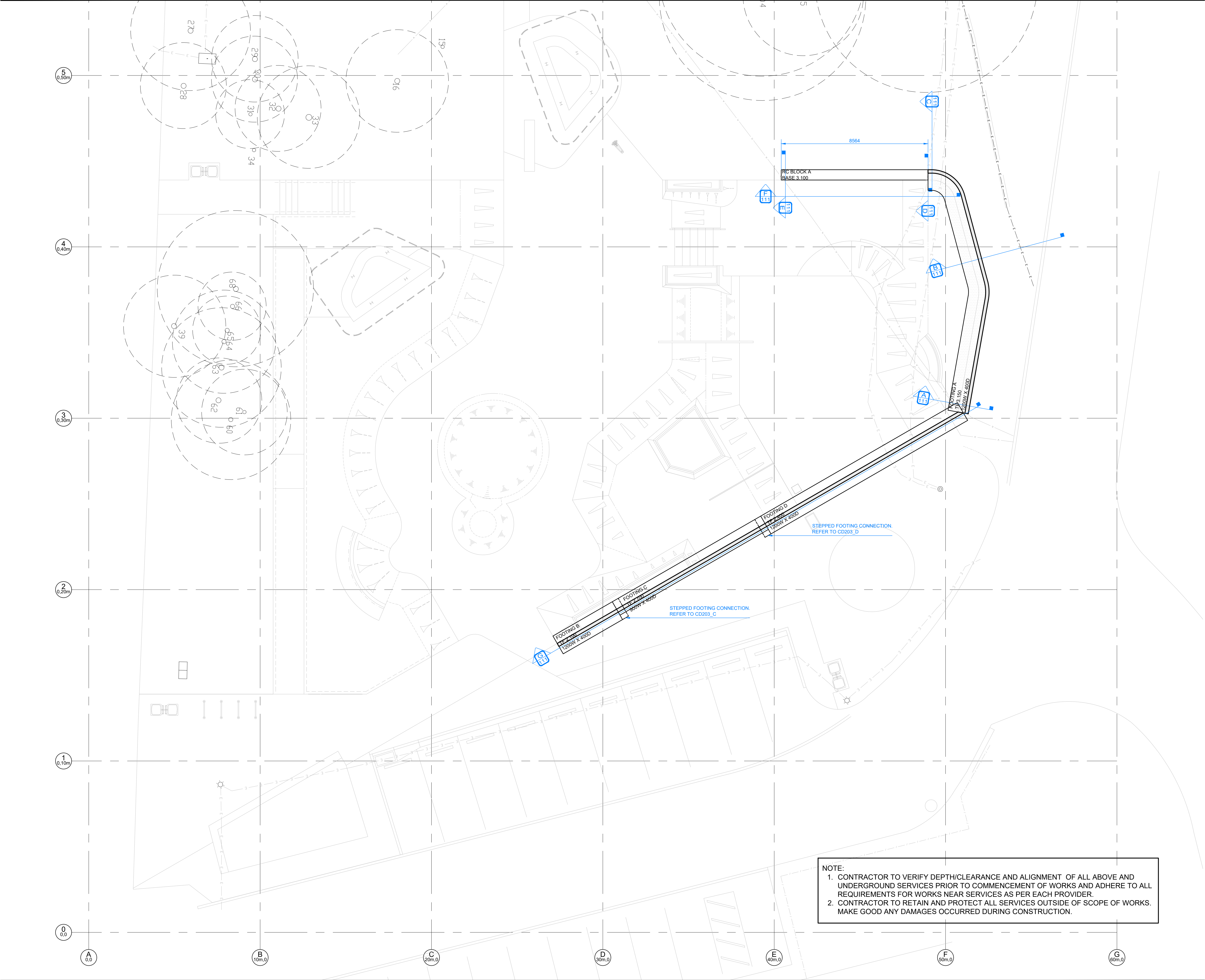
**STRUCTURAL ENGINEER**  
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NOTES / LEGEND:

NOTE:  
1. CONTRACTOR TO VERIFY DEPTH/CLEARANCE AND ALIGNMENT OF ALL ABOVE AND UNDERGROUND SERVICES PRIOR TO COMMENCEMENT OF WORKS AND ADHERE TO ALL REQUIREMENTS FOR WORKS NEAR SERVICES AS PER EACH PROVIDER.  
2. CONTRACTOR TO RETAIN AND PROTECT ALL SERVICES OUTSIDE OF SCOPE OF WORKS. MAKE GOOD ANY DAMAGES OCCURRED DURING CONSTRUCTION.

CLIENT NAME:

**INNER WEST COUNCIL**  
7-15 Wetherill Street, Leichhardt  
NSW 2040

PROJECT NAME:

**LEICHHARDT PARK SKATE PARK**  
70 Mary Street,  
Lilyfield NSW 2040

DRAWING TITLE:

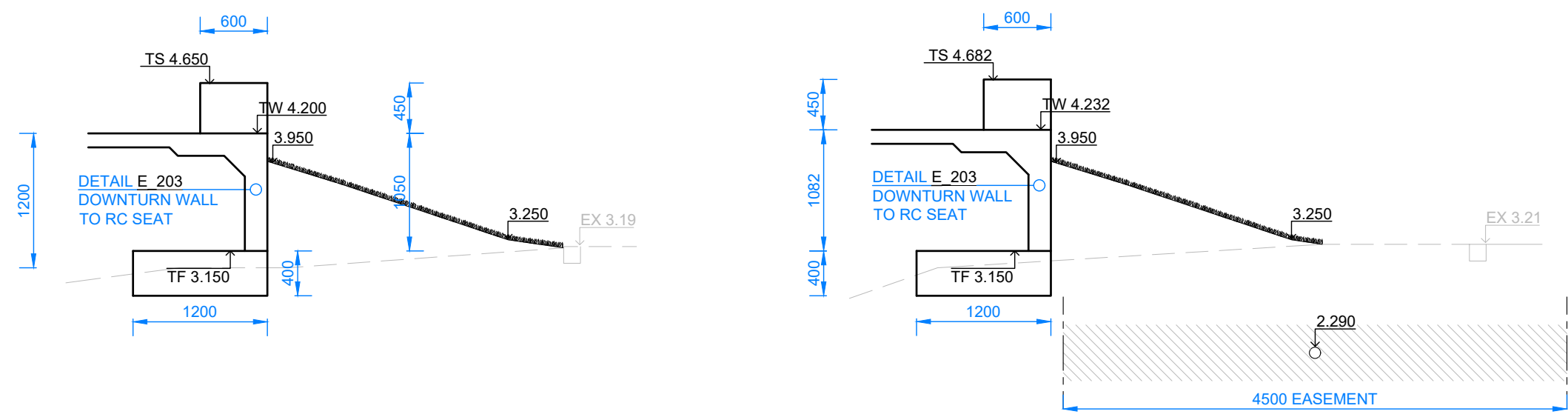
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FORMAT / SIZE: A1	REFERENCE NO: 1821
DESIGN REVIEW: ND	APPROVAL: JM

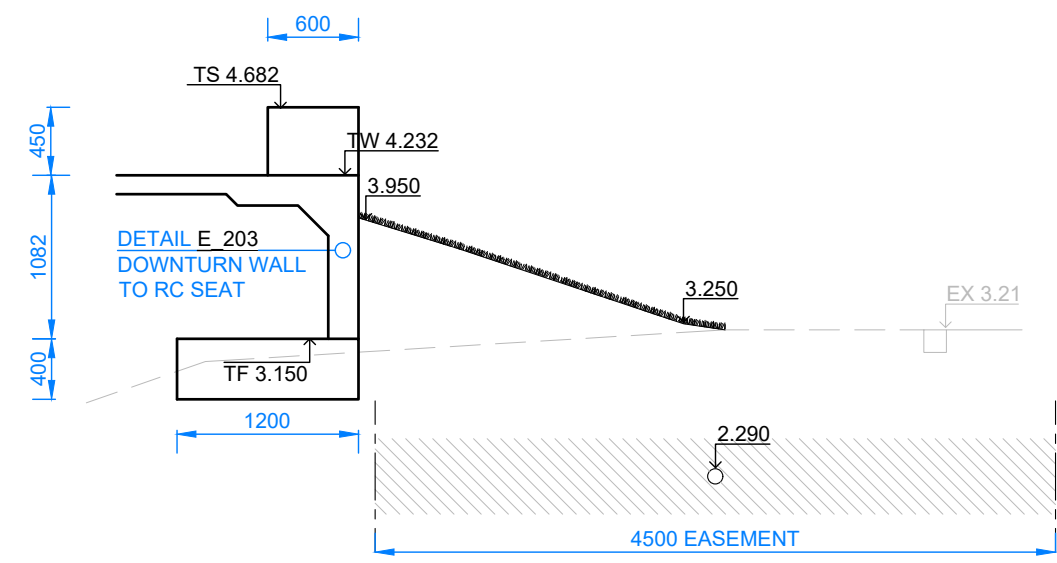
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**1821\_CD 110**

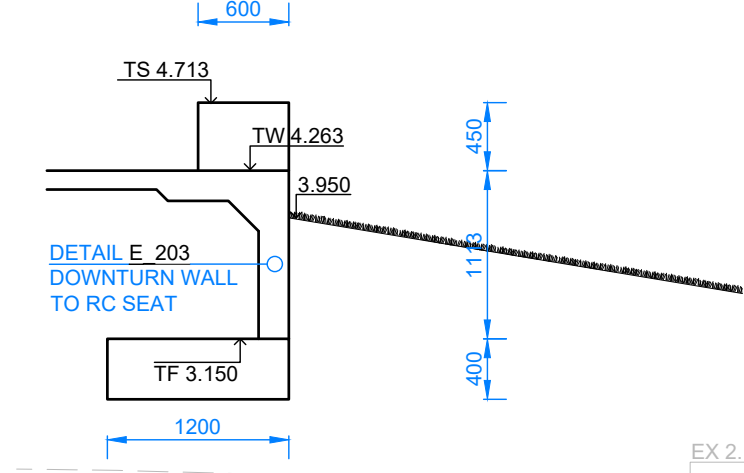
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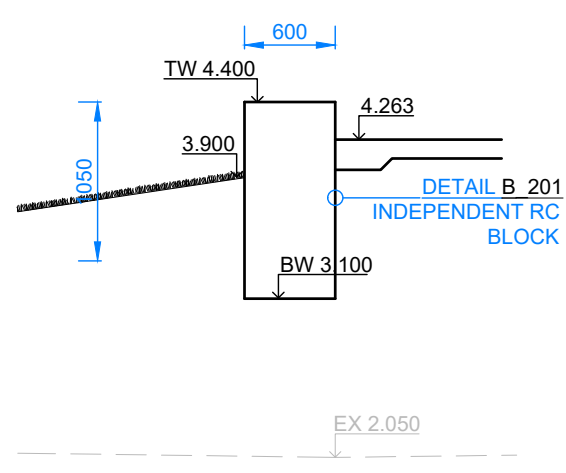
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SCALE 1:50



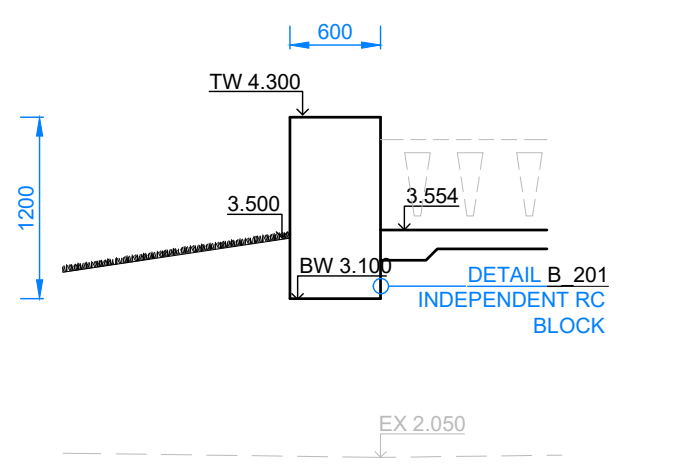
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SCALE 1:50



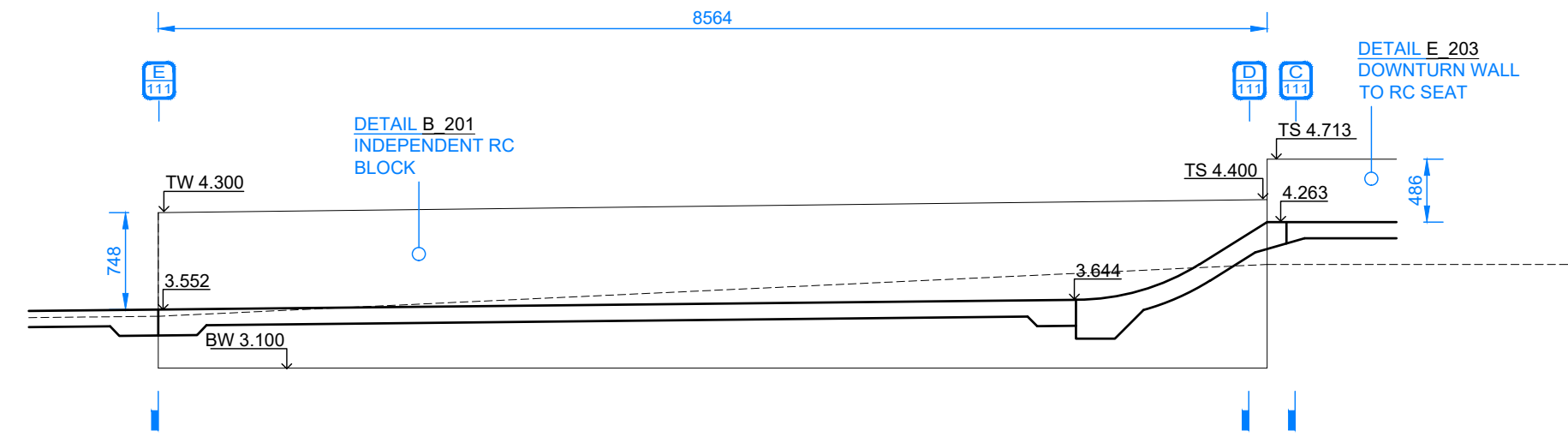
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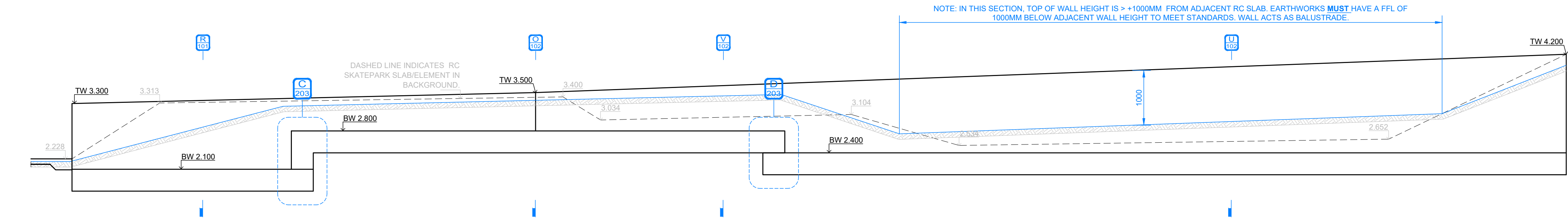
D RC BLOCK WALL - SECTION 01  
SCALE 1:50



E RC BLOCK - SECTION 02  
SCALE 1:50



F RC BLOCK WALL - ELEVATION  
SCALE 1:50



F RC NOISE ABATEMENT WALL - ELEVATION  
SCALE 1:50

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**INNER WEST COUNCIL**  
7-15 Wetherill Street, Leichhardt  
NSW 2040

PROJECT NAME:

**LEICHHARDT PARK SKATE PARK**  
70 Mary Street,  
Lilyfield NSW 2040

DRAWING TITLE:

## Retaining Wall Sections

SCALE:	1:50	DATE OF ISSUE:	18.01.2022
FORMAT / SIZE:	A1	REFERENCE NO:	1821
DESIGN REVIEW:	ND	APPROVAL:	JM

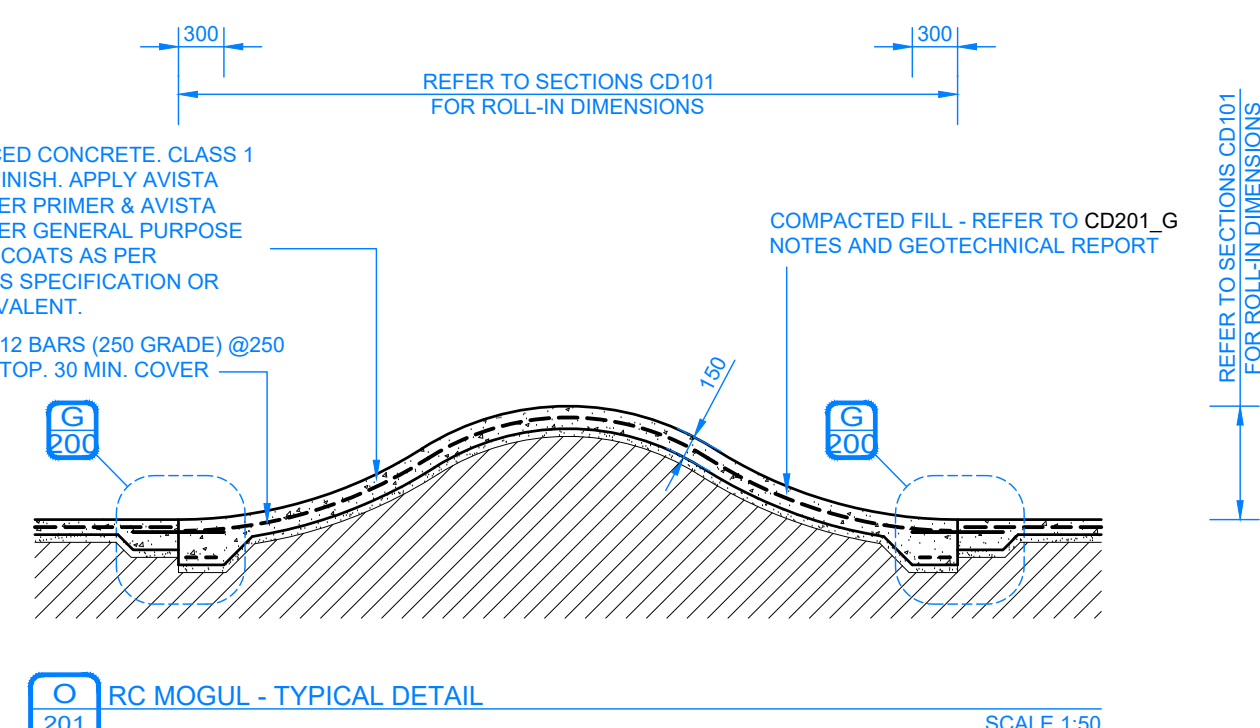
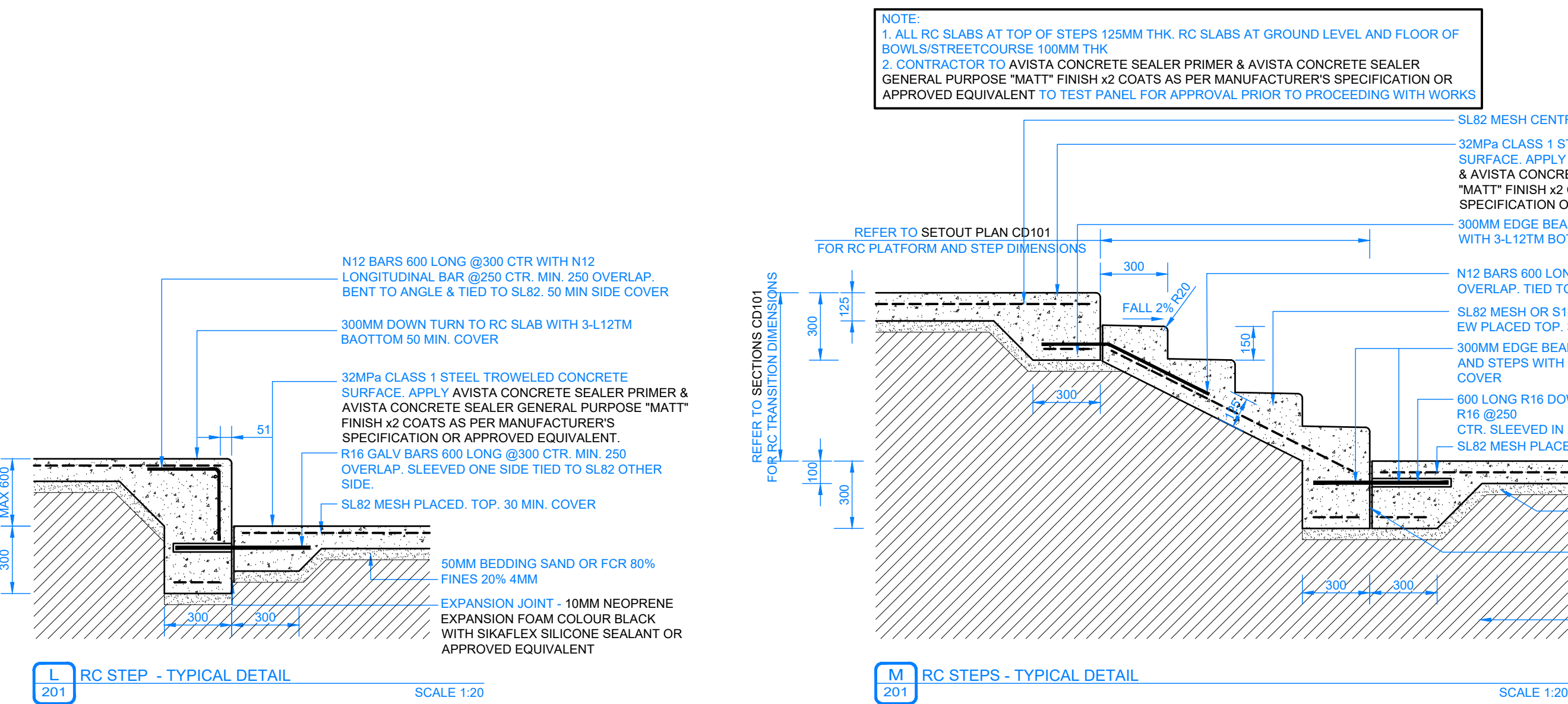
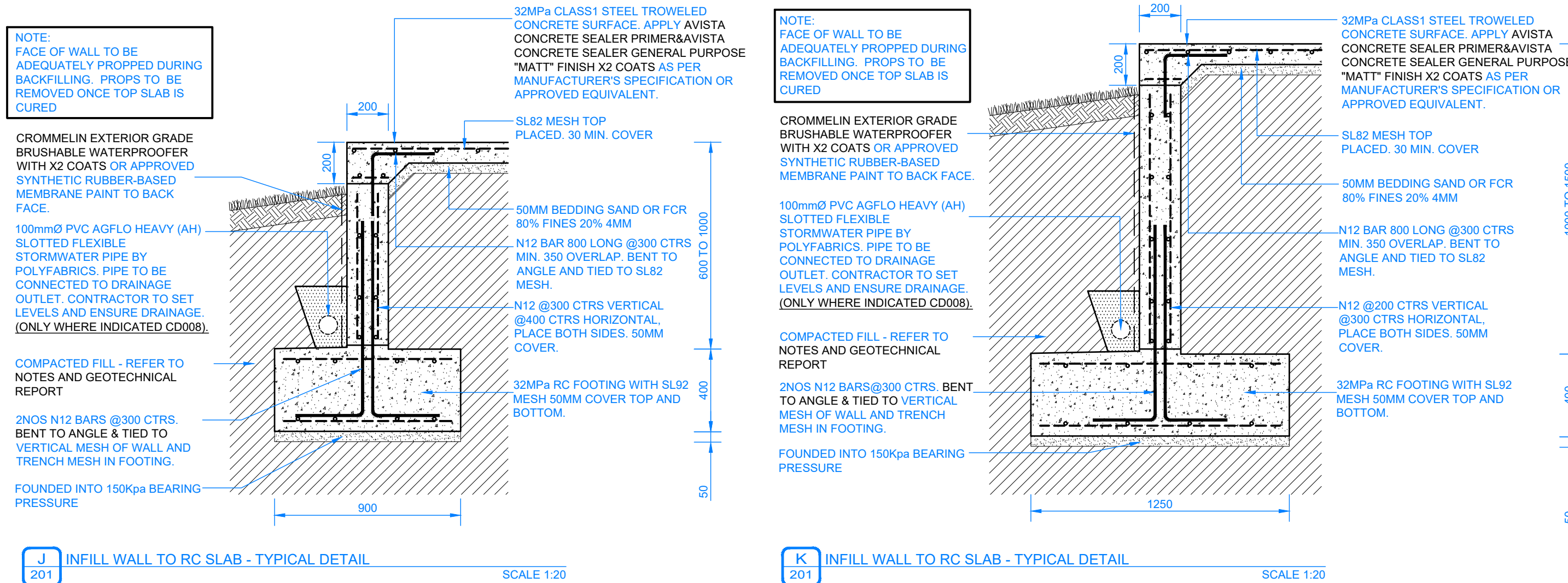
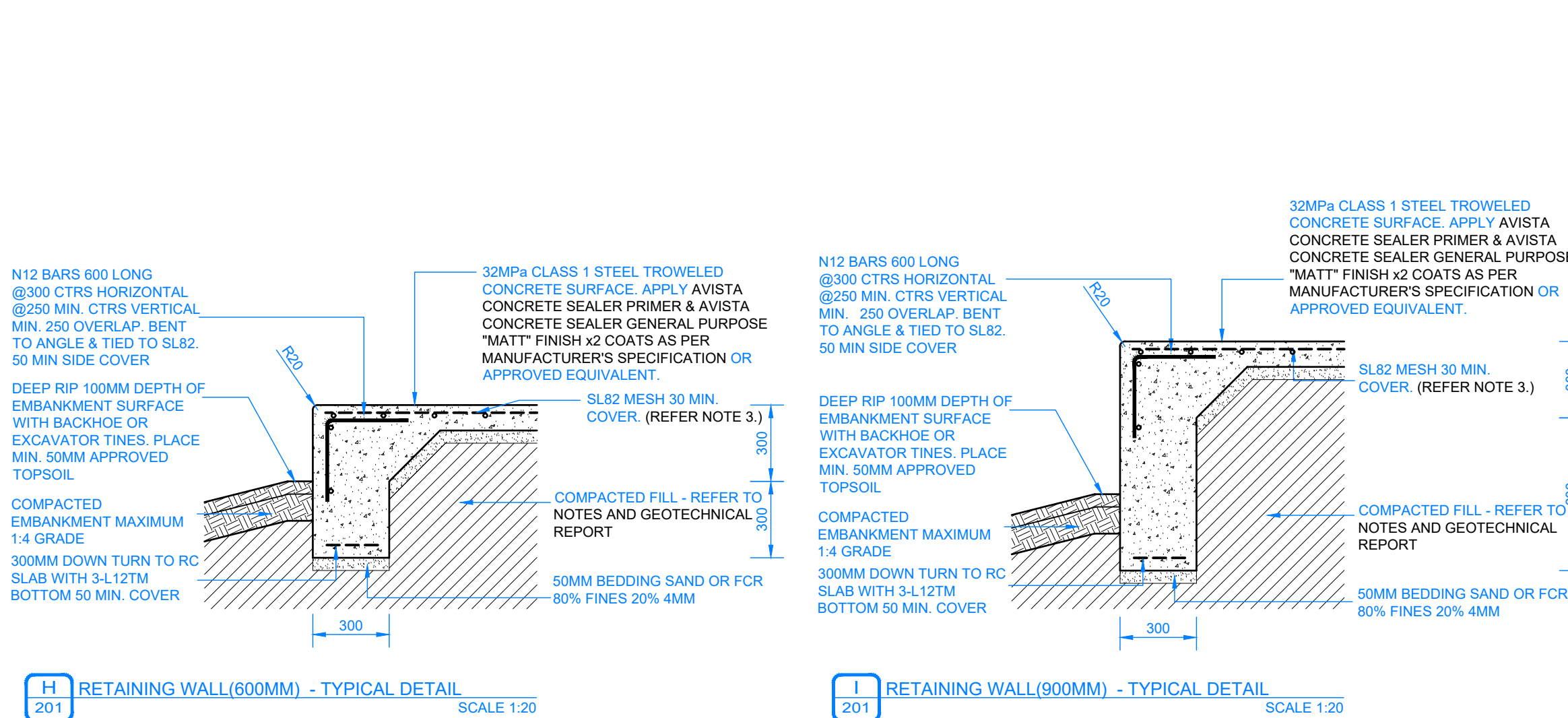
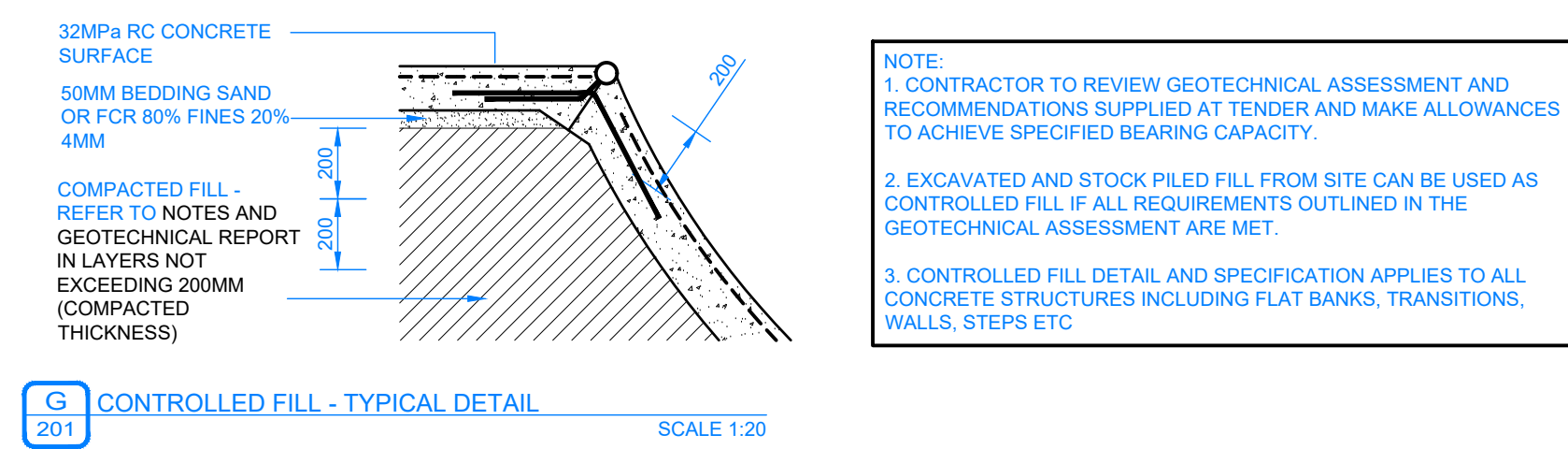
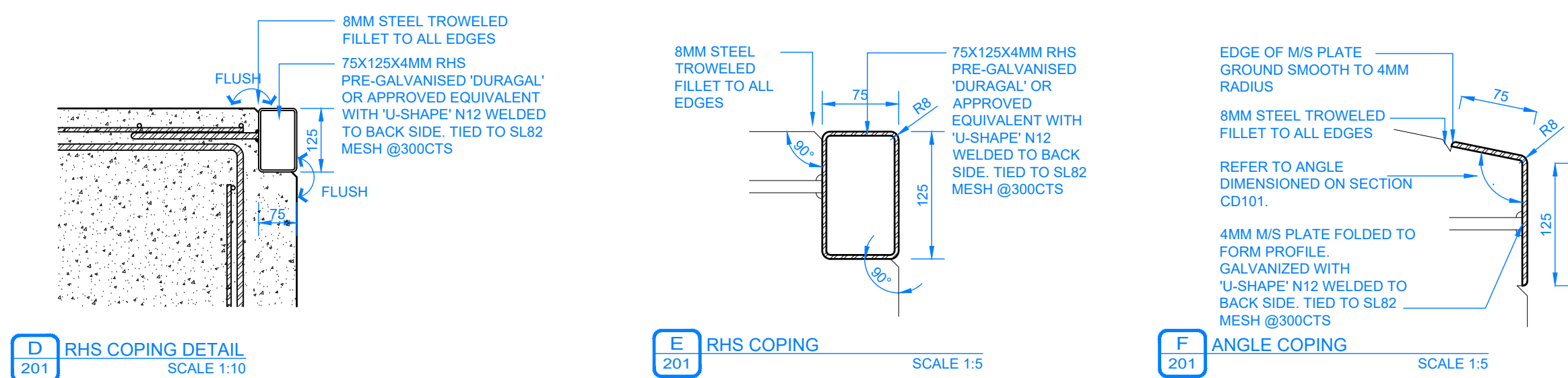
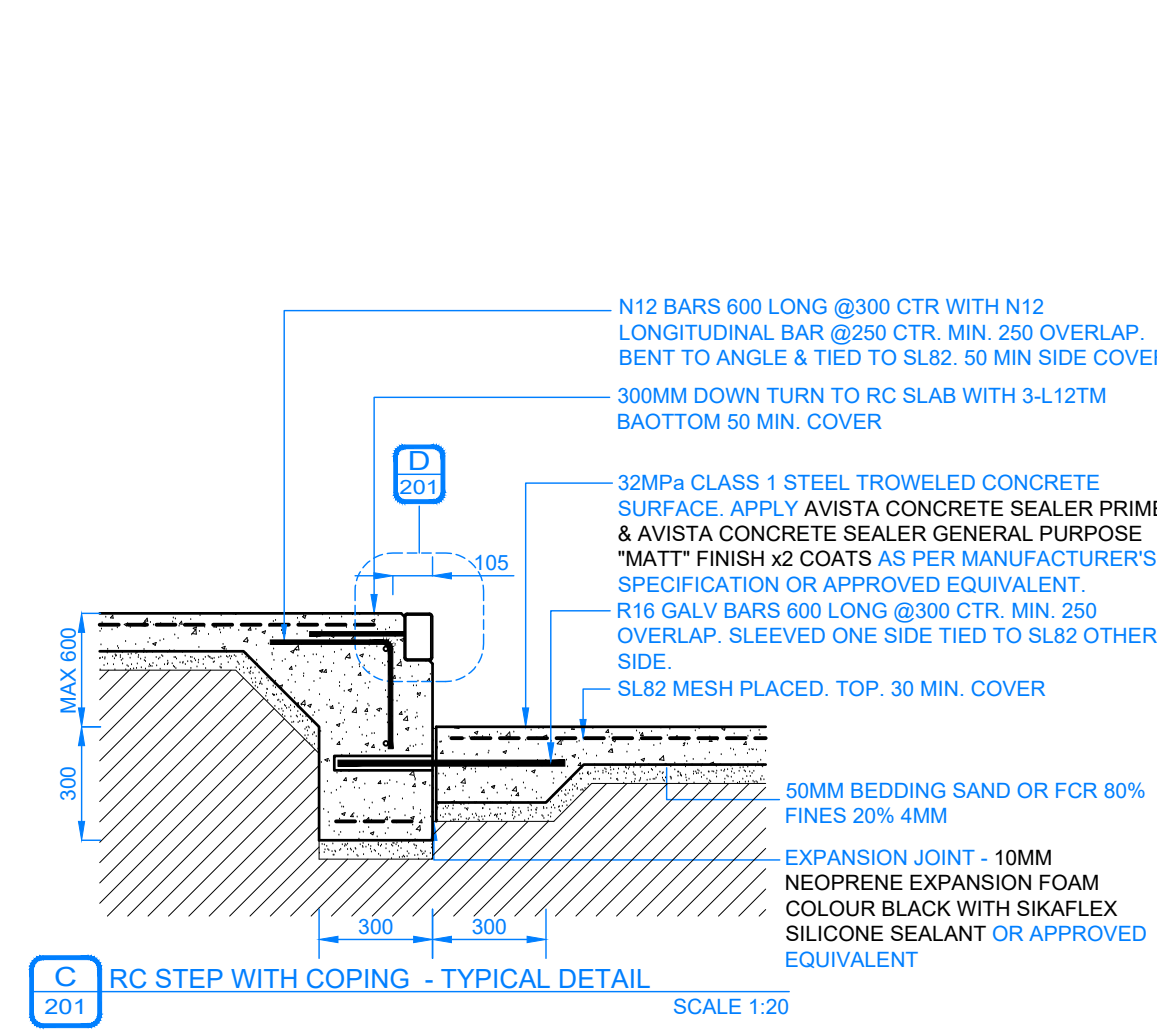
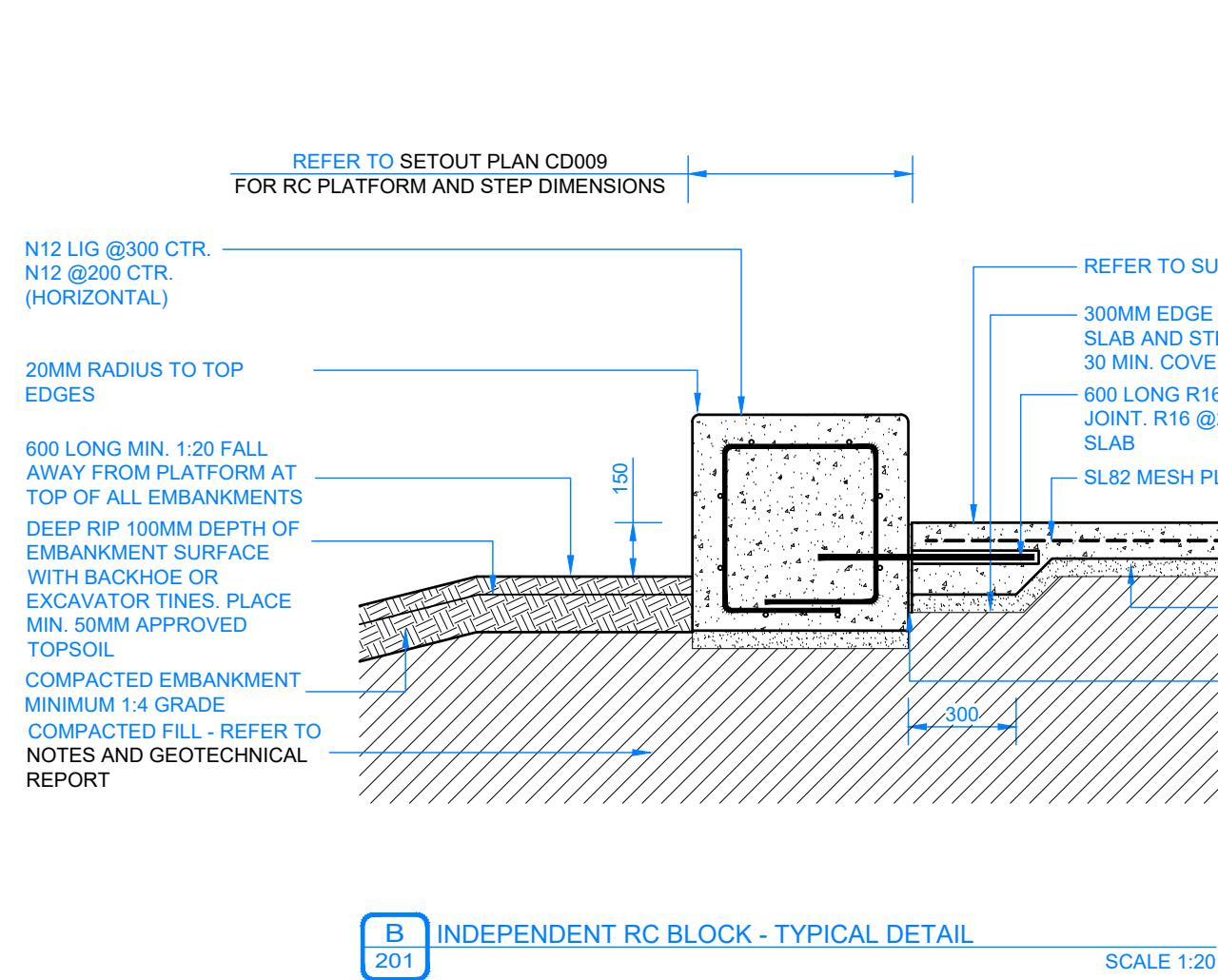
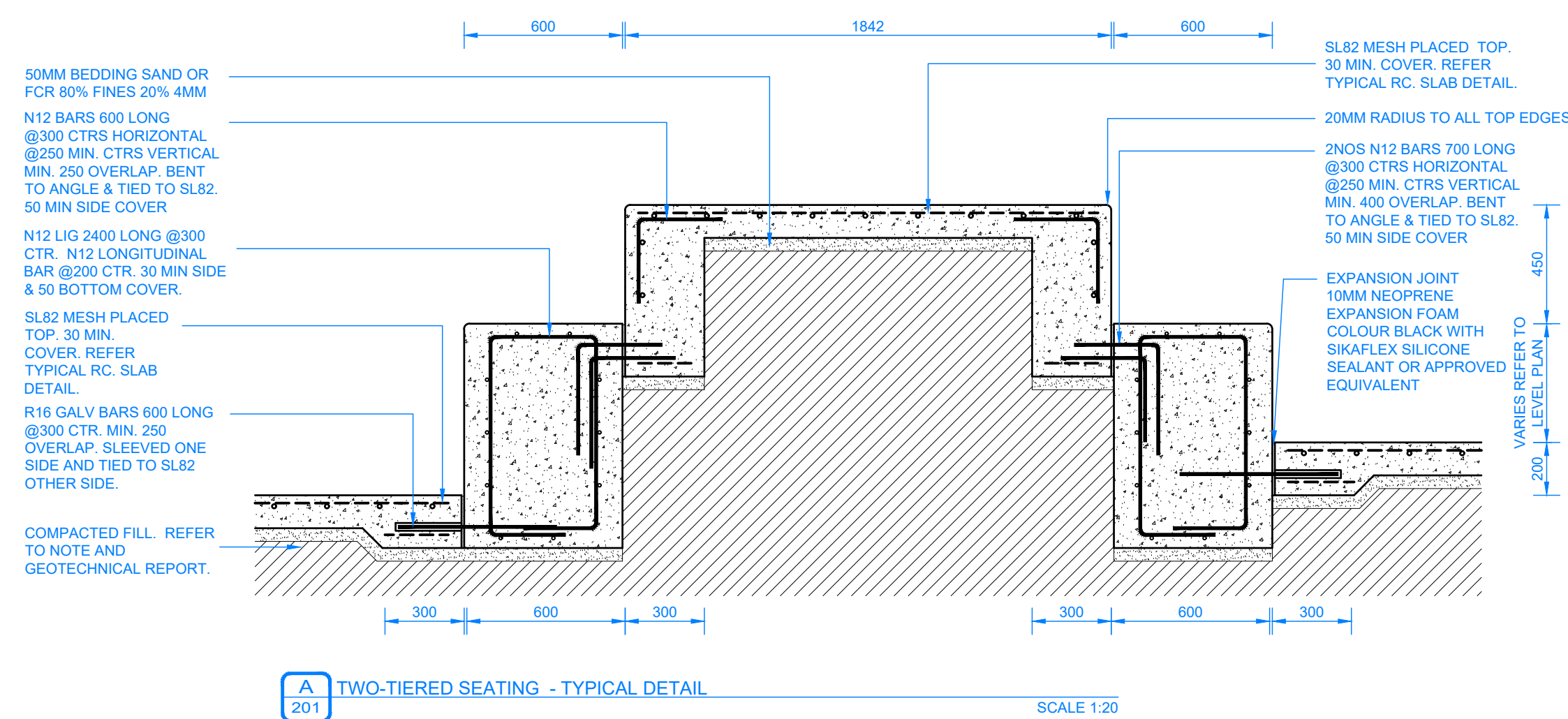
DRAWING NUMBER: REVISION:

1821\_CD 111 05









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 Tel : +613 9331 7522  
[www.matrixgroup.net.au](http://www.matrixgroup.net.au)

**NOTES / LEGEND:**

ENGINEERING NOTES:

1. CONCRETE.
2. CONCRETE STRENGTH: N20 MPa.
3. CONCRETE THICKNESS 150MM SLOPES, 100MM PLATFORMS AND FLAT BOTTOM, UNO.
3. CONSTRUCTION JOINTS SHALL BE AT CONSTRUCTED MAXIMUM 6.0M OR AS PER DETAIL.
4. SAW CUTS TO BE SAWN AS SHOWN ON PLANS, SAW CUT DEPTH TO BE 30MM DEEP.
4. CHECK REINFORCEMENT DETAIL. FOR SAW CUT JOINT DETAILS
5. FOR CURING, COVER FOR SEVEN DAYS WITH PLASTIC OR BY LIQUID MEMBRANE, TO THE APPROPRIATE AUSTRALIAN STANDARD. APPLY WITHIN 1 HOUR OF CONCRETE FINISHING.
6. FINISH TO BE CLASS 1 METAL TROWEL TO ALL VERTICAL SURFACES. STEEL TROWEL FINISH TO PLATFORMS, FLAT BANKS, TRANSITIONS, ETC.
7. REFER TO A.S.3600 - CONCRETE STRUCTURES AND A.S.2870-2011 - RESIDENTIAL SLABS AND FOOTINGS.
- REINFORCEMENT:
1. AS SHOWN.
2. TRIMMERS - 2 OF N12/2000 LONG TO ALL INTERNAL CORNERS.
3. BASE SLAB - SL#2 MESH OR S12 (250 GRADE) @ 250 CRS EW.
4. VERTICAL WALLS - REFER TO RC WALL - REINFORCEMENT SCHEDULE C201.
5. BLOCKS - AS SHOWN.
6. GRIND RAALS - SHALL BE 76X76X50MM DURAGRA - RHS (UNLESS OTHERWISE STATED ON PLANS) WELDS MITRED AND ALL WELDS GRIND SMOOTH AND COLD GALVANISED. ALL COLD GALVANISED RAALS SHALL BE GALX76 DURAGRA SILVER PANT APPLIED APPLICATION TO BE NEAT AND CONSISTENT.
- EARTHWORKS:
1. STABLE CLEAN FILL COMPACTED TO 98% (MDD) PLACED AND COMPACTED IN 200MM LAYERS.
2. REFER TO SOIL REPORT FOR FURTHER DETAILS.
- ALL SUBGROUND PREPARATION WORKS UNDER ALL CONCRETE PAVEMENTS AREAS AND LOW PROFILE RETAINING WALLS ARE TO BE PROTECTED, ROLLED AND COMPACTED AS PER RECOMMENDATIONS SET OUT IN THE GEOTECHNICAL REPORT SUPPLIED BY CIVIL TEST PTY LTD - REPORT NO. 110904-1.
3. ALL SOFT SPOTS TO BE EXCAVATED DOWN TO APPROPRIATE DEPTH AND REPLACED WITH COMPACTED FILL TO 98% MDD IN 200MM LAYERS.
4. FURTHER GEOTECHNICAL ADVICE MAY BE REQUIRED.

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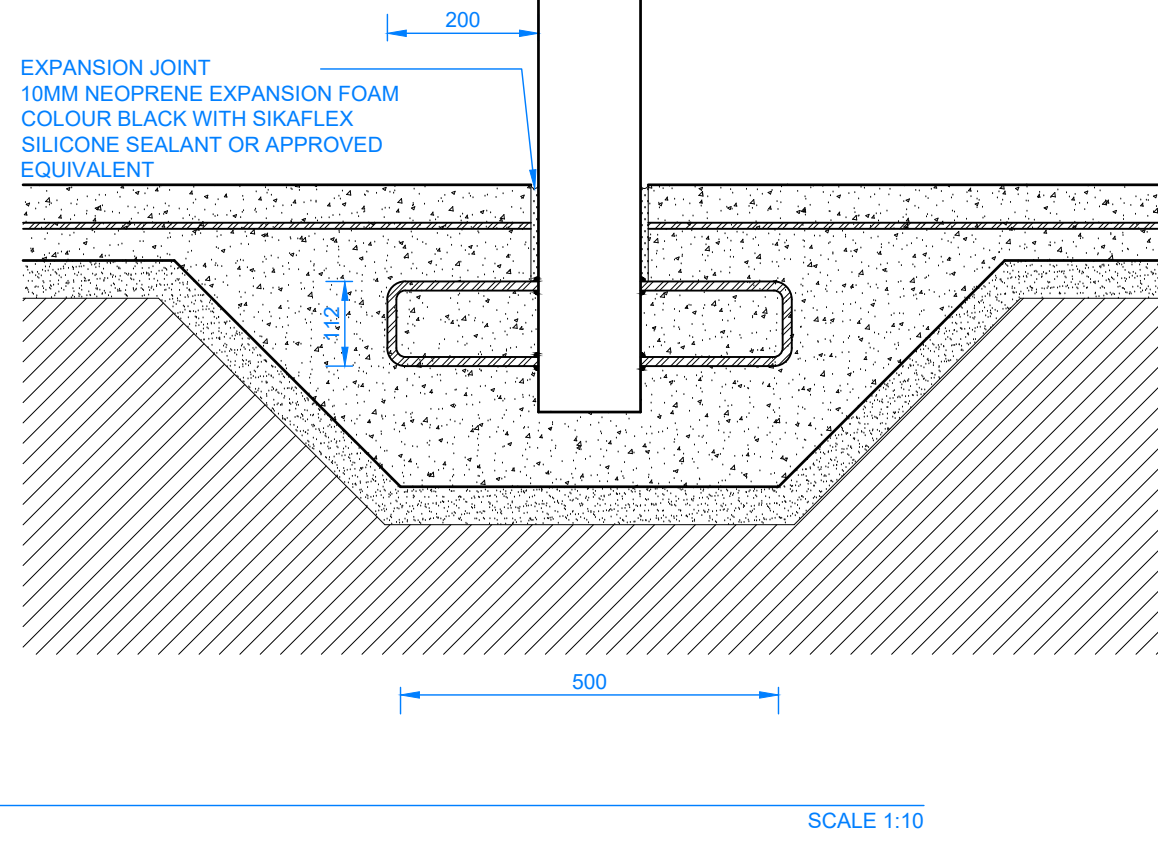
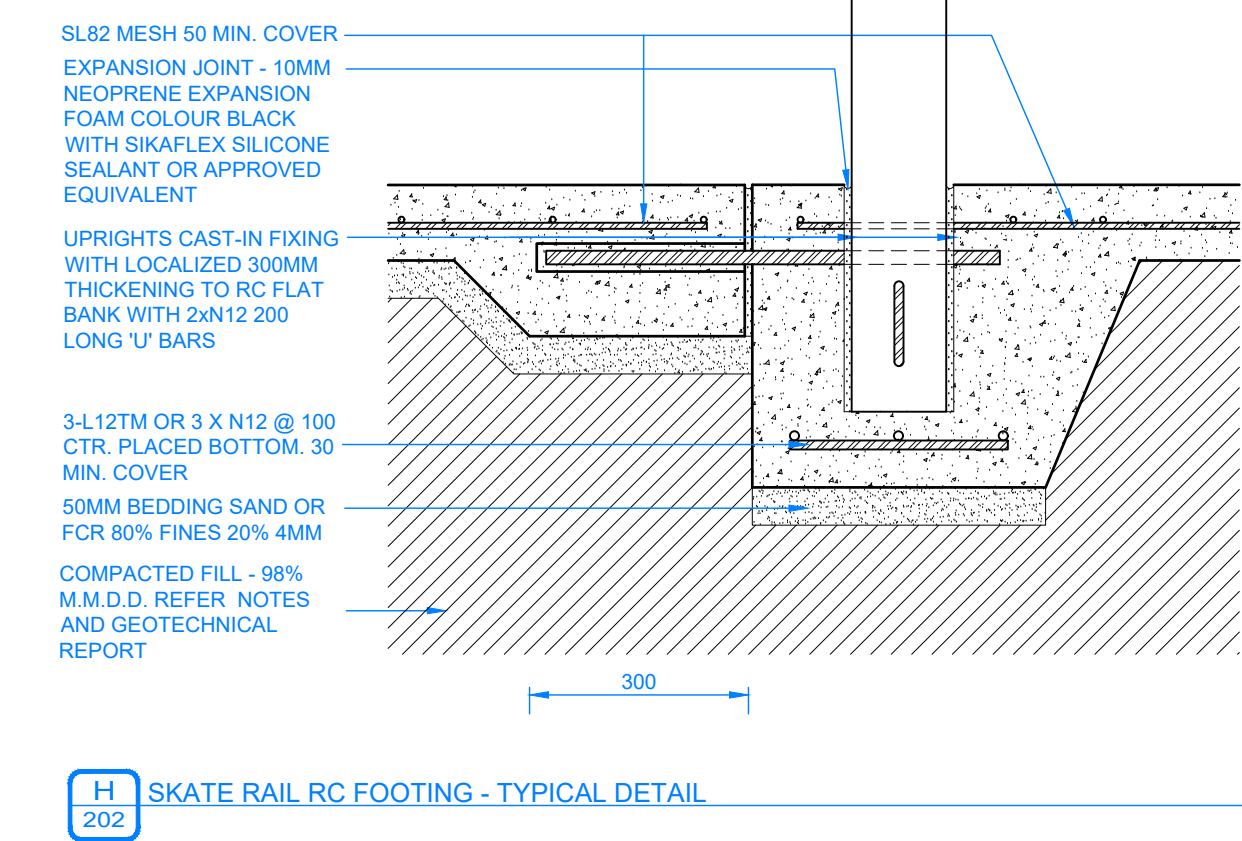
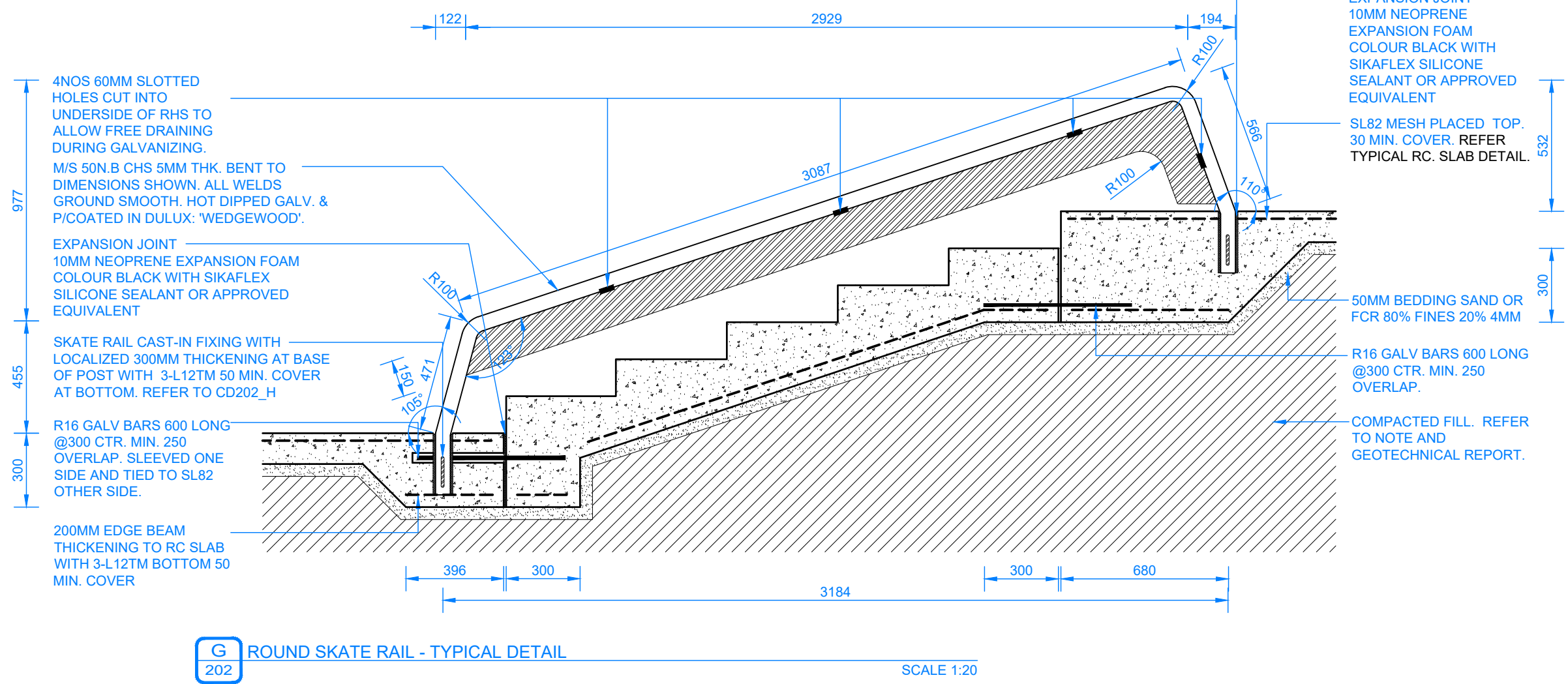
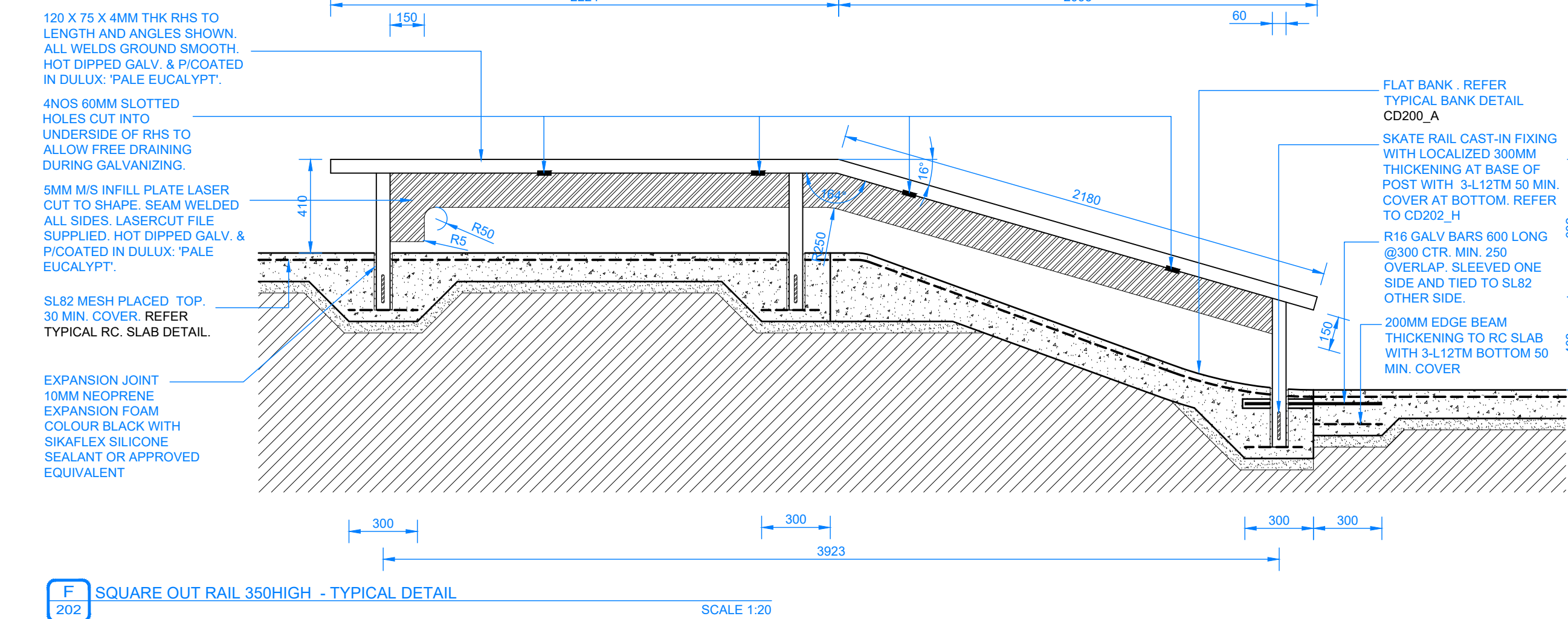
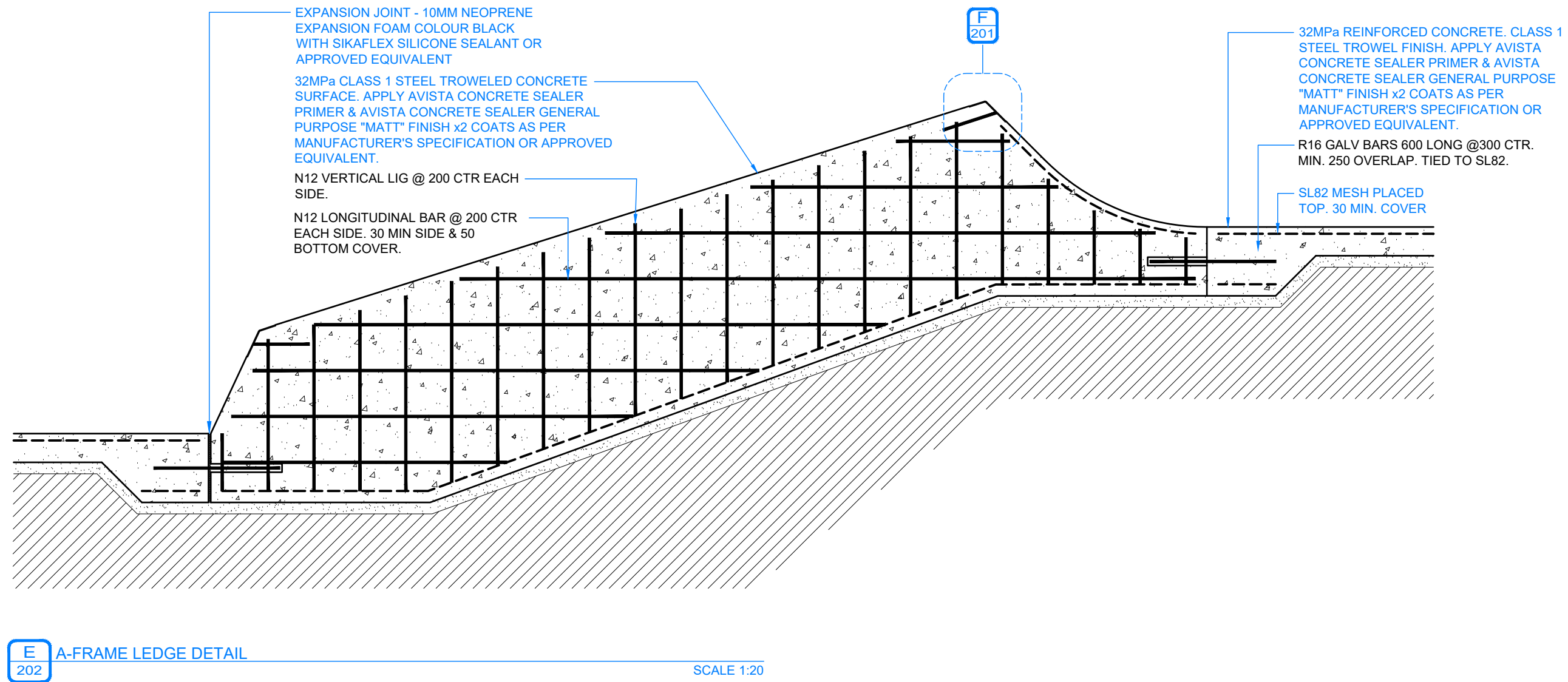
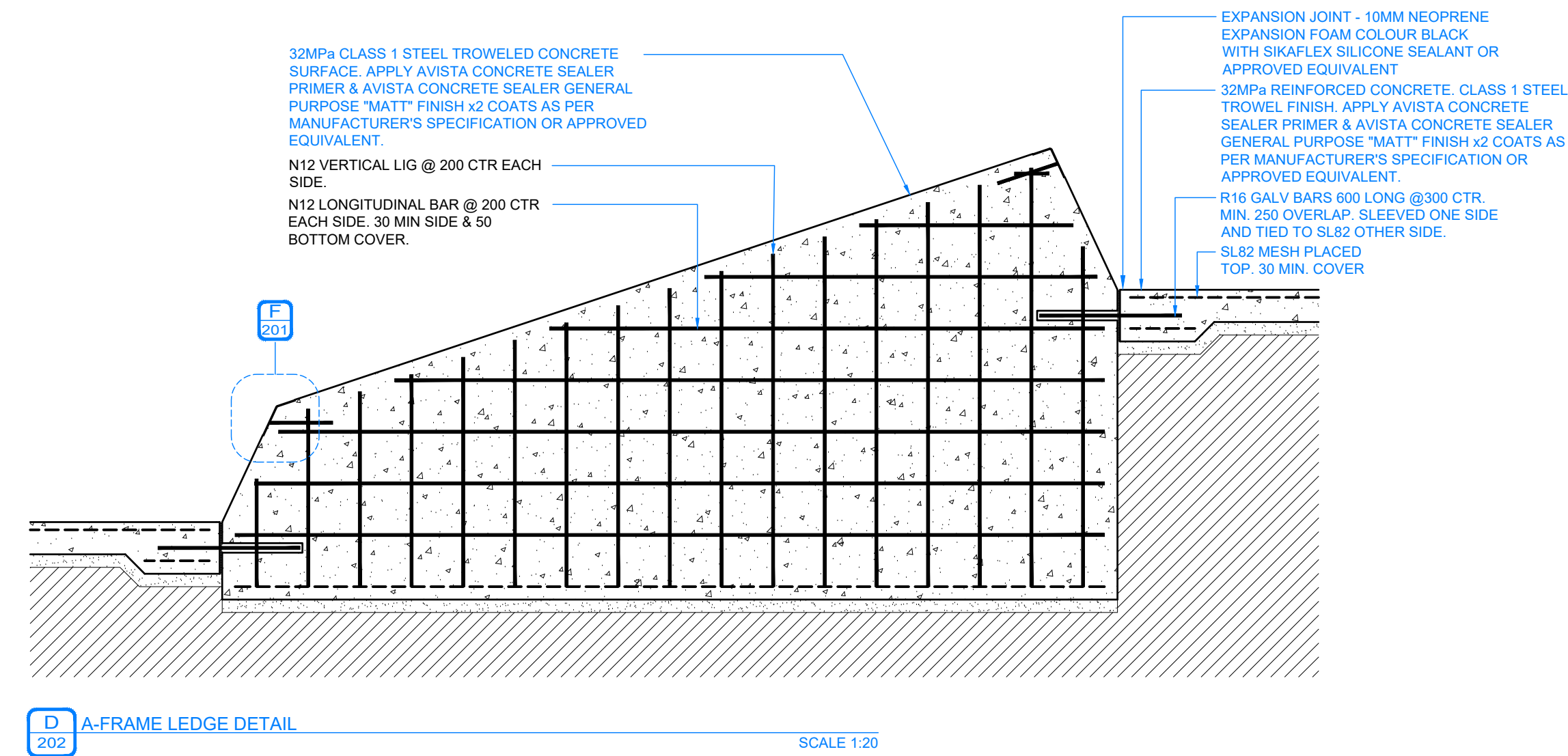
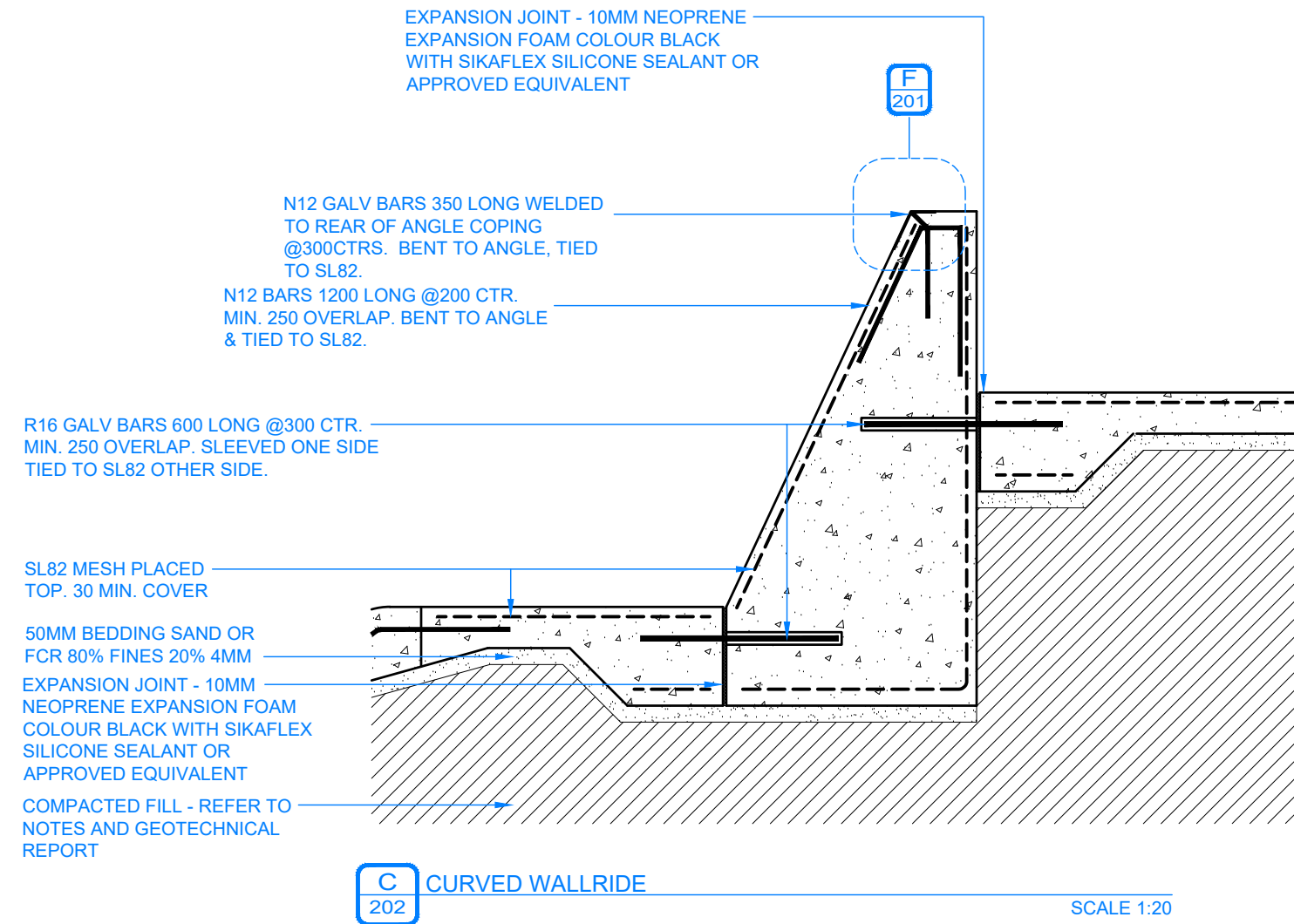
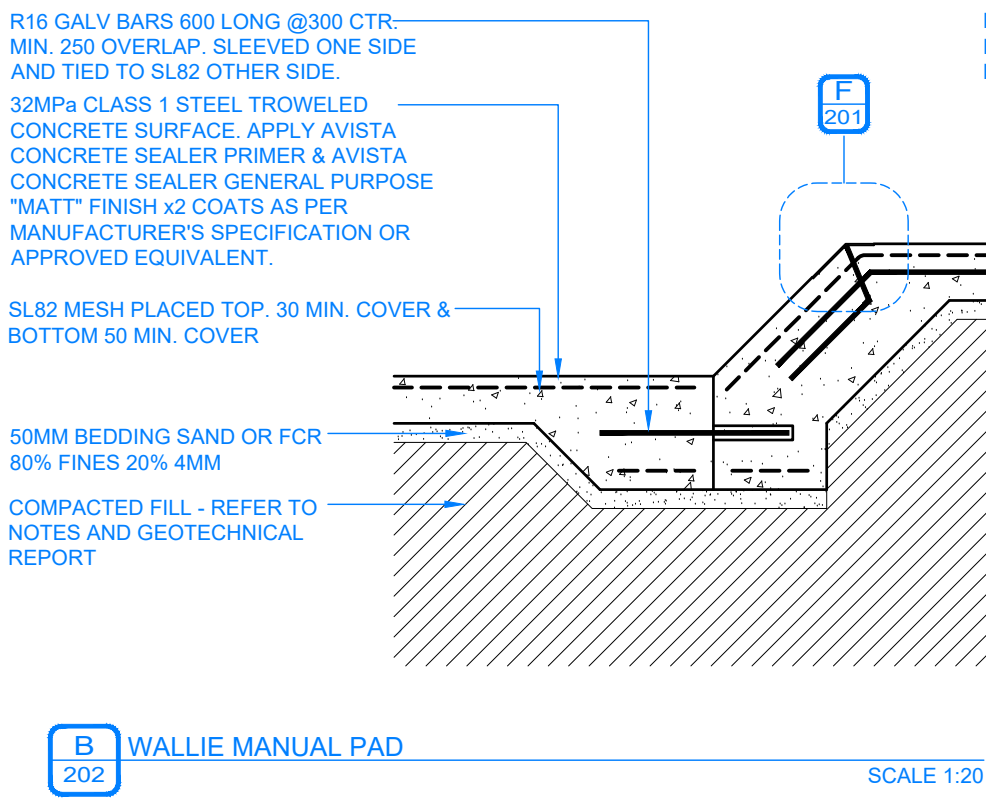
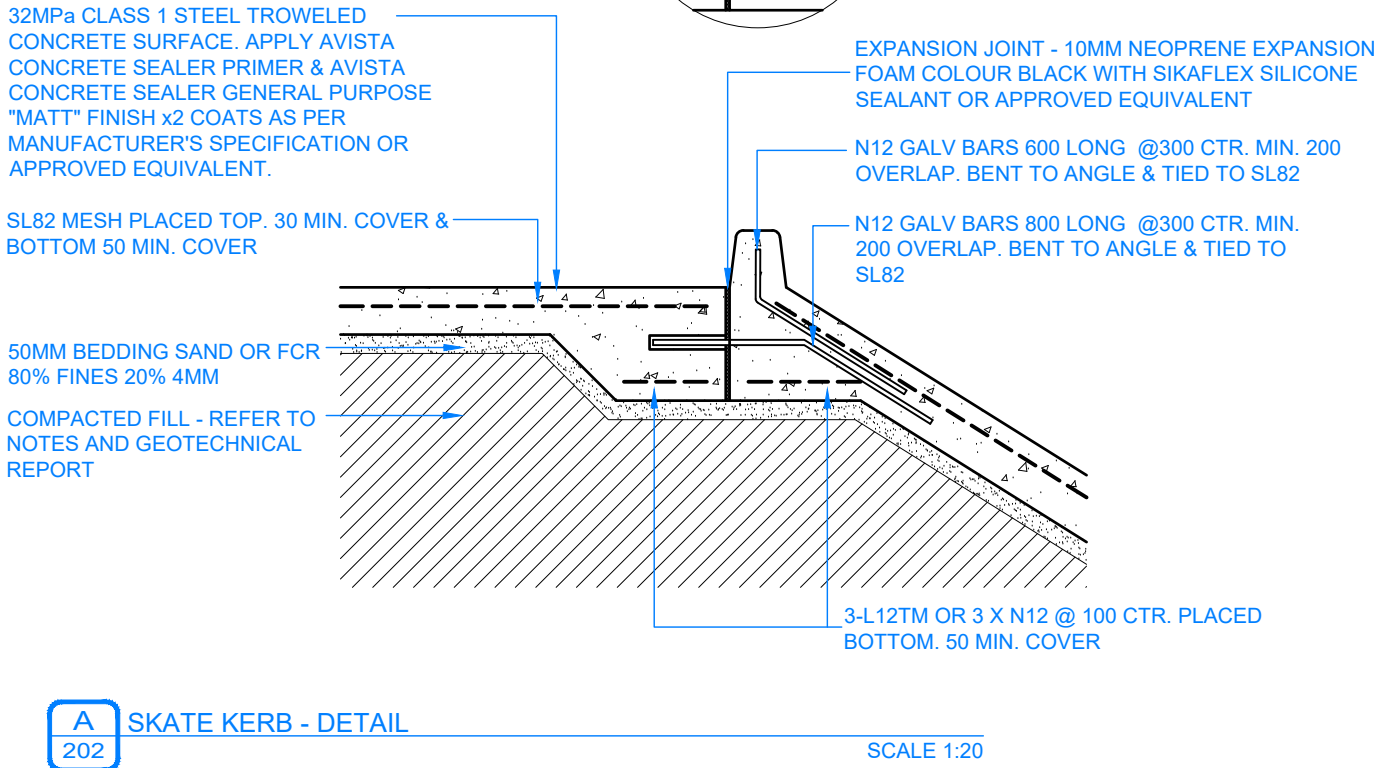
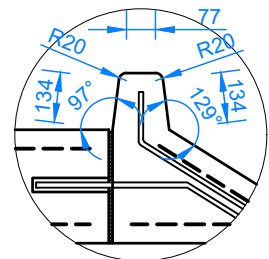
## Engineering Details 02

<b>SCALE:</b>	N/A	<b>DATE OF ISSUE:</b>	18.01.2022
<b>FORMAT / SIZE:</b>	A1	<b>REFERENCE NO:</b>	1821
<b>DESIGN REVIEW:</b>	ND	<b>APPROVAL:</b>	JM

DRAWING NUMBER: REVISION:

1821 CD 201 05





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DRAWING STATUS:

FOR COMMENT

REVISION STATUS:

05	For Comment	18.01.22
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NOTES / LEGEND:

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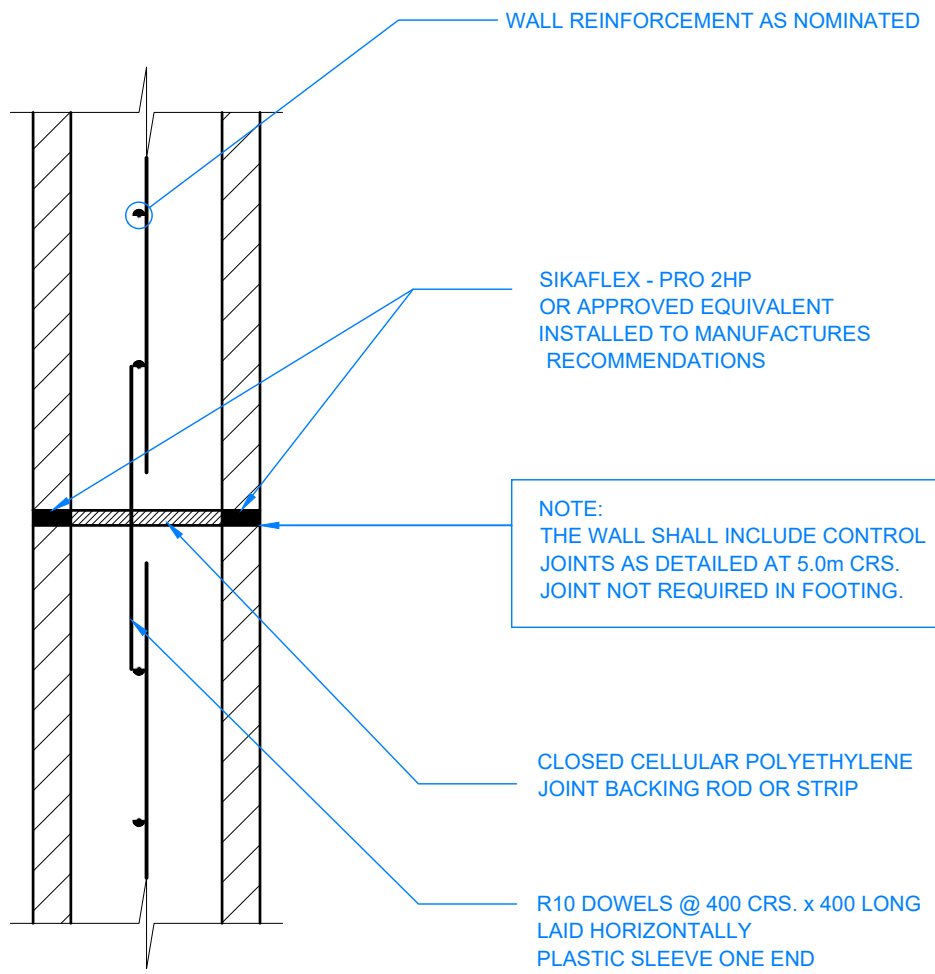
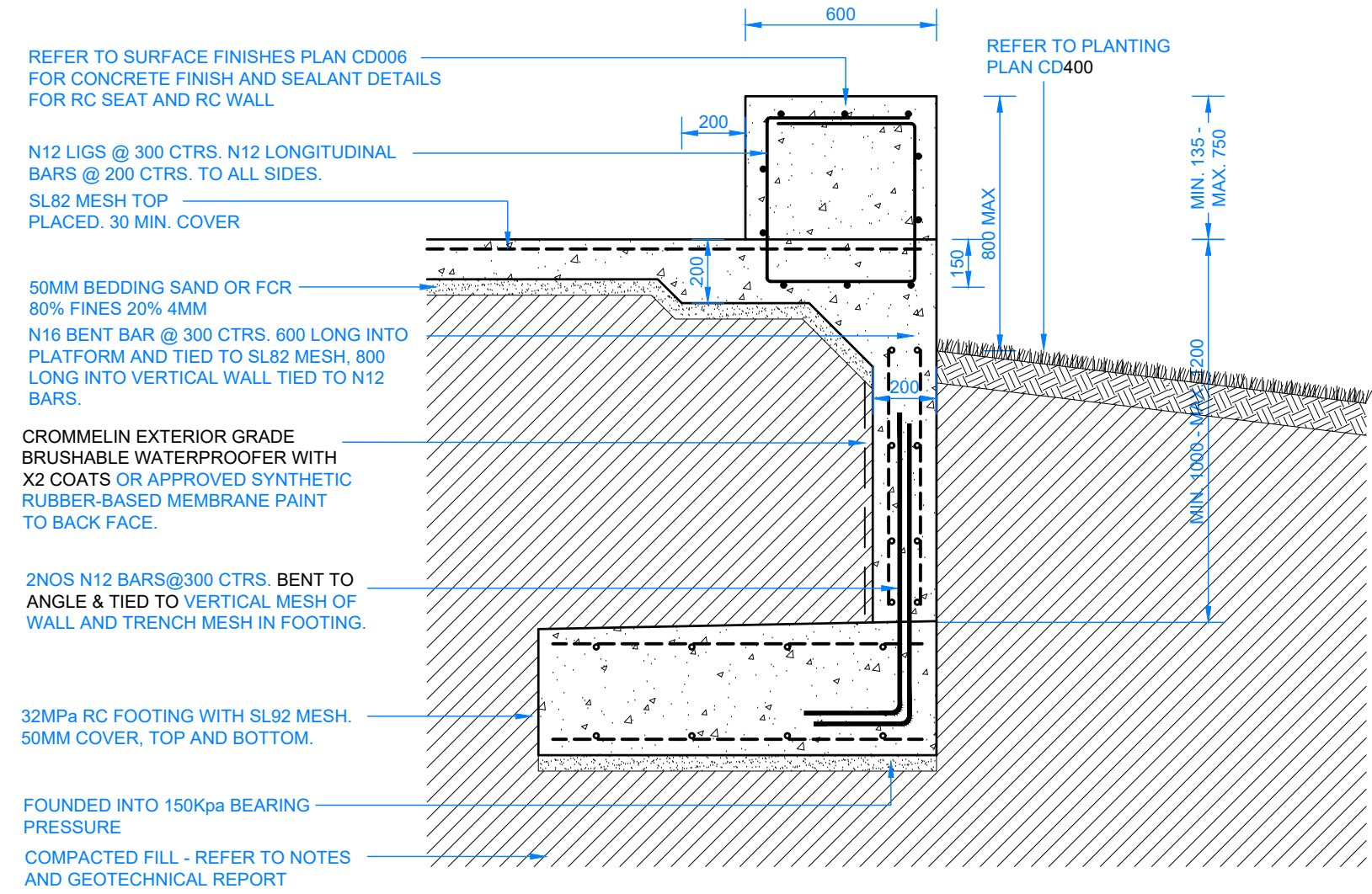
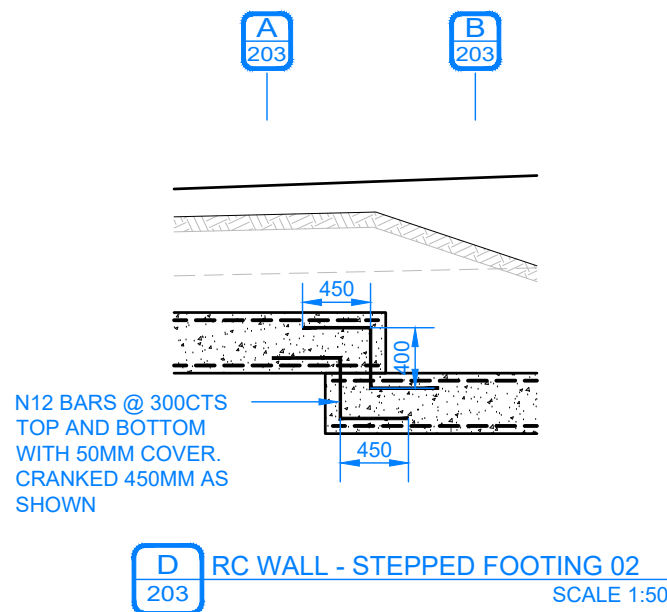
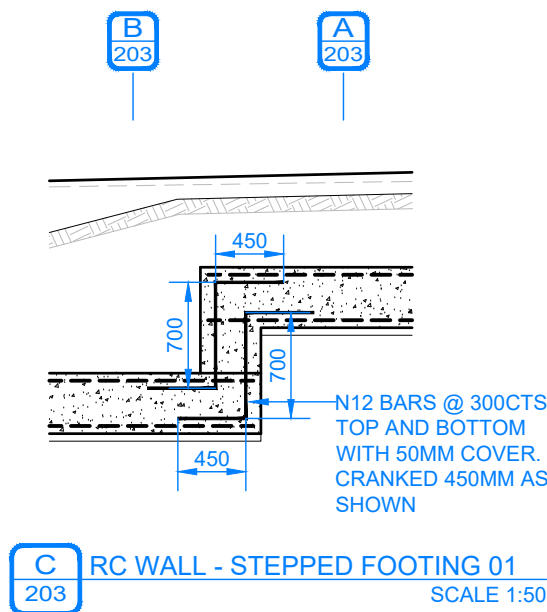
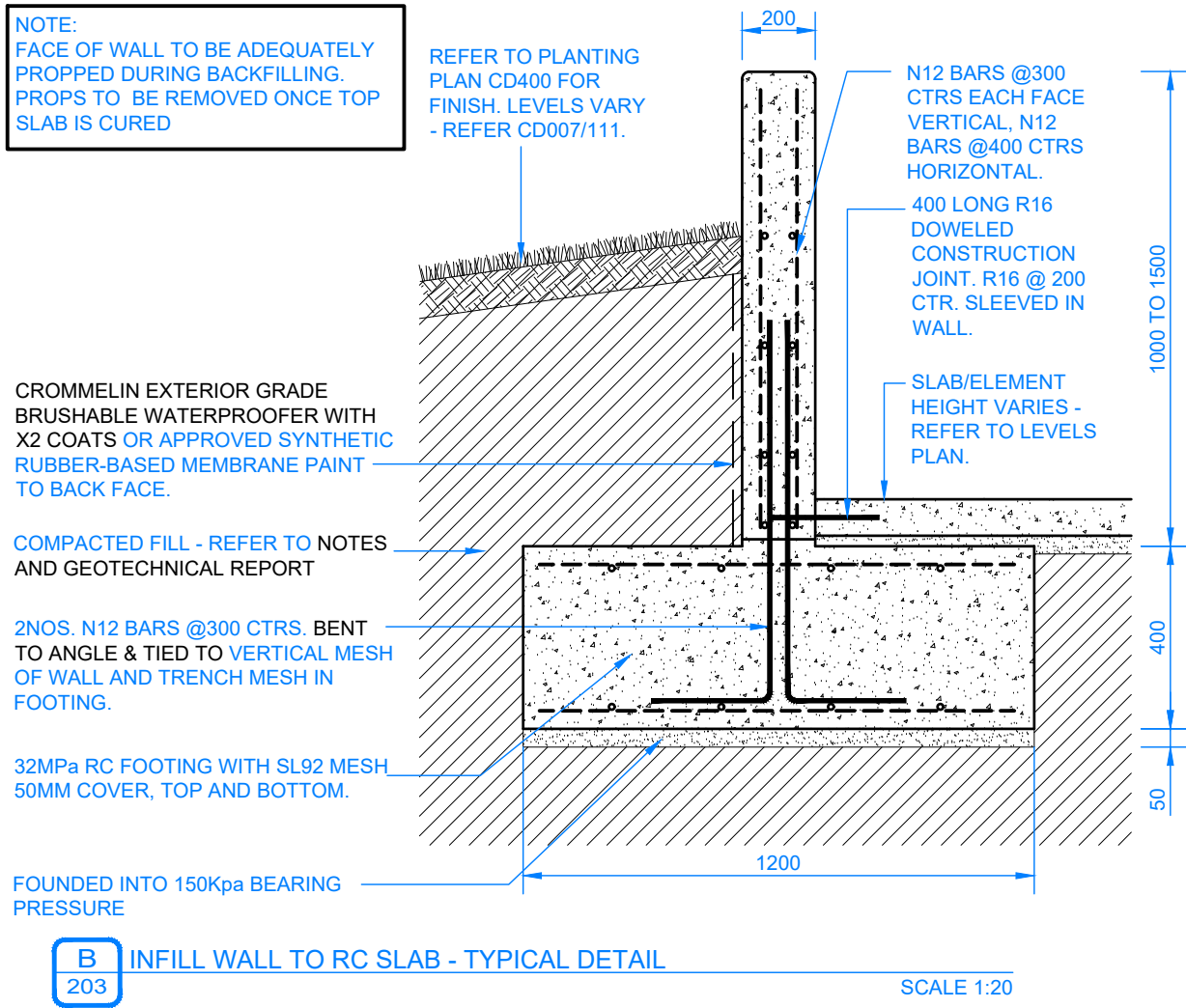
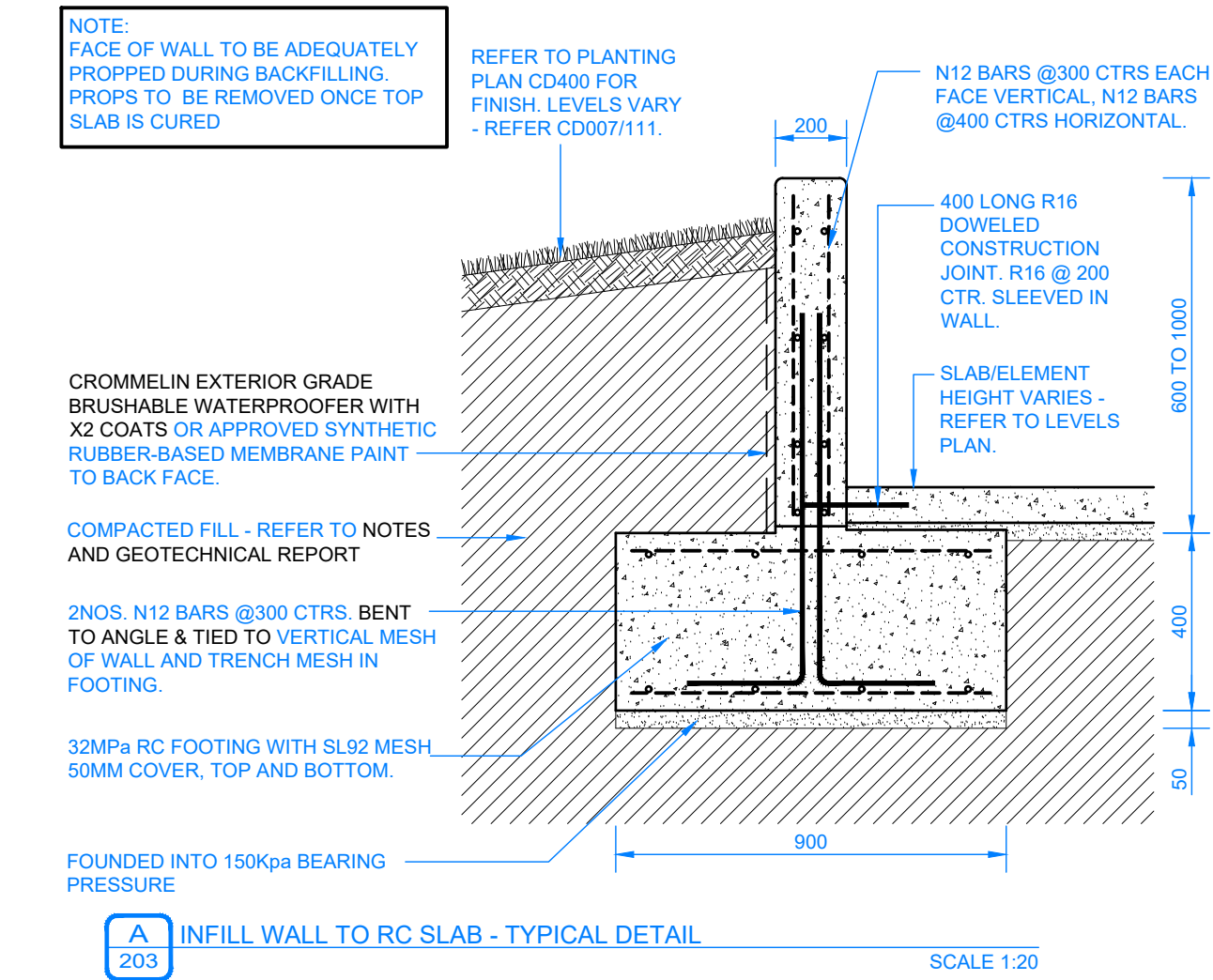
Engineering Details 03

SCALE: N/A DATE OF ISSUE: 18.01.2022  
FORMAT / SIZE: A1 REFERENCE NO: 1821  
DESIGN REVIEW: ND APPROVAL: JM

DRAWING NUMBER: REVISION:

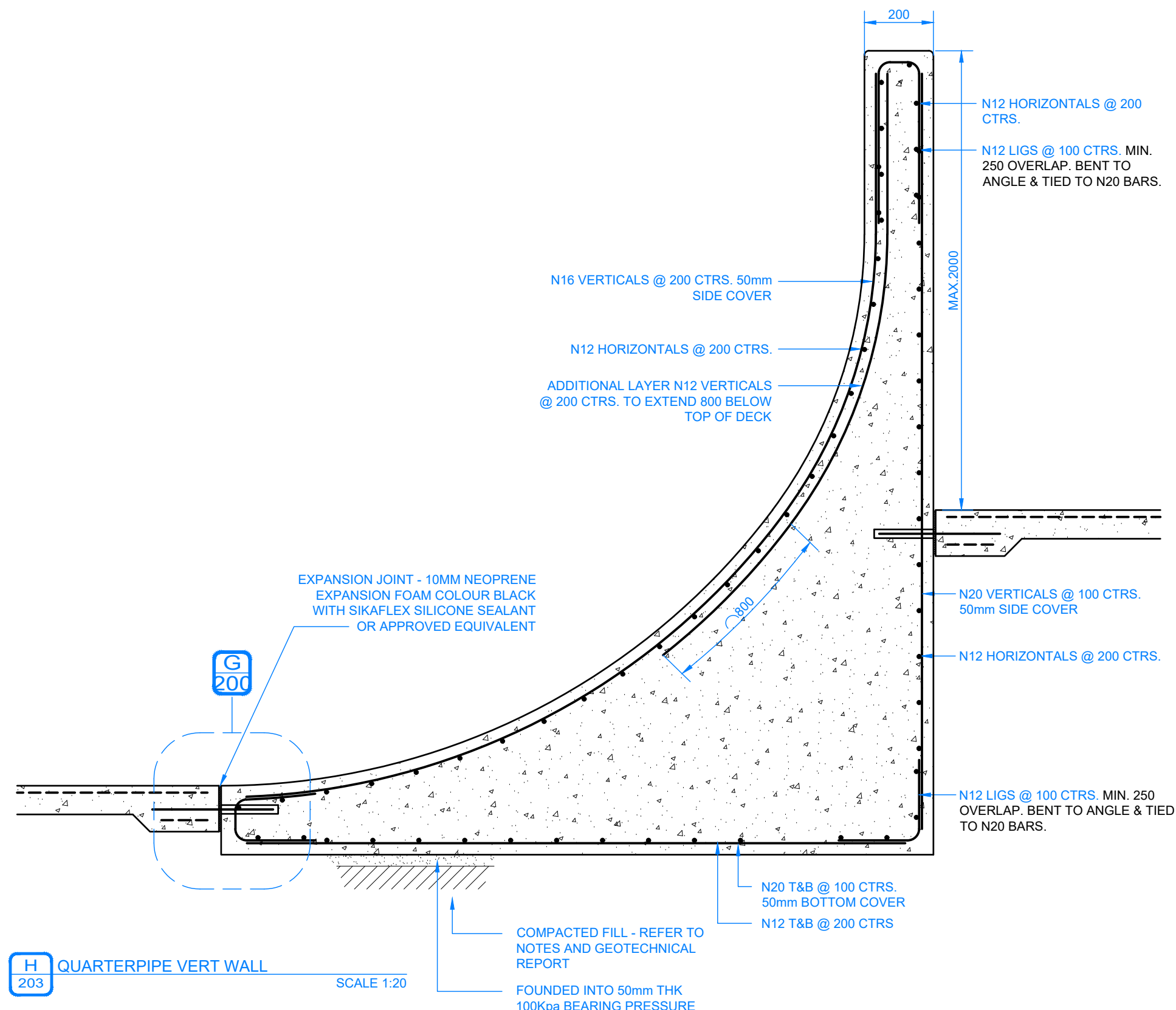
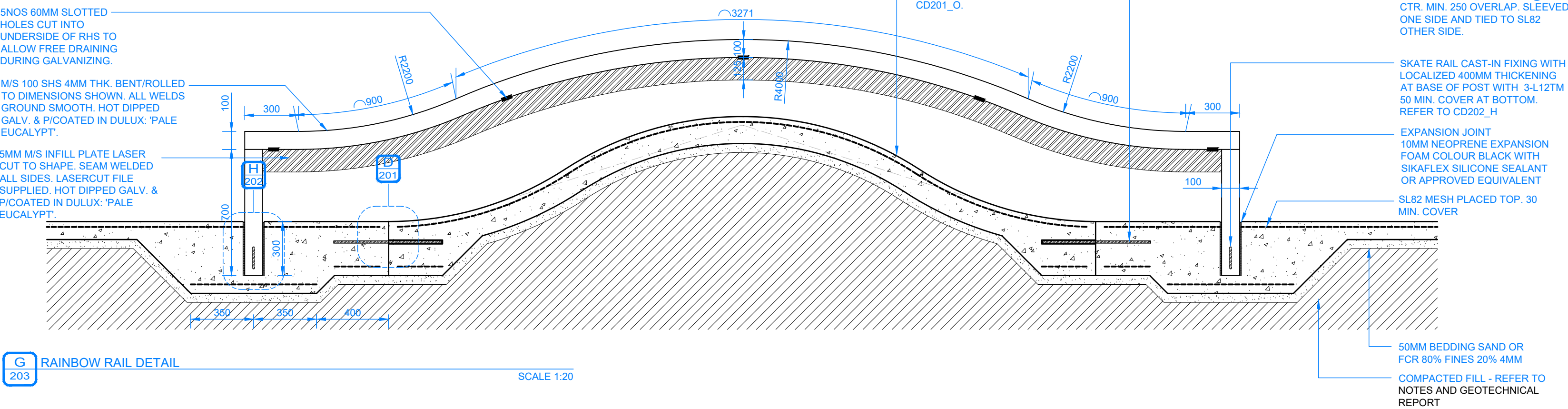
1821\_CD 202 05





DOWNTURN WALL TO RC SEAT - TYPICAL DETAIL

RETAINING WALL CONTROL JOINT (WCJ) - PLAN DETAIL



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NOTES / LEGEND:

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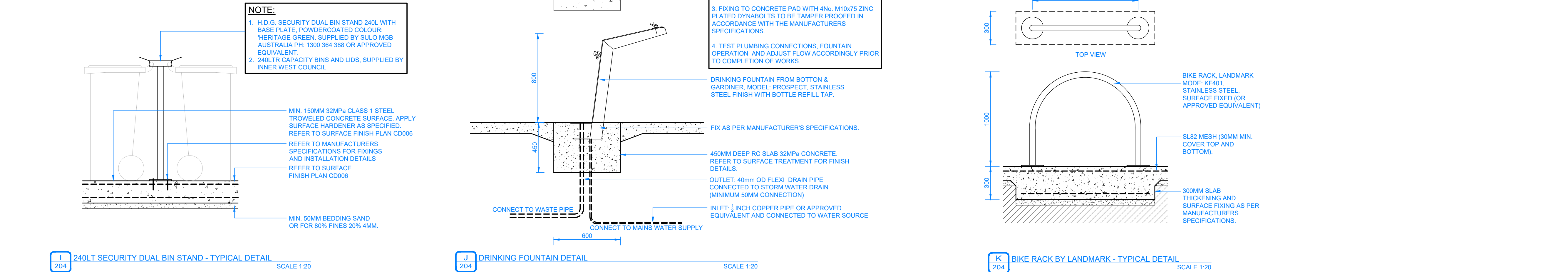
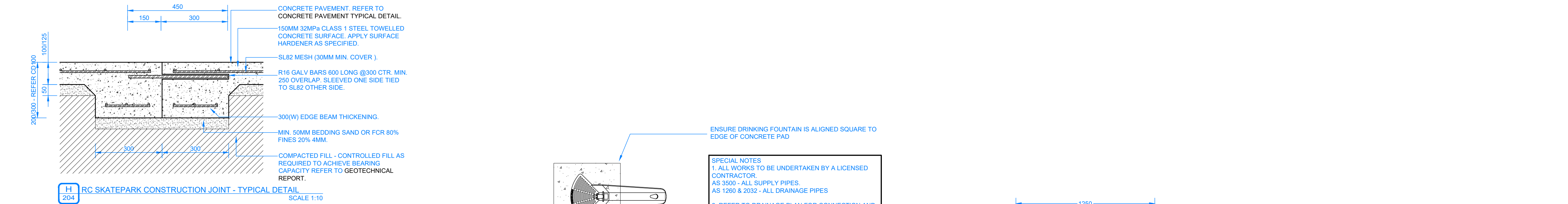
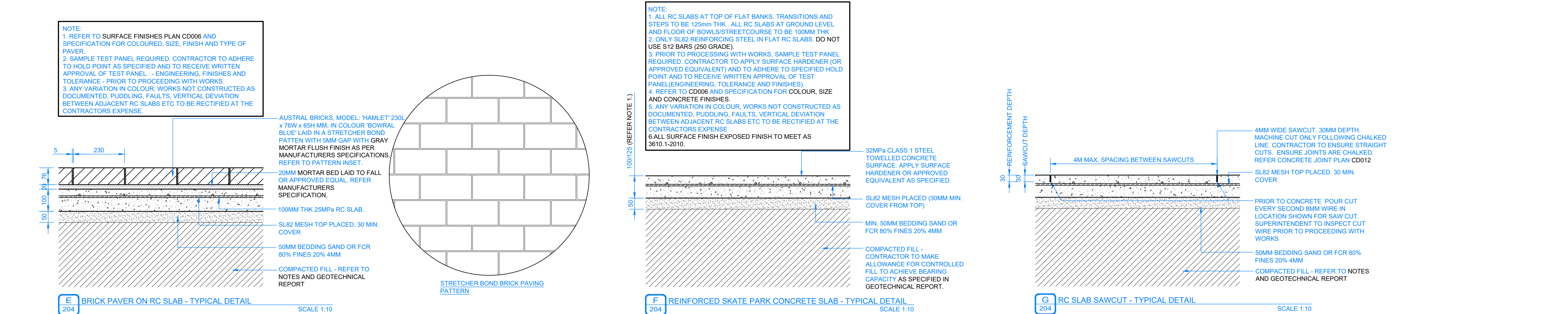
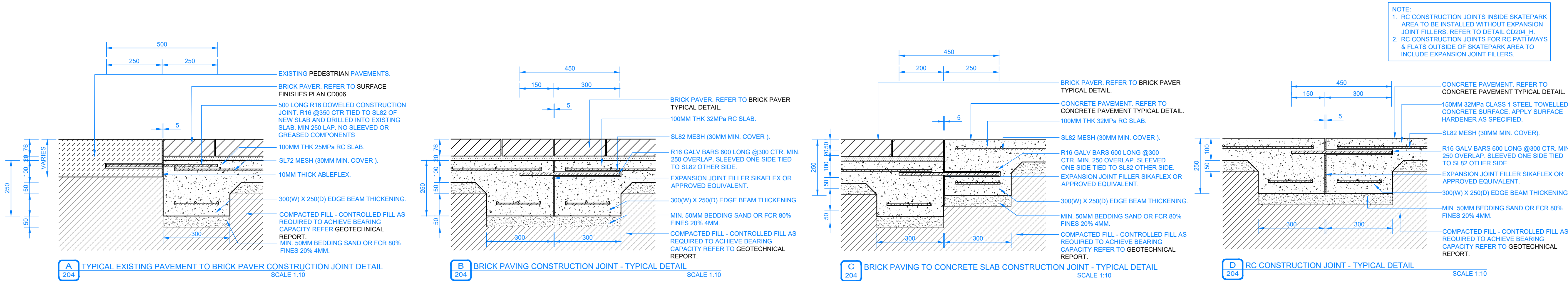
### Engineering Details 04

SCALE: N/A DATE OF ISSUE: 18.01.2022  
FORMAT / SIZE: A1 REFERENCE NO: 1821  
DESIGN REVIEW: ND APPROVAL: JM

DRAWING NUMBER: REVISION:

1821\_CD 203 05





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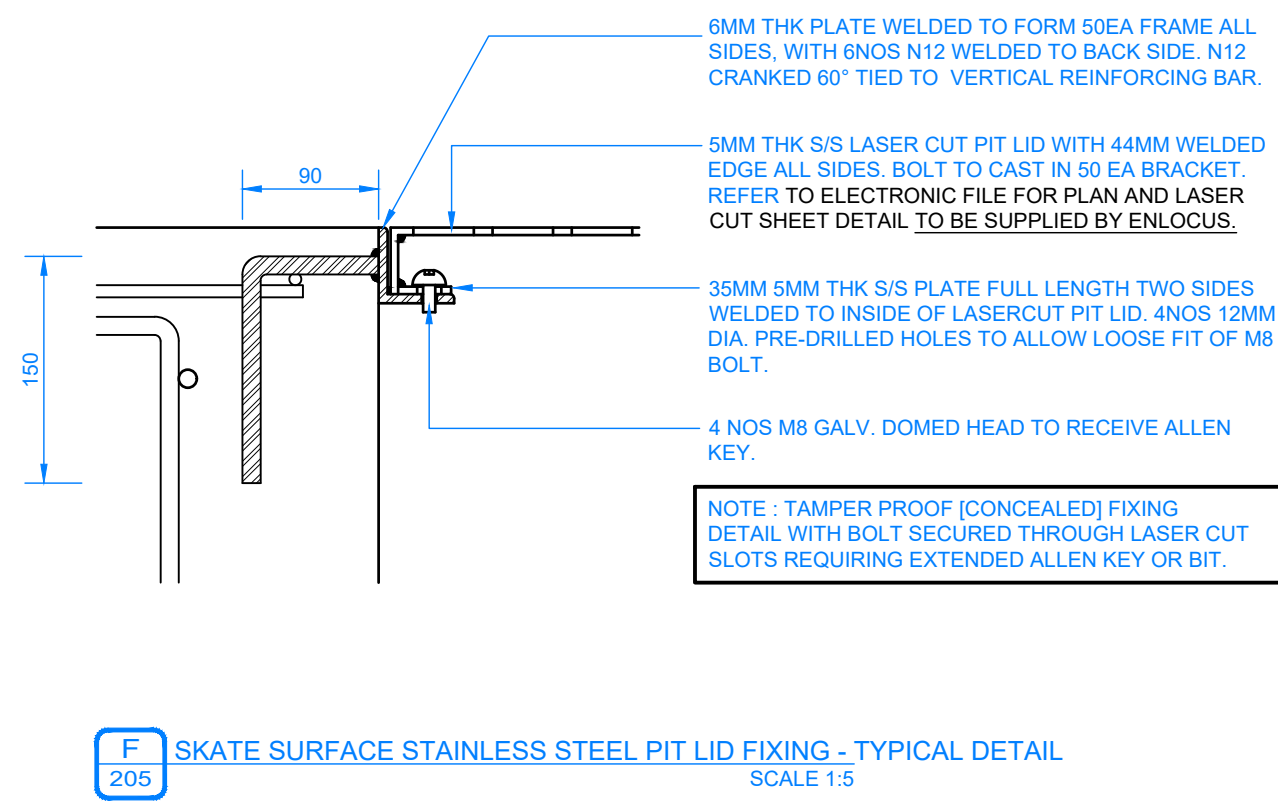
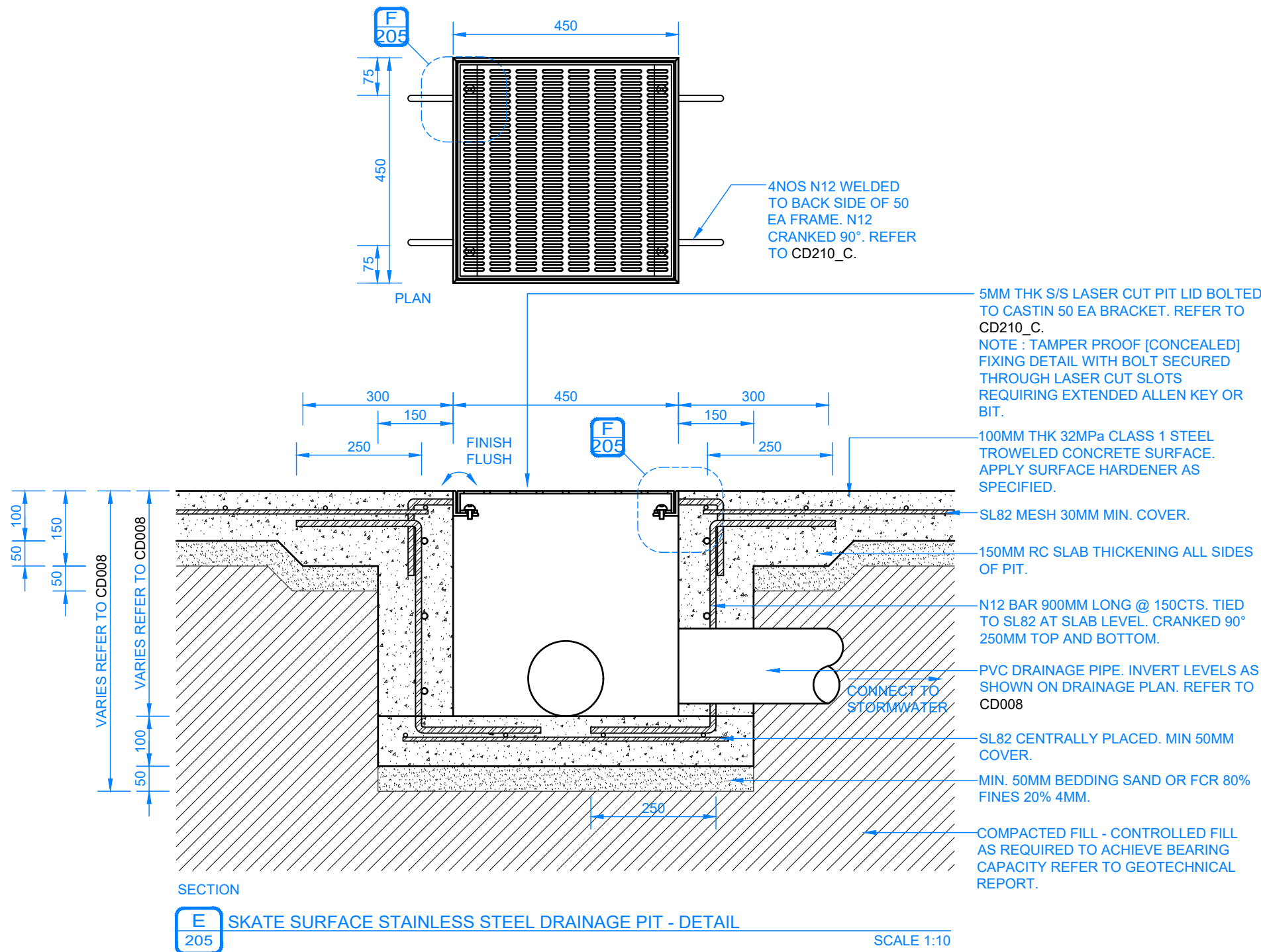
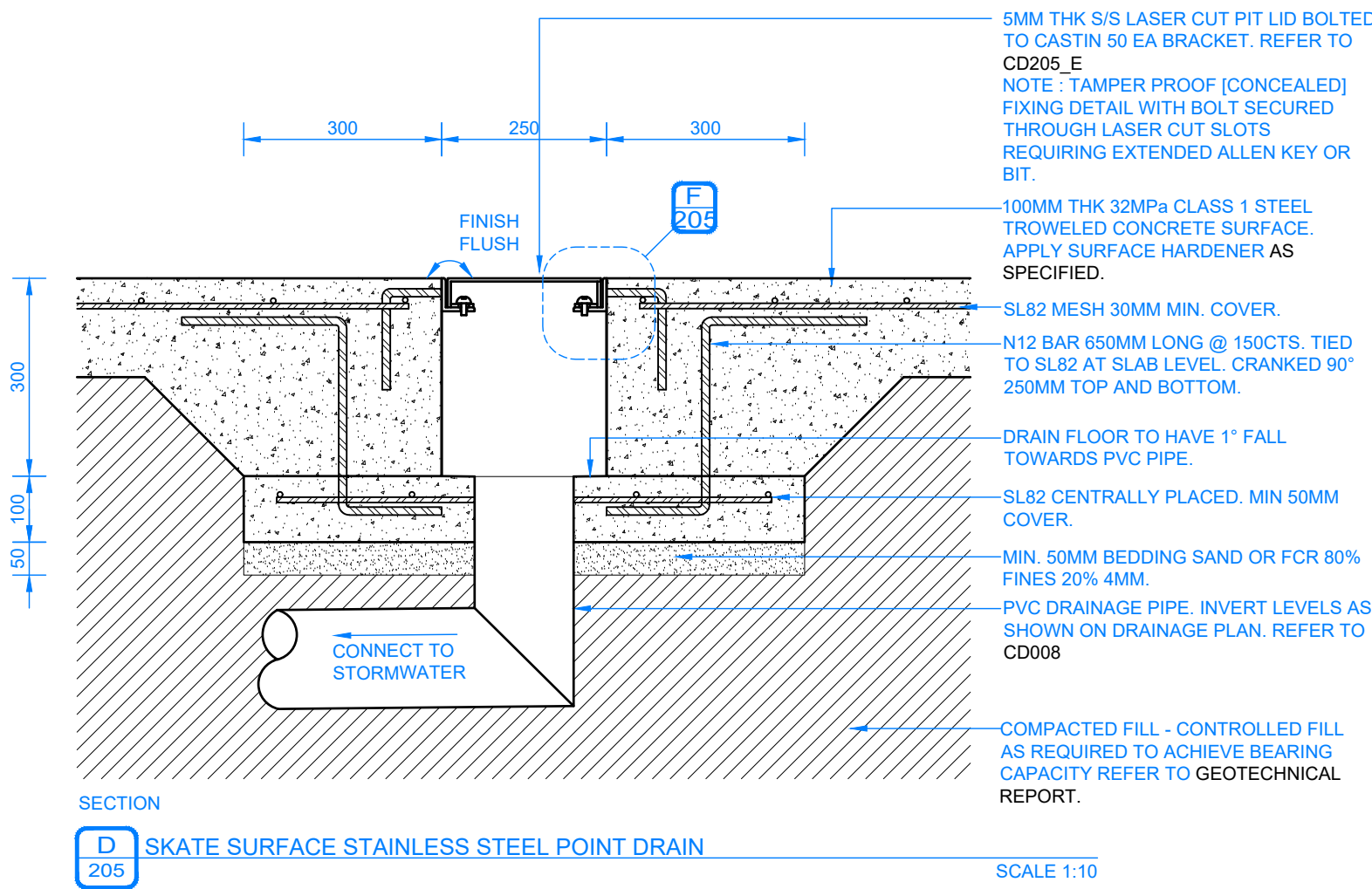
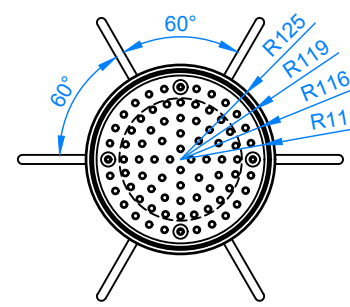
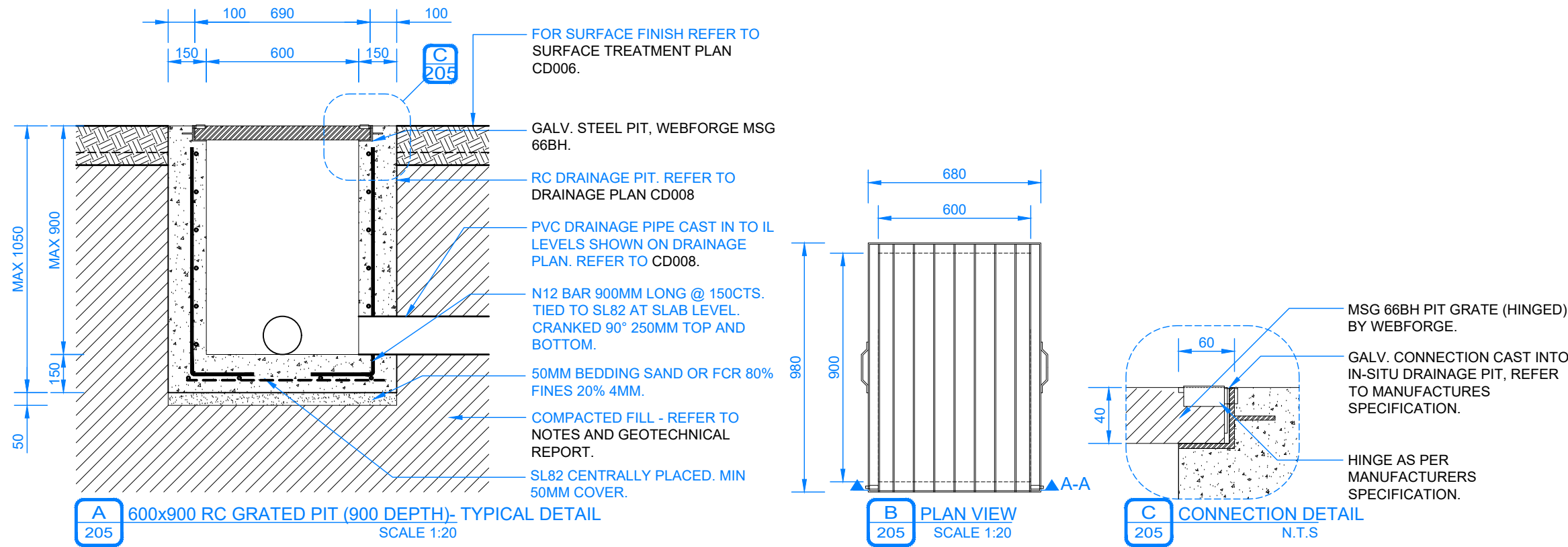
**Engineering Details 05**

**SCALE:** N/A **DATE OF ISSUE:** 18.01.2022  
**FORMAT / SIZE:** A1 **REFERENCE NO:** 1821  
**DESIGN REVIEW:** ND **APPROVAL:** JM

**DRAWING NUMBER:** **REVISION:**

**1821\_CD 204** **05**





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### Drainage Details

SCALE: N/A DATE OF ISSUE: 18.01.2022  
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DRAWING NUMBER: REVISION:

1821\_CD 205 05



The diagram illustrates a cross-section of a kerb and channel assembly. The components and their specifications are as follows:

- BARRIER KERB & CHANNEL AS PER RMS SPECIFICATIONS OR COUNCIL APPROVED EQUIVALENT.**
- 10MM NEOPRENE EXPANSION FOAM WITH BLACK SILICON SIKAFLEX OR EQUIVALENT**
- SL82 MESH PLACED TOP. 30 MIN. COVER**
- FOR CONCRETE TYPE AND FINISH REFER CD006.**
- 50MM BEDDING SAND OR FCR 80% FINES 20% 4MM**
- LINE OF KERB**
- 900** (Overall width)
- 150**, **300**, **450**, **150** (Horizontal dimensions)
- 110**, **40** (Vertical dimensions)
- 40**, **150** (Vertical dimensions)
- 450** (Horizontal dimension for bedding layer)
- 1650 X 150 X 100MM HIGH ULTIMATE RUBBER WHEEL STOP COLOUR 'BLACK' SUPPLIED BY SAFETY XPRESS PH. 1300 049 245 OR APPROVED EQUIVALENT. REFER TO MANUFACTURERS INSTALLATION SPECIFICATION.**
- 35mm THICKNESS OF SIZE 10mm HMA, TYPE N.**
- 65mm THICKNESS OF SIZE 14mm HMA, TYPE N.**
- 200mm THICKNESS OF CLASS 2 COMPACTED FCR IN 150mm MAXIMUM LAYERS.**
- COMPACTED FILL - REFER TO NOTES AND GEOTECHNICAL REPORT**

NOTE:  
1. GRATED SIDE ENTRY PIT TO SUIT BARRIER KERB & CHANNEL AS PER RMS SPECIFICATIONS, SUPPLIED BY AUS PITS PH: 1300 408 883 OR APPROVED EQUIVALENT.

SET OUT POINT  
LINTEL TO SUIT BARRIER KERB. REFER TO CD210\_D

695

1300

150

BACK OF KERB  
LIP OF KERB

2 NOS. M/S GRATE UNITS, HOT DIPPED GALVANIZED TO AS 1650

Barrier Kerb, Refer to CD210\_B for Details

SECTION A-A

**C** GRATED SIDE ENTRY PIT 'BARRIER KERB' - TYPICAL DETAIL

210 SCALE 1:10

Diagram illustrating the cross-section of a concrete curb and gutter assembly, showing various layers and dimensions:

- Barrier Kerb:**
  - Barrier kerb as per RMS specifications or council approved equivalent.
  - 10mm neoprene expansion foam with black silicon SikaFlex or equivalent.
  - SL82 mesh placed top: 30 min. cover.
  - For concrete type and finish refer CD006.
- Dimensions:**
  - 150 (Total width of curb)
  - 110 (Top width of curb)
  - 40 (Height of curb)
  - 150 (Depth of gutter)
  - 200 (Width of gutter)
- Materials and Layers:**
  - 50mm bedding sand or FCR 80% fines 20% 4mm.
  - 35mm thickness of size 10mm HMA, Type N.
  - 65mm thickness of size 14mm HMA, Type N.
  - 200mm thickness of class 2 compacted FCR in 150mm maximum layers.
  - Compacted fill (Refer to notes and geotechnical report).

Diagram illustrating the cross-section of a concrete curb and channel assembly. The assembly consists of a concrete curb (left) and a channel (right). The curb has a top surface with a textured pattern. The channel has a smooth top surface and a vertical side wall. The assembly is shown with an expansion joint (indicated by a vertical line) and a barrier kerb (indicated by a horizontal line). The channel is labeled as 150mm high and 300mm wide. The curb is labeled as 10mm thick self-expanding cork or approved equivalent. The channel is labeled as 150mm high and 300mm wide. The curb is labeled as 10mm thick self-expanding cork or approved equivalent. The channel is labeled as 150mm high and 300mm wide.

Labels and dimensions:

- EXPANSION JOINT - 10MM THK SELF EXPANDING CORK OR APPROVED EQUIVALENT
- BARRIER KERB & CHANNEL. REFER TO CD777\_A FOR DETAILS.
- BACK OF KERB
- LINE OF KERB
- LIP OF KERB
- 150
- 300

D LINTEL 'BARRIER KERB & CHANNEL' - TYPICAL DETAIL 210 SCALE 1:10

05	For Comment	18.01.22
04	For Construction	27.08.21
03	For Construction	04.08.21
02B	For Review	25.06.21
02A	For Review	24.06.21

**STRUCTURAL ENGINEER**  
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 24/37 Keilor Park Drive  
 Keilor Park, Victoria 3042  
 Tel : +613 9331 7522  
[www.matrixgroup.net.au](http://www.matrixgroup.net.au)

# ENGINEERING NOTES:

CONCRETE:

1. CONCRETE STRENGTH N32 MPa.
2. CONCRETE THICKNESS 150MM SLOPES, 100MM PLATFORMS AND FLAT BOTTOM, UNDO.
3. CONSTRUCTION JOINTS SHALL BE AT CONSTRUCTED MAXIMUM 6.0M OR AS PER DETAIL.
4. SAW CUTS WILL BE SAWN AS SHOWN ON PLANS, SAW CUT DEPTH TO BE 30MM DEEP. CHECK REINFORCEMENT DETAIL. FOR SAW CUT JOINT DETAILS.
5. FOR CURING, COVER FOR SEVEN DAYS WITH PLASTIC OR BY LIQUID MEMBRANE, TO THE APPROPRIATE AUSTRALIAN STANDARD. APPLY WITHIN 1 HOUR OF CONCRETE FINISHING.
6. FINISH TO BE CLASS 1 METAL TROWEL, TO ALL VERTICAL SURFACES. STEEL TROWEL FINISH TO PLATFORMS, FLAT BANKS, TRANSITIONS, ETC.
7. REFER TO A-3600 - CONCRETE STRUCTURES AND A-2870-211 - RESIDENTIAL SLABS AND FOOTINGS.

REINFORCEMENT:

1. AS SHOWN.
2. TRIMMERS - 2 OF M12x2000 LONG TO ALL INTERNAL CORNERS.
3. BASE SLAB - SL2 MESH OR S12 (250 GRADE) @ 250 CRS EW.
4. VERTICAL WALLS - REFER TO RC WALL - REINFORCEMENT SCHEDULE C2021.
5. BLOCKS - AS SHOWN.
6. GRIND RAILS - SHALL BE 75X75X55MM DURALGAL R/HS (UNLESS OTHERWISE STATED ON PLANS) ENDS MITRED AND ALL VELGES GRINDED SMOOTH AND COLD GALVANISED, ALL COLD GALVANISED AREAS TO HAVE GALVALUME DURALGAL SILVER PAINT APPLIED. APPLICATION TO BE NEAT AND CONSISTENT.

EARTHWORKS:

1. STABLE CLEAN FILL COMPACTED TO 98 % (MMD) PLACED AND COMPACTED IN 200MM LAYERS.
2. REFER TO SOL REPORT FOR FURTHER DETAILS.

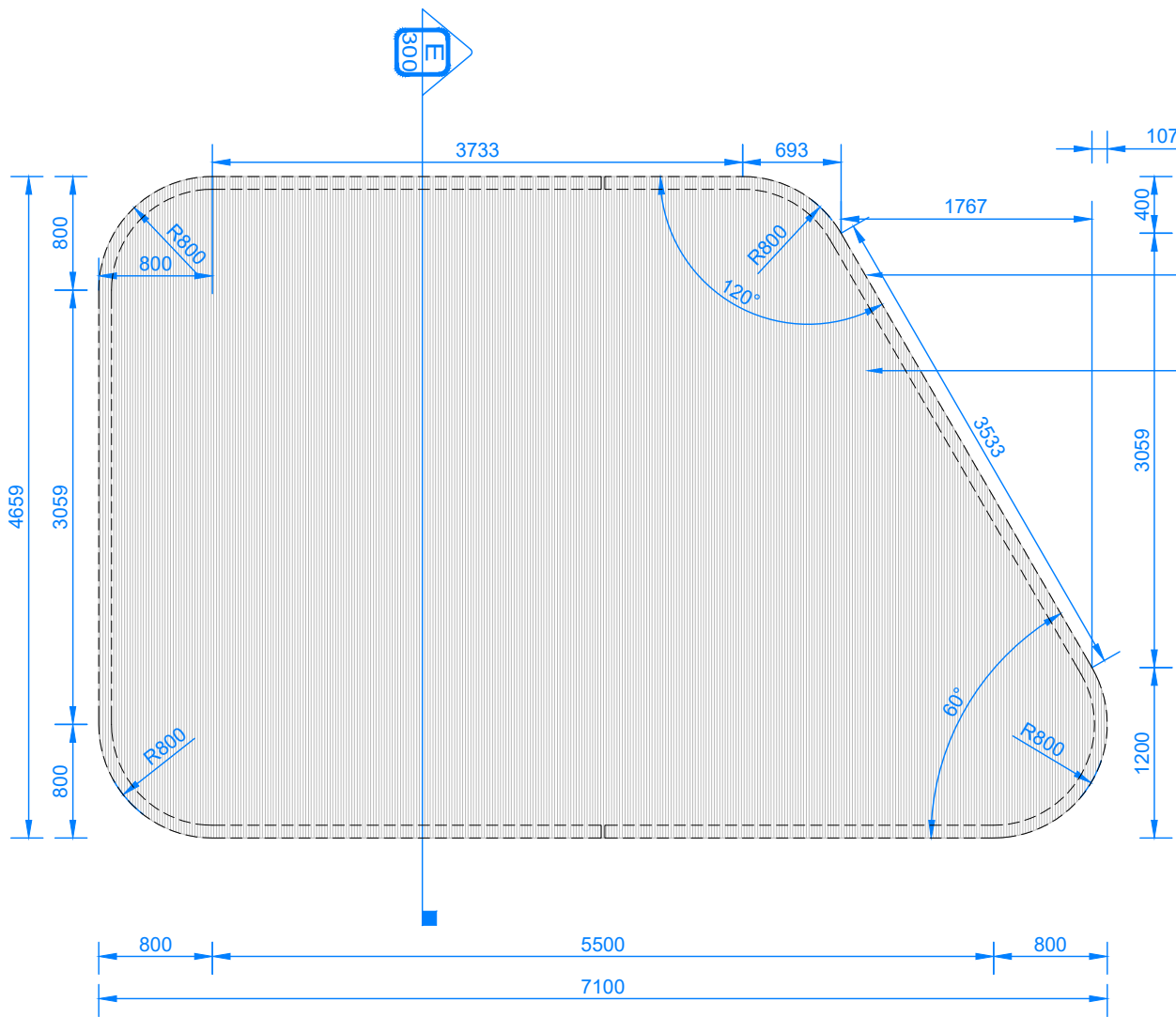
ALL SUBGROUND PREPARATION WORKS UNDER ALL CONCRETE PAVEMENTS AREAS AND LOW PROFILE RETAINING WALLS WILL BE IDENTIFIED, ROLLED AND COMPACTED AS PER RECOMMENDATIONS SET OUT IN THE GEOTECHNICAL REPORT SUPPLIED BY CIVIL TEST PTY LTD. REPORT NO. 119044-1.

3. ALL SOFT SPOTS TO BE EXCAVATED DOWN TO APPROPRIATE DEPTH AND REPLACED WITH COMPACTED FILL TO 98% MMD IN 200MM LAYERS.
4. FURTHER GEOTECHNICAL WORK MAY BE REQUIRED.

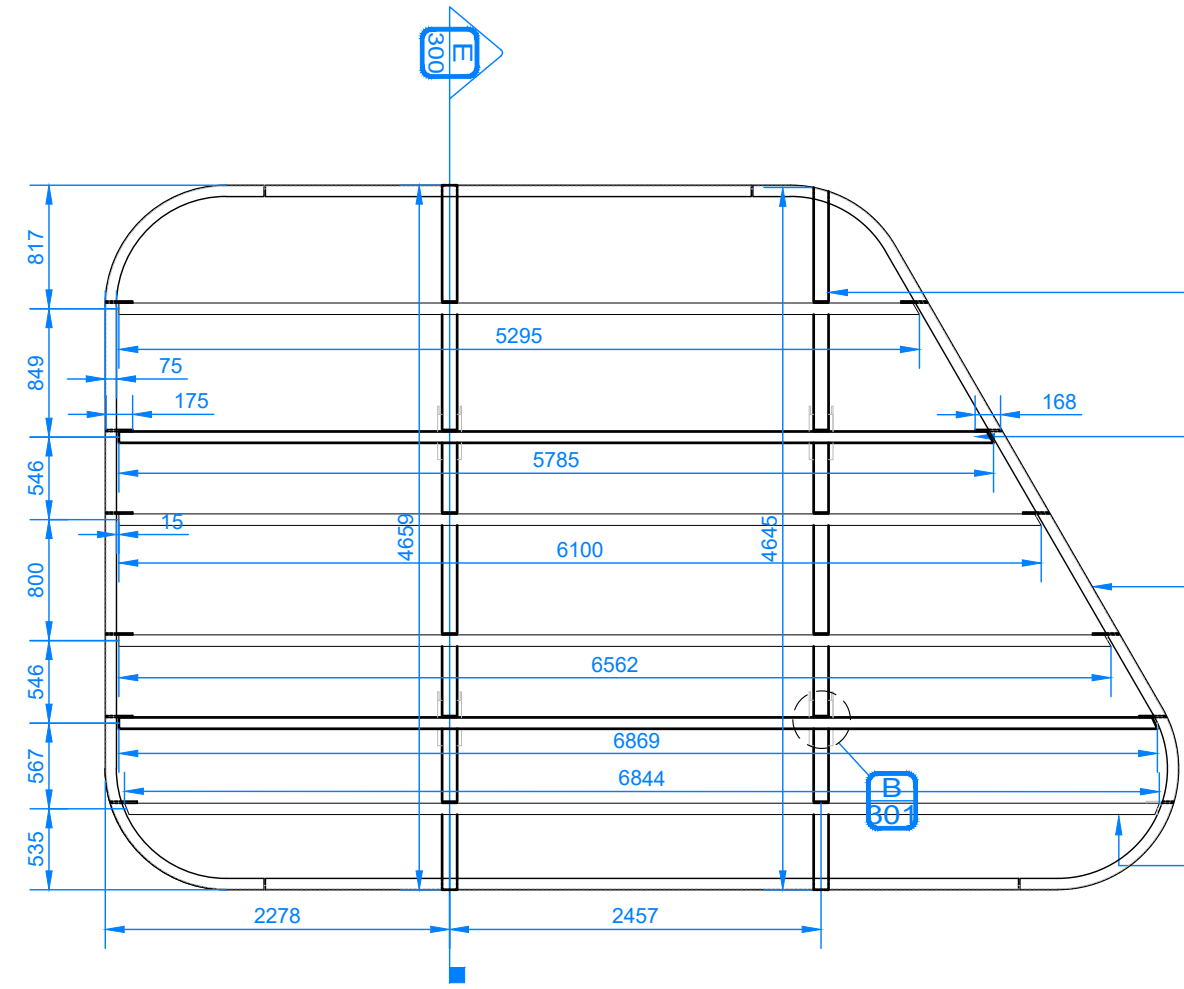
**SCALE:** N/A      **DATE OF ISSUE:** 18.01.2022  
**FORMAT / SIZE:** A1      **REFERENCE NO:** 1821  
**DESIGN REVIEW:** ND      **APPROVAL:** JM

1821 CD 210 05





**A** SHELTER CANOPY - PLAN  
300 SCALE 1:50



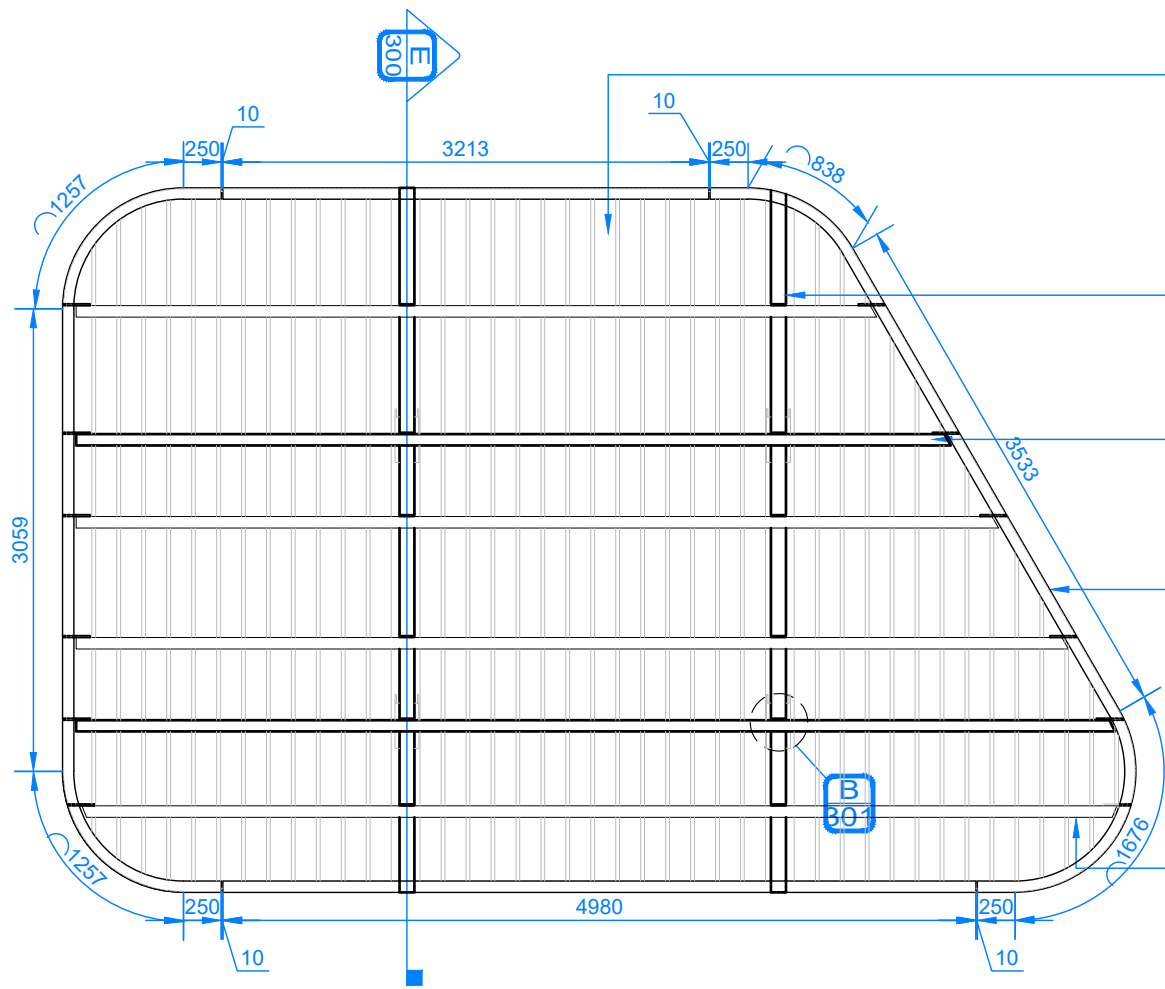
**C** BEAMS, JOISTS AND PURLIN DIMENSIONS  
300 SCALE 1:50

200UB18 BEAM BOLTED TO 150UC30 M/S POSTS. FIXING PLATE WITH 4 NOS. M20 BOLTS. REFER TO CD301\_B. HOT DIP GALV. AND POWDERCOATED DULUX COLOUR: 'SURFMIST MATT' OR APPROVED EQUIVALENT.

180X75 PFC M/S HORIZONTAL ROOF BEAM BOLTED TO 200UB18 FIXING PLATE WITH 2 NOS. N10 BOLTS. HOT DIP GALV. AND POWDERCOATED DULUX COLOUR: 'SURFMIST MATT' OR APPROVED EQUIVALENT.

200 X 75MM ZINC PLATED PFC OUTSIDE FRAME WITH 150X175X12MM THK M/S FIXING PLATES WELDED TO INSIDE OF PFC CHANNEL. BOLTED TO EACH END OF 180 X 75 PFC HORIZONTAL BEAM WITH 2 NOS. N16 BOLTS. HOT DIP GALV. AND POWDERCOATED DULUX COLOUR: 'SURFMIST MATT' OR APPROVED EQUIVALENT. OUTSIDE FRAME PERIMETER CONSISTS OF FOUR PIECES TO BE ASSEMBLED ON SITE.

C15015 ZINC PLATED PURLINS @ 800 CTRS. BOLTED TO 200 UB18 BEAM FIXING PLATES WITH 2 NOS. N8 BOLTS. HOT DIP GALV. AND POWDERCOATED DULUX COLOUR: 'SURFMIST MATT' OR APPROVED EQUIVALENT.



**B** SHELTER CANOPY STRUCTURAL - PLAN  
300 SCALE 1:50

140 X 30MM ALUMINIUM BATTENS WITH 25MM SPACINGS. BOLTED TO EACH C15015 PURLINS @ 800 CTRS. WITH 2 NOS. N12 BOLTS. HOT DIP GALV. AND POWDERCOATED DULUX COLOUR: 'PALE EUCALYPT' OR APPROVED EQUIVALENT. CONTRACTOR TO PROPOSE FIXING METHOD FOR SINGLE BATTEN OR FOR PANEL.

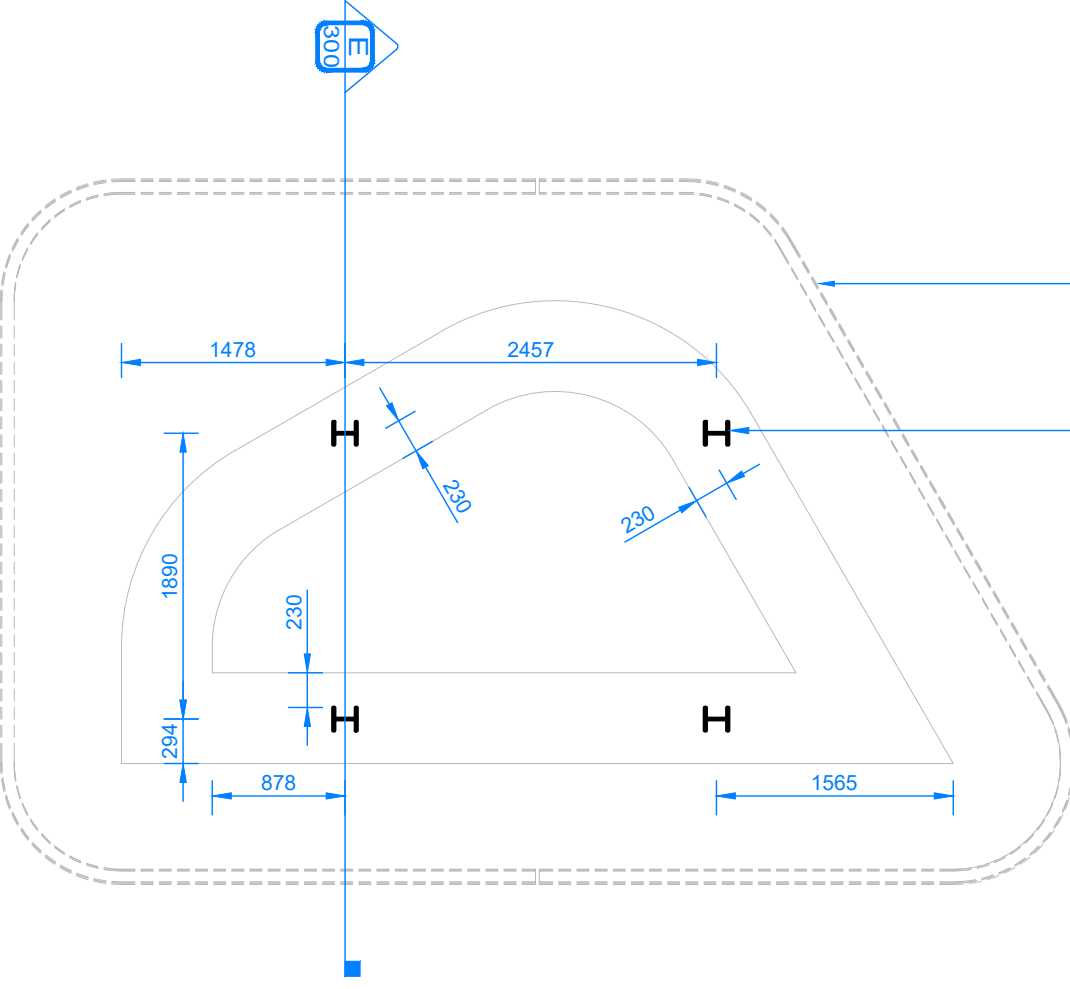
200UB18 BEAM BOLTED TO 150UC30 M/S POSTS. FIXING PLATE WITH 4 NOS. M20 BOLTS. REFER TO CD301\_B. HOT DIP GALV. AND POWDERCOATED DULUX COLOUR: 'SURFMIST MATT' OR APPROVED EQUIVALENT.

180X75 PFC M/S HORIZONTAL ROOF BEAM BOLTED TO 200UB18 FIXING PLATE WITH 2 NOS. N10 BOLTS. HOT DIP GALV. AND POWDERCOATED DULUX COLOUR: 'SURFMIST MATT' OR APPROVED EQUIVALENT.

200 X 75MM ZINC PLATED PFC OUTSIDE FRAME. BOLTED TO EACH END OF 180 X 75 PFC HORIZONTAL BEAM WITH 2 NOS. N16 BOLTS. HOT DIP GALV. AND POWDERCOATED DULUX COLOUR: 'SURFMIST MATT' OR APPROVED EQUIVALENT. OUTSIDE FRAME PERIMETER CONSISTS OF FOUR PIECES TO BE ASSEMBLED ON SITE.

C15015 ZINC PLATED PURLINS @ 800 CTRS. BOLTED TO 200 UB18 BEAM FIXING PLATES WITH 2 NOS. N8 BOLTS. HOT DIP GALV. AND POWDERCOATED DULUX COLOUR: 'SURFMIST MATT' OR APPROVED EQUIVALENT.

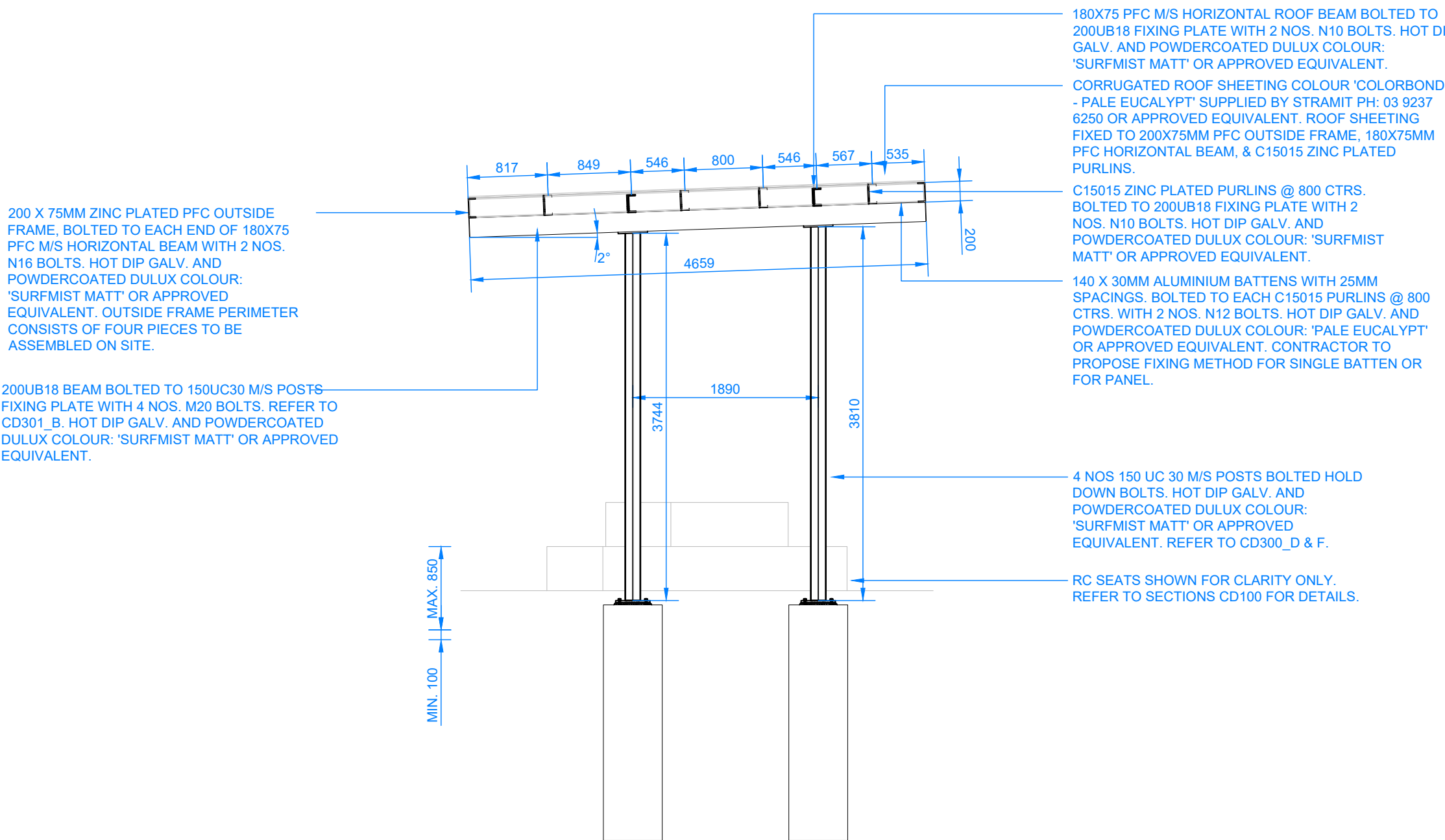
NOTE:  
CONTRACTOR TO PROVIDE SHOP  
DRAWINGS OF SHELTER FOR  
APPROVAL BY SUPERINTENDENT  
PRIOR TO FABRICATION.



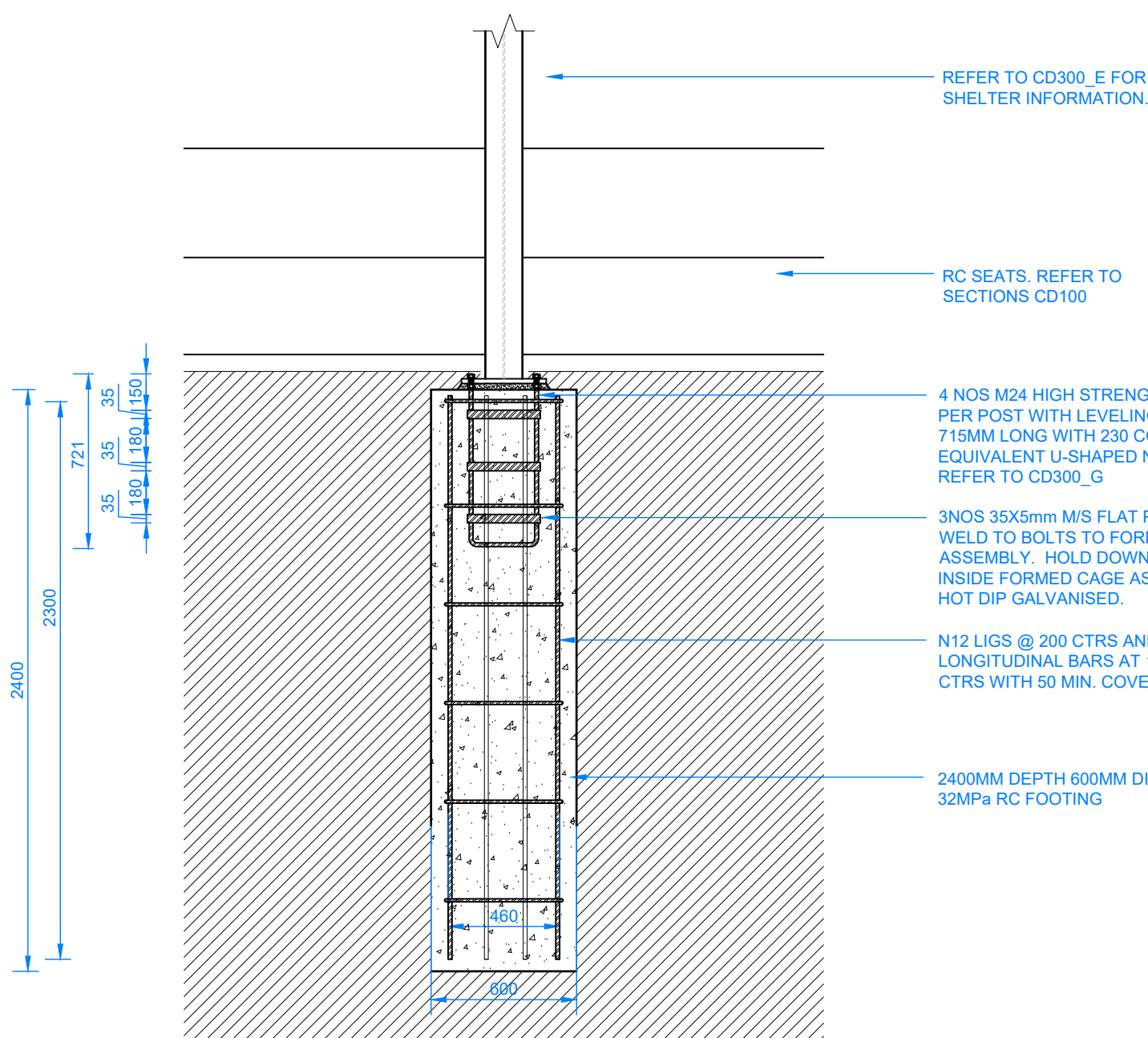
**D** BEAMS, JOISTS AND PURLIN DIMENSIONS  
300 SCALE 1:50

DASHED LINE INDICATES EXTENT 300 X 90MM ALUMINIUM PFC FRAMES SHOWN FOR CLARITY. REFER TO CD300\_B

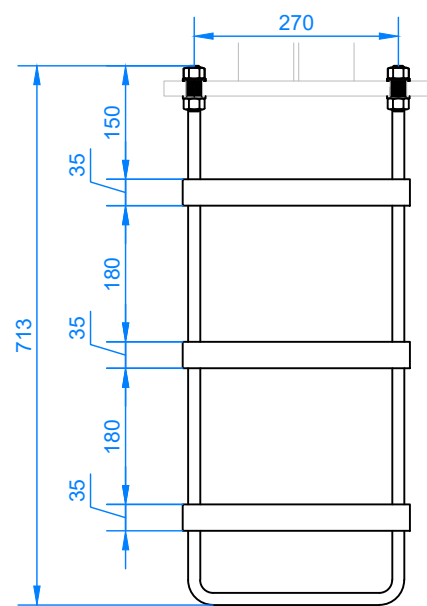
4 NOS 150 UC 30 M/S POSTS BOLTED HOLD DOWN BOLTS. HOT DIP GALV. AND POWDERCOATED DULUX COLOUR: 'SURFMIST MATT' OR APPROVED EQUIVALENT. REFER TO CD300\_D & F.



**E** SHELTER - SECTION A-A  
300 SCALE 1:50



**F** SHELTER FOOTING TYPICAL DETAIL  
300 SCALE 1:25



**G** HOLD DOWN BOLT - SIDE ELEVATION  
300 SCALE 1:10

**-WARNING -**  
CONTRACTOR TO VERIFY LOCATION; DEPTH/CLEARANCE AND ALIGNMENT OF OVERHEAD AND UNDERGROUND SERVICES. CONTRACTOR TO ACQUIRE CURRENT AND RELEVANT DIAL BEFORE YOU DIG ONE CALL SERVICES DRAWINGS AND ADHERE TO ALL REQUIREMENTS FOR WORKS NEAR SERVICES INCLUDING CLEARANCES, EASEMENTS AND INFORMING SERVICE AUTHORITIES PRIOR TO COMMENCEMENT OF WORKS. THE LOCATIONS OF UNDERGROUND SERVICES INDICATED IN THIS SET OF DRAWINGS ARE INDICATIVE ONLY. PIT LOCATIONS HAVE BEEN SURVEYED BY A LICENSED SURVEYOR.

**-SITE DIMENSIONS -**  
CONTRACTOR TO SATISFY THEMSELVES OF SITE CONDITIONS, CHANGES IN LEVEL AND DIMENSIONS PRIOR TO FABRICATION OF SITE SPECIFIC ITEMS OR PRIOR TO ORDERING/PURCHASING MATERIALS. WHERE DISCREPANCIES EXIST BETWEEN DRAWINGS AND SITE CONDITIONS CONTRACTOR TO NOTIFY SUPERINTENDENT PRIOR TO COMMENCEMENT OF WORKS.

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DRAWING STATUS:

## FOR COMMENT

REVISION STATUS:

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STRUCTURAL ENGINEER	LIGHTING & ELECTRICAL:
<b>MATRIX ENGINEERING</b> <b>GROUP P/L</b> 24/37 Kellor Park Drive Kellor Park, Victoria 3042 Tel : +613 9331 7522 www.matrixgroup.net.au	<b>WEBB AUSTRALIA</b> <b>GROUP</b> Level 6, 128 Exhibition St Melbourne VIC 3000 Tel : +613 9652 0333 www.webbaustralia.com.au

NOTES / LEGEND:

### ENGINEERING NOTES:

- CONCRETE:
- CONCRETE STRENGTH: N32 MPA.
  - CONCRETE THICKNESS 150MM SLOPES, 100MM PLATFORMS AND FLAT BOTTOM. UNO.
  - CONSTRUCTION JOINTS SHALL BE AT CONSTRUCTED MAXIMUM 6.0M OR AS PER DETAIL.
  - SAW CUTS TO BE SAWN AS SHOWN ON PLANS. SAW CUT DEPTH TO BE 30MM DEEP. CHECK REINFORCEMENT DETAIL FOR SAW CUT JOINT DETAILS.
  - FOR CURING, COVER FOR SEVEN DAYS WITH PLASTIC, OR BY LIQUID MEMBRANE TO THE APPROPRIATE AUSTRALIAN STANDARD. APPLY WITHIN 1 HOUR OF CONCRETE FINISHING.
  - FINISH TO BE CLASS 1 METAL TROWEL TO ALL VERTICAL SURFACES. STEEL TROWEL FINISH TO PLATFORMS, FLAT BANKS, TRANSITIONS, ETC.
  - REFER TO A.3.3600 - CONCRETE STRUCTURES AND A.5.2870.2011 - RESIDENTIAL SLABS AND FOOTINGS.
- REINFORCEMENT:
- AS SHOWN.
  - TRIMMERS - 2 OF N12X2000 LONG TO ALL INTERNAL CORNERS.
  - BASE SLAB - SLS2 MESH OR S12 (250 GRADE) @ 250 CRS EW.
  - VERTICAL WALLS - REFER TO RC WALL - REINFORCEMENT SCHEDULE CD201.
  - BLOCKS - AS SHOWN.
  - GRIND RAILS - SHALL BE 75X75X3MM DURAGAL R/S (UNLESS OTHERWISE STATED ON PLANS). ENDS MITRED AND ALL WELDS GRIND SMOOTH AND COLO GALVANISED. ALL COLO GALVANISED AREAS TO HAVE 'GALMET' DURAGAL SILVER PAINT APPLIED. APPLICATION TO BE NEAT AND CONSISTENT.
- EARTHWORKS:
- STABLE CLEAN FILL COMPACTED TO 98 % (MMD) PLACED AND COMPACTED IN 200MM LAYERS.
  - REFER TO SOIL REPORT FOR FURTHER DETAILS.
  - ALL SUBGROUND PREPARATION WORKS UNDER ALL CONCRETE PAVEMENTS AREAS AND LOW PROFILE RETAINING WALLS ARE TO BE PROTECTED, ROLLED AND COMPACTED AS PER RECOMMENDATIONS SET OUT IN THE GEOTECHNICAL REPORT SUPPLIED BY CIVIL TEST PTY LTD - REPORT NO. 1160044-1.
  - ALL SOFT SPOTS TO BE EXCAVATED DOWN TO APPROPRIATE DEPTH AND REPLACED WITH COMPACTED FILL TO 98% MMD IN 200MM LAYERS.
  - FURTHER GEOTECHNICAL ADVICE MAY BE REQUIRED.

CLIENT NAME:

**INNER WEST COUNCIL**  
7-15 Wetherill Street, Leichhardt  
NSW 2040

PROJECT NAME:

**LEICHHARDT PARK SKATE PARK**  
70 Mary Street,  
Lilyfield NSW 2040

DRAWING TITLE:

**Steel Shelter Details 01**

SCALE: N/A DATE OF ISSUE: 18.01.2022  
FORMAT / SIZE: A1 REFERENCE NO: 1821  
DESIGN REVIEW: ND APPROVAL: JM

DRAWING NUMBER: REVISION:

**1821\_CD 300** **05**



NOTE:  
1. ALL FASTENING SCREWS MUST CONFROM TO AS3566 - CLASS 3, HEXAGON HEADED WITH SEALING WASHERS.  
2. STRAMIT CORRUGATED CLADDING TO BE FIXED AT EACH SHS JOISTS AS PER MANUFACTURER'S SPECIFICATIONS

STRAMIT CORRUGATED CLADDING TO BE FIXED WITH 3 FASTENERS PER SHEET AS PER MANUFACTURER'S SPECIFICATIONS, MIN 50MM OVERLAP BETWEEN SHEETS. SHEET COLOUR: COLOURBOND DEEP OCEAN OR APPROVED EQUIVALENT.

N12 X 30MM SELF DRILLING AND THREADING SCREWS FOR FIXING CORRUGATED ROOF CLADDING TO SHS JOISTS, HEXAGON HEADED WITH SEALING WASHERS, 3 FASTENERS PER SHEET.

50 MM MIN. LAP

A  
301 ROOF PANEL LAPPING DETAIL

SCALE 1:5

16 STIFFENER PLATE  
EACH SIDE OF WEB, 8  
CFW ALL AROUND.

16 CAP PLATE  
6 CFW ALL AROUND  
4NOS M20 8.8/S BOLTS

B  
301 COLUMN AND BEAM CONNECTION

SCALE 1:5

200 X 75MM ZINC PLATED PFC OUTSIDE FRAME, BOLTED TO EACH END OF 180X75 PFC M/S HORIZONTAL BEAM WITH 2 NOS. N16 BOLTS. POWDERCOATED DULUX COLOUR: 'SURFMIST MATT' OR APPROVED EQUIVALENT. OUTSIDE FRAME PERIMETER CONSISTS OF FOUR PIECES TO BE ASSEMBLED ON SITE.

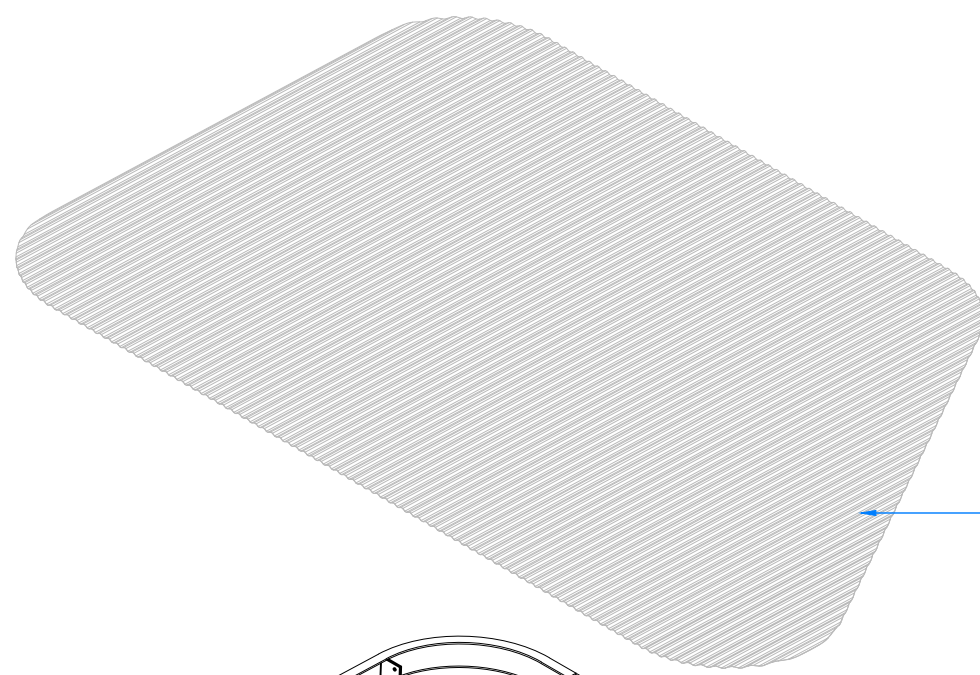
140 X 30MM ALUMINIUM BATTENS WITH 25MM SPACINGS, BOLTED TO EACH C15015 PURLINS @ 800 CTRS. WITH 2 NOS. N12 BOLTS. POWDERCOATED DULUX COLOUR: 'PALE EUCALPYT' OR APPROVED EQUIVALENT. CONTRACTOR TO PROPOSE FIXING METHOD FOR SINGLE BATTEN OR FOR PANEL.

4 NOS 150 UC 30 M/S POSTS BOLTED HOLD DOWN BOLTS. HOT DIP GALV. AND POWDERCOATED DULUX COLOUR: 'SURFMIST MATT' OR APPROVED EQUIVALENT. REFER TO CD300\_D & F.

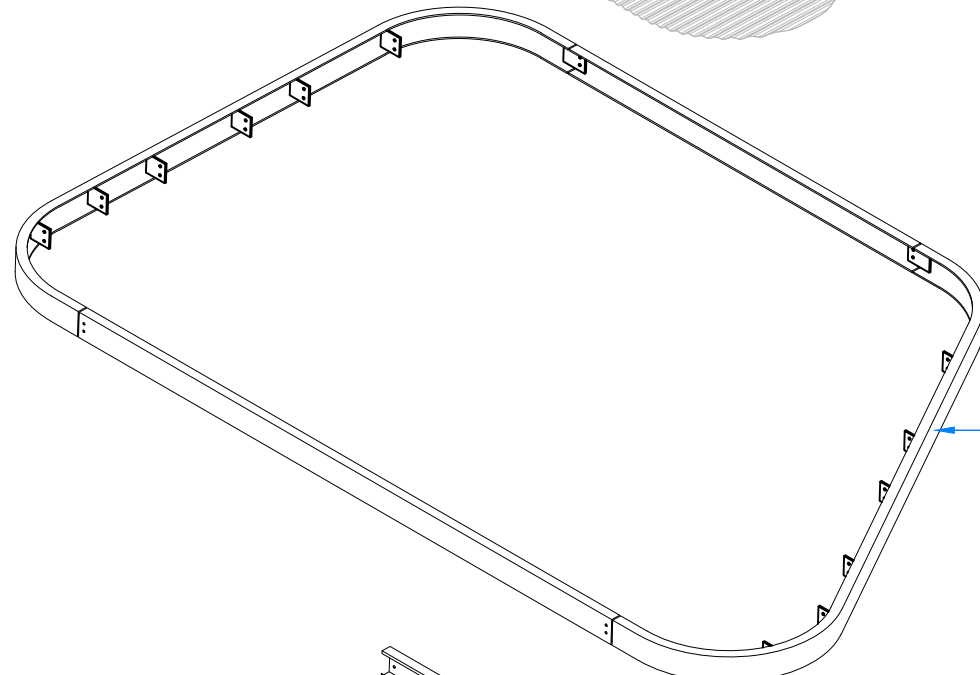
RC SEATS SHOWN FOR CLARITY ONLY. REFER TO SECTIONS CD100 FOR DETAILS.

F  
301 ASSEMBLED SHELTER - FRONT ELEVATION

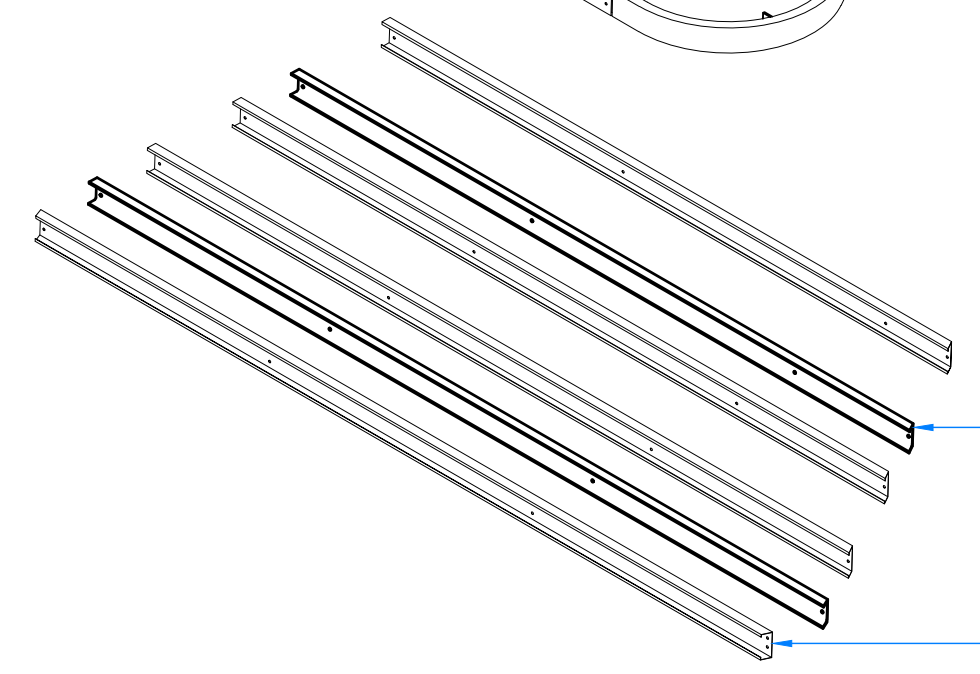
SCALE 1:50



CORRUGATED ROOF SHEETING COLOUR 'COLORBOND - PALE EUCALYPT' SUPPLIED BY STRAMIT PH: 03 9237 6250 OR APPROVED EQUIVALENT. ROOF SHEETING FIXED C15015 PURLINS.

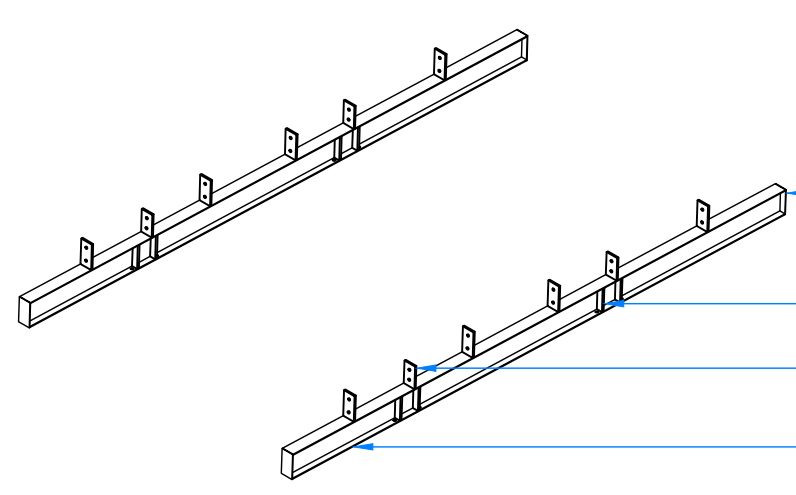


200 X 75MM ZINC PLATED PFC OUTSIDE FRAME, BOLTED TO EACH END OF 180X75 PFC M/S HORIZONTAL BEAM WITH 2 NOS. N16 BOLTS. HOT DIP GALV. AND POWDERCOATED DULUX COLOUR: 'SURFMIST MATT' OR APPROVED EQUIVALENT. OUTSIDE FRAME PERIMETER CONSISTS OF FOUR PIECES TO BE ASSEMBLED ON SITE.



180X75 PFC M/S HORIZONTAL ROOF BEAM BOLTED TO 200UB18 FIXING PLATE WITH 2 NOS. N10 BOLTS. HOT DIP GALV. AND POWDERCOATED DULUX COLOUR: 'SURFMIST MATT' OR APPROVED EQUIVALENT.

C15015 ZINC PLATED PURLINS @ 800 CTRS. BOLTED TO 200UB18 FIXING PLATE WITH 2 NOS. N10 BOLTS. HOT DIP GALV. AND POWDERCOATED DULUX COLOUR: 'SURFMIST MATT' OR APPROVED EQUIVALENT.

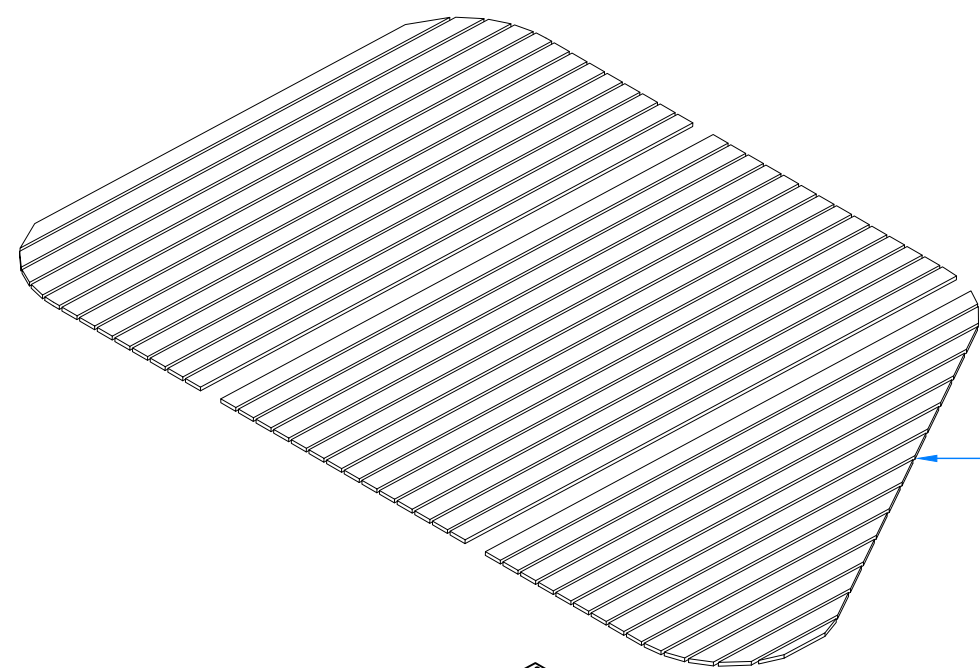


5MM THK. CAP PLATE EACH END OF 200UB. HOT DIP GALV. AND POWDERCOATED DULUX COLOUR: 'SURFMIST MATT' OR APPROVED EQUIVALENT.

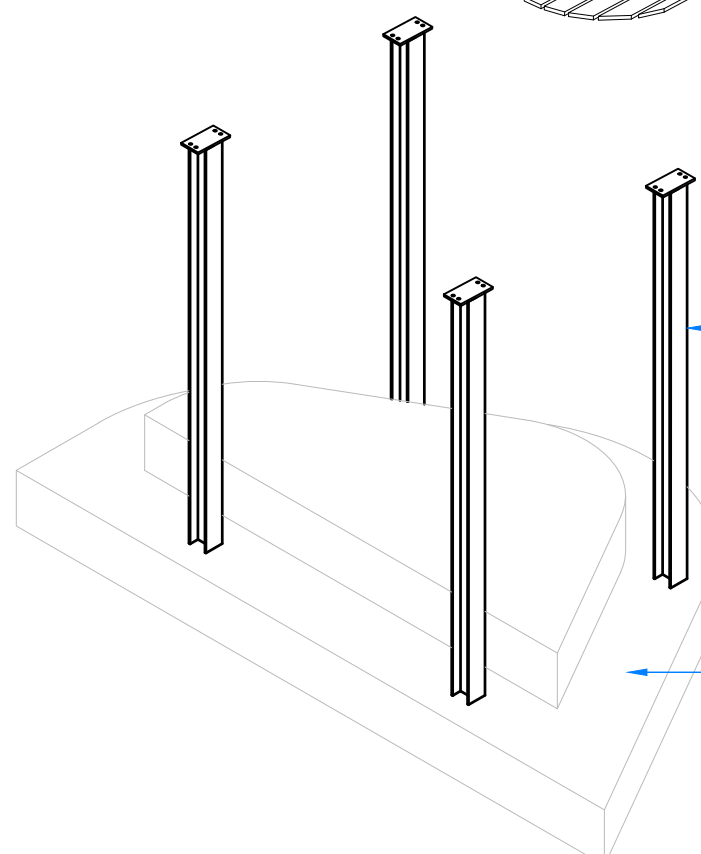
16 STIFFENER PLATE EACH SIDE OF WEB, 8 CFW ALL AROUND.

12MM THK FIXING PLATE WELDED TO 200UB.

200UB18 BEAM BOLTED TO 150UC30 M/S POSTS FIXING PLATE WITH 4 NOS. M20 BOLTS. REFER TO CD301\_B. HOT DIP GALV. AND POWDERCOATED DULUX COLOUR: 'SURFMIST MATT' OR APPROVED EQUIVALENT.



140 X 30MM ALUMINIUM BATTENS WITH 25MM SPACINGS, BOLTED TO EACH C15015 PURLINS @ 800 CTRS. WITH 2 NOS. N12 BOLTS. HOT DIP GALV. AND POWDERCOATED DULUX COLOUR: 'PALE EUCALPYT' OR APPROVED EQUIVALENT. CONTRACTOR TO PROPOSE FIXING METHOD FOR SINGLE BATTEN OR FOR PANEL.



4 NOS 150 UC 30 M/S POSTS BOLTED HOLD DOWN BOLTS. HOT DIP GALV. AND POWDERCOATED DULUX COLOUR: 'SURFMIST MATT' OR APPROVED EQUIVALENT. REFER TO CD300\_D & F.

RC SEATS SHOWN FOR CLARITY ONLY. REFER TO SECTIONS CD100 FOR DETAILS.

G  
301 SHELTER - COMPONENTS DIAGRAM

SCALE 1:50

NOTE:  
CONTRACTOR TO PROVIDE SHOP DRAWINGS OF SHELTER FOR APPROVAL BY SUPERINTENDENT PRIOR TO FABRICATION.

**-WARNING -**  
CONTRACTOR TO VERIFY LOCATION; DEPTH/CLEARANCE AND ALIGNMENT OF OVERHEAD AND UNDERGROUND SERVICES. CONTRACTOR TO ACQUIRE CURRENT AND RELEVANT 'DIAL BEFORE YOU DIG' ONE CALL' SERVICES DRAWINGS AND ADHERE TO ALL REQUIREMENTS FOR WORKS NEAR SERVICES INCLUDING CLEARANCES, EASEMENTS AND INFORMING SERVICE AUTHORITIES PRIOR TO COMMENCEMENT OF WORKS. THE LOCATIONS OF UNDERGROUND SERVICES INDICATED IN THIS SET OF DRAWINGS ARE INDICATIVE ONLY. PIT LOCATIONS HAVE BEEN SURVEYED BY A LICENSED SURVEYOR.

**- SITE DIMENSIONS -**  
CONTRACTOR TO SATISFY THEMSELVES OF SITE CONDITIONS, CHANGES IN LEVEL AND DIMENSIONS PRIOR TO FABRICATION OF SITE SPECIFIC ITEMS OR PRIOR TO ORDERING/PURCHASING MATERIALS. WHERE DISCREPANCIES EXIST BETWEEN DRAWINGS AND SITE CONDITIONS CONTRACTOR TO NOTIFY SUPERINTENDENT PRIOR TO COMMENCEMENT OF WORKS.

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DRAWING STATUS:

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02A	For Review	24.06.21

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**enlocus**  
ENLOCUS  
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W : www.enlocus.com

CONSULTANTS:

STRUCTURAL ENGINEER	LIGHTING & ELECTRICAL:
<b>MATRIX ENGINEERING GROUP P/L</b> 24/37 Kellor Park Drive Kellor Park, Victoria 3042 Tel : +613 9331 7522 www.matrixgroup.net.au	<b>WEBB AUSTRALIA GROUP</b> Level 6, 128 Exhibition St Melbourne VIC 3000 Tel : +613 9652 0333 www.webbaustralia.com.au

NOTES / LEGEND:

### ENGINEERING NOTES:

- CONCRETE:
- CONCRETE STRENGTH: N32 MPA.
  - CONCRETE THICKNESS: 150MM SLOPES, 100MM PLATFORMS AND FLAT BOTTOM, UNO.
  - CONSTRUCTION JOINTS SHALL BE AT CONSTRUCTED MAXIMUM 6.0M OR AS PER DETAIL.
  - SAW CUTS TO BE SAWN AS SHOWN ON PLANS. SAW CUT DEPTH TO BE 30MM DEEP. CHECK REINFORCEMENT DETAIL FOR SAW CUT JOINT DETAILS.
  - FOR CURING, COVER FOR SEVEN DAYS WITH PLASTIC, OR BY LIQUID MEMBRANE, TO THE APPROPRIATE AUSTRALIAN STANDARD. APPLY WITHIN 1 HOUR OF CONCRETE FINISH.
  - FINISH TO BE CLASS 1 METAL TROWEL TO ALL VERTICAL SURFACES. STEEL TROWEL FINISH TO PLATFORMS, FLAT BANKS, TRANSITIONS, ETC.
  - REFER TO A.3.3600 - CONCRETE STRUCTURES AND A.3.2870.2011 - RESIDENTIAL SLABS AND FOOTINGS.
- REINFORCEMENT:
- AS SHOWN.
  - TRIMMERS - 2 OF N12x2000 LONG TO ALL INTERNAL CORNERS.
  - BASE SLAB - SL82 MESH OR S12 (250 GRADE) @ 250 CRS EW.
  - VERTICAL WALLS - REFER TO RC WALL - REINFORCEMENT SCHEDULE CD201.
  - BLOCKS - AS SHOWN.
  - GRIND RAILS - SHALL BE 75X75X3MM DURALGAL RHS (UNLESS OTHERWISE STATED ON PLANS). ENDS MITRED AND ALL WELDS GRIND SMOOTH AND COLO GALVANISED. ALL COLD GALVANISED AREAS TO HAVE 'GALMET' DURALGAL SILVER PAINT APPLIED. APPLICATION TO BE NEAT AND CONSISTENT.
- EARTHWORKS:
- STABLE CLEAN FILL COMPACTED TO 98 % (MMD) PLACED AND COMPACTED IN 200MM LAYERS.
  - REFER TO SOIL REPORT FOR FURTHER DETAILS.
  - ALL SUBGROUND PREPARATION WORKS UNDER ALL CONCRETE PAVEMENTS AREAS AND LOW PROFILE RETAINING WALLS ARE TO BE PROTECTED, ROLLED AND COMPACTED AS PER RECOMMENDATIONS SET OUT IN THE GEOTECHNICAL REPORT SUPPLIED BY CIVIL TEST PTY LTD. REPORT NO. 1160044-1.
  - ALL SOFT SPOTS TO BE EXCAVATED DOWN TO APPROPRIATE DEPTH AND REPLACED WITH COMPACTED FILL TO 98% MMD IN 200MM LAYERS.
  - FURTHER GEOTECHNICAL ADVICE MAY BE REQUIRED.

CLIENT NAME:

**INNER WEST COUNCIL**  
7-15 Wetherill Street, Leichhardt  
NSW 2040

PROJECT NAME:

**LEICHHARDT PARK SKATE PARK**  
70 Mary Street,  
Lilyfield NSW 2040

DRAWING TITLE:

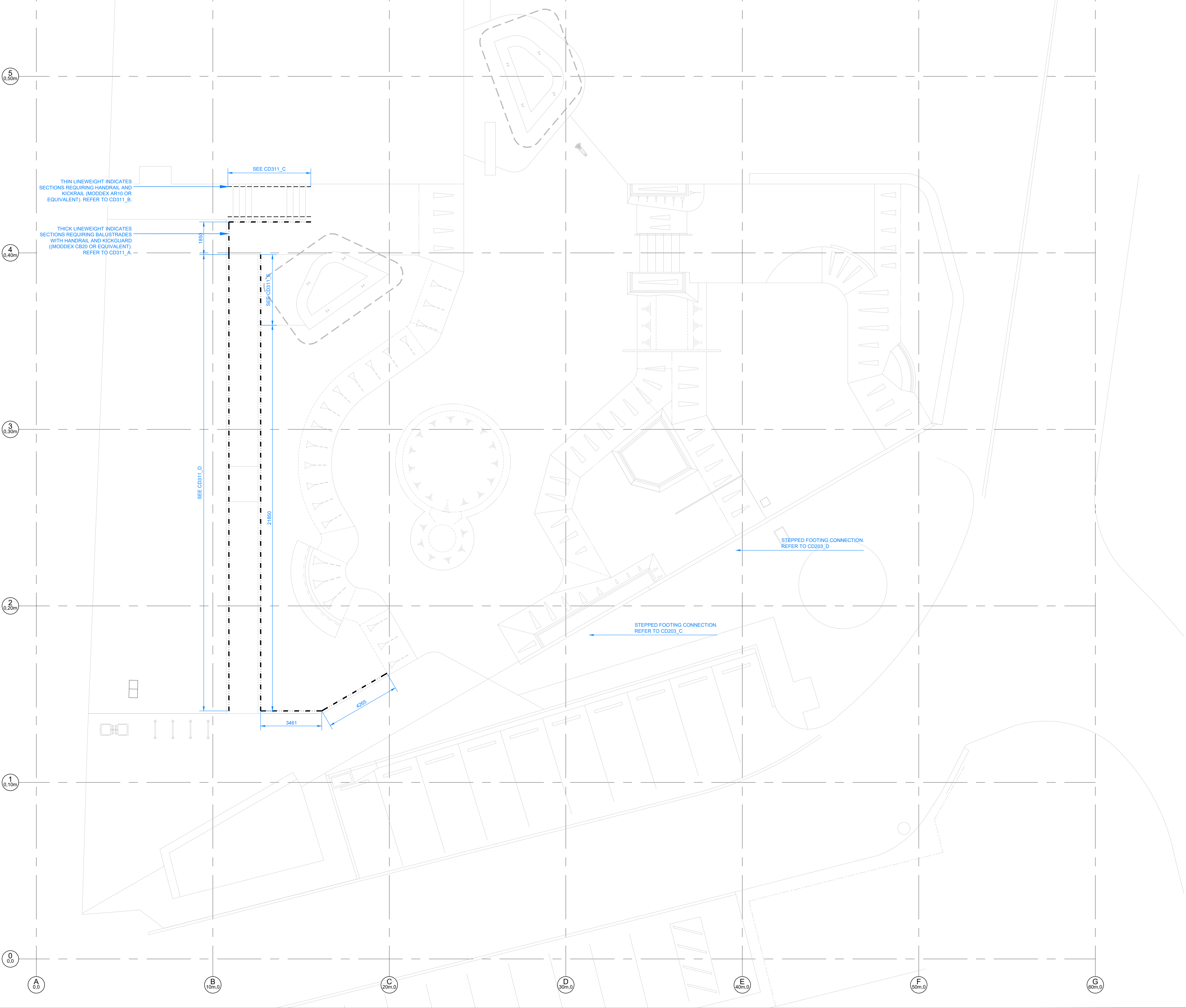
### Steel Shelter Details 02

SCALE:	N/A	DATE OF ISSUE:	18.01.2022
FORMAT / SIZE:	A1	REFERENCE NO:	1821
DESIGN REVIEW:	ND	APPROVAL:	JM

DRAWING NUMBER: REVISION:

1821\_CD 301 05





**-WARNING -**  
CONTRACTOR TO VERIFY LOCATION; DEPTH/CLEARANCE AND ALIGNMENT OF OVERHEAD AND UNDERGROUND SERVICES. CONTRACTOR TO ACQUIRE CURRENT AND RELEVANT 'DIAL BEFORE YOU DIG' ONE CALL' SERVICES. DRAWINGS AND ADHERE TO ALL REQUIREMENTS FOR WORKS NEAR SERVICES INCLUDING CLEARANCES, EASEMENTS AND INFORMING SERVICE AUTHORITIES PRIOR TO COMMENCEMENT OF WORKS. THE LOCATIONS OF UNDERGROUND SERVICES INDICATED IN THIS SET OF DRAWINGS ARE INDICATIVE ONLY. PIT LOCATIONS HAVE BEEN SURVEYED BY A LICENSED SURVEYOR.

**- SITE DIMENSIONS -**  
CONTRACTOR TO SATISFY THEMSELVES OF SITE CONDITIONS, CHANGES IN LEVEL AND DIMENSIONS PRIOR TO FABRICATION OF SITE SPECIFIC ITEMS OR PRIOR TO ORDERING/PURCHASING MATERIALS. WHERE DISCREPANCIES EXIST BETWEEN DRAWINGS AND SITE CONDITIONS CONTRACTOR TO NOTIFY SUPERINTENDENT PRIOR TO COMMENCEMENT OF WORKS.


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**DRAWING STATUS:**

# FOR COMMENT

REVISION STATUS:		
05	For Comment	18.01.22
04	For Construction	27.08.21
03	For Construction	04.08.21
02B	For Review	25.06.21
02A	For Review	24.06.21

**LANDSCAPE ARCHITECT CONSULTANT:**



ENLOCUS  
Level 1, 151 St Georges Rd,  
Fitzroy North, Victoria 3066  
T : 03 9482 2202  
W : www.enlocus.com

**CONSULTANTS:**

<b>STRUCTURAL ENGINEER</b> <b>MATRIX ENGINEERING GROUP P/L</b> 24/37 Kellor Park Drive Kellor Park, Victoria 3042 Tel : +613 9331 7522 www.matrixgroup.net.au	<b>LIGHTING &amp; ELECTRICAL:</b> <b>WEBB AUSTRALIA GROUP</b> Level 6, 128 Exhibition St Melbourne VIC 3000 Tel : +613 9652 0333 www.webbaustralia.com.au
--	--

**NOTES / LEGEND:**

**CLIENT NAME:**

**INNER WEST COUNCIL**  
7-15 Wetherill Street, Leichhardt  
NSW 2040

**PROJECT NAME:**

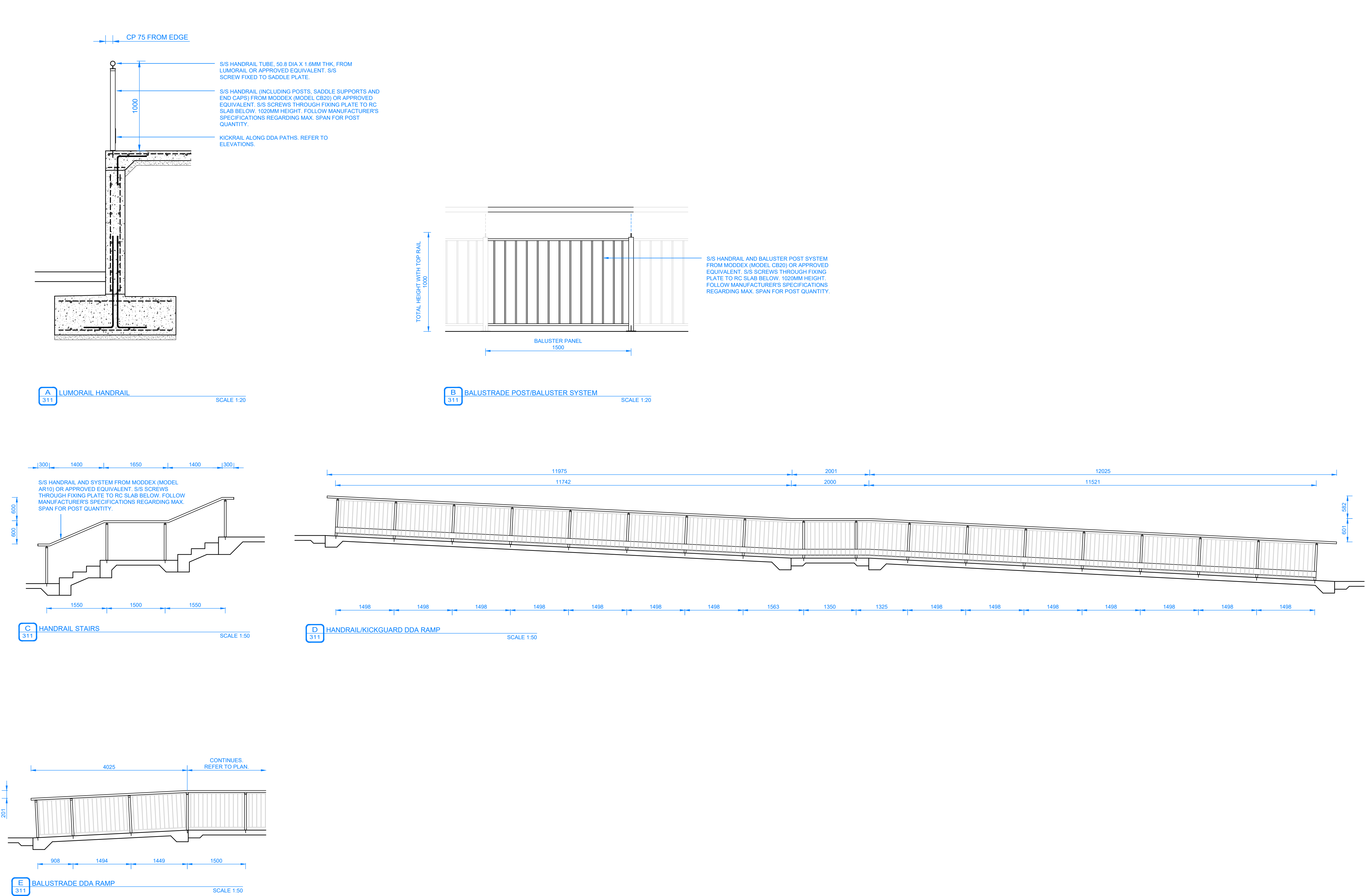
**LEICHHARDT PARK SKATE PARK**  
70 Mary Street,  
Lilyfield NSW 2040

**DRAWING TITLE:**

**Handrail/Balustrade Plan**

<b>SCALE:</b> 1:100	<b>DATE OF ISSUE:</b> 18.01.2022
<b>FORMAT / SIZE:</b> A1	<b>REFERENCE NO:</b> 1821
<b>DESIGN REVIEW:</b> ND	<b>APPROVAL:</b> JM

<b>DRAWING NUMBER:</b>	<b>REVISION:</b>
<b>1821_CD 310</b>	<b>05</b>



**-WARNING -**  
CONTRACTOR TO VERIFY LOCATION; DEPTH/CLEARANCE AND ALIGNMENT OF OVERHEAD AND UNDERGROUND SERVICES. CONTRACTOR TO ACQUIRE CURRENT AND RELEVANT 'DIAL BEFORE YOU DIG' ONE CALL SERVICES DRAWINGS AND ADHERE TO ALL REQUIREMENTS FOR WORKS NEAR SERVICES INCLUDING CLEARANCES, EASEMENTS AND INFORMING SERVICE AUTHORITIES PRIOR TO COMMENCEMENT OF WORKS. THE LOCATIONS OF UNDERGROUND SERVICES INDICATED IN THIS SET OF DRAWINGS ARE INDICATIVE ONLY. PIT LOCATIONS HAVE BEEN SURVEYED BY A LICENSED SURVEYOR.

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DRAWING STATUS:

# FOR COMMENT

REVISION STATUS:

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03	For Construction	04.08.21
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02A	For Review	24.06.21

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CONSULTANTS:

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NOTES / LEGEND:

**ENGINEERING NOTES:**

CONCRETE:

- CONCRETE STRENGTH: N32 MPA.
- CONCRETE THICKNESS: 150MM SLOPES, 100MM PLATFORMS AND FLAT BOTTOM, UNO.
- CONSTRUCTION JOINTS SHALL BE AT CONSTRUCTED MAXIMUM 6.0M OR AS PER DETAIL.
- SAW CUTS TO BE SAWN AS SHOWN ON PLANS. SAW CUT DEPTH TO BE 30MM DEEP. CHECK REINFORCEMENT DETAIL FOR SAW CUT JOINT DETAILS.
- FOR CURING, COVER FOR SEVEN DAYS WITH PLASTIC, OR BY LIQUID MEMBRANE TO THE APPROPRIATE AUSTRALIAN STANDARD. APPLY WITHIN 1 HOUR OF CONCRETE FINISHING.
- FINISH TO BE CLASS 1 METAL TROWEL TO ALL VERTICAL SURFACES. STEEL TROWEL FINISH TO PLATFORMS, FLAT BANKS, TRANSITIONS, ETC.
- REFER TO A.S.3600 - CONCRETE STRUCTURES AND A.S.2870:2011 - RESIDENTIAL SLABS AND FOOTINGS.

REINFORCEMENT:

- AS SHOWN.
- TRIMMERS - 2 OF N12@2000 LONG TO ALL INTERNAL CORNERS.
- BASE SLAB - SL82 MESH OR S12 (250 GRADE) @ 250 CRS EW.
- VERTICAL WALLS - REFER TO RC WALL - REINFORCEMENT SCHEDULE C0201.
- BLOCKS - AS SHOWN.
- GRIND RAILS - SHALL BE 75X75X3MM DURALGAL RHS (UNLESS OTHERWISE STATED ON PLANS). ENDS MITRED AND ALL WELDS GRIND SMOOTH AND COLD GALVANISED. ALL COLD GALVANISED AREAS TO HAVE 'GALMET' DURALGAL SILVER PAINT APPLIED. APPLICATION TO BE NEAT AND CONSISTENT.

EARTHWORKS:

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- ALL SOFT SPOTS TO BE EXCAVATED DOWN TO APPROPRIATE DEPTH AND REPLACED WITH COMPACTED FILL TO 98% MMD IN 200MM LAYERS.
- FURTHER GEOTECHNICAL ADVICE MAY BE REQUIRED.

CLIENT NAME:

**INNER WEST COUNCIL**  
7-15 Wetherill Street, Leichhardt  
NSW 2040

PROJECT NAME:

**LEICHHARDT PARK SKATE PARK**  
70 Mary Street,  
Lilyfield NSW 2040

DRAWING TITLE:

**Balustrade Details 01**

SCALE:	N/A	DATE OF ISSUE:	18.01.2022
FORMAT / SIZE:	A1	REFERENCE NO:	1821
DESIGN REVIEW:	ND	APPROVAL:	JM

DRAWING NUMBER:

**1821\_CD 311**

REVISION:

**05**





SCALE 1:20



B - ELEVATION //



B - ELEVATION /



SCALE 1:10



SCALE 1:2

**DRAWING STATUS:**

**REVISION STATUS:**LANDSCAPE ARCHITECT CONSULTANT:

## CONSULTANTS:

**NOTES / LEGEND:**

GALVANISED AREAS TO HAVE GALMET DURAGAL SILVER PAINT APPLIED. APPLICATION TO BE NEAT AND CONSISTENT.

EARTHWORKS:

1. STABLE CLEAN FILL COMPACTED TO 98 % (MMD) PLACED AND COMPACTED IN 200MM LAYERS.
2. REFER TO SOIL REPORT FOR FURTHER DETAILS.

ALL SUBGROUND PREPARATION WORKS UNDER ALL CONCRETE PAVEMENTS AREAS AND LOW PROFILE RETAINING WALLS ARE TO BE PROTECTED, ROLLED AND COMPACTED AS PER RECOMMENDATIONS SET OUT IN THE GEOTECHNICAL REPORT SUPPLIED BY CIVIL TEST PTY LTD. REPORT NO. 1190044-1.

3. ALL SOFT SPOTS TO BE EXCAVATED DOWN TO APPROPRIATE DEPTH AND REPLACED WITH COMPACTED FILL TO 98% MMD IN 200MM LAYERS.
4. FURTHER GEOTECHNICAL ADVICE MAY BE REQUIRED.

**CLIENT NAME:**

PROJECT NAME:

**DRAWING TITLE:**

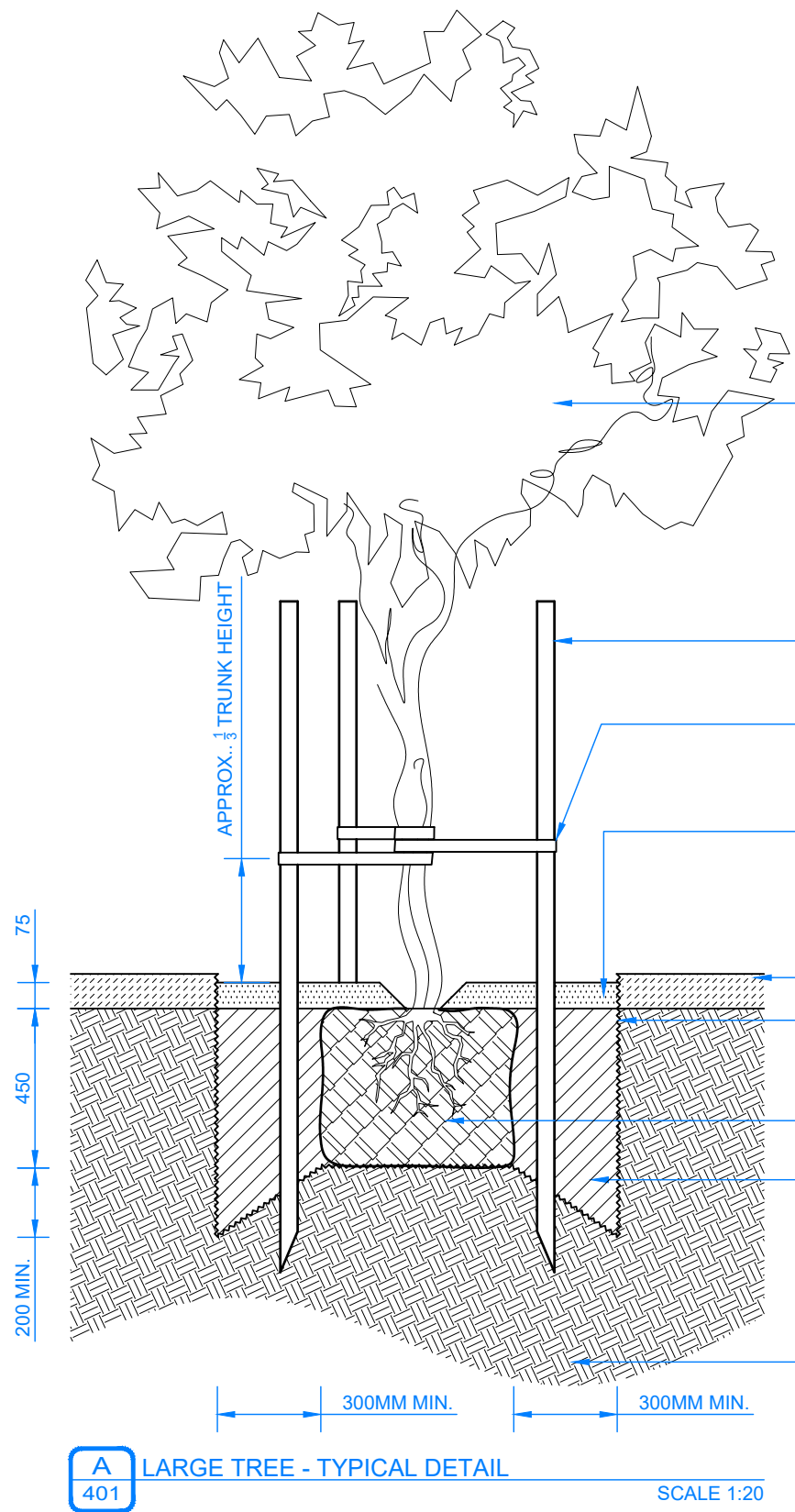
**DRAWING NUMBER:** **REVISION:**

1821\_CD 320 05









**NOTE:**  
**FERTILIZER**  
1. NPK STARTER FERTILIZER 8.10.9 AT 4KG/100 SQ.M.  
- TRACE ELEMENT MIX MICROMAX 3KG/100 SQ.M.  
- MAGNESIUM SULPHATE 3KG/100 SQ.M.  
- SUPERPHOSPHATE 1.5KG/100 SQ.M.  
2. AT PLANTING APPLY TO THE SURFACE OF THE LAWN AREA NPK 16.4.14 OR SIMILAR FERTILIZER AT 3KG/100 SQ.M.  
3. APPLY THE ABOVE EVERY 4 WEEKS FOR THE INITIAL ESTABLISHMENT PERIOD OF 3-4 MONTHS.  
4. GENERAL NOTE ON FERTILIZERS: THERE MAY BE ALTERNATIVE FERTILIZER MATERIALS THAT COULD BE USED INSTEAD OF THE PRODUCTS LISTED ABOVE. THE USE OF ALTERNATIVES WILL REQUIRE REASSESSMENT OF THE RATE AND FREQUENCY OF APPLICATIONS.

REFER LANDSCAPE PLAN AND PLANTING SCHEDULE FOR SPECIES SELECTION. TREE PLANTED WITH VERTICAL ALIGNMENT. APPROVED BY SUPERINTENDENT. PRUNE DAMAGED/DEAD FOLIAGE AS DIRECTED BY SUPERINTENDENT.

3nos. 50X50X2400MM HARDWOOD STAKES. SET VERTICALLY AND CLEAR OF ROOTBALL AND MIN 800MM INTO GROUND TO 150MM OF STAKES TO BE PAINT FOR PRESERVATION. STAKES ARE TO BE OFFSET FROM THE NEAREST UNDERGROUND SERVICES A MIN 200MM TO ENSURE NO DAMAGE IS CAUSED TO UNDERGROUND SERVICES.

3nos. 50MM WIDE HESSIAN TIES WRAPPED AROUND TRUNK @  $\frac{1}{3}$  TREE HEIGHT AND STAPLED/NAILED TO STAKES ALLOWING SOME TRUNK MOVEMENT.

75MM ORGANIC "EUCALYPTUS" MULCH. FINE GRADE, GRADED TO BAS OF TRUNK. REFER TO DETAIL CD401\_C. CONTRACTOR TO PROVIDE SPECIFICATION TO SUPERINTENDENT FOR APPROVAL PRIOR TO INSTALLATION.

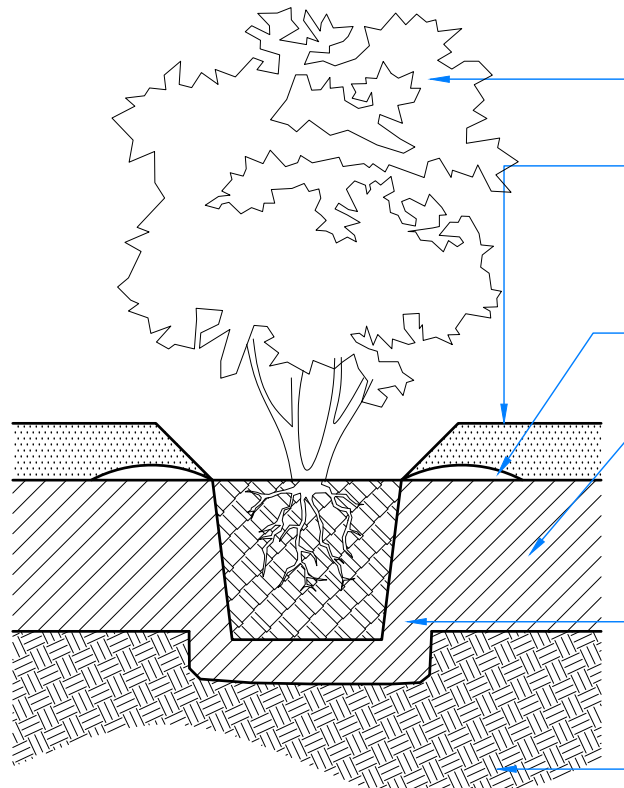
REFER SURFACE FINISH PLAN [CD006]. ROOTBALL HOLE TO HAVE CULTIVATED EDGE MIN 300MM FROM ROOTBALL. ROOTBALL TO SIT ELEVATED MIN. 200MM FROM BASE OF HOLE, AS SHOWN.

TOP OF ROOTBALL TO BE SET LEVEL WITH COMPACTED CLEAN FILL.

FILL WITH APPROVED IMPORTED SOIL OR AUGMENTED NATIVE EXCAVATED SOIL OR WITH 30% ORGANIC MULCH AND ORGANIC MANURE. REMOVE ALL RUBBLE AND DEBRIS. CONTRACTOR TO PROVIDE SPECIFICATION TO SUPERINTENDENT FOR APPROVAL PRIOR TO INSTALLATION.

EXISTING SUBGRADE

**A** LARGE TREE - TYPICAL DETAIL  
401 SCALE 1:20



**NOTE:**  
**FERTILIZER**  
1. NPK STARTER FERTILIZER 8.10.9 AT 4KG/100 SQ.M.  
- TRACE ELEMENT MIX MICROMAX 3KG/100 SQ.M.  
- MAGNESIUM SULPHATE 3KG/100 SQ.M.  
- SUPERPHOSPHATE 1.5KG/100 SQ.M.  
2. AT PLANTING APPLY TO THE SURFACE OF THE LAWN AREA NPK 16.4.14 OR SIMILAR FERTILIZER AT 3KG/100 SQ.M.  
3. APPLY THE ABOVE EVERY 4 WEEKS FOR THE INITIAL ESTABLISHMENT PERIOD OF 3-4 MONTHS.  
4. GENERAL NOTE ON FERTILIZERS: THERE MAY BE ALTERNATIVE FERTILIZER MATERIALS THAT COULD BE USED INSTEAD OF THE PRODUCTS LISTED ABOVE. THE USE OF ALTERNATIVES WILL REQUIRE REASSESSMENT OF THE RATE AND FREQUENCY OF APPLICATIONS.

REFER LANDSCAPE PLAN AND PLANTING SCHEDULE FOR SPECIES SELECTION.

75MM ORGANIC "EUCALYPTUS" MULCH. FINE GRADE, GRADED AS SHOWN FOR WATER CATCHMENT. CONTRACTOR TO PROVIDE SPECIFICATION TO SUPERINTENDENT FOR APPROVAL PRIOR TO INSTALLATION.

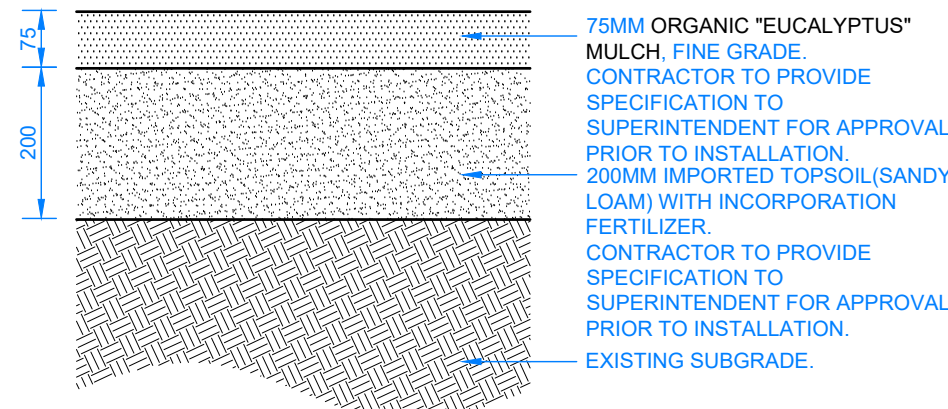
MOUNTED TOPSOIL BERM AROUND BASE OF SHRUB, AS SHOWN.

200MM IMPORTED TOPSOIL. APPROVED ON SITE. REFER SPECIFICATIONS. CONTRACTOR TO PROVIDE SPECIFICATION TO SUPERINTENDENT FOR APPROVAL PRIOR TO INSTALLATION.

FILL WITH APPROVED IMPORTED SOIL OR AUGMENTED NATIVE EXCAVATED SOIL OR WITH 30% ORGANIC MULCH AND ORGANIC MANURE. REMOVE ALL RUBBLE AND DEBRIS. CONTRACTOR TO PROVIDE SPECIFICATION TO SUPERINTENDENT FOR APPROVAL PRIOR TO INSTALLATION.

EXISTING SUBGRADE

**B** SHRUB - TYPICAL DETAIL  
401 SCALE 1:10

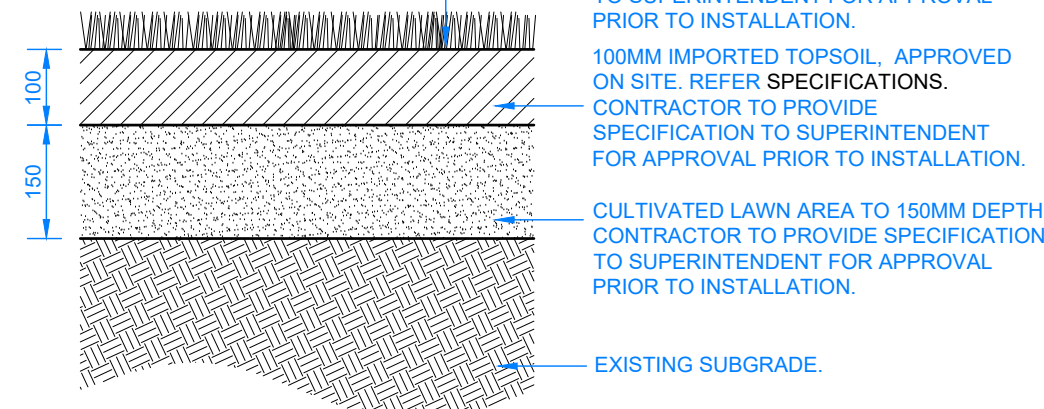


**NOTE:**  
**FERTILIZER**  
1. NPK STARTER FERTILIZER 8.10.9 AT 4KG/100 SQ.M.  
- TRACE ELEMENT MIX MICROMAX 3KG/100 SQ.M.  
- MAGNESIUM SULPHATE 3KG/100 SQ.M.  
- SUPERPHOSPHATE 1.5KG/100 SQ.M.  
2. AT PLANTING APPLY TO THE SURFACE OF THE LAWN AREA NPK 16.4.14 OR SIMILAR FERTILIZER AT 3KG/100 SQ.M.  
3. APPLY THE ABOVE EVERY 4 WEEKS FOR THE INITIAL ESTABLISHMENT PERIOD OF 3-4 MONTHS.  
4. GENERAL NOTE ON FERTILIZERS: THERE MAY BE ALTERNATIVE FERTILIZER MATERIALS THAT COULD BE USED INSTEAD OF THE PRODUCTS LISTED ABOVE. THE USE OF ALTERNATIVES WILL REQUIRE REASSESSMENT OF THE RATE AND FREQUENCY OF APPLICATIONS.

75MM ORGANIC "EUCALYPTUS" MULCH. FINE GRADE. CONTRACTOR TO PROVIDE SPECIFICATION TO SUPERINTENDENT FOR APPROVAL PRIOR TO INSTALLATION. 200MM IMPORTED TOPSOIL (SANDY LOAM) WITH INCORPORATION FERTILIZER. CONTRACTOR TO PROVIDE SPECIFICATION TO SUPERINTENDENT FOR APPROVAL PRIOR TO INSTALLATION.

EXISTING SUBGRADE.

**C** MULCH - TYPICAL DETAIL  
401 SCALE 1:10



**NOTE:**  
**FERTILIZER**  
1. NPK STARTER FERTILIZER 8.10.9 AT 4KG/100 SQ.M.  
- TRACE ELEMENT MIX MICROMAX 3KG/100 SQ.M.  
- MAGNESIUM SULPHATE 3KG/100 SQ.M.  
- SUPERPHOSPHATE 1.5KG/100 SQ.M.  
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4. GENERAL NOTE ON FERTILIZERS: THERE MAY BE ALTERNATIVE FERTILIZER MATERIALS THAT COULD BE USED INSTEAD OF THE PRODUCTS LISTED ABOVE. THE USE OF ALTERNATIVES WILL REQUIRE REASSESSMENT OF THE RATE AND FREQUENCY OF APPLICATIONS.

KIKUYU SEED BLEND ROLLED TURF INCLUDING PREPARATION FERTILIZER AS SPECIFIED. CONTRACTOR TO PROVIDE SPECIFICATION TO SUPERINTENDENT FOR APPROVAL PRIOR TO INSTALLATION.

100MM IMPORTED TOPSOIL. APPROVED ON SITE. REFER SPECIFICATIONS. CONTRACTOR TO PROVIDE SPECIFICATION TO SUPERINTENDENT FOR APPROVAL PRIOR TO INSTALLATION.

CULTIVATED LAWN AREA TO 150MM DEPTH. CONTRACTOR TO PROVIDE SPECIFICATION TO SUPERINTENDENT FOR APPROVAL PRIOR TO INSTALLATION.

EXISTING SUBGRADE.

**D** ROLLED GRASS TURF - TYPICAL DETAIL  
401 SCALE 1:10

**-WARNING -**  
CONTRACTOR TO VERIFY LOCATION; DEPTH/CLEARANCE AND ALIGNMENT OF OVERHEAD AND UNDERGROUND SERVICES. CONTRACTOR TO ACQUIRE CURRENT AND RELEVANT DIAL BEFORE YOU DIG/ONE CALL SERVICES DRAWINGS AND ADHERE TO ALL REQUIREMENTS FOR WORKS NEAR SERVICES INCLUDING CLEARANCES, EASEMENTS AND INFORMING SERVICE AUTHORITIES PRIOR TO COMMENCEMENT OF WORKS. THE LOCATIONS OF UNDERGROUND SERVICES INDICATED IN THIS SET OF DRAWINGS ARE INDICATIVE ONLY. FIT LOCATIONS HAVE BEEN SURVEYED BY A LICENSED SURVEYOR.

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**DRAWING STATUS:**

## FOR COMMENT

**REVISION STATUS:**

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**LANDSCAPE ARCHITECT CONSULTANT:**

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**CONSULTANTS:**

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**WEBB AUSTRALIA GROUP**  
Level 6, 128 Exhibition St  
Melbourne VIC 3000  
Tel : +613 9652 0333  
www.webbaustralia.com.au

**NOTES / LEGEND:**

**PLANTING NOTES:**

01. CONTRACTOR TO VERIFY LOCATION; DEPTH/CLEARANCE AND ALIGNMENT OF ALL OVERHEAD AND UNDERGROUND SERVICES INDICATED ON CURRENT AND RELEVANT DIAL BEFORE YOU DIG/ONE CALL SERVICES DRAWINGS CONTRACTOR TO REQUEST ADDITIONAL SERVICES RECORDS FROM COUNCIL, WHERE SERVICES ACCESS FITS, LIGHT POLES, MASTHEADS ETC. EXIST ON SITE CONTRACTOR TO ASSUME GENERAL ALIGNMENT OF UNDERGROUND PIPES, CONDUITS, CABLES ETC AND VERIFY ALIGNMENT AND MARK ON SITE PRIOR TO COMMENCEMENT OF WORKS.

02. LICENSED SURVEYOR TO BE USED TO LOCATE HEIGHT DATUM & SET OUT POINT AS SHOWN ON DRAWINGS PRIOR TO COMMENCEMENT OF WORKS. CONTRACTOR TO INFORM SUPERINTENDENT OF ANY DISCREPANCIES PRIOR TO COMMENCING WORKS.

03. STOCK PILED SITE TOPSOIL TO BE USED WHERE APPROVED BY SUPERINTENDENT. STOCK PILED TOPSOIL TO BE CLEARED OF VEGETATIVE MATTER AND DEBRIS.

**CLIENT NAME:**

**INNER WEST COUNCIL**  
7-15 Wetherill Street, Leichhardt  
NSW 2040

**PROJECT NAME:**

**LEICHHARDT PARK SKATE PARK**  
70 Mary Street,  
Lilyfield NSW 2040

**DRAWING TITLE:**

**Planting Details 01**

**SCALE:** N/A **DATE OF ISSUE:** 18.01.2022  
**FORMAT / SIZE:** A1 **REFERENCE NO:** 1821  
**DESIGN REVIEW:** ND **APPROVAL:** JM

**DRAWING NUMBER:** **REVISION:**

**1821\_CD 401** **05**

## Appendix B: Data Quality Objectives

In determining the type, quantity and quality of data needed to support decisions relating to the assessment works to be completed on the Site, the seven-step DQO approach has been undertaken in accordance with Appendix B of Schedule B2 of the *National Environment Protection (Assessment of Site Contamination) Measure 1999* (NEPC, 2013) (the ASC NEPM). The DQO's are presented below.

### B1 Step 1 State the Problem

The Site has been and is currently occupied for used for open space and recreational land uses, as part of the larger Leichhardt Park, and is currently covered with grassed areas with some stands of trees. Inner West Council (the Council) are proposing to develop the Site into a skateboarding and cycling area, referred to as a 'Skate Plaza'.

The construction of the Skate Plaza will comprise the installation of various concrete surfaces, retaining walls, paved, soft landscaping areas and asphalt carparking as well as some drainage and lighting associated with the plaza as detailed in Appendix A (the Works). The Works will require some disturbance via excavation of surface and shallow sub-surface soils across the Site to depths of up to approximately 1 metre below the current ground surface.

Leichhardt Park, on which the Site is located, has been utilised for open space and recreational purposes for more than a century. Historical information indicates that large areas of Leichhardt Park were subject to filling activities between the 1960s and 1970s to achieve its current levels. Previous investigations on other parts of Leichhardt Park have identified the presence of fill materials that had a large proportion of building and demolition wastes that contained a range of contaminants (primarily heavy metals, polynuclear aromatic hydrocarbons, heavy petroleum hydrocarbons and asbestos containing materials). It is understood that some recent works completed by Council on the sporting fields located directly to the north of the Site, required excavations to depths of up to 1.5 metres below the current ground surface and that there was no evidence of building and demolition waste materials, including no visual observation of asbestos containing materials. Notwithstanding this, given the historical filling elsewhere on Leichhardt Park, there remains a potential for contamination to be present in the surface and sub-surface soils on the Site.

Currently, the suitability of the Site for open space and recreational land use is achieved through the operation and implementation of Council's *Long-term Environmental Management Plan for Parks and Playgrounds, Inner West Council NSW* prepared by CONSARA (latest revision dated 7 September 2020) (the LTEMP). The LTEMP sets out the control measures and procedures that are required to be implemented to manage the potential risks to human health associated with the presence and potential presence of contamination in surface and sub-surface fill materials that may be present in Council owned and operated areas, including the Site.

In accordance with the LTEMP, when planning for the proposed Skate Plaza, Council has sought advice from CONSARA as to how the potential contamination, that maybe disturbed during the works, can be managed. In addition, given that the proposed Skate Plaza does not constitute nor requires a change in the land use for the Site, Council has also sought confirmation from CONSARA that the proposed finished surface treatments will be sufficient to maintain suitability of the Site for open space and recreational land use subject to the ongoing implementation of the LTEMP.

In addition to the above, Council determined that in planning for the Skate Plaza that the conditions of the surface and sub-surface on the Site should be assessed to inform construction planning and to ensure that the Site will remain suitable for open space recreational land use once the Works are completed. This report has been prepared to document the works that were completed to assess the surface and sub-surface conditions of the Site and provides an assessment of the suitability of the Site for the Skate Plaza subject to the implementation of the LTEMP.



## Purpose of the Assessment

The purpose of the assessment works are as follows:

- Adequately characterise the surface and sub-surface environment on the Site such that identified potential areas of environmental concern (AEC) and potential contaminants of concern (COC) are assessed; and
- Assess the suitability of the Site for continued open space and recreational land use as a Skate Plaza subject to the implementation of the LTEMP.

## B2 Step 2 Identify the Decisions

The decisions to be made based on the results of the assessment are as follows:

- Were fill materials encountered on the Site to the lateral extent of the Site and the vertical extent of the excavation works required during the construction of the proposed Skate Plaza?
- Was there evidence of potentially contaminating activities undertaken on the Site apart from the presence of fill materials? Was there evidence of gross contamination such as non-aqueous phase liquids, chemical waste or other materials or similar on the Site? If so was the vertical and lateral extent determined?
- Were perched or shallow groundwaters encountered in the fill materials or natural soils on the Site?
- Were consistent surface and sub-surface conditions encountered across the Site?
- Was asbestos visually able to be identified in the fill materials? If so what was the vertical and lateral extent determined?
- Were any unexpected conditions or other potential contaminants of concern encountered? And if so were they appropriately investigated?
- Are surface and sub-surface conditions consistent with what was expected across the Site?
- Are concentrations of the potential chemical contaminants of concern in soil in locations at which intrusive investigations were completed greater than the adopted assessment criteria?
- Have the intrusive investigations adequately characterised the surface and sub-surface conditions on the Site such that a statement can be made on suitability for use for the proposed Skate Plaza?
- Is the Site suitable for the proposed Skate Plaza subject to the implementation of the LTEMP?

## B3 Step 3 Identify Inputs to the Decisions

The inputs required to make the above decisions are as follows:

- Appropriate guidelines endorsed by NSW EPA;
- Current and Proposed land use of the Site;
- Objectives of the Assessment works;
- The completion of a scope of work that comprises the completion of an appropriate sampling and analytical plan to allow for the required characterisation of the surface and sub-surface conditions on the Site;
- The completion of an analytical plan that provides for an appropriate number of samples of fill materials and soil materials to be analysed at a laboratory National Association of Testing Authorities (NATA) accredited for analysis of the primary potential contaminants of concern being Total Petroleum Hydrocarbons (TPHs),

Benzene, Toluene, Ethylbenzene, Xylenes (BTEX), Polycyclic Aromatic Hydrocarbons (PAHs), Organochlorine Pesticides (OCPs), Organophosphorus Pesticides (OPPs), Polychlorinated Biphenyls (PCBs). Metals (Arsenic, Cadmium, Copper, Chromium, Cyanide, Nickel, Lead, Mercury and Zinc) and Asbestos;

- Field and analytical results from the implementation of the sampling, analytical and quality plan as set out in the bullet points above;
- Relevant assessment criteria and the results of the comparison of the analytical results against this criteria.

## B4 Step 4 Define the boundaries

The boundaries of the assessment have been identified as follows:

- Spatial boundaries –The extent of the Site as shown on Figure 2;
- Vertical boundaries – Test-pits will be completed to the vertical extent of the construction works required for the proposed Skate Park being 1 to 1.2 m bgs;
- Temporal boundaries – the temporal boundary is limited to the data collected during this assessment; and
- Constraints within the study boundaries – The following issues present limitations upon the sampling strategy for the Site:
  - Vegetation, in particular stands of trees or dense shrubs;
  - Unexpected finds during the works.

## B5 Step 5 Develop a Decision Rule

The decision rules for the investigation are as follows:

- If potential for significant (being widespread dissolved or separate phase contamination in any media) or unexpected contamination or unexpected or inconsistent conditions is identified during fieldworks, SJB and Council to be contacted to determine if further works or change in scope is required;
- If the results identify contamination that is considered to be significant, consideration will be given to the requirement for further assessment and/or the completion of a site-specific human health and ecological risk assessment;
- If the results do not identify contamination or identify the presence of contamination that is not considered to be significant it is likely that a statement on suitability will be able to be made.

## B6 Step 6 Specify Limits on Decision Errors

The minimum acceptable limits on decision errors to be applied in the assessment and the manner of addressing possible decision errors have been developed based on the Data Quality Indicators (DQIs) of precision, accuracy, representativeness, comparability and completeness and are presented in Appendix C.

The potential for significant decision errors are to be minimised by:

- Completing an assessment of the works to determine whether the decisions set out in Step 3 for these works have been met;
- Completing a robust QA/QC assessment of the field and analytical data and application of the probability that 95% of data will satisfy the DQIs, therefore a limit on the decision error will be 5% that a conclusive statement may be incorrect;



- Ensuring that the application of an appropriate sampling and analytical density for the purposes of demonstrating required outcomes; and
- Ensuring that the criteria set for the assessment are appropriate.

## **B7 Step 7 Optimise the design for obtaining data**

The design of the sampling and analytical plan was based on satisfying the objectives of the assessment. The sampling and analytical plan completed for the assessment is detailed in Section 4 of this report.

# Appendix C: Data Validation

## C1 Quality Assurance and Quality Control Plan

The field and laboratory quality assurance and quality control plan implemented for the assessment works has been designed to achieve pre-determined data quality indicators that demonstrate the precision, accuracy, representativeness, completeness and comparability of the data set and that the data set is of acceptable quality to meet the objectives of the works.

The specific quality assurance and quality control plan adopted for the field and laboratory components of the works were developed based on with Appendix B of Schedule B2 of the ASC NEPM and are detailed below.

### C1.1 Data Quality Indicators

The project DQIs have been established to set acceptance limits on field and laboratory data collected as part of these assessment works. For both field and laboratory procedures, acceptance limits are set at different levels for different projects and by the laboratories.

Non-compliances with acceptance limits are documented and discussed further below.

The DQIs are as follows:

DQI	Field	Laboratory	Acceptability Limits
Precision	Sampling methodologies appropriate and complied with.  Collection of intra-laboratory duplicate and inter-laboratory duplicate samples	Analysis of:  Field intra-laboratory duplicate samples (1 in 10 samples)  Field inter-laboratory duplicate samples (1 in 20 samples)  Laboratory duplicate samples  Laboratory prepared trip spikes  Laboratory prepared trip blank	RPD of < 50%  RPD of < 50%  RPD of < 50%  Recovery >90%  Non-detect for CoC
Accuracy	Sampling methodologies appropriate and complied with.  Collection of rinsate blanks	Analysis of:  Rinsate blanks (1/day)  Method blanks  Matrix spikes  Matrix spike duplicates  Laboratory control samples  Surrogate spikes  Reference Materials	Non-detect for CoC  Non-detect for CoC  70 to 130%  RPD of <50%  70 to 130 %  70 to 130%  Varies



DQI	Field	Laboratory	Acceptability Limits
Representativeness	<p>Appropriate media sampled according to CONSARA methodologies</p> <p>All media identified in the methodology section sampled.</p>	All samples analysed according to Section 4.2.1 of this report.	All samples analysed according to the laboratory methodologies.
Comparability	<p>Same sampling methodologies used on each day of sampling</p> <p>Experienced sampler</p> <p>Climatic conditions</p> <p>Same types of samples collected</p>	<p>Same analytical methods used (including clean-up)</p> <p>Sample laboratory detection limits (justify/quantify if different)</p> <p>Same laboratories (NATA accredited)</p> <p>Same units</p>	<p>As per NEPC (2013)</p> <p>&lt; nominated criteria where applicable</p>
Completeness	<p>All critical locations and media sampled</p> <p>All samples collected</p> <p>Sampling methodologies appropriate and complied with</p> <p>Experienced sampler</p> <p>Documentation correct</p>	<p>All critical samples analysed and all analytes analysed according to Section 4.2.1 of this report.</p> <p>Appropriate methods</p> <p>Appropriate laboratory detection limits</p> <p>Sample documentation complete</p> <p>Sample holding times complied with</p>	<p>As per NEPC (2013)</p> <p>&lt; nominated criteria where applicable</p> <p>As per NEPC (2013)</p>

## C1.2 Field QA/QC

### C1.2.1 Soil Sample Collection

The soil sampling works were undertaken by appropriately qualified and experience field scientists and the sampling methods followed the procedures and methodology set out in below and were conducted with reference to the relevant guidelines endorsed by NSW EPA.

Soil samples were collected directly from undisturbed materials in the walls and base of test-pits or from the undisturbed materials present in the centre of the excavator bucket by a hand protected by nitrile gloves. New nitrile gloves were used for the collection of each sample.

Samples for chemical analysis were collected into laboratory-supplied 150 mL glass jars with lids, which were carefully filled to minimise the amount of headspace in the jar.

Samples for asbestos field screening and/or analysis were collected from the sample depths directly by hand protected by nitrile gloves. One 10 L sample and one 0.5L sample were directly placed into clean buckets.

Field intra-laboratory and inter-laboratory duplicates of the soil samples for chemical analysis were prepared in the field by collecting separate samples from the same depth or sampling location. The duplicates of the soil samples were prepared in the field by splitting the sample. Samples were not mixed or homogenised during collection or

splitting. Samples for duplicate analyses were selected from sampling locations showing the high probability of containing contaminants of concern, i.e., samples containing visual evidence of contamination noting no odours were present in any samples collected.

Soil samples collected for asbestos screening and analysis included, where practicable, the collection of a 0.5 L and 10L sample from each sampling location. In accordance with the WA DoH (2009), the 10 L sample was screened manually on-site through a < 7 mm sieve (recommended for Friable Asbestos (FA) or Asbestos Fines (AF)). The 10 L sample was retained and not analysed, however, the 0.5 L sample for these locations was placed into a zip-locked plastic bag and were sent to a laboratory NATA accredited for weighing and asbestos analysis.

### C1.2.2 Sample Labelling, Handling and Preservation

During sampling, a new pair of disposable nitrile sampling gloves was donned between each sampling location. Samples were placed immediately into a laboratory prepared and supplied containers in accordance with the methodology described in Section C1.2.1 above.

All sample containers were clearly labelled with unique sample identification numbers consisting of the date, sample location and samplers initials. In the case of field intra-laboratory and inter-laboratory duplicates and other field quality control samples, the sample containers were labelled so as to not reveal their purpose or sample location to the laboratory. All samples will be kept chilled in an ice-filled esky immediately after sampling and during transport to the nominated laboratories under chain-of-custody procedures. Soils samples for asbestos analysis were secured in an esky or similar between sampling and analysis. By prior arrangement with the laboratories, samples were analysed as soon as practicable after receipt by the laboratories.

Samples were preserved for the various contaminants of concern in accordance with the requirements of NEPC (2013) as detailed in the table below:

Matrix	Analyte	Container	Preservation
Soil	All chemical analytes	150 mL glass screw top jar	Unpreserved, 4 °C
	Asbestos	Sealed plastic bag	Unpreserved. No requirement for chilling

Sample numbers, depths, preservation and analytical requirements were recorded on the chain-of-custody documentation (signed copies provided with the laboratory reports in Appendix F), which accompanied the samples to the laboratory.

### C1.2.3 Intra-laboratory and Inter-laboratory Duplicate Samples

The purpose of field duplicate samples is to estimate the variability of a given characteristic or contaminant associated with a population. Intra-laboratory duplicate samples were collected and analysed at a rate of at least one in ten primary samples.

The field duplicated soil samples were obtained from similar soils immediately adjacent to the primary sample by placing approximately equal portions of the primary sample into two sample containers. The field duplicated groundwater samples were obtained from the same monitoring well as the primary sample and were collected as discrete samples. All duplicate samples were labelled to conceal their relationship to the primary sample from the laboratory and the key to the duplicate samples was recorded in the field note book.

It is common that significant variation in duplicate results is often observed (particularly for solid matrix samples) due to sample heterogeneity or low reported concentrations near the laboratory PQL. The overall precision of field



duplicates, laboratory split samples and laboratory duplicates is generally assessed by their Relative Percent Difference (RPD), given by:

$$RPD = \frac{(D1-D2)}{\frac{(D1+D2)}{2}} \times 100$$

where D1 is the primary sample measurement

D2 is the duplicate sample measurement

It is expected that RPD's would be less than 50% for organic compounds and 30% for inorganic compounds, and if not, liaison with the laboratory will be undertaken and samples will be reanalysed, if required.

There were 18 Primary Samples and 2 Intra-Lab Duplicates and 1 Inter-laboratory Duplicates analysed for TPH, BTEX, PAHs, Metals, OCPs, OPPs and PCBs– this resulted in an Intra-Lab Duplicate Frequency of 11% (DQIs set a 10% was criteria for Intra-Lab Duplicates) and an Inter-Lab Duplicate Frequency of 5.5% (DQIs set a 5% was criteria for Inter-Lab Duplicates). The frequency of duplicate samples exceeded the Project DQIs.

A summary of the calculations for soil RPDs for medium to heavy fraction TPH, PAHs and metals are presented in Table 6. RPD calculations were not completed for OCPs, OPPs and PCBs as concentrations in the primary and duplicate pairs were less than the laboratory detection limits for all compounds.

It is noted that there were RPD exceedances relative to the RPD criteria in a number of primary and intra-lab duplicate pairs and inter-laboratory duplicate pairs for PAHs and metals. The variability in concentrations may be due to the heterogeneity of the fill materials (where relevant) sampled. It is considered that the RPD exceedances do not affect the reliance on the data set.

Overall, the actual intra-laboratory and inter-laboratory duplicate sample frequency for the soil investigations is considered to be adequate to meet the DQIs for the assessment.

#### **C1.2.4 Decontamination and Rinsate Blanks**

Given that samples for chemical analysis were collected directly from the test-pits or from the undisturbed centre of soils present in the excavator bucket using single-use gloves and no-reuseable sampling equipment came into contact with the soil sampled the collection of rinsate blanks was not necessary.

#### **C1.2.5 Trip Spike**

A trip spike assesses for the potential of loss of volatile constituents from soil samples whilst in transit from the investigation site to the laboratory. The spike sample is prepared by the laboratory, transported to the investigation site under COC protocol and returned to the laboratory with the primary samples being submitted for analysis.

One soil trip spike was utilised during collection, storage and transport of the batch of soil samples. The trip spike was then blindly labelled and submitted to the laboratory for analysis for the spike constituents, being BTEX compounds. The results of the trip spike recovery is provided in Table 3 and indicated excellent recovery and where within the acceptance criteria.

The results indicate that there was no significant loss or gain of volatile constituents from the soil samples while in transit from the Site to the laboratory.

## A1.1 Trip Blank

A trip blank assesses for the potential transfer of volatile constituents from samples whilst in transit from the site to the laboratory. The blank sample is prepared by the laboratory, transported to the site under COC protocol and returned to the laboratory with the primary samples being submitted for analysis. The acceptance criteria is concentrations of analytes to be less than the laboratory detection limits.

One soil trip blank was utilised during collection, storage and transport of the batch soil samples. The trip blank was blindly labelled and submitted to the laboratory for analysis for volatile constituents, being BTEX compounds. The results of the trip blank is provided in Table 3 and reported concentrations that were less than the laboratory detection limits.

The results indicate that there was no transfer of volatile constituents from the soil samples while in transit from the Site to the laboratory.

## C2 Laboratory QA/QC

### C2.1.1 Analytical Laboratory

Samples were submitted to the Envirolab, Chatswood, NSW - (primary laboratory) Report No.269180 Soil Analysis. Envirolab is a NATA-accredited laboratory (accreditation number is 2901), and its analytical procedures are based on established internationally-recognised procedures such as those published by the US EPA, APHA, AS and NEPM (2013). Envirolab also adopt in house procedures where required.

Samples were submitted to the ALS, Smithfield, NSW - (secondary laboratory) Report no: ES119002– Soil Analysis. The ALS NATA accreditation number is 825, and its analytical procedures are based on methods referenced from published sources including the US EPA APHA, AS and NEPM (2013).

### C2.1.2 Analytical Methods

The laboratory analysis methods are provided on the laboratory certificates in Appendix F and summarised below:

#### Analytical Laboratory Methods

Analyte	Envirolab Practical Quantitation Limit	Reference Method	ALS Laboratory Limit of Detection	Reference Method
BTEX and Naphthalene	0.2 – 1 mg/kg	Extraction with methanol and Purge and Trap GC-MS	0.2-1 mg/kg	Extraction with methanol and Purge and Trap GC-MS
TRHs (C6-C10)	25 mg/kg	Extraction with methanol and Purge and Trap GC-MS	10 mg/kg	Extraction with methanol and Purge and Trap GC-MS
TRHs (C10-C40)	50-100 mg/kg	Extraction with Dichloromethane/Acetone and analysed by GC-FID	50-100 mg/kg	Extraction with Dichloromethane/Acetone and analysed by GC-FID
PAHs (Including Naphthalene)	0.05-0.2 mg/kg	Extraction with Dichloromethane/Acetone and analysed by GC-MS	0.5 mg/kg	Extraction with Dichloromethane/Acetone and analysed by GC-MS



Analyte	EnviroLab Practical Quantitation Limit	Reference Method	ALS Laboratory Limit of Detection	Reference Method
Metals – Arsenic, Cadmium, Chromium, Copper, Lead, Nickel, Zinc	0.4-4 mg/kg	ICP-AES	1-5 mg/kg	ICP-AES
Mercury	0.1 mg/kg	Cold vapour AAS	0.5 mg/kg	Cold vapour AAS
OCPs/OPPs/PCBs	0.1 mg/kg	Extraction with Dichloromethane/Acetone and analysed by GC with dual ECDs	0.1 mg/kg	Extraction with Dichloromethane/Acetone and analysed by GC with dual ECDs
Asbestos	mg/kg (0.001%w/w) to 0.1g/kg (0.01%w/w)	Polarised Light Microscopy and Dispersion Staining Techniques.		

Notes to Table:

GC= Gas Chromatography CP-AES =Inductively Coupled Plasma Atomic Emission Spectrometry

AAS = Atomic Absorption Spectroscopy MS = Mass Spectrometry FID = Flame Ionisation Detector

### C2.1.3 Laboratory (Method) Blanks

Laboratory or control blanks consist of reagents specific to each individual analytical method and are prepared and analysed by laboratories in the same manner as regular samples. The preparation and analysis of laboratory blanks enables the measurement of contamination within the laboratory.

Laboratory blanks are typically analysed at a frequency of 1 in 10, with a minimum of one analysed per batch.

Review of laboratory QA/QC reports indicated that the results for all method blanks for soil were below the laboratory PQLs.

### C2.1.4 Laboratory Duplicates

Laboratory duplicate samples are prepared in the laboratory by splitting a field sample and analysing it as two independent samples. The analysis of laboratory duplicate samples provides an indication of analytical precision and may be influenced by sample heterogeneity. The laboratory duplicate RPDs are used to assess laboratory precision.

Laboratory duplicates are typically analysed at a frequency of 1 in 10, with a minimum of one analysed per batch.

Review of the laboratory QA/QC reports identified exceedances for laboratory duplicate samples relative to the assessment criteria (results ranged from 0-3 % RPD), but the laboratory deemed the results acceptable based on the non-homogeneous nature of the samples.

### C2.1.5 Matrix Spikes

Matrix spikes are samples prepared within the laboratory by dividing a field sample into two aliquots, then spiking each with identical concentrations of the analytes. The matrix spike and matrix spike duplicate are then analysed separately and the results compared to determine the effects of the sample matrix on the accuracy and precision of the analytes. Accuracy is assessed by the calculation of the percent recovery.

Review of the laboratory QA/QC reports indicated that the percent recoveries for matrix spike samples, where tested, reported results for soil that were within the acceptance criteria.

### C2.1.6 Surrogates

Surrogates are compounds which are similar to the organic analytes of interest in chemical composition, extraction, and chromatographic behaviour, but which are not normally found in field samples.

Surrogates are generally spiked into all sample aliquots prior to preparation and analysis by chromatographic methods. Percent recoveries are calculated for each surrogate, providing an indication of analytical accuracy. US EPA methodology (SW – 846) requires that surrogate testing be performed whenever analysing by Gas Chromatography or HPLC.

Review of the laboratory QA/QC reports indicated that the percent recoveries for surrogates for soil that were within the acceptance criteria for the laboratory.

### C2.1.7 Holding Times

NEPC (1999), APHA 20th Edition and AS2031.1-1986 present recommended holding times for various analyses (under specified conditions, for example below 4°C in an airtight container), which must be met in order to consider the results valid. The holding times may vary slightly depending on the document referenced.

Analyte	Matrix	Recommended Maximum Holding Time
TPH (C6-C36)	Soil	14 days
BTEX	Soil	14 days
PAHs	Soil	14 days
Metals	Soil	6 months
Mercury	Soil	28 days
OCPs/OPPs	Soil	14 days
PCBs	Soil	28 days
Asbestos	Soil	N/A

Review of the chain-of-custody documentation and the laboratory reports indicated that for the analyses, the holding times met the standard holding times set out in the table above for all analytes tested.



## C2.2 Data Validation

The overall assessment of the quality of the data obtained during the validation works is discussed below in terms of the data quality indicators provided above.

Non-compliances have been documented and discussed in the report. The DQIs are as follows:

DQI	Description	Compliance
Precision	Precision is a quantitative measure of the variability (or reproducibility) of data.	<p>Precision or variability of the data was assessed by determining RPDs between the original and duplicate samples analysed.</p> <p>Based on results discussed above, CONSARA considers that the precision of the data is sufficient for the purposes of the assessment.</p>
Accuracy	Accuracy is a quantitative measure of the closeness of reported data to the true value.	<p>Accuracy of the data was mainly assessed through review of the laboratory QA/QC results.</p> <p>From the laboratory QA/QC results, CONSARA considers that the accuracy of the data is sufficient for the purposes of the assessment.</p>
Representativeness	Representativeness is the confidence (expressed qualitatively) that data are representative of each media present on the site.	<p>Representativeness expresses the degree to which sample data accurately and precisely represent a characteristic of parameter variations at sampling points or environmental conditions. Sample representativeness is controlled through selecting sampling locations that exemplify site conditions and obtaining suitable samples from these sites.</p> <p>Sample selection and analysis was conducted in order to meet the specific objectives of the project. Analysis for the contaminants of concern was selectively conducted on samples collected as indicated in analytical tables.</p> <p>Based on the sampling and analytical regime undertaken by CONSARA, the results obtained are considered to be sufficiently representative of the subsurface conditions at the locations tested.</p>
Completeness	Completeness is a measure of the amount of usable data (expressed as %) from a data collection activity.	<p>The completeness of data is defined as the percentage of analytical results that are considered valid. Valid chemical data are values that have been identified as acceptable or acceptable as qualified during the data validation process. The completeness is a comparison of the total number of samples accepted against the total number of samples, calculated as a percentage. The project goal for completeness is 95%. Completeness also includes checking that all entries in the data tables are correct, properly entered, and that any typographical errors are corrected and the data are re-entered properly, as required.</p> <p>Some of the samples collected and analysed did not comply with the stated DQIs. However, the data that did comply with the DQOs and DQIs, is considered to be sufficiently quantitative and complete for the purposes of the assessment (i.e. &gt;95%)</p>

DQI	Description	Compliance
Comparability	Comparability is the confidence (expressed qualitatively) that data may be considered to be equivalent for each sampling and analytical event.	<p>Comparability expresses the confidence with which one data set can be compared with another. In order to assess comparability, field sampling procedures, laboratory sample preparation procedures, analytical procedures, and reporting units must be known and similar to established protocols, as was the case during this investigation. Qualitatively, data subjected to strict QA/QC procedures will be deemed more reliable, and therefore more comparable, than other data.</p> <p>Each analyte was analysed by the same analytical laboratory using identical methods, and laboratory EQLs were consistent over each laboratory batch. Additionally, a check laboratory was used to assess variability between laboratories.</p> <p>Based on the above, the data obtained throughout the assessment works is considered to be suitably comparable.</p>

Based on the assessment of field and laboratory QA/QC data, the reported field and analytical results are considered to be of a quality that can be relied upon for the purposes of the assessment.



## Appendix D: Test-pit Logs

**TEST PIT ID: TP01**

TEST PIT DATE:  
EXCAVATED BY:  
EXCAVATOR:  
CONSARA:

17/05/2021  
MCS Civil  
8 Tonne Rubber Track  
R Organo

PROJECT NO: C201016  
SITE: Proposed Skate Plaza, Leichhardt Park, 70 Mary St, Lilyfield  
CLIENT: SJB Planning on behalf of Inner West Council

DEPTH (m)	GRAPHIC LOG	SAMPLE ID	SAMPLE ANALYSED	USCS CLASS	DESCRIPTION	MOISTURE	CONSISTENCY	DENSITY	ADDITIONAL OBSERVATIONS
0		TP01_0.0-0.2	x	SC	TOPSOILS: Silty to Sandy Dark Brown Soils	Dry	Loose	Friable	No odours, staining or sheens observed. No potential asbestos observed
		TP01_0.2-0.4 & QC01 & QC02	x	SG	FILL MATERIALS: Sandy silty soils, fragments of plastics, glass, ash materials, minor gravels, sandstone gravels				
			x	CL	Clays - red to grey, reworked, some pockets of sands and larger sandstone rocks	Dry	Loose	Friable	
0.5		TP01_0.5-0.7							
1									



**TEST PIT ID: TP02**

TEST PIT DATE: 17/05/2021  
EXCAVATED BY: MCS Civil  
EXCAVATOR: 8 Tonne Rubber Track  
CONSARA: R Organo

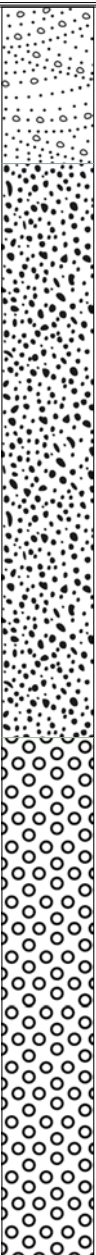
PROJECT NO: C201016  
SITE: Proposed Skate Plaza, Leichhardt Park, 70 Mary St, Lilyfield  
CLIENT: SJB Planning on behalf of Inner West Council

DEPTH (m)	GRAPHIC LOG	SAMPLE ID	SAMPLE ANALYSED	USCS CLASS	DESCRIPTION	MOISTURE	CONSISTENCY	DENSITY	ADDITIONAL OBSERVATIONS
0				SC	TOPSOILS: Silty to Sandy Dark Brown Soils				
					FILL MATERIALS: Sandy silty soils, bricks, slag, tile, fragments of plastics, glass, black to grey ash materials, minor gravels, sandstone gravels	Dry	Loose	Friable	No odours, staining or sheens observed. No potential asbestos observed
		TP02_0.3-0.4	X						
		TP02_FRAG01	X						
0.5				SG					
						Dry	Loose	Friable	
		TP02_0.9-1.0	X		Coarse Sands mixed with reworked Clays - red to grey, larger sandstone rocks and bricks throughout				
1				CL					





PROJECT NO: C201016  
SITE: Proposed Skate Plaza, Leichhardt Park, 70 Mary St, Lilyfield  
CLIENT: SJB Planning on behalf of Inner West Council

DEPTH (m)	GRAPHIC LOG	SAMPLE ID	SAMPLE ANALYSED	USCS CLASS	DESCRIPTION	MOISTURE	CONSISTENCY	DENSITY	ADDITIONAL OBSERVATIONS
0				SC	TOPSOILS: Silty to Sandy Dark Brown Soils				
				SG	FILL MATERIALS: Sandy silty soils, some clays present, bricks, tile, glass, black to grey ash materials, minor gravels, sandstone gravels	Dry	Loose	Friable	No odours, staining or sheens observed. Minor fragments of ACM observed
0.5		TP04_0.5-0.6	x						
					Clays - grey, reworked, some pockets of sand larger sandstone rocks and bricks throughout	Dry	Loose	Friable	
		TP04_0.8-0.9							
1				CL					

**TEST PIT ID: TP05**





# TEST PIT ID: TP06

TEST PIT DATE:  
EXCAVATED BY:  
EXCAVATOR:  
CONSARA:

17/05/2021  
MCS Civil  
8 Tonne Rubber Track  
R Organo

PROJECT NO: C201016  
SITE: Proposed Skate Plaza, Leichhardt Park, 70 Mary St, Lilyfield  
CLIENT: SJB Planning on behalf of Inner West Council

DEPTH (m)	GRAPHIC LOG	SAMPLE ID	SAMPLE ANALYSED	USCS CLASS	DESCRIPTION	MOISTURE	CONSISTENCY	DENSITY	ADDITIONAL OBSERVATIONS
0				SC	TOPSOILS: Silty to Sandy Dark Brown Soils				
		TP06_0.4-0.5	x	SG	FILL MATERIALS: Sandy silty soils, some clays present, bricks, tile, glass, black to grey ash materials, minor gravels, sandstone gravels	Dry	Loose	Friable	No odours, staining or sheens observed. No potential asbestos observed
0.5									
		TP06_0.7-0.8	x		Clays - grey, reworked, some pockets of sand larger sandstone rocks and bricks throughout	Dry	Loose	Friable	
1				CL					



# TEST PIT ID: TP07

TEST PIT DATE:  
EXCAVATED BY:  
EXCAVATOR:  
CONSARA:

17/05/2021  
MCS Civil  
8 Tonne Rubber Track  
R Organo

PROJECT NO: C201016  
SITE: Proposed Skate Plaza, Leichhardt Park, 70 Mary St, Lilyfield  
CLIENT: SJB Planning on behalf of Inner West Council

DEPTH (m)	GRAPHIC LOG	SAMPLE ID	SAMPLE ANALYSED	USCS CLASS	DESCRIPTION	MOISTURE	CONSISTENCY	DENSITY	ADDITIONAL OBSERVATIONS
0				SC	TOPSOILS: Silty to Sandy Dark Brown Soils				
					FILL MATERIALS: Sandy silty soils, some clays present, some grey ash materials, minor gravels, sandstone gravels	Dry	Loose	Friable	No odours, staining or sheens observed. No potential asbestos observed
		TP07_0.3-0.4	x						
0.5				SG					
					Clays - grey, reworked, larger sandstone rocks	Dry	Loose	Friable	
1		TP07_0.9-1.0	x	CL					





## Appendix E: Photographs of Site

**Plate 1:** TP01 – View of walls and base





**Plate 2:** TP01 – View of excavated fill materials





**Plate 3:** TP02 – View of walls and base





**Plate 4:** TP02 – View of excavated fill materials





**Plate 5:** TP03 – View of walls and base





**Plate 6:** TP03 – View of excavated fill materials





**Plate 7:** TP05 – View of walls and base





**Plate 8:** TP05 – View of excavated fill materials





**Plate 9:** TP06 – View of walls and base





**Plate 10:** TP07 – View of walls and base





**Plate 11:** TP07 – View of excavated fill materials





**Plate 12:** TP08 – View of walls and base



# Appendix F: Final Analytical Laboratory Reports



## CERTIFICATE OF ANALYSIS 269180

### Client Details

<b>Client</b>	Consara Pty Ltd
<b>Attention</b>	Rebecca Organo
<b>Address</b>	PO Box 7360, Warringah Mall, NSW, 2100

### Sample Details

<b>Your Reference</b>	<u><b>C201016, Lilyfield</b></u>
<b>Number of Samples</b>	22 Soil, 1 Material
<b>Date samples received</b>	17/05/2021
<b>Date completed instructions received</b>	17/05/2021

### Analysis Details

Please refer to the following pages for results, methodology summary and quality control data.  
 Samples were analysed as received from the client. Results relate specifically to the samples as received.  
 Results are reported on a dry weight basis for solids and on an as received basis for other matrices.  
**Please refer to the last page of this report for any comments relating to the results.**

### Report Details

<b>Date results requested by</b>	24/05/2021
<b>Date of Issue</b>	24/05/2021
NATA Accreditation Number 2901. This document shall not be reproduced except in full.	
Accredited for compliance with ISO/IEC 17025 - Testing. <b>Tests not covered by NATA are denoted with *</b>	

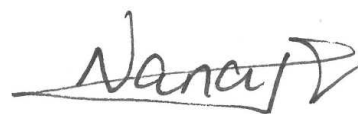
#### Asbestos Approved By

Analysed by Asbestos Approved Identifier: Ridwan Wijaya, Nyovan Moonean  
 Authorised by Asbestos Approved Signatory: Lucy Zhu

#### Results Approved By

Dragana Tomas, Senior Chemist  
 Hannah Nguyen, Senior Chemist  
 Lucy Zhu, Asbestos Supervisor  
 Steven Luong, Organics Supervisor

#### Authorised By



Nancy Zhang, Laboratory Manager

## vTRH(C6-C10)/BTEXN in Soil

Our Reference		269180-1	269180-2	269180-3	269180-4	269180-5
Your Reference	UNITS	TP01	TP01	TP01	TP02	TP02
Depth		0.0-0.2	0.2-0.4	0.5-0.7	0.3-0.4	0.9-1.0
Date Sampled		17/05/2021	17/05/2021	17/05/2021	17/05/2021	17/05/2021
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	18/05/2021	18/05/2021	18/05/2021	18/05/2021	18/05/2021
Date analysed	-	19/05/2021	19/05/2021	19/05/2021	19/05/2021	19/05/2021
TRH C <sub>6</sub> - C <sub>9</sub>	mg/kg	<25	<25	<25	<25	<25
TRH C <sub>6</sub> - C <sub>10</sub>	mg/kg	<25	<25	<25	<25	<25
vTPH C <sub>6</sub> - C <sub>10</sub> less BTEX (F1)	mg/kg	<25	<25	<25	<25	<25
Benzene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1	<1	<1	<1
m+p-xylene	mg/kg	<2	<2	<2	<2	<2
o-Xylene	mg/kg	<1	<1	<1	<1	<1
naphthalene	mg/kg	<1	<1	<1	<1	<1
Total +ve Xylenes	mg/kg	<3	<3	<3	<3	<3
Surrogate aaa-Trifluorotoluene	%	125	121	104	117	127

## vTRH(C6-C10)/BTEXN in Soil

Our Reference		269180-6	269180-7	269180-8	269180-10	269180-11
Your Reference	UNITS	TP03	TP03	TP04	TP05	TP05
Depth		0.4-0.5	0.9-1.0	0.5-0.6	0.3-0.4	0.9-1.0
Date Sampled		17/05/2021	17/05/2021	17/05/2021	17/05/2021	17/05/2021
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	18/05/2021	18/05/2021	18/05/2021	18/05/2021	18/05/2021
Date analysed	-	19/05/2021	19/05/2021	19/05/2021	19/05/2021	19/05/2021
TRH C <sub>6</sub> - C <sub>9</sub>	mg/kg	<25	<25	<25	<25	<25
TRH C <sub>6</sub> - C <sub>10</sub>	mg/kg	<25	<25	<25	<25	<25
vTPH C <sub>6</sub> - C <sub>10</sub> less BTEX (F1)	mg/kg	<25	<25	<25	<25	<25
Benzene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1	<1	<1	<1
m+p-xylene	mg/kg	<2	<2	<2	<2	<2
o-Xylene	mg/kg	<1	<1	<1	<1	<1
naphthalene	mg/kg	<1	<1	<1	<1	<1
Total +ve Xylenes	mg/kg	<3	<3	<3	<3	<3
Surrogate aaa-Trifluorotoluene	%	126	122	126	128	126



## vTRH(C6-C10)/BTEXN in Soil

Our Reference		269180-12	269180-13	269180-14	269180-15	269180-16
Your Reference	UNITS	TP06	TP06	TP07	TP07	TP08
Depth		0.4-0.5	0.7-0.8	0.3-0.4	0.9-1.0	0.3-0.4
Date Sampled		17/05/2021	17/05/2021	17/05/2021	17/05/2021	17/05/2021
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	18/05/2021	18/05/2021	18/05/2021	18/05/2021	18/05/2021
Date analysed	-	19/05/2021	19/05/2021	19/05/2021	19/05/2021	19/05/2021
TRH C <sub>6</sub> - C <sub>9</sub>	mg/kg	<25	<25	<25	<25	<25
TRH C <sub>6</sub> - C <sub>10</sub>	mg/kg	<25	<25	<25	<25	<25
vTPH C <sub>6</sub> - C <sub>10</sub> less BTEX (F1)	mg/kg	<25	<25	<25	<25	<25
Benzene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1	<1	<1	<1
m+p-xylene	mg/kg	<2	<2	<2	<2	<2
o-Xylene	mg/kg	<1	<1	<1	<1	<1
naphthalene	mg/kg	<1	<1	<1	<1	<1
Total +ve Xylenes	mg/kg	<3	<3	<3	<3	<3
Surrogate aaa-Trifluorotoluene	%	124	114	116	113	125

## vTRH(C6-C10)/BTEXN in Soil

Our Reference		269180-17	269180-18	269180-19	269180-20	269180-21
Your Reference	UNITS	TP08	TP08	QC01	QC03	QC100
Depth		0.5-0.6	0.9-1.0	-	-	-
Date Sampled		17/05/2021	17/05/2021	17/05/2021	17/05/2021	17/05/2021
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	18/05/2021	18/05/2021	18/05/2021	18/05/2021	18/05/2021
Date analysed	-	19/05/2021	19/05/2021	19/05/2021	19/05/2021	19/05/2021
TRH C <sub>6</sub> - C <sub>9</sub>	mg/kg	<25	<25	<25	<25	[NA]
TRH C <sub>6</sub> - C <sub>10</sub>	mg/kg	<25	<25	<25	<25	[NA]
vTPH C <sub>6</sub> - C <sub>10</sub> less BTEX (F1)	mg/kg	<25	<25	<25	<25	[NA]
Benzene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1	<1	<1	<1
m+p-xylene	mg/kg	<2	<2	<2	<2	<2
o-Xylene	mg/kg	<1	<1	<1	<1	<1
naphthalene	mg/kg	<1	<1	<1	<1	[NA]
Total +ve Xylenes	mg/kg	<3	<3	<3	<3	[NA]
Surrogate aaa-Trifluorotoluene	%	124	121	128	117	102

vTRH(C6-C10)/BTEXN in Soil		
Our Reference		269180-22
Your Reference	UNITS	QC101
Depth		-
Date Sampled		17/05/2021
Type of sample		Soil
Date extracted	-	18/05/2021
Date analysed	-	19/05/2021
Benzene	mg/kg	118%
Toluene	mg/kg	125%
Ethylbenzene	mg/kg	117%
m+p-xylene	mg/kg	118%
o-Xylene	mg/kg	117%
Surrogate aaa-Trifluorotoluene	%	89



## svTRH (C10-C40) in Soil

Our Reference		269180-1	269180-2	269180-3	269180-4	269180-5
Your Reference	UNITS	TP01	TP01	TP01	TP02	TP02
Depth		0.0-0.2	0.2-0.4	0.5-0.7	0.3-0.4	0.9-1.0
Date Sampled		17/05/2021	17/05/2021	17/05/2021	17/05/2021	17/05/2021
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	18/05/2021	18/05/2021	18/05/2021	18/05/2021	18/05/2021
Date analysed	-	22/05/2021	22/05/2021	22/05/2021	22/05/2021	22/05/2021
TRH C <sub>10</sub> - C <sub>14</sub>	mg/kg	<50	<50	<50	<50	<50
TRH C <sub>15</sub> - C <sub>28</sub>	mg/kg	<100	120	<100	160	550
TRH C <sub>29</sub> - C <sub>36</sub>	mg/kg	170	430	<100	280	340
TRH >C <sub>10</sub> -C <sub>16</sub>	mg/kg	<50	<50	<50	<50	<50
TRH >C <sub>10</sub> - C <sub>16</sub> less Naphthalene (F2)	mg/kg	<50	<50	<50	<50	<50
TRH >C <sub>16</sub> -C <sub>34</sub>	mg/kg	160	310	<100	290	690
TRH >C <sub>34</sub> -C <sub>40</sub>	mg/kg	<100	240	<100	130	160
Total +ve TRH (>C10-C40)	mg/kg	160	550	<50	420	850
Surrogate o-Terphenyl	%	81	81	85	83	84

## svTRH (C10-C40) in Soil

Our Reference		269180-6	269180-7	269180-8	269180-10	269180-11
Your Reference	UNITS	TP03	TP03	TP04	TP05	TP05
Depth		0.4-0.5	0.9-1.0	0.5-0.6	0.3-0.4	0.9-1.0
Date Sampled		17/05/2021	17/05/2021	17/05/2021	17/05/2021	17/05/2021
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	18/05/2021	18/05/2021	18/05/2021	18/05/2021	18/05/2021
Date analysed	-	22/05/2021	22/05/2021	22/05/2021	22/05/2021	22/05/2021
TRH C <sub>10</sub> - C <sub>14</sub>	mg/kg	<50	<50	<50	<50	<50
TRH C <sub>15</sub> - C <sub>28</sub>	mg/kg	290	360	120	<100	<100
TRH C <sub>29</sub> - C <sub>36</sub>	mg/kg	390	400	200	<100	<100
TRH >C <sub>10</sub> -C <sub>16</sub>	mg/kg	<50	<50	<50	<50	<50
TRH >C <sub>10</sub> - C <sub>16</sub> less Naphthalene (F2)	mg/kg	<50	<50	<50	<50	<50
TRH >C <sub>16</sub> -C <sub>34</sub>	mg/kg	470	570	220	<100	<100
TRH >C <sub>34</sub> -C <sub>40</sub>	mg/kg	200	170	100	<100	<100
Total +ve TRH (>C10-C40)	mg/kg	670	740	320	<50	<50
Surrogate o-Terphenyl	%	80	86	82	78	77

## svTRH (C10-C40) in Soil

Our Reference		269180-12	269180-13	269180-14	269180-15	269180-16
Your Reference	UNITS	TP06	TP06	TP07	TP07	TP08
Depth		0.4-0.5	0.7-0.8	0.3-0.4	0.9-1.0	0.3-0.4
Date Sampled		17/05/2021	17/05/2021	17/05/2021	17/05/2021	17/05/2021
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	18/05/2021	18/05/2021	18/05/2021	18/05/2021	18/05/2021
Date analysed	-	22/05/2021	22/05/2021	22/05/2021	22/05/2021	22/05/2021
TRH C <sub>10</sub> - C <sub>14</sub>	mg/kg	<50	<50	<50	<50	<50
TRH C <sub>15</sub> - C <sub>28</sub>	mg/kg	200	<100	<100	<100	100
TRH C <sub>29</sub> - C <sub>36</sub>	mg/kg	210	<100	<100	<100	230
TRH >C <sub>10</sub> -C <sub>16</sub>	mg/kg	<50	<50	<50	<50	<50
TRH >C <sub>10</sub> - C <sub>16</sub> less Naphthalene (F2)	mg/kg	<50	<50	<50	<50	<50
TRH >C <sub>16</sub> -C <sub>34</sub>	mg/kg	300	<100	<100	<100	220
TRH >C <sub>34</sub> -C <sub>40</sub>	mg/kg	100	<100	<100	<100	100
Total +ve TRH (>C10-C40)	mg/kg	400	<50	<50	<50	330
Surrogate o-Terphenyl	%	79	83	83	77	79

## svTRH (C10-C40) in Soil

Our Reference		269180-17	269180-18	269180-19	269180-20
Your Reference	UNITS	TP08	TP08	QC01	QC03
Depth		0.5-0.6	0.9-1.0	-	-
Date Sampled		17/05/2021	17/05/2021	17/05/2021	17/05/2021
Type of sample		Soil	Soil	Soil	Soil
Date extracted	-	18/05/2021	18/05/2021	18/05/2021	18/05/2021
Date analysed	-	22/05/2021	22/05/2021	22/05/2021	22/05/2021
TRH C <sub>10</sub> - C <sub>14</sub>	mg/kg	<50	<50	<50	<50
TRH C <sub>15</sub> - C <sub>28</sub>	mg/kg	<100	<100	320	<100
TRH C <sub>29</sub> - C <sub>36</sub>	mg/kg	<100	<100	730	<100
TRH >C <sub>10</sub> -C <sub>16</sub>	mg/kg	<50	<50	<50	<50
TRH >C <sub>10</sub> - C <sub>16</sub> less Naphthalene (F2)	mg/kg	<50	<50	<50	<50
TRH >C <sub>16</sub> -C <sub>34</sub>	mg/kg	<100	<100	640	<100
TRH >C <sub>34</sub> -C <sub>40</sub>	mg/kg	<100	<100	380	<100
Total +ve TRH (>C10-C40)	mg/kg	<50	<50	1,000	<50
Surrogate o-Terphenyl	%	87	81	76	73



PAHs in Soil						
Our Reference		269180-1	269180-2	269180-3	269180-4	269180-5
Your Reference	UNITS	TP01	TP01	TP01	TP02	TP02
Depth		0.0-0.2	0.2-0.4	0.5-0.7	0.3-0.4	0.9-1.0
Date Sampled		17/05/2021	17/05/2021	17/05/2021	17/05/2021	17/05/2021
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	18/05/2021	18/05/2021	18/05/2021	18/05/2021	18/05/2021
Date analysed	-	18/05/2021	19/05/2021	19/05/2021	19/05/2021	19/05/2021
Naphthalene	mg/kg	<0.1	<0.1	<0.1	0.2	1.3
Acenaphthylene	mg/kg	0.3	0.6	<0.1	0.9	6.1
Acenaphthene	mg/kg	<0.1	<0.1	<0.1	<0.1	1.2
Fluorene	mg/kg	<0.1	<0.1	<0.1	0.2	5.2
Phenanthrene	mg/kg	1.3	1.2	0.2	3.2	32
Anthracene	mg/kg	0.5	0.7	<0.1	1.2	7.8
Fluoranthene	mg/kg	3.3	4.0	<0.1	6.7	44
Pyrene	mg/kg	3.4	4.2	0.4	6.9	41
Benzo(a)anthracene	mg/kg	2.1	2.7	0.2	4.5	20
Chrysene	mg/kg	2.3	2.4	0.2	3.7	16
Benzo(b,j+k)fluoranthene	mg/kg	2	4.9	0.4	6.6	24
Benzo(a)pyrene	mg/kg	2.3	2.9	0.2	4.6	17
Indeno(1,2,3-c,d)pyrene	mg/kg	1.4	1.7	0.1	2.2	8.2
Dibenzo(a,h)anthracene	mg/kg	<0.1	0.4	<0.1	0.6	2.1
Benzo(g,h,i)perylene	mg/kg	1.7	2.1	0.1	2.7	9.5
Total +ve PAH's	mg/kg	21	28	1.8	44	240
Benzo(a)pyrene TEQ calc (zero)	mg/kg	2.9	4.3	<0.5	6.5	25
Benzo(a)pyrene TEQ calc(half)	mg/kg	3.0	4.3	<0.5	6.5	25
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	3.0	4.3	<0.5	6.5	25
Surrogate <i>p</i> -Terphenyl-d14	%	127	123	117	121	118

PAHs in Soil						
Our Reference		269180-6	269180-7	269180-8	269180-10	269180-11
Your Reference	UNITS	TP03	TP03	TP04	TP05	TP05
Depth		0.4-0.5	0.9-1.0	0.5-0.6	0.3-0.4	0.9-1.0
Date Sampled		17/05/2021	17/05/2021	17/05/2021	17/05/2021	17/05/2021
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	18/05/2021	18/05/2021	18/05/2021	18/05/2021	18/05/2021
Date analysed	-	18/05/2021	18/05/2021	19/05/2021	19/05/2021	19/05/2021
Naphthalene	mg/kg	0.2	0.2	0.4	<0.1	<0.1
Acenaphthylene	mg/kg	0.6	0.9	0.6	0.2	<0.1
Acenaphthene	mg/kg	0.4	0.3	<0.1	<0.1	<0.1
Fluorene	mg/kg	0.4	0.3	0.1	<0.1	<0.1
Phenanthrene	mg/kg	6.5	8.8	1.9	0.4	0.1
Anthracene	mg/kg	1.9	4.2	0.8	0.2	<0.1
Fluoranthene	mg/kg	11	26	5.3	1.9	0.6
Pyrene	mg/kg	10	27	5.7	2.1	0.6
Benzo(a)anthracene	mg/kg	6.7	17	4.1	1.2	0.4
Chrysene	mg/kg	7.0	13	3.3	1.2	0.4
Benzo(b,j+k)fluoranthene	mg/kg	5.0	24	6.4	2.7	0.8
Benzo(a)pyrene	mg/kg	6.4	14	3.4	1.7	0.52
Indeno(1,2,3-c,d)pyrene	mg/kg	3.4	5.3	2.2	0.9	0.3
Dibenzo(a,h)anthracene	mg/kg	1	1.4	0.6	0.2	<0.1
Benzo(g,h,i)perylene	mg/kg	4.0	6.5	2.7	1.0	0.3
Total +ve PAH's	mg/kg	65	150	37	14	4.0
Benzo(a)pyrene TEQ calc (zero)	mg/kg	9.0	20	5.3	2.4	0.7
Benzo(a)pyrene TEQ calc(half)	mg/kg	9.0	20	5.3	2.4	0.7
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	9.0	20	5.3	2.4	0.8
Surrogate p-Terphenyl-d14	%	123	123	124	115	115



PAHs in Soil						
Our Reference		269180-12	269180-13	269180-14	269180-15	269180-16
Your Reference	UNITS	TP06	TP06	TP07	TP07	TP08
Depth		0.4-0.5	0.7-0.8	0.3-0.4	0.9-1.0	0.3-0.4
Date Sampled		17/05/2021	17/05/2021	17/05/2021	17/05/2021	17/05/2021
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	18/05/2021	18/05/2021	18/05/2021	18/05/2021	18/05/2021
Date analysed	-	18/05/2021	18/05/2021	19/05/2021	18/05/2021	18/05/2021
Naphthalene	mg/kg	0.3	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	1	0.1	<0.1	<0.1	0.5
Acenaphthene	mg/kg	0.2	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	0.3	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	5.3	0.3	<0.1	<0.1	1.1
Anthracene	mg/kg	2.3	0.1	<0.1	<0.1	0.5
Fluoranthene	mg/kg	12	0.9	0.2	0.2	3.8
Pyrene	mg/kg	12	1	0.2	0.2	4.2
Benzo(a)anthracene	mg/kg	7.8	0.6	0.1	0.2	2.8
Chrysene	mg/kg	7.4	0.6	0.2	0.2	2.9
Benzo(b,j+k)fluoranthene	mg/kg	5.1	0.5	0.3	<0.2	2.5
Benzo(a)pyrene	mg/kg	5.7	0.62	0.2	0.2	3.2
Indeno(1,2,3-c,d)pyrene	mg/kg	2.6	0.3	<0.1	<0.1	1.7
Dibenzo(a,h)anthracene	mg/kg	0.7	<0.1	<0.1	<0.1	0.5
Benzo(g,h,i)perylene	mg/kg	2.9	0.4	0.1	0.1	2.2
Total +ve PAH's	mg/kg	65	5.3	1.4	1.1	26
Benzo(a)pyrene TEQ calc (zero)	mg/kg	8.1	0.8	<0.5	<0.5	4.4
Benzo(a)pyrene TEQ calc(half)	mg/kg	8.1	0.8	<0.5	<0.5	4.4
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	8.1	0.9	<0.5	<0.5	4.4
Surrogate p-Terphenyl-d14	%	124	122	117	128	125

PAHs in Soil					
Our Reference		269180-17	269180-18	269180-19	269180-20
Your Reference	UNITS	TP08	TP08	QC01	QC03
Depth		0.5-0.6	0.9-1.0	-	-
Date Sampled		17/05/2021	17/05/2021	17/05/2021	17/05/2021
Type of sample		Soil	Soil	Soil	Soil
Date extracted	-	18/05/2021	18/05/2021	18/05/2021	18/05/2021
Date analysed	-	19/05/2021	19/05/2021	19/05/2021	19/05/2021
Naphthalene	mg/kg	<0.1	<0.1	0.1	<0.1
Acenaphthylene	mg/kg	0.1	0.2	0.7	<0.1
Acenaphthene	mg/kg	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1	0.1	<0.1
Phenanthrene	mg/kg	1.1	0.4	1.6	0.2
Anthracene	mg/kg	0.3	0.2	1	<0.1
Fluoranthene	mg/kg	2.2	1.1	5.4	0.8
Pyrene	mg/kg	2.2	1.1	5.8	0.9
Benzo(a)anthracene	mg/kg	1.3	0.8	4.0	0.5
Chrysene	mg/kg	1.2	0.7	3.4	0.6
Benzo(b,j+k)fluoranthene	mg/kg	2.0	1	6.7	1
Benzo(a)pyrene	mg/kg	1.4	0.87	4.0	0.71
Indeno(1,2,3-c,d)pyrene	mg/kg	0.6	0.4	2.3	0.3
Dibenzo(a,h)anthracene	mg/kg	0.1	0.1	0.6	<0.1
Benzo(g,h,i)perylene	mg/kg	0.7	0.5	2.9	0.3
Total +ve PAH's	mg/kg	13	7.7	39	5.3
Benzo(a)pyrene TEQ calc (zero)	mg/kg	1.9	1.2	6.0	0.9
Benzo(a)pyrene TEQ calc(half)	mg/kg	1.9	1.2	6.0	1
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	1.9	1.2	6.0	1.0
Surrogate <i>p</i> -Terphenyl-d14	%	114	124	122	114



Organochlorine Pesticides in soil						
Our Reference		269180-2	269180-3	269180-4	269180-5	269180-8
Your Reference	UNITS	TP01	TP01	TP02	TP02	TP04
Depth		0.2-0.4	0.5-0.7	0.3-0.4	0.9-1.0	0.5-0.6
Date Sampled		17/05/2021	17/05/2021	17/05/2021	17/05/2021	17/05/2021
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	18/05/2021	18/05/2021	18/05/2021	18/05/2021	18/05/2021
Date analysed	-	19/05/2021	19/05/2021	19/05/2021	19/05/2021	19/05/2021
alpha-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
HCB	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
beta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
delta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor Epoxide	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-Chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
alpha-chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan I	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dieldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan II	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDD	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDT	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan Sulphate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve DDT+DDD+DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	90	92	88	87	90

Organochlorine Pesticides in soil						
Our Reference		269180-10	269180-11	269180-14	269180-17	269180-19
Your Reference	UNITS	TP05	TP05	TP07	TP08	QC01
Depth		0.3-0.4	0.9-1.0	0.3-0.4	0.5-0.6	-
Date Sampled		17/05/2021	17/05/2021	17/05/2021	17/05/2021	17/05/2021
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	18/05/2021	18/05/2021	18/05/2021	18/05/2021	18/05/2021
Date analysed	-	19/05/2021	19/05/2021	19/05/2021	19/05/2021	19/05/2021
alpha-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
HCB	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
beta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
delta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor Epoxide	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-Chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
alpha-chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan I	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dieldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan II	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDD	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDT	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan Sulphate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve DDT+DDD+DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	91	91	91	91	90



Organochlorine Pesticides in soil		
Our Reference		269180-20
Your Reference	UNITS	QC03
Depth		-
Date Sampled		17/05/2021
Type of sample		Soil
Date extracted	-	18/05/2021
Date analysed	-	19/05/2021
alpha-BHC	mg/kg	<0.1
HCB	mg/kg	<0.1
beta-BHC	mg/kg	<0.1
gamma-BHC	mg/kg	<0.1
Heptachlor	mg/kg	<0.1
delta-BHC	mg/kg	<0.1
Aldrin	mg/kg	<0.1
Heptachlor Epoxide	mg/kg	<0.1
gamma-Chlordane	mg/kg	<0.1
alpha-chlordane	mg/kg	<0.1
Endosulfan I	mg/kg	<0.1
pp-DDE	mg/kg	<0.1
Dieldrin	mg/kg	<0.1
Endrin	mg/kg	<0.1
Endosulfan II	mg/kg	<0.1
pp-DDD	mg/kg	<0.1
Endrin Aldehyde	mg/kg	<0.1
pp-DDT	mg/kg	<0.1
Endosulfan Sulphate	mg/kg	<0.1
Methoxychlor	mg/kg	<0.1
Total +ve DDT+DDD+DDE	mg/kg	<0.1
Surrogate TCMX	%	92

Organophosphorus Pesticides in Soil						
Our Reference		269180-2	269180-3	269180-4	269180-5	269180-8
Your Reference	UNITS	TP01	TP01	TP02	TP02	TP04
Depth		0.2-0.4	0.5-0.7	0.3-0.4	0.9-1.0	0.5-0.6
Date Sampled		17/05/2021	17/05/2021	17/05/2021	17/05/2021	17/05/2021
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	18/05/2021	18/05/2021	18/05/2021	18/05/2021	18/05/2021
Date analysed	-	19/05/2021	19/05/2021	19/05/2021	19/05/2021	19/05/2021
Dichlorvos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dimethoate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Diazinon	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chlorpyrifos-methyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Ronnel	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fenitrothion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Malathion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chlorpyrifos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Parathion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Bromophos-ethyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Ethion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Azinphos-methyl (Guthion)	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	90	92	88	87	90



## Organophosphorus Pesticides in Soil

Our Reference		269180-10	269180-11	269180-14	269180-17	269180-19
Your Reference	UNITS	TP05	TP05	TP07	TP08	QC01
Depth		0.3-0.4	0.9-1.0	0.3-0.4	0.5-0.6	-
Date Sampled		17/05/2021	17/05/2021	17/05/2021	17/05/2021	17/05/2021
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	18/05/2021	18/05/2021	18/05/2021	18/05/2021	18/05/2021
Date analysed	-	19/05/2021	19/05/2021	19/05/2021	19/05/2021	19/05/2021
Dichlorvos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dimethoate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Diazinon	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chlorpyrifos-methyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Ronnel	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fenitrothion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Malathion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chlorpyrifos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Parathion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Bromophos-ethyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Ethion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Azinphos-methyl (Guthion)	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	91	91	91	91	90

Organophosphorus Pesticides in Soil		
Our Reference		269180-20
Your Reference	UNITS	QC03
Depth		-
Date Sampled		17/05/2021
Type of sample		Soil
Date extracted	-	18/05/2021
Date analysed	-	19/05/2021
Dichlorvos	mg/kg	<0.1
Dimethoate	mg/kg	<0.1
Diazinon	mg/kg	<0.1
Chlorpyrifos-methyl	mg/kg	<0.1
Ronnel	mg/kg	<0.1
Fenitrothion	mg/kg	<0.1
Malathion	mg/kg	<0.1
Chlorpyrifos	mg/kg	<0.1
Parathion	mg/kg	<0.1
Bromophos-ethyl	mg/kg	<0.1
Ethion	mg/kg	<0.1
Azinphos-methyl (Guthion)	mg/kg	<0.1
Surrogate TCMX	%	92



PCBs in Soil						
Our Reference	UNITS	269180-2	269180-3	269180-4	269180-5	269180-8
Your Reference		TP01	TP01	TP02	TP02	TP04
Depth		0.2-0.4	0.5-0.7	0.3-0.4	0.9-1.0	0.5-0.6
Date Sampled		17/05/2021	17/05/2021	17/05/2021	17/05/2021	17/05/2021
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	18/05/2021	18/05/2021	18/05/2021	18/05/2021	18/05/2021
Date analysed	-	19/05/2021	19/05/2021	19/05/2021	19/05/2021	19/05/2021
Aroclor 1016	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1221	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1232	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1242	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1248	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1254	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1260	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve PCBs (1016-1260)	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	90	92	88	87	90

PCBs in Soil						
Our Reference	UNITS	269180-10	269180-11	269180-14	269180-17	269180-19
Your Reference		TP05	TP05	TP07	TP08	QC01
Depth		0.3-0.4	0.9-1.0	0.3-0.4	0.5-0.6	-
Date Sampled		17/05/2021	17/05/2021	17/05/2021	17/05/2021	17/05/2021
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	18/05/2021	18/05/2021	18/05/2021	18/05/2021	18/05/2021
Date analysed	-	19/05/2021	19/05/2021	19/05/2021	19/05/2021	19/05/2021
Aroclor 1016	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1221	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1232	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1242	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1248	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1254	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1260	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve PCBs (1016-1260)	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	91	91	91	91	90

PCBs in Soil		
Our Reference		269180-20
Your Reference	UNITS	QC03
Depth		-
Date Sampled		17/05/2021
Type of sample		Soil
Date extracted	-	18/05/2021
Date analysed	-	19/05/2021
Aroclor 1016	mg/kg	<0.1
Aroclor 1221	mg/kg	<0.1
Aroclor 1232	mg/kg	<0.1
Aroclor 1242	mg/kg	<0.1
Aroclor 1248	mg/kg	<0.1
Aroclor 1254	mg/kg	<0.1
Aroclor 1260	mg/kg	<0.1
Total +ve PCBs (1016-1260)	mg/kg	<0.1
Surrogate TCMX	%	92



## Acid Extractable metals in soil

Our Reference		269180-1	269180-2	269180-3	269180-4	269180-5
Your Reference	UNITS	TP01	TP01	TP01	TP02	TP02
Depth		0.0-0.2	0.2-0.4	0.5-0.7	0.3-0.4	0.9-1.0
Date Sampled		17/05/2021	17/05/2021	17/05/2021	17/05/2021	17/05/2021
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	19/05/2021	19/05/2021	19/05/2021	19/05/2021	19/05/2021
Date analysed	-	19/05/2021	19/05/2021	19/05/2021	19/05/2021	19/05/2021
Arsenic	mg/kg	9	5	<4	6	5
Cadmium	mg/kg	<0.4	0.5	<0.4	1	<0.4
Chromium	mg/kg	12	12	8	17	10
Copper	mg/kg	39	77	24	88	18
Lead	mg/kg	120	150	30	160	100
Mercury	mg/kg	0.1	0.1	0.1	0.1	0.2
Nickel	mg/kg	20	26	5	13	5
Zinc	mg/kg	150	190	62	220	90

## Acid Extractable metals in soil

Our Reference		269180-6	269180-7	269180-8	269180-10	269180-11
Your Reference	UNITS	TP03	TP03	TP04	TP05	TP05
Depth		0.4-0.5	0.9-1.0	0.5-0.6	0.3-0.4	0.9-1.0
Date Sampled		17/05/2021	17/05/2021	17/05/2021	17/05/2021	17/05/2021
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	19/05/2021	19/05/2021	19/05/2021	19/05/2021	19/05/2021
Date analysed	-	19/05/2021	19/05/2021	19/05/2021	19/05/2021	19/05/2021
Arsenic	mg/kg	5	6	10	10	<4
Cadmium	mg/kg	<0.4	<0.4	1	<0.4	<0.4
Chromium	mg/kg	18	15	26	10	8
Copper	mg/kg	130	86	58	23	6
Lead	mg/kg	210	190	290	68	22
Mercury	mg/kg	0.4	0.5	0.2	0.1	<0.1
Nickel	mg/kg	10	15	10	5	2
Zinc	mg/kg	260	220	270	84	16

## Acid Extractable metals in soil

Our Reference		269180-12	269180-13	269180-14	269180-15	269180-16
Your Reference	UNITS	TP06	TP06	TP07	TP07	TP08
Depth		0.4-0.5	0.7-0.8	0.3-0.4	0.9-1.0	0.3-0.4
Date Sampled		17/05/2021	17/05/2021	17/05/2021	17/05/2021	17/05/2021
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	19/05/2021	19/05/2021	19/05/2021	19/05/2021	19/05/2021
Date analysed	-	19/05/2021	19/05/2021	19/05/2021	19/05/2021	19/05/2021
Arsenic	mg/kg	8	9	11	9	9
Cadmium	mg/kg	1	0.4	0.5	0.5	0.8
Chromium	mg/kg	13	63	23	20	15
Copper	mg/kg	65	13	23	4	44
Lead	mg/kg	180	85	28	31	130
Mercury	mg/kg	0.2	0.1	<0.1	<0.1	0.1
Nickel	mg/kg	9	3	6	2	15
Zinc	mg/kg	300	62	53	20	140

## Acid Extractable metals in soil

Our Reference		269180-17	269180-18	269180-19	269180-20	269180-24
Your Reference	UNITS	TP08	TP08	QC01	QC03	TP01 - [TRIPLICATE]
Depth		0.5-0.6	0.9-1.0	-	-	0.2-0.4
Date Sampled		17/05/2021	17/05/2021	17/05/2021	17/05/2021	17/05/2021
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	19/05/2021	19/05/2021	19/05/2021	19/05/2021	19/05/2021
Date analysed	-	19/05/2021	19/05/2021	19/05/2021	19/05/2021	19/05/2021
Arsenic	mg/kg	4	9	8	9	6
Cadmium	mg/kg	0.6	0.5	1	0.6	0.4
Chromium	mg/kg	7	11	13	13	13
Copper	mg/kg	16	3	88	31	190
Lead	mg/kg	84	21	200	94	200
Mercury	mg/kg	<0.1	<0.1	0.2	0.2	0.1
Nickel	mg/kg	3	2	20	6	22
Zinc	mg/kg	60	11	260	87	230



Acid Extractable metals in soil		
Our Reference		269180-25
Your Reference	UNITS	TP05 - [TRIPLICATE]
Depth		0.9-1.0
Date Sampled		17/05/2021
Type of sample		Soil
Date prepared	-	19/05/2021
Date analysed	-	19/05/2021
Arsenic	mg/kg	6
Cadmium	mg/kg	<0.4
Chromium	mg/kg	14
Copper	mg/kg	33
Lead	mg/kg	76
Mercury	mg/kg	0.2
Nickel	mg/kg	6
Zinc	mg/kg	90

Moisture						
Our Reference	UNITS	269180-1	269180-2	269180-3	269180-4	269180-5
Your Reference		TP01	TP01	TP01	TP02	TP02
Depth		0.0-0.2	0.2-0.4	0.5-0.7	0.3-0.4	0.9-1.0
Date Sampled		17/05/2021	17/05/2021	17/05/2021	17/05/2021	17/05/2021
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	18/05/2021	18/05/2021	18/05/2021	18/05/2021	18/05/2021
Date analysed	-	19/05/2021	19/05/2021	19/05/2021	19/05/2021	19/05/2021
Moisture	%	16	11	7.2	12	13

Moisture						
Our Reference	UNITS	269180-6	269180-7	269180-8	269180-10	269180-11
Your Reference		TP03	TP03	TP04	TP05	TP05
Depth		0.4-0.5	0.9-1.0	0.5-0.6	0.3-0.4	0.9-1.0
Date Sampled		17/05/2021	17/05/2021	17/05/2021	17/05/2021	17/05/2021
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	18/05/2021	18/05/2021	18/05/2021	18/05/2021	18/05/2021
Date analysed	-	19/05/2021	19/05/2021	19/05/2021	19/05/2021	19/05/2021
Moisture	%	11	8.5	14	9.8	14

Moisture						
Our Reference	UNITS	269180-12	269180-13	269180-14	269180-15	269180-16
Your Reference		TP06	TP06	TP07	TP07	TP08
Depth		0.4-0.5	0.7-0.8	0.3-0.4	0.9-1.0	0.3-0.4
Date Sampled		17/05/2021	17/05/2021	17/05/2021	17/05/2021	17/05/2021
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	18/05/2021	18/05/2021	18/05/2021	18/05/2021	18/05/2021
Date analysed	-	19/05/2021	19/05/2021	19/05/2021	19/05/2021	19/05/2021
Moisture	%	12	16	17	10	15

Moisture					
Our Reference	UNITS	269180-17	269180-18	269180-19	269180-20
Your Reference		TP08	TP08	QC01	QC03
Depth		0.5-0.6	0.9-1.0	-	-
Date Sampled		17/05/2021	17/05/2021	17/05/2021	17/05/2021
Type of sample		Soil	Soil	Soil	Soil
Date prepared	-	18/05/2021	18/05/2021	18/05/2021	18/05/2021
Date analysed	-	19/05/2021	19/05/2021	19/05/2021	19/05/2021
Moisture	%	10	15	6.6	6.0

## Asbestos ID - soils NEPM - ASB-001

Our Reference		269180-2	269180-4	269180-6	269180-8	269180-10
Your Reference	UNITS	TP01	TP02	TP03	TP04	TP05
Depth		0.2-0.4	0.3-0.4	0.4-0.5	0.5-0.6	0.3-0.4
Date Sampled		17/05/2021	17/05/2021	17/05/2021	17/05/2021	17/05/2021
Type of sample		Soil	Soil	Soil	Soil	Soil
Date analysed	-	24/05/2021	24/05/2021	24/05/2021	24/05/2021	24/05/2021
Sample mass tested	g	472.36	663.13	636.32	672.74	585.78
Sample Description	-	Brown fine-grained soil & rocks	Brown fine-grained soil & rocks	Brown fine-grained soil & rocks	Brown fine-grained soil & rocks	Brown fine-grained soil & rocks
Asbestos ID in soil (AS4964) >0.1g/kg	-	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected
Trace Analysis	-	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected
Total Asbestos <sup>#1</sup>	g/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Asbestos ID in soil <0.1g/kg*	-	No visible asbestos detected	No visible asbestos detected	Chrysotile	No visible asbestos detected	Chrysotile
ACM >7mm Estimation*	g	—	—	—	—	—
FA and AF Estimation*	g	—	—	0.0026	—	0.0009
ACM >7mm Estimation*	%(w/w)	<0.01	<0.01	<0.01	<0.01	<0.01
FA and AF Estimation*#2	%(w/w)	<0.001	<0.001	<0.001	<0.001	<0.001



## Asbestos ID - soils NEPM - ASB-001

Our Reference		269180-11	269180-12	269180-14	269180-16	269180-17
Your Reference	UNITS	TP05	TP06	TP07	TP08	TP08
Depth		0.9-1.0	0.4-0.5	0.3-0.4	0.3-0.4	0.5-0.6
Date Sampled		17/05/2021	17/05/2021	17/05/2021	17/05/2021	17/05/2021
Type of sample		Soil	Soil	Soil	Soil	Soil
Date analysed	-	24/05/2021	24/05/2021	24/05/2021	24/05/2021	24/05/2021
Sample mass tested	g	616.87	638.65	473.66	596.24	544.23
Sample Description	-	Brown fine-grained soil & rocks	Brown fine-grained soil & rocks	Brown fine-grained soil & rocks	Brown fine-grained soil & rocks	Brown fine-grained soil & rocks
Asbestos ID in soil (AS4964) >0.1g/kg	-	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected
Trace Analysis	-	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected
Total Asbestos <sup>#1</sup>	g/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Asbestos ID in soil <0.1g/kg*	-	No visible asbestos detected	No visible asbestos detected	No visible asbestos detected	No visible asbestos detected	No visible asbestos detected
ACM >7mm Estimation*	g	—	—	—	—	—
FA and AF Estimation*	g	—	—	—	—	—
ACM >7mm Estimation*	%(w/w)	<0.01	<0.01	<0.01	<0.01	<0.01
FA and AF Estimation*#2	%(w/w)	<0.001	<0.001	<0.001	<0.001	<0.001

Asbestos ID - materials		
Our Reference	UNITS	269180-23
Your Reference		TP02_Frag01
Depth		-
Date Sampled		17/05/2021
Type of sample		Material
Date analysed	-	24/05/2021
Mass / Dimension of Sample	-	65x40x7mm
Sample Description	-	Grey fibre cement material
Asbestos ID in materials	-	Chrysotile asbestos detected
Trace Analysis	-	[NT]

Method ID	Methodology Summary
<b>ASB-001</b>	Asbestos ID - Qualitative identification of asbestos in bulk samples using Polarised Light Microscopy and Dispersion Staining Techniques including Synthetic Mineral Fibre and Organic Fibre as per Australian Standard 4964-2004.
<b>ASB-001</b>	<p>Asbestos ID - Identification of asbestos in soil samples using Polarised Light Microscopy and Dispersion Staining Techniques. Minimum 500mL soil sample was analysed as recommended by "National Environment Protection (Assessment of site contamination) Measure, Schedule B1 and "The Guidelines from the Assessment, Remediation and Management of Asbestos-Contaminated Sites in Western Australia - May 2009" with a reporting limit of 0.1g/kg (0.01% w/w) as per Australian Standard AS4964-2004.</p> <p>Results reported denoted with * are outside our scope of NATA accreditation.</p> <p><b>NOTE #1</b> Total Asbestos g/kg was analysed and reported as per Australian Standard AS4964 (This is the sum of ACM &gt;7mm, &lt;7mm and FA/AF)</p> <p><b>NOTE #2</b> The screening level of 0.001% w/w asbestos in soil for FA and AF only applies where the FA and AF are able to be quantified by gravimetric procedures. This screening level is not applicable to free fibres.</p> <p>Estimation = Estimated asbestos weight</p> <p>Results reported with "--" is equivalent to no visible asbestos identified using Polarised Light microscopy and Dispersion Staining Techniques.</p>
<b>Inorg-008</b>	Moisture content determined by heating at 105+/-5 °C for a minimum of 12 hours.
<b>Metals-020</b>	Determination of various metals by ICP-AES.
<b>Metals-021</b>	Determination of Mercury by Cold Vapour AAS.
<b>Org-020</b>	<p>Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-FID.</p> <p>F2 = (&gt;C10-C16)-Naphthalene as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater (HSLs Tables 1A (3, 4)). Note Naphthalene is determined from the VOC analysis.</p>
<b>Org-020</b>	<p>Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-FID.</p> <p>F2 = (&gt;C10-C16)-Naphthalene as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater (HSLs Tables 1A (3, 4)). Note Naphthalene is determined from the VOC analysis.</p> <p>Note, the Total +ve TRH PQL is reflective of the lowest individual PQL and is therefore "Total +ve TRH" is simply a sum of the positive individual TRH fractions (&gt;C10-C40).</p>
<b>Org-021</b>	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC-ECD.



Method ID	Methodology Summary
<b>Org-021</b>	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC-ECD. Note, the Total +ve PCBs PQL is reflective of the lowest individual PQL and is therefore "Total +ve PCBs" is simply a sum of the positive individual PCBs.
<b>Org-022</b>	Determination of VOCs sampled onto coconut shell charcoal sorbent tubes, that can be desorbed using carbon disulphide, and analysed by GC-MS.
<b>Org-022/025</b>	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-MS/GC-MSMS.
<b>Org-022/025</b>	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC-MS/GC-MSMS.  Note, the Total +ve reported DDD+DDE+DDT PQL is reflective of the lowest individual PQL and is therefore simply a sum of the positive individually report DDD+DDE+DDT.
<b>Org-022/025</b>	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-MS and/or GC-MS/MS. Benzo(a)pyrene TEQ as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater - 2013. For soil results:- 1. 'EQ PQL' values are assuming all contributing PAHs reported as <PQL are actually at the PQL. This is the most conservative approach and can give false positive TEQs given that PAHs that contribute to the TEQ calculation may not be present. 2. 'EQ zero' values are assuming all contributing PAHs reported as <PQL are zero. This is the least conservative approach and is more susceptible to false negative TEQs when PAHs that contribute to the TEQ calculation are present but below PQL. 3. 'EQ half PQL' values are assuming all contributing PAHs reported as <PQL are half the stipulated PQL. Hence a mid-point between the most and least conservative approaches above. Note, the Total +ve PAHs PQL is reflective of the lowest individual PQL and is therefore "Total +ve PAHs" is simply a sum of the positive individual PAHs.
<b>Org-023</b>	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS.
<b>Org-023</b>	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS. Water samples are analysed directly by purge and trap GC-MS. F1 = (C6-C10)-BTX as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater.
<b>Org-023</b>	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS. Water samples are analysed directly by purge and trap GC-MS. F1 = (C6-C10)-BTX as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater. Note, the Total +ve Xylene PQL is reflective of the lowest individual PQL and is therefore "Total +ve Xylenes" is simply a sum of the positive individual Xylenes.

QUALITY CONTROL: vTRH(C6-C10)/BTEXN in Soil					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-5	269180-3
Date extracted	-			18/05/2021	2	18/05/2021	18/05/2021		18/05/2021	18/05/2021
Date analysed	-			19/05/2021	2	19/05/2021	19/05/2021		19/05/2021	19/05/2021
TRH C <sub>6</sub> - C <sub>9</sub>	mg/kg	25	Org-023	<25	2	<25	<25	0	78	106
TRH C <sub>6</sub> - C <sub>10</sub>	mg/kg	25	Org-023	<25	2	<25	<25	0	78	106
Benzene	mg/kg	0.2	Org-023	<0.2	2	<0.2	<0.2	0	75	94
Toluene	mg/kg	0.5	Org-023	<0.5	2	<0.5	<0.5	0	75	109
Ethylbenzene	mg/kg	1	Org-023	<1	2	<1	<1	0	78	109
m+p-xylene	mg/kg	2	Org-023	<2	2	<2	<2	0	80	108
o-Xylene	mg/kg	1	Org-023	<1	2	<1	<1	0	79	104
naphthalene	mg/kg	1	Org-023	<1	2	<1	<1	0	[NT]	[NT]
Surrogate aaa-Trifluorotoluene	%		Org-023	114	2	121	124	2	87	121

QUALITY CONTROL: vTRH(C6-C10)/BTEXN in Soil					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	11	18/05/2021	18/05/2021		[NT]	[NT]
Date analysed	-			[NT]	11	19/05/2021	19/05/2021		[NT]	[NT]
TRH C <sub>6</sub> - C <sub>9</sub>	mg/kg	25	Org-023	[NT]	11	<25	<25	0	[NT]	[NT]
TRH C <sub>6</sub> - C <sub>10</sub>	mg/kg	25	Org-023	[NT]	11	<25	<25	0	[NT]	[NT]
Benzene	mg/kg	0.2	Org-023	[NT]	11	<0.2	<0.2	0	[NT]	[NT]
Toluene	mg/kg	0.5	Org-023	[NT]	11	<0.5	<0.5	0	[NT]	[NT]
Ethylbenzene	mg/kg	1	Org-023	[NT]	11	<1	<1	0	[NT]	[NT]
m+p-xylene	mg/kg	2	Org-023	[NT]	11	<2	<2	0	[NT]	[NT]
o-Xylene	mg/kg	1	Org-023	[NT]	11	<1	<1	0	[NT]	[NT]
naphthalene	mg/kg	1	Org-023	[NT]	11	<1	<1	0	[NT]	[NT]
Surrogate aaa-Trifluorotoluene	%		Org-023	[NT]	11	126	116	8	[NT]	[NT]

QUALITY CONTROL: vTRH(C6-C10)/BTEXN in Soil					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	20	18/05/2021	18/05/2021		[NT]	[NT]
Date analysed	-			[NT]	20	19/05/2021	19/05/2021		[NT]	[NT]
TRH C <sub>6</sub> - C <sub>9</sub>	mg/kg	25	Org-023	[NT]	20	<25	<25	0	[NT]	[NT]
TRH C <sub>6</sub> - C <sub>10</sub>	mg/kg	25	Org-023	[NT]	20	<25	<25	0	[NT]	[NT]
Benzene	mg/kg	0.2	Org-023	[NT]	20	<0.2	<0.2	0	[NT]	[NT]
Toluene	mg/kg	0.5	Org-023	[NT]	20	<0.5	<0.5	0	[NT]	[NT]
Ethylbenzene	mg/kg	1	Org-023	[NT]	20	<1	<1	0	[NT]	[NT]
m+p-xylene	mg/kg	2	Org-023	[NT]	20	<2	<2	0	[NT]	[NT]
o-Xylene	mg/kg	1	Org-023	[NT]	20	<1	<1	0	[NT]	[NT]
naphthalene	mg/kg	1	Org-023	[NT]	20	<1	<1	0	[NT]	[NT]
Surrogate aaa-Trifluorotoluene	%		Org-023	[NT]	20	117	110	6	[NT]	[NT]

QUALITY CONTROL: svTRH (C10-C40) in Soil					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-5	269180-3
Date extracted	-			18/05/2021	2	18/05/2021	18/05/2021		18/05/2021	18/05/2021
Date analysed	-			22/05/2021	2	22/05/2021	22/05/2021		22/05/2021	22/05/2021
TRH C <sub>10</sub> - C <sub>14</sub>	mg/kg	50	Org-020	<50	2	<50	<50	0	110	110
TRH C <sub>15</sub> - C <sub>28</sub>	mg/kg	100	Org-020	<100	2	120	320	91	83	100
TRH C <sub>29</sub> - C <sub>36</sub>	mg/kg	100	Org-020	<100	2	430	520	19	92	81
TRH >C <sub>10</sub> -C <sub>16</sub>	mg/kg	50	Org-020	<50	2	<50	<50	0	110	110
TRH >C <sub>16</sub> -C <sub>34</sub>	mg/kg	100	Org-020	<100	2	310	570	59	83	100
TRH >C <sub>34</sub> -C <sub>40</sub>	mg/kg	100	Org-020	<100	2	240	260	8	92	81
Surrogate o-Terphenyl	%		Org-020	75	2	81	91	12	121	85

QUALITY CONTROL: svTRH (C10-C40) in Soil					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	11	18/05/2021	18/05/2021		[NT]	[NT]
Date analysed	-			[NT]	11	22/05/2021	22/05/2021		[NT]	[NT]
TRH C <sub>10</sub> - C <sub>14</sub>	mg/kg	50	Org-020	[NT]	11	<50	<50	0	[NT]	[NT]
TRH C <sub>15</sub> - C <sub>28</sub>	mg/kg	100	Org-020	[NT]	11	<100	<100	0	[NT]	[NT]
TRH C <sub>29</sub> - C <sub>36</sub>	mg/kg	100	Org-020	[NT]	11	<100	<100	0	[NT]	[NT]
TRH >C <sub>10</sub> -C <sub>16</sub>	mg/kg	50	Org-020	[NT]	11	<50	<50	0	[NT]	[NT]
TRH >C <sub>16</sub> -C <sub>34</sub>	mg/kg	100	Org-020	[NT]	11	<100	<100	0	[NT]	[NT]
TRH >C <sub>34</sub> -C <sub>40</sub>	mg/kg	100	Org-020	[NT]	11	<100	<100	0	[NT]	[NT]
Surrogate o-Terphenyl	%		Org-020	[NT]	11	77	90	16	[NT]	[NT]

QUALITY CONTROL: svTRH (C10-C40) in Soil					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	20	18/05/2021	18/05/2021		[NT]	[NT]
Date analysed	-			[NT]	20	22/05/2021	22/05/2021		[NT]	[NT]
TRH C <sub>10</sub> - C <sub>14</sub>	mg/kg	50	Org-020	[NT]	20	<50	<50	0	[NT]	[NT]
TRH C <sub>15</sub> - C <sub>28</sub>	mg/kg	100	Org-020	[NT]	20	<100	<100	0	[NT]	[NT]
TRH C <sub>29</sub> - C <sub>36</sub>	mg/kg	100	Org-020	[NT]	20	<100	<100	0	[NT]	[NT]
TRH >C <sub>10</sub> -C <sub>16</sub>	mg/kg	50	Org-020	[NT]	20	<50	<50	0	[NT]	[NT]
TRH >C <sub>16</sub> -C <sub>34</sub>	mg/kg	100	Org-020	[NT]	20	<100	<100	0	[NT]	[NT]
TRH >C <sub>34</sub> -C <sub>40</sub>	mg/kg	100	Org-020	[NT]	20	<100	<100	0	[NT]	[NT]
Surrogate o-Terphenyl	%		Org-020	[NT]	20	73	75	3	[NT]	[NT]



QUALITY CONTROL: PAHs in Soil						Duplicate		Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-5	269180-3
Date extracted	-			18/05/2021	2	18/05/2021	18/05/2021		18/05/2021	18/05/2021
Date analysed	-			19/05/2021	2	19/05/2021	19/05/2021		19/05/2021	19/05/2021
Naphthalene	mg/kg	0.1	Org-022/025	<0.1	2	<0.1	0.1	0	106	94
Acenaphthylene	mg/kg	0.1	Org-022/025	<0.1	2	0.6	0.7	15	[NT]	[NT]
Acenaphthene	mg/kg	0.1	Org-022/025	<0.1	2	<0.1	0.9	160	91	84
Fluorene	mg/kg	0.1	Org-022/025	<0.1	2	<0.1	0.4	120	96	93
Phenanthrene	mg/kg	0.1	Org-022/025	<0.1	2	1.2	7.2	143	135	129
Anthracene	mg/kg	0.1	Org-022/025	<0.1	2	0.7	2.6	115	[NT]	[NT]
Fluoranthene	mg/kg	0.1	Org-022/025	<0.1	2	4.0	15	116	121	#
Pyrene	mg/kg	0.1	Org-022/025	<0.1	2	4.2	15	112	118	#
Benzo(a)anthracene	mg/kg	0.1	Org-022/025	<0.1	2	2.7	8.5	104	[NT]	[NT]
Chrysene	mg/kg	0.1	Org-022/025	<0.1	2	2.4	7.3	101	86	121
Benzo(b,j+k)fluoranthene	mg/kg	0.2	Org-022/025	<0.2	2	4.9	12	84	[NT]	[NT]
Benzo(a)pyrene	mg/kg	0.05	Org-022/025	<0.05	2	2.9	8.2	95	105	#
Indeno(1,2,3-c,d)pyrene	mg/kg	0.1	Org-022/025	<0.1	2	1.7	3.8	76	[NT]	[NT]
Dibenzo(a,h)anthracene	mg/kg	0.1	Org-022/025	<0.1	2	0.4	1	86	[NT]	[NT]
Benzo(g,h,i)perylene	mg/kg	0.1	Org-022/025	<0.1	2	2.1	4.9	80	[NT]	[NT]
Surrogate p-Terphenyl-d14	%		Org-022/025	118	2	123	120	2	113	111

QUALITY CONTROL: PAHs in Soil						Duplicate		Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	11	18/05/2021	18/05/2021		[NT]	[NT]
Date analysed	-			[NT]	11	19/05/2021	19/05/2021		[NT]	[NT]
Naphthalene	mg/kg	0.1	Org-022/025	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
Acenaphthylene	mg/kg	0.1	Org-022/025	[NT]	11	<0.1	0.1	0	[NT]	[NT]
Acenaphthene	mg/kg	0.1	Org-022/025	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
Fluorene	mg/kg	0.1	Org-022/025	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
Phenanthrene	mg/kg	0.1	Org-022/025	[NT]	11	0.1	0.4	120	[NT]	[NT]
Anthracene	mg/kg	0.1	Org-022/025	[NT]	11	<0.1	0.1	0	[NT]	[NT]
Fluoranthene	mg/kg	0.1	Org-022/025	[NT]	11	0.6	1.0	50	[NT]	[NT]
Pyrene	mg/kg	0.1	Org-022/025	[NT]	11	0.6	1.2	67	[NT]	[NT]
Benzo(a)anthracene	mg/kg	0.1	Org-022/025	[NT]	11	0.4	0.7	55	[NT]	[NT]
Chrysene	mg/kg	0.1	Org-022/025	[NT]	11	0.4	0.6	40	[NT]	[NT]
Benzo(b,j+k)fluoranthene	mg/kg	0.2	Org-022/025	[NT]	11	0.8	1	22	[NT]	[NT]
Benzo(a)pyrene	mg/kg	0.05	Org-022/025	[NT]	11	0.52	0.87	50	[NT]	[NT]
Indeno(1,2,3-c,d)pyrene	mg/kg	0.1	Org-022/025	[NT]	11	0.3	0.4	29	[NT]	[NT]
Dibenzo(a,h)anthracene	mg/kg	0.1	Org-022/025	[NT]	11	<0.1	0.1	0	[NT]	[NT]
Benzo(g,h,i)perylene	mg/kg	0.1	Org-022/025	[NT]	11	0.3	0.5	50	[NT]	[NT]
Surrogate p-Terphenyl-d14	%		Org-022/025	[NT]	11	115	115	0	[NT]	[NT]

QUALITY CONTROL: PAHs in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	20	18/05/2021	18/05/2021		[NT]	[NT]
Date analysed	-			[NT]	20	19/05/2021	19/05/2021		[NT]	[NT]
Naphthalene	mg/kg	0.1	Org-022/025	[NT]	20	<0.1	<0.1	0	[NT]	[NT]
Acenaphthylene	mg/kg	0.1	Org-022/025	[NT]	20	<0.1	0.2	67	[NT]	[NT]
Acenaphthene	mg/kg	0.1	Org-022/025	[NT]	20	<0.1	<0.1	0	[NT]	[NT]
Fluorene	mg/kg	0.1	Org-022/025	[NT]	20	<0.1	<0.1	0	[NT]	[NT]
Phenanthrene	mg/kg	0.1	Org-022/025	[NT]	20	0.2	1.2	143	[NT]	[NT]
Anthracene	mg/kg	0.1	Org-022/025	[NT]	20	<0.1	0.4	120	[NT]	[NT]
Fluoranthene	mg/kg	0.1	Org-022/025	[NT]	20	0.8	3.2	120	[NT]	[NT]
Pyrene	mg/kg	0.1	Org-022/025	[NT]	20	0.9	3.4	116	[NT]	[NT]
Benzo(a)anthracene	mg/kg	0.1	Org-022/025	[NT]	20	0.5	1.9	117	[NT]	[NT]
Chrysene	mg/kg	0.1	Org-022/025	[NT]	20	0.6	1.8	100	[NT]	[NT]
Benzo(b,j+k)fluoranthene	mg/kg	0.2	Org-022/025	[NT]	20	1	2.9	97	[NT]	[NT]
Benzo(a)pyrene	mg/kg	0.05	Org-022/025	[NT]	20	0.71	2.0	95	[NT]	[NT]
Indeno(1,2,3-c,d)pyrene	mg/kg	0.1	Org-022/025	[NT]	20	0.3	0.8	91	[NT]	[NT]
Dibenzo(a,h)anthracene	mg/kg	0.1	Org-022/025	[NT]	20	<0.1	0.2	67	[NT]	[NT]
Benzo(g,h,i)perylene	mg/kg	0.1	Org-022/025	[NT]	20	0.3	1	108	[NT]	[NT]
Surrogate p-Terphenyl-d14	%		Org-022/025	[NT]	20	114	113	1	[NT]	[NT]

QUALITY CONTROL: Organochlorine Pesticides in soil						Duplicate		Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-5	269180-3
Date extracted	-			18/05/2021	2	18/05/2021	18/05/2021		18/05/2021	18/05/2021
Date analysed	-			19/05/2021	2	19/05/2021	19/05/2021		19/05/2021	19/05/2021
alpha-BHC	mg/kg	0.1	Org-022/025	<0.1	2	<0.1	<0.1	0	97	94
HCB	mg/kg	0.1	Org-022/025	<0.1	2	<0.1	<0.1	0	[NT]	[NT]
beta-BHC	mg/kg	0.1	Org-022/025	<0.1	2	<0.1	<0.1	0	94	96
gamma-BHC	mg/kg	0.1	Org-022/025	<0.1	2	<0.1	<0.1	0	[NT]	[NT]
Heptachlor	mg/kg	0.1	Org-022/025	<0.1	2	<0.1	<0.1	0	115	95
delta-BHC	mg/kg	0.1	Org-022/025	<0.1	2	<0.1	<0.1	0	[NT]	[NT]
Aldrin	mg/kg	0.1	Org-022/025	<0.1	2	<0.1	<0.1	0	103	79
Heptachlor Epoxide	mg/kg	0.1	Org-022/025	<0.1	2	<0.1	<0.1	0	110	95
gamma-Chlordane	mg/kg	0.1	Org-022/025	<0.1	2	<0.1	<0.1	0	[NT]	[NT]
alpha-chlordane	mg/kg	0.1	Org-022/025	<0.1	2	<0.1	<0.1	0	[NT]	[NT]
Endosulfan I	mg/kg	0.1	Org-022/025	<0.1	2	<0.1	<0.1	0	[NT]	[NT]
pp-DDE	mg/kg	0.1	Org-022/025	<0.1	2	<0.1	<0.1	0	96	96
Dieldrin	mg/kg	0.1	Org-022/025	<0.1	2	<0.1	<0.1	0	123	93
Endrin	mg/kg	0.1	Org-022/025	<0.1	2	<0.1	<0.1	0	109	104
Endosulfan II	mg/kg	0.1	Org-022/025	<0.1	2	<0.1	<0.1	0	[NT]	[NT]
pp-DDD	mg/kg	0.1	Org-022/025	<0.1	2	<0.1	<0.1	0	106	86
Endrin Aldehyde	mg/kg	0.1	Org-022/025	<0.1	2	<0.1	<0.1	0	[NT]	[NT]
pp-DDT	mg/kg	0.1	Org-022/025	<0.1	2	<0.1	<0.1	0	[NT]	[NT]
Endosulfan Sulphate	mg/kg	0.1	Org-022/025	<0.1	2	<0.1	<0.1	0	109	91
Methoxychlor	mg/kg	0.1	Org-022/025	<0.1	2	<0.1	<0.1	0	[NT]	[NT]
Surrogate TCMX	%		Org-022/025	94	2	90	89	1	92	90



QUALITY CONTROL: Organochlorine Pesticides in soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	11	18/05/2021	18/05/2021		[NT]	[NT]
Date analysed	-			[NT]	11	19/05/2021	19/05/2021		[NT]	[NT]
alpha-BHC	mg/kg	0.1	Org-022/025	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
HCB	mg/kg	0.1	Org-022/025	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
beta-BHC	mg/kg	0.1	Org-022/025	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
gamma-BHC	mg/kg	0.1	Org-022/025	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
Heptachlor	mg/kg	0.1	Org-022/025	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
delta-BHC	mg/kg	0.1	Org-022/025	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
Aldrin	mg/kg	0.1	Org-022/025	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
Heptachlor Epoxide	mg/kg	0.1	Org-022/025	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
gamma-Chlordane	mg/kg	0.1	Org-022/025	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
alpha-chlordane	mg/kg	0.1	Org-022/025	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
Endosulfan I	mg/kg	0.1	Org-022/025	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
pp-DDE	mg/kg	0.1	Org-022/025	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
Dieldrin	mg/kg	0.1	Org-022/025	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
Endrin	mg/kg	0.1	Org-022/025	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
Endosulfan II	mg/kg	0.1	Org-022/025	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
pp-DDD	mg/kg	0.1	Org-022/025	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
Endrin Aldehyde	mg/kg	0.1	Org-022/025	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
pp-DDT	mg/kg	0.1	Org-022/025	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
Endosulfan Sulphate	mg/kg	0.1	Org-022/025	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
Methoxychlor	mg/kg	0.1	Org-022/025	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
Surrogate TCMX	%		Org-022/025	[NT]	11	91	92	1	[NT]	[NT]

QUALITY CONTROL: Organochlorine Pesticides in soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	20	18/05/2021	18/05/2021		[NT]	[NT]
Date analysed	-			[NT]	20	19/05/2021	19/05/2021		[NT]	[NT]
alpha-BHC	mg/kg	0.1	Org-022/025	[NT]	20	<0.1	<0.1	0	[NT]	[NT]
HCB	mg/kg	0.1	Org-022/025	[NT]	20	<0.1	<0.1	0	[NT]	[NT]
beta-BHC	mg/kg	0.1	Org-022/025	[NT]	20	<0.1	<0.1	0	[NT]	[NT]
gamma-BHC	mg/kg	0.1	Org-022/025	[NT]	20	<0.1	<0.1	0	[NT]	[NT]
Heptachlor	mg/kg	0.1	Org-022/025	[NT]	20	<0.1	<0.1	0	[NT]	[NT]
delta-BHC	mg/kg	0.1	Org-022/025	[NT]	20	<0.1	<0.1	0	[NT]	[NT]
Aldrin	mg/kg	0.1	Org-022/025	[NT]	20	<0.1	<0.1	0	[NT]	[NT]
Heptachlor Epoxide	mg/kg	0.1	Org-022/025	[NT]	20	<0.1	<0.1	0	[NT]	[NT]
gamma-Chlordane	mg/kg	0.1	Org-022/025	[NT]	20	<0.1	<0.1	0	[NT]	[NT]
alpha-chlordane	mg/kg	0.1	Org-022/025	[NT]	20	<0.1	<0.1	0	[NT]	[NT]
Endosulfan I	mg/kg	0.1	Org-022/025	[NT]	20	<0.1	<0.1	0	[NT]	[NT]
pp-DDE	mg/kg	0.1	Org-022/025	[NT]	20	<0.1	<0.1	0	[NT]	[NT]
Dieldrin	mg/kg	0.1	Org-022/025	[NT]	20	<0.1	<0.1	0	[NT]	[NT]
Endrin	mg/kg	0.1	Org-022/025	[NT]	20	<0.1	<0.1	0	[NT]	[NT]
Endosulfan II	mg/kg	0.1	Org-022/025	[NT]	20	<0.1	<0.1	0	[NT]	[NT]
pp-DDD	mg/kg	0.1	Org-022/025	[NT]	20	<0.1	<0.1	0	[NT]	[NT]
Endrin Aldehyde	mg/kg	0.1	Org-022/025	[NT]	20	<0.1	<0.1	0	[NT]	[NT]
pp-DDT	mg/kg	0.1	Org-022/025	[NT]	20	<0.1	<0.1	0	[NT]	[NT]
Endosulfan Sulphate	mg/kg	0.1	Org-022/025	[NT]	20	<0.1	<0.1	0	[NT]	[NT]
Methoxychlor	mg/kg	0.1	Org-022/025	[NT]	20	<0.1	<0.1	0	[NT]	[NT]
Surrogate TCMX	%		Org-022/025	[NT]	20	92	90	2	[NT]	[NT]

QUALITY CONTROL: Organophosphorus Pesticides in Soil						Duplicate		Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-5	269180-3
Date extracted	-			18/05/2021	2	18/05/2021	18/05/2021		18/05/2021	18/05/2021
Date analysed	-			19/05/2021	2	19/05/2021	19/05/2021		19/05/2021	19/05/2021
Dichlorvos	mg/kg	0.1	Org-022/025	<0.1	2	<0.1	<0.1	0	86	87
Dimethoate	mg/kg	0.1	Org-022/025	<0.1	2	<0.1	<0.1	0	[NT]	[NT]
Diazinon	mg/kg	0.1	Org-022/025	<0.1	2	<0.1	<0.1	0	[NT]	[NT]
Chlorpyrifos-methyl	mg/kg	0.1	Org-022/025	<0.1	2	<0.1	<0.1	0	[NT]	[NT]
Ronnel	mg/kg	0.1	Org-022/025	<0.1	2	<0.1	<0.1	0	105	86
Fenitrothion	mg/kg	0.1	Org-022/025	<0.1	2	<0.1	<0.1	0	75	95
Malathion	mg/kg	0.1	Org-022/025	<0.1	2	<0.1	<0.1	0	100	92
Chlorpyrifos	mg/kg	0.1	Org-022/025	<0.1	2	<0.1	<0.1	0	120	105
Parathion	mg/kg	0.1	Org-022/025	<0.1	2	<0.1	<0.1	0	78	106
Bromophos-ethyl	mg/kg	0.1	Org-022	<0.1	2	<0.1	<0.1	0	[NT]	[NT]
Ethion	mg/kg	0.1	Org-022/025	<0.1	2	<0.1	<0.1	0	73	111
Azinphos-methyl (Guthion)	mg/kg	0.1	Org-022/025	<0.1	2	<0.1	<0.1	0	[NT]	[NT]
Surrogate TCMX	%		Org-022/025	94	2	90	89	1	92	90

QUALITY CONTROL: Organophosphorus Pesticides in Soil						Duplicate		Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	11	18/05/2021	18/05/2021		[NT]	[NT]
Date analysed	-			[NT]	11	19/05/2021	19/05/2021		[NT]	[NT]
Dichlorvos	mg/kg	0.1	Org-022/025	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
Dimethoate	mg/kg	0.1	Org-022/025	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
Diazinon	mg/kg	0.1	Org-022/025	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
Chlorpyrifos-methyl	mg/kg	0.1	Org-022/025	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
Ronnel	mg/kg	0.1	Org-022/025	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
Fenitrothion	mg/kg	0.1	Org-022/025	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
Malathion	mg/kg	0.1	Org-022/025	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
Chlorpyrifos	mg/kg	0.1	Org-022/025	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
Parathion	mg/kg	0.1	Org-022/025	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
Bromophos-ethyl	mg/kg	0.1	Org-022	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
Ethion	mg/kg	0.1	Org-022/025	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
Azinphos-methyl (Guthion)	mg/kg	0.1	Org-022/025	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
Surrogate TCMX	%		Org-022/025	[NT]	11	91	92	1	[NT]	[NT]



QUALITY CONTROL: Organophosphorus Pesticides in Soil						Duplicate		Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	20	18/05/2021	18/05/2021		[NT]	[NT]
Date analysed	-			[NT]	20	19/05/2021	19/05/2021		[NT]	[NT]
Dichlorvos	mg/kg	0.1	Org-022/025	[NT]	20	<0.1	<0.1	0	[NT]	[NT]
Dimethoate	mg/kg	0.1	Org-022/025	[NT]	20	<0.1	<0.1	0	[NT]	[NT]
Diazinon	mg/kg	0.1	Org-022/025	[NT]	20	<0.1	<0.1	0	[NT]	[NT]
Chlorpyrifos-methyl	mg/kg	0.1	Org-022/025	[NT]	20	<0.1	<0.1	0	[NT]	[NT]
Ronnel	mg/kg	0.1	Org-022/025	[NT]	20	<0.1	<0.1	0	[NT]	[NT]
Fenitrothion	mg/kg	0.1	Org-022/025	[NT]	20	<0.1	<0.1	0	[NT]	[NT]
Malathion	mg/kg	0.1	Org-022/025	[NT]	20	<0.1	<0.1	0	[NT]	[NT]
Chlorpyrifos	mg/kg	0.1	Org-022/025	[NT]	20	<0.1	<0.1	0	[NT]	[NT]
Parathion	mg/kg	0.1	Org-022/025	[NT]	20	<0.1	<0.1	0	[NT]	[NT]
Bromophos-ethyl	mg/kg	0.1	Org-022	[NT]	20	<0.1	<0.1	0	[NT]	[NT]
Ethion	mg/kg	0.1	Org-022/025	[NT]	20	<0.1	<0.1	0	[NT]	[NT]
Azinphos-methyl (Guthion)	mg/kg	0.1	Org-022/025	[NT]	20	<0.1	<0.1	0	[NT]	[NT]
Surrogate TCMX	%		Org-022/025	[NT]	20	92	90	2	[NT]	[NT]

QUALITY CONTROL: PCBs in Soil					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-5	269180-3
Date extracted	-			18/05/2021	2	18/05/2021	18/05/2021		18/05/2021	18/05/2021
Date analysed	-			19/05/2021	2	19/05/2021	19/05/2021		19/05/2021	19/05/2021
Aroclor 1016	mg/kg	0.1	Org-021	<0.1	2	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1221	mg/kg	0.1	Org-021	<0.1	2	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1232	mg/kg	0.1	Org-021	<0.1	2	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1242	mg/kg	0.1	Org-021	<0.1	2	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1248	mg/kg	0.1	Org-021	<0.1	2	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1254	mg/kg	0.1	Org-021	<0.1	2	<0.1	<0.1	0	120	100
Aroclor 1260	mg/kg	0.1	Org-021	<0.1	2	<0.1	<0.1	0	[NT]	[NT]
Surrogate TCMX	%		Org-021	94	2	90	89	1	92	90

QUALITY CONTROL: PCBs in Soil					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	11	18/05/2021	18/05/2021		[NT]	[NT]
Date analysed	-			[NT]	11	19/05/2021	19/05/2021		[NT]	[NT]
Aroclor 1016	mg/kg	0.1	Org-021	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1221	mg/kg	0.1	Org-021	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1232	mg/kg	0.1	Org-021	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1242	mg/kg	0.1	Org-021	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1248	mg/kg	0.1	Org-021	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1254	mg/kg	0.1	Org-021	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1260	mg/kg	0.1	Org-021	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
Surrogate TCMX	%		Org-021	[NT]	11	91	92	1	[NT]	[NT]

QUALITY CONTROL: PCBs in Soil					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	20	18/05/2021	18/05/2021		[NT]	[NT]
Date analysed	-			[NT]	20	19/05/2021	19/05/2021		[NT]	[NT]
Aroclor 1016	mg/kg	0.1	Org-021	[NT]	20	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1221	mg/kg	0.1	Org-021	[NT]	20	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1232	mg/kg	0.1	Org-021	[NT]	20	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1242	mg/kg	0.1	Org-021	[NT]	20	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1248	mg/kg	0.1	Org-021	[NT]	20	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1254	mg/kg	0.1	Org-021	[NT]	20	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1260	mg/kg	0.1	Org-021	[NT]	20	<0.1	<0.1	0	[NT]	[NT]
Surrogate TCMX	%		Org-021	[NT]	20	92	90	2	[NT]	[NT]

QUALITY CONTROL: Acid Extractable metals in soil					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-5	269180-3
Date prepared	-			19/05/2021	2	19/05/2021	19/05/2021		19/05/2021	19/05/2021
Date analysed	-			19/05/2021	2	19/05/2021	19/05/2021		19/05/2021	19/05/2021
Arsenic	mg/kg	4	Metals-020	<4	2	5	12	82	97	117
Cadmium	mg/kg	0.4	Metals-020	<0.4	2	0.5	0.5	0	100	105
Chromium	mg/kg	1	Metals-020	<1	2	12	14	15	99	117
Copper	mg/kg	1	Metals-020	<1	2	77	68	12	98	#
Lead	mg/kg	1	Metals-020	<1	2	150	160	6	90	#
Mercury	mg/kg	0.1	Metals-021	<0.1	2	0.1	0.1	0	77	71
Nickel	mg/kg	1	Metals-020	<1	2	26	24	8	103	120
Zinc	mg/kg	1	Metals-020	<1	2	190	410	73	99	#

QUALITY CONTROL: Acid Extractable metals in soil					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date prepared	-			[NT]	11	19/05/2021	19/05/2021		[NT]	[NT]
Date analysed	-			[NT]	11	19/05/2021	19/05/2021		[NT]	[NT]
Arsenic	mg/kg	4	Metals-020	[NT]	11	<4	5	22	[NT]	[NT]
Cadmium	mg/kg	0.4	Metals-020	[NT]	11	<0.4	<0.4	0	[NT]	[NT]
Chromium	mg/kg	1	Metals-020	[NT]	11	8	9	12	[NT]	[NT]
Copper	mg/kg	1	Metals-020	[NT]	11	6	31	135	[NT]	[NT]
Lead	mg/kg	1	Metals-020	[NT]	11	22	56	87	[NT]	[NT]
Mercury	mg/kg	0.1	Metals-021	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
Nickel	mg/kg	1	Metals-020	[NT]	11	2	6	100	[NT]	[NT]
Zinc	mg/kg	1	Metals-020	[NT]	11	16	59	115	[NT]	[NT]

QUALITY CONTROL: Acid Extractable metals in soil					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date prepared	-			[NT]	20	19/05/2021	19/05/2021		[NT]	[NT]
Date analysed	-			[NT]	20	19/05/2021	19/05/2021		[NT]	[NT]
Arsenic	mg/kg	4	Metals-020	[NT]	20	9	7	25	[NT]	[NT]
Cadmium	mg/kg	0.4	Metals-020	[NT]	20	0.6	0.7	15	[NT]	[NT]
Chromium	mg/kg	1	Metals-020	[NT]	20	13	11	17	[NT]	[NT]
Copper	mg/kg	1	Metals-020	[NT]	20	31	23	30	[NT]	[NT]
Lead	mg/kg	1	Metals-020	[NT]	20	94	96	2	[NT]	[NT]
Mercury	mg/kg	0.1	Metals-021	[NT]	20	0.2	0.2	0	[NT]	[NT]
Nickel	mg/kg	1	Metals-020	[NT]	20	6	5	18	[NT]	[NT]
Zinc	mg/kg	1	Metals-020	[NT]	20	87	85	2	[NT]	[NT]



Result Definitions	
<b>NT</b>	Not tested
<b>NA</b>	Test not required
<b>INS</b>	Insufficient sample for this test
<b>PQL</b>	Practical Quantitation Limit
<b>&lt;</b>	Less than
<b>&gt;</b>	Greater than
<b>RPD</b>	Relative Percent Difference
<b>LCS</b>	Laboratory Control Sample
<b>NS</b>	Not specified
<b>NEPM</b>	National Environmental Protection Measure
<b>NR</b>	Not Reported

## Quality Control Definitions

<b>Blank</b>	This is the component of the analytical signal which is not derived from the sample but from reagents, glassware etc, can be determined by processing solvents and reagents in exactly the same manner as for samples.
<b>Duplicate</b>	This is the complete duplicate analysis of a sample from the process batch. If possible, the sample selected should be one where the analyte concentration is easily measurable.
<b>Matrix Spike</b>	A portion of the sample is spiked with a known concentration of target analyte. The purpose of the matrix spike is to monitor the performance of the analytical method used and to determine whether matrix interferences exist.
<b>LCS (Laboratory Control Sample)</b>	This comprises either a standard reference material or a control matrix (such as a blank sand or water) fortified with analytes representative of the analyte class. It is simply a check sample.
<b>Surrogate Spike</b>	Surrogates are known additions to each sample, blank, matrix spike and LCS in a batch, of compounds which are similar to the analyte of interest, however are not expected to be found in real samples.
Australian Drinking Water Guidelines recommend that Thermotolerant Coliform, Faecal Enterococci, & E.Coli levels are less than 1cfu/100mL. The recommended maximums are taken from "Australian Drinking Water Guidelines", published by NHMRC & ARMC 2011.	
The recommended maximums for analytes in urine are taken from "2018 TLVs and BEIs", as published by ACGIH (where available). Limit provided for Nickel is a precautionary guideline as per Position Paper prepared by AIOH Exposure Standards Committee, 2016.	
Guideline limits for Rinse Water Quality reported as per analytical requirements and specifications of AS 4187, Amdt 2 2019, Table 7.2	

## Laboratory Acceptance Criteria

Duplicate sample and matrix spike recoveries may not be reported on smaller jobs, however, were analysed at a frequency to meet or exceed NEPM requirements. All samples are tested in batches of 20. The duplicate sample RPD and matrix spike recoveries for the batch were within the laboratory acceptance criteria.

Filters, swabs, wipes, tubes and badges will not have duplicate data as the whole sample is generally extracted during sample extraction.

Spikes for Physical and Aggregate Tests are not applicable.

For VOCs in water samples, three vials are required for duplicate or spike analysis.

Duplicates: >10xPQL - RPD acceptance criteria will vary depending on the analytes and the analytical techniques but is typically in the range 20%-50% – see ELN-P05 QA/QC tables for details; <10xPQL - RPD are higher as the results approach PQL and the estimated measurement uncertainty will statistically increase.

Matrix Spikes, LCS and Surrogate recoveries: Generally 70-130% for inorganics/metals (not SPOCAS); 60-140% for organics/SPOCAS (+/-50% surrogates) and 10-140% for labile SVOCs (including labile surrogates), ultra trace organics and speciated phenols is acceptable.

In circumstances where no duplicate and/or sample spike has been reported at 1 in 10 and/or 1 in 20 samples respectively, the sample volume submitted was insufficient in order to satisfy laboratory QA/QC protocols.

When samples are received where certain analytes are outside of recommended technical holding times (THTs), the analysis has proceeded. Where analytes are on the verge of breaching THTs, every effort will be made to analyse within the THT or as soon as practicable.

Where sampling dates are not provided, Envirolab are not in a position to comment on the validity of the analysis where recommended technical holding times may have been breached.

Measurement Uncertainty estimates are available for most tests upon request.

Analysis of aqueous samples typically involves the extraction/digestion and/or analysis of the liquid phase only (i.e. NOT any settled sediment phase but inclusive of suspended particles if present), unless stipulated on the Envirolab COC and/or by correspondence. Notable exceptions include certain Physical Tests (pH/EC/BOD/COD/Apparent Colour etc.), Solids testing, total recoverable metals and PFAS where solids are included by default.

Samples for Microbiological analysis (not Amoeba forms) received outside of the 2-8°C temperature range do not meet the ideal cooling conditions as stated in AS2031-2012.

## Report Comments

PAHs in Soil - The RPD for duplicate results is accepted due to the non homogenous nature of samples 269180-2,11 and 20.  
# Percent recovery for the matrix spike is not possible to report as the high concentration of analytes in sample 269180-3 has caused interference.

### Acid Extractable Metals in Soil:

- The laboratory RPD acceptance criteria has been exceeded for 269180-2 for Zn. Therefore a triplicate result has been issued as laboratory sample number 269180-24.
- The laboratory RPD acceptance criteria has been exceeded for 269180-11 for Cu, Pb, Zn. Therefore a triplicate result has been issued as laboratory sample number 269180-25.
- # Percent recovery is not possible to report due to the inhomogeneous nature of the element/s in the sample/s. However an acceptable recovery was obtained for the LCS.

### Asbestos-ID in soil: NEPM

This report is consistent with the reporting recommendations in the National Environment Protection (Assessment of Site Contamination) Measure, Schedule B1, May 2013. This is reported outside our scope of NATA accreditation.

### Factual description of asbestos identified in the soil samples: NEPM

Sample 269180-6; Chrysotile asbestos identified in 0.0030g of fibrous matted material

Sample 269180-10; Chrysotile asbestos identified in 0.0011g of fibrous matted material



5C Neph)

Project No: C201016				Lab: EPIUROCAR				ANALYSIS REQUIRED															
Project/Site: LILYFIELD				Lab Quote No:																			
Sampled By: R. O'ROANE				Lab Batch No:																			
Phone: 0404003394				Date Results Required: STANDARD																			
Page 1 of 2				Sample Disposal After: STANDARD																			
Number of Eskies: 1				CONTAINER TYPE & PRESERVATIVE																			
LAB ID	SAMPLE ID	DATE	MATRIX	Soil		Water								COMBO 6	COMBO 3	ASBESTOS	BTX	ASBESTOS LD					HOLD
				0.1-0.2 L Glass jar, unpreserved	Plastic bag	0.1-0.2 L Plastic, Filtered, HNO3	0.5-1.0 L Amber glass, unpreserved	40-50ml Glass, preserved	0.25-1 L Plastic, unpreserved	0.25-1 L Plastic, preserved	0.2-1.0 L Plastic, sterile												
1	TP01-0.0-0.2	17/5/21	SOIL																				
2	TP01-0.2-0.4																						
3	TP01-0.4-0.8																						
4	TP02-0.3-0.4																						
5	TP02-0.4-1.0																						
6	TP03-0.4-0.5																						
7	TP03-0.4-1.0																						
8	TP04-0.5-0.6																						
9	TP04-0.8-0.9																						
10	TP05-0.3-0.4																						
11	TP05-0.4-1.0																						
12	TP06-0.4-0.5																						
13	TP06-0.7-0.8																						
14	TP07-0.3-0.4																						
15	TP07-0.4-1.0																						
16	TP08-0.3-0.4																						
17	TP08-0.5-0.6																						
18	TP08-0.4-1.0																						
19	QCB1																						
20	QCB3																						
TOTALS																							
Relinquished By: R. O'ROANE				Received By: CHRISTINE EUSYD				Custody Seals Intact Y N															
NAME R. O'ROANE				NAME CHRISTINE EUSYD				Samples Received Chilled Y N															
SIGNATURE				SIGNATURE				Method of Shipment															
DATE 17/5/21				DATE 13/6																			
NOTES:																							

CH 17/05/21 #269180



CONSARA Pty Ltd ABN 27 161 027 982  
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email [rebeccaorgano@consara.com.au](mailto:rebeccaorgano@consara.com.au)

CN 17105721 # 269188

## CERTIFICATE OF ANALYSIS

**Work Order** : **ES2119002**  
**Client** : **CONSARA PTY LTD**  
**Contact** : **MS REBECCA ORGANO**  
**Address** : **SUITE 2, LEVEL 2, UNIT 6, 10 RODBOROUGH ROAD**  
**FRENCHS FOREST 2100**  
**Telephone** : **+61 02 9451 1549**  
**Project** : **C201016 LILYFIELD**  
**Order number** : **----**  
**C-O-C number** : **----**  
**Sampler** : **REBECCA ORGANO**  
**Site** : **----**  
**Quote number** : **EN/222**  
**No. of samples received** : **2**  
**No. of samples analysed** : **1**

**Page** : 1 of 7  
**Laboratory** : Environmental Division Sydney  
**Contact** : Customer Services ES  
**Address** : 277-289 Woodpark Road Smithfield NSW Australia 2164  
**Telephone** : +61-2-8784 8555  
**Date Samples Received** : 20-May-2021 17:05  
**Date Analysis Commenced** : 23-May-2021  
**Issue Date** : 28-May-2021 16:46



This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

**Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.**

### Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

<i>Signatories</i>	<i>Position</i>	<i>Accreditation Category</i>
Celine Conceicao	Senior Spectroscopist	Sydney Inorganics, Smithfield, NSW
Edwandy Fadjjar	Organic Coordinator	Sydney Inorganics, Smithfield, NSW
Edwandy Fadjjar	Organic Coordinator	Sydney Organics, Smithfield, NSW





## General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contact for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.  
LOR = Limit of reporting  
^ = This result is computed from individual analyte detections at or above the level of reporting  
ø = ALS is not NATA accredited for these tests.  
~ = Indicates an estimated value.

- Benzo(a)pyrene Toxicity Equivalent Quotient (TEQ) per the NEPM (2013) is the sum total of the concentration of the eight carcinogenic PAHs multiplied by their Toxicity Equivalence Factor (TEF) relative to Benzo(a)pyrene. TEF values are provided in brackets as follows: Benz(a)anthracene (0.1), Chrysene (0.01), Benzo(b+j) & Benzo(k)fluoranthene (0.1), Benzo(a)pyrene (1.0), Indeno(1.2.3.cd)pyrene (0.1), Dibenz(a,h)anthracene (1.0), Benzo(g,h,i)perylene (0.01). Less than LOR results for 'TEQ Zero' are treated as zero, for 'TEQ 1/2LOR' are treated as half the reported LOR, and for 'TEQ LOR' are treated as being equal to the reported LOR. Note: TEQ 1/2LOR and TEQ LOR will calculate as 0.6mg/Kg and 1.2mg/Kg respectively for samples with non-detects for all of the eight TEQ PAHs.
- EP080: Where reported, Total Xylenes is the sum of the reported concentrations of m&p-Xylene and o-Xylene at or above the LOR.
- EP068: Where reported, Total Chlordane (sum) is the sum of the reported concentrations of cis-Chlordane and trans-Chlordane at or above the LOR.
- EP068: Where reported, Total OCP is the sum of the reported concentrations of all Organochlorine Pesticides at or above LOR.
- EP075(SIM): Where reported, Total Cresol is the sum of the reported concentrations of 2-Methylphenol and 3- & 4-Methylphenol at or above the LOR.



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	QC02	----	----	----	----
Sampling date / time				17-May-2021 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit	ES2119002-001	-----	-----	-----	-----
Result				----	----	----	----	----
<b>EA055: Moisture Content (Dried @ 105-110°C)</b>								
Moisture Content	----	1.0	%	22.6	----	----	----	----
<b>EG005(ED093)T: Total Metals by ICP-AES</b>								
Arsenic	7440-38-2	5	mg/kg	10	----	----	----	----
Cadmium	7440-43-9	1	mg/kg	<1	----	----	----	----
Chromium	7440-47-3	2	mg/kg	19	----	----	----	----
Copper	7440-50-8	5	mg/kg	141	----	----	----	----
Lead	7439-92-1	5	mg/kg	300	----	----	----	----
Nickel	7440-02-0	2	mg/kg	18	----	----	----	----
Zinc	7440-66-6	5	mg/kg	248	----	----	----	----
<b>EG035T: Total Recoverable Mercury by FIMS</b>								
Mercury	7439-97-6	0.1	mg/kg	0.3	----	----	----	----
<b>EP066: Polychlorinated Biphenyls (PCB)</b>								
Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	----	----	----	----
<b>EP068A: Organochlorine Pesticides (OC)</b>								
alpha-BHC	319-84-6	0.05	mg/kg	<0.05	----	----	----	----
Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	----	----	----	----
beta-BHC	319-85-7	0.05	mg/kg	<0.05	----	----	----	----
gamma-BHC	58-89-9	0.05	mg/kg	<0.05	----	----	----	----
delta-BHC	319-86-8	0.05	mg/kg	<0.05	----	----	----	----
Heptachlor	76-44-8	0.05	mg/kg	<0.05	----	----	----	----
Aldrin	309-00-2	0.05	mg/kg	<0.05	----	----	----	----
Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	----	----	----	----
^ Total Chlordane (sum)	----	0.05	mg/kg	<0.05	----	----	----	----
trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	----	----	----	----
alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	----	----	----	----
cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	----	----	----	----
Dieldrin	60-57-1	0.05	mg/kg	<0.05	----	----	----	----
4,4'-DDE	72-55-9	0.05	mg/kg	<0.05	----	----	----	----
Endrin	72-20-8	0.05	mg/kg	<0.05	----	----	----	----
beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	----	----	----	----
^ Endosulfan (sum)	115-29-7	0.05	mg/kg	<0.05	----	----	----	----
4,4'-DDD	72-54-8	0.05	mg/kg	<0.05	----	----	----	----
Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	----	----	----	----
Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	----	----	----	----



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	QC02	----	----	----	----
Sampling date / time				17-May-2021 00:00	----	----	----	----	----
Compound	CAS Number	LOR	Unit	ES2119002-001	-----	-----	-----	-----	-----
Result				----	----	----	----	----	----
EP068A: Organochlorine Pesticides (OC) - Continued									
4,4'-DDT	50-29-3	0.2	mg/kg	<0.2	----	----	----	----	----
Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	----	----	----	----	----
Methoxychlor	72-43-5	0.2	mg/kg	<0.2	----	----	----	----	----
^ Sum of Aldrin + Dieldrin	309-00-2/60-57-1	0.05	mg/kg	<0.05	----	----	----	----	----
^ Sum of DDD + DDE + DDT	72-54-8/72-55-9/5 0-2	0.05	mg/kg	<0.05	----	----	----	----	----
EP068B: Organophosphorus Pesticides (OP)									
Dichlorvos	62-73-7	0.05	mg/kg	<0.05	----	----	----	----	----
Demeton-S-methyl	919-86-8	0.05	mg/kg	<0.05	----	----	----	----	----
Monocrotophos	6923-22-4	0.2	mg/kg	<0.2	----	----	----	----	----
Dimethoate	60-51-5	0.05	mg/kg	<0.05	----	----	----	----	----
Diazinon	333-41-5	0.05	mg/kg	<0.05	----	----	----	----	----
Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg	<0.05	----	----	----	----	----
Parathion-methyl	298-00-0	0.2	mg/kg	<0.2	----	----	----	----	----
Malathion	121-75-5	0.05	mg/kg	<0.05	----	----	----	----	----
Fenthion	55-38-9	0.05	mg/kg	<0.05	----	----	----	----	----
Chlorpyrifos	2921-88-2	0.05	mg/kg	<0.05	----	----	----	----	----
Parathion	56-38-2	0.2	mg/kg	<0.2	----	----	----	----	----
Pirimphos-ethyl	23505-41-1	0.05	mg/kg	<0.05	----	----	----	----	----
Chlorfenvinphos	470-90-6	0.05	mg/kg	<0.05	----	----	----	----	----
Bromophos-ethyl	4824-78-6	0.05	mg/kg	<0.05	----	----	----	----	----
Fenamiphos	22224-92-6	0.05	mg/kg	<0.05	----	----	----	----	----
Prothiofos	34643-46-4	0.05	mg/kg	<0.05	----	----	----	----	----
Ethion	563-12-2	0.05	mg/kg	<0.05	----	----	----	----	----
Carbophenothion	786-19-6	0.05	mg/kg	<0.05	----	----	----	----	----
Azinphos Methyl	86-50-0	0.05	mg/kg	<0.05	----	----	----	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons									
Naphthalene	91-20-3	0.5	mg/kg	<0.5	----	----	----	----	----
Acenaphthylene	208-96-8	0.5	mg/kg	0.7	----	----	----	----	----
Acenaphthene	83-32-9	0.5	mg/kg	<0.5	----	----	----	----	----
Fluorene	86-73-7	0.5	mg/kg	<0.5	----	----	----	----	----
Phenanthrene	85-01-8	0.5	mg/kg	3.3	----	----	----	----	----
Anthracene	120-12-7	0.5	mg/kg	1.3	----	----	----	----	----
Fluoranthene	206-44-0	0.5	mg/kg	8.3	----	----	----	----	----
Pyrene	129-00-0	0.5	mg/kg	8.3	----	----	----	----	----





## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	QC02	----	----	----	----
Sampling date / time					17-May-2021 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit		ES2119002-001	-----	-----	-----	-----
					Result	----	----	----	----
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued</b>									
Benz(a)anthracene	56-55-3	0.5	mg/kg		4.1	----	----	----	----
Chrysene	218-01-9	0.5	mg/kg		3.9	----	----	----	----
Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg		6.4	----	----	----	----
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg		2.4	----	----	----	----
Benzo(a)pyrene	50-32-8	0.5	mg/kg		5.0	----	----	----	----
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg		2.5	----	----	----	----
Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg		0.6	----	----	----	----
Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg		2.6	----	----	----	----
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg		49.4	----	----	----	----
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg		7.2	----	----	----	----
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg		7.2	----	----	----	----
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg		7.2	----	----	----	----
<b>EP080/071: Total Petroleum Hydrocarbons</b>									
C6 - C9 Fraction	----	10	mg/kg		<10	----	----	----	----
C10 - C14 Fraction	----	50	mg/kg		<50	----	----	----	----
C15 - C28 Fraction	----	100	mg/kg		180	----	----	----	----
C29 - C36 Fraction	----	100	mg/kg		220	----	----	----	----
^ C10 - C36 Fraction (sum)	----	50	mg/kg		400	----	----	----	----
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions</b>									
C6 - C10 Fraction	C6_C10	10	mg/kg		<10	----	----	----	----
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg		<10	----	----	----	----
>C10 - C16 Fraction	----	50	mg/kg		<50	----	----	----	----
>C16 - C34 Fraction	----	100	mg/kg		320	----	----	----	----
>C34 - C40 Fraction	----	100	mg/kg		160	----	----	----	----
^ >C10 - C40 Fraction (sum)	----	50	mg/kg		480	----	----	----	----
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg		<50	----	----	----	----
<b>EP080: BTEXN</b>									
Benzene	71-43-2	0.2	mg/kg		<0.2	----	----	----	----
Toluene	108-88-3	0.5	mg/kg		<0.5	----	----	----	----
Ethylbenzene	100-41-4	0.5	mg/kg		<0.5	----	----	----	----
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg		<0.5	----	----	----	----
ortho-Xylene	95-47-6	0.5	mg/kg		<0.5	----	----	----	----



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	QC02	----	----	----	----
Sampling date / time					17-May-2021 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit		ES2119002-001	-----	-----	-----	-----
Result						----	----	----	----
<b>EP080: BTEXN - Continued</b>									
^ Sum of BTEX	----	0.2	mg/kg		<0.2	----	----	----	----
^ Total Xylenes	----	0.5	mg/kg		<0.5	----	----	----	----
Naphthalene	91-20-3	1	mg/kg		<1	----	----	----	----
<b>EP066S: PCB Surrogate</b>									
Decachlorobiphenyl	2051-24-3	0.1	%		87.4	----	----	----	----
<b>EP068S: Organochlorine Pesticide Surrogate</b>									
Dibromo-DDE	21655-73-2	0.05	%		129	----	----	----	----
<b>EP068T: Organophosphorus Pesticide Surrogate</b>									
DEF	78-48-8	0.05	%		98.9	----	----	----	----
<b>EP075(SIM)S: Phenolic Compound Surrogates</b>									
Phenol-d6	13127-88-3	0.5	%		73.3	----	----	----	----
2-Chlorophenol-D4	93951-73-6	0.5	%		74.2	----	----	----	----
2,4,6-Tribromophenol	118-79-6	0.5	%		90.3	----	----	----	----
<b>EP075(SIM)T: PAH Surrogates</b>									
2-Fluorobiphenyl	321-60-8	0.5	%		94.6	----	----	----	----
Anthracene-d10	1719-06-8	0.5	%		109	----	----	----	----
4-Terphenyl-d14	1718-51-0	0.5	%		103	----	----	----	----
<b>EP080S: TPH(V)/BTEX Surrogates</b>									
1,2-Dichloroethane-D4	17060-07-0	0.2	%		93.7	----	----	----	----
Toluene-D8	2037-26-5	0.2	%		107	----	----	----	----
4-Bromofluorobenzene	460-00-4	0.2	%		124	----	----	----	----



## Surrogate Control Limits

Sub-Matrix: SOIL		Recovery Limits (%)	
Compound	CAS Number	Low	High
<b>EP066S: PCB Surrogate</b>			
Decachlorobiphenyl	2051-24-3	39	149
<b>EP068S: Organochlorine Pesticide Surrogate</b>			
Dibromo-DDE	21655-73-2	49	147
<b>EP068T: Organophosphorus Pesticide Surrogate</b>			
DEF	78-48-8	35	143
<b>EP075(SIM)S: Phenolic Compound Surrogates</b>			
Phenol-d6	13127-88-3	63	123
2-Chlorophenol-D4	93951-73-6	66	122
2,4,6-Tribromophenol	118-79-6	40	138
<b>EP075(SIM)T: PAH Surrogates</b>			
2-Fluorobiphenyl	321-60-8	70	122
Anthracene-d10	1719-06-8	66	128
4-Terphenyl-d14	1718-51-0	65	129
<b>EP080S: TPH(V)/BTEX Surrogates</b>			
1,2-Dichloroethane-D4	17060-07-0	73	133
Toluene-D8	2037-26-5	74	132
4-Bromofluorobenzene	460-00-4	72	130



## QUALITY CONTROL REPORT

<b>Work Order</b>	<b>: ES2119002</b>	<b>Page</b>	<b>: 1 of 9</b>
<b>Client</b>	<b>: CONSARA PTY LTD</b>	<b>Laboratory</b>	<b>: Environmental Division Sydney</b>
<b>Contact</b>	<b>: MS REBECCA ORGANO</b>	<b>Contact</b>	<b>: Customer Services ES</b>
<b>Address</b>	<b>: SUITE 2, LEVEL 2, UNIT 6, 10 RODBOROUGH ROAD FRENCHS FOREST 2100</b>	<b>Address</b>	<b>: 277-289 Woodpark Road Smithfield NSW Australia 2164</b>
<b>Telephone</b>	<b>: +61 02 9451 1549</b>	<b>Telephone</b>	<b>: +61-2-8784 8555</b>
<b>Project</b>	<b>: C201016 LILYFIELD</b>	<b>Date Samples Received</b>	<b>: 20-May-2021</b>
<b>Order number</b>	<b>: ----</b>	<b>Date Analysis Commenced</b>	<b>: 23-May-2021</b>
<b>C-O-C number</b>	<b>: ----</b>	<b>Issue Date</b>	<b>: 28-May-2021</b>
<b>Sampler</b>	<b>: REBECCA ORGANO</b>		
<b>Site</b>	<b>: ----</b>		
<b>Quote number</b>	<b>: EN/222</b>		
<b>No. of samples received</b>	<b>: 2</b>		
<b>No. of samples analysed</b>	<b>: 1</b>		



This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits

### Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

<i>Signatories</i>	<i>Position</i>	<i>Accreditation Category</i>
Celine Conceicao	Senior Spectroscopist	Sydney Inorganics, Smithfield, NSW
Edwandy Fadjar	Organic Coordinator	Sydney Inorganics, Smithfield, NSW
Edwandy Fadjar	Organic Coordinator	Sydney Organics, Smithfield, NSW



## General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis. Where the LOR of a reported result differs from standard LOR, this may be due to high

Key :  
 Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot  
 CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.  
 LOR = Limit of reporting  
 RPD = Relative Percentage Difference  
 # = Indicates failed QC

## Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR: No Limit; Result between 10 and 20 times LOR: 0% - 50%; Result > 20 times LOR: 0% - 20%.

Sub-Matrix: **SOIL**

Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
EG005(ED093)T: Total Metals by ICP-AES (QC Lot: 3699585)									
EM2108857-039	Anonymous	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	<2	<2	0.0	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	<2	<2	0.0	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	14	15	0.0	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	14	16	13.0	No Limit
ES2118930-012	Anonymous	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	11	17	46.4	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	13	20	43.8	0% - 50%
		EG005T: Arsenic	7440-38-2	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	22	34	42.8	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	32	39	20.2	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	37	54	38.5	0% - 50%
EA055: Moisture Content (Dried @ 105-110°C) (QC Lot: 3699588)									
ES2118814-041	Anonymous	EA055: Moisture Content	----	0.1	%	11.1	11.8	6.2	0% - 20%
ES2119020-001	Anonymous	EA055: Moisture Content	----	0.1	%	17.8	16.6	7.1	0% - 50%
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 3699584)									
EM2108857-039	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
ES2118930-012	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
EP066: Polychlorinated Biphenyls (PCB) (QC Lot: 3693706)									
ES2119002-001	QC02	EP066: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
EP068A: Organochlorine Pesticides (OC) (QC Lot: 3693705)									
ES2119002-001	QC02	EP068: alpha-BHC	319-84-6	0.05	mg/kg	<0.05	<0.05	0.0	No Limit



Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
EP068A: Organochlorine Pesticides (OC) (QC Lot: 3693705) - continued									
ES2119002-001	QC02	EP068: Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: beta-BHC	319-85-7	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: gamma-BHC	58-89-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: delta-BHC	319-86-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Heptachlor	76-44-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Aldrin	309-00-2	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Dieldrin	60-57-1	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: 4,4`-DDE	72-55-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Endrin	72-20-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: 4,4`-DDD	72-54-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: 4,4`-DDT	50-29-3	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP068: Methoxychlor	72-43-5	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
EP068B: Organophosphorus Pesticides (OP) (QC Lot: 3693705)									
ES2119002-001	QC02	EP068: Dichlorvos	62-73-7	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Demeton-S-methyl	919-86-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Dimethoate	60-51-5	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Diazinon	333-41-5	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Malathion	121-75-5	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Fenthion	55-38-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Chlorpyrifos	2921-88-2	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Pirimphos-ethyl	23505-41-1	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Chlorfenvinphos	470-90-6	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Bromophos-ethyl	4824-78-6	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Fenamiphos	22224-92-6	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Prothiofos	34643-46-4	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Ethion	563-12-2	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Carbophenothion	786-19-6	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Azinphos Methyl	86-50-0	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Monocrotophos	6923-22-4	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP068: Parathion-methyl	298-00-0	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP068: Parathion	56-38-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit





Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 3693704)									
ES2119002-001	QC02	EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	0.7	0.8	24.7	No Limit
		EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	3.3	3.2	4.0	No Limit
		EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	1.3	1.2	13.2	No Limit
		EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	8.3	9.5	13.8	0% - 50%
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	8.3	10.0	18.4	0% - 20%
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	4.1	5.0	19.2	0% - 50%
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	3.9	4.7	17.3	No Limit
		EP075(SIM): Benzo(b+j)fluoranthene	205-99-2	0.5	mg/kg	6.4	8.4	26.4	0% - 50%
			205-82-3						
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	2.4	2.8	15.5	No Limit
		EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	5.0	6.0	18.1	0% - 50%
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	2.5	3.0	18.7	No Limit
		EP075(SIM): Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	0.6	0.8	25.7	No Limit
		EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	2.6	3.5	29.5	No Limit
		EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	49.4	58.9	17.5	0% - 20%
		EP075(SIM): Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	7.2	8.8	20.0	0% - 50%
		EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3692879)							
ES2118385-005	Anonymous	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit
ES2118806-002	Anonymous	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3693703)									
ES2118930-001	Anonymous	EP071: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit
ES2119002-001	QC02	EP071: C15 - C28 Fraction	----	100	mg/kg	180	150	18.4	No Limit
		EP071: C29 - C36 Fraction	----	100	mg/kg	220	210	0.0	No Limit
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 3692879)									
ES2118385-005	Anonymous	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit
ES2118806-002	Anonymous	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 3693703)									
ES2118930-001	Anonymous	EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit
ES2119002-001	QC02	EP071: >C16 - C34 Fraction	----	100	mg/kg	320	300	5.9	No Limit
		EP071: >C34 - C40 Fraction	----	100	mg/kg	160	180	6.8	No Limit
		EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit

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 Work Order : ES2119002  
 Client : CONSARA PTY LTD  
 Project : C201016 LILYFIELD



Sub-Matrix: <b>SOIL</b>				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
<b>EP080: BTEXN (QC Lot: 3692879)</b>									
ES2118385-005	Anonymous	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
			106-42-3						
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
ES2118806-002	Anonymous	EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.0	No Limit
		EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
			106-42-3						
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.0	No Limit

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Sample (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
	Spike Concentration	Spike Recovery (%) LCS	Acceptable Limits (%) Low High		
	<5	121.1 mg/kg	103	88.0	113
	<1	0.74 mg/kg	121	70.0	130
	<2	19.6 mg/kg	116	68.0	132
	<5	52.9 mg/kg	110	89.0	111
	<5	60.8 mg/kg	106	82.0	119
	<2	15.3 mg/kg	106	80.0	120
	<5	139.3 mg/kg	99.2	66.0	133
	<0.1	0.087 mg/kg	91.4	70.0	125
	<0.1	1 mg/kg	91.0	62.0	126
	<0.05	0.5 mg/kg	88.0	69.0	113
	<0.05	0.5 mg/kg	86.8	65.0	117
	<0.05	0.5 mg/kg	87.9	67.0	119
	<0.05	0.5 mg/kg	88.1	68.0	116
	<0.05	0.5 mg/kg	79.3	65.0	117
	<0.05	0.5 mg/kg	84.3	67.0	115
	<0.05	0.5 mg/kg	87.2	69.0	115
	<0.05	0.5 mg/kg	87.8	62.0	118
	<0.05	0.5 mg/kg	87.0	63.0	117
	<0.05	0.5 mg/kg	80.8	66.0	116
	<0.05	0.5 mg/kg	86.8	64.0	116
	<0.05	0.5 mg/kg	84.3	66.0	116
	<0.05	0.5 mg/kg	85.9	67.0	115
	<0.05	0.5 mg/kg	88.6	67.0	123
	<0.05	0.5 mg/kg	87.5	69.0	115
	<0.05	0.5 mg/kg	88.8	69.0	121
	<0.05	0.5 mg/kg	87.7	56.0	120
	<0.05	0.5 mg/kg	81.8	62.0	124
	<0.2	0.5 mg/kg	77.5	66.0	120
	<0.05	0.5 mg/kg	78.9	64.0	122
	<0.2	0.5 mg/kg	75.8	54.0	130





Sub-Matrix: **SOIL**

Sub-Matrix: SOIL				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike Concentration	Spike Recovery (%) LCS	Acceptable Limits (%) Low High	
Method: Compound	CAS Number	LOR	Unit	Result				
EP068B: Organophosphorus Pesticides (OP) (QCLot: 3693705) - continued								
EP068: Dichlorvos	62-73-7	0.05	mg/kg	<0.05	0.5 mg/kg	89.8	59.0	119
EP068: Demeton-S-methyl	919-86-8	0.05	mg/kg	<0.05	0.5 mg/kg	92.0	62.0	128
EP068: Monocrotophos	6923-22-4	0.2	mg/kg	<0.2	0.5 mg/kg	76.5	54.0	126
EP068: Dimethoate	60-51-5	0.05	mg/kg	<0.05	0.5 mg/kg	78.2	67.0	119
EP068: Diazinon	333-41-5	0.05	mg/kg	<0.05	0.5 mg/kg	84.0	70.0	120
EP068: Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg	<0.05	0.5 mg/kg	86.0	72.0	120
EP068: Parathion-methyl	298-00-0	0.2	mg/kg	<0.2	0.5 mg/kg	80.4	68.0	120
EP068: Malathion	121-75-5	0.05	mg/kg	<0.05	0.5 mg/kg	83.3	68.0	122
EP068: Fenthion	55-38-9	0.05	mg/kg	<0.05	0.5 mg/kg	84.8	69.0	117
EP068: Chlorpyrifos	2921-88-2	0.05	mg/kg	<0.05	0.5 mg/kg	85.1	76.0	118
EP068: Parathion	56-38-2	0.2	mg/kg	<0.2	0.5 mg/kg	79.6	64.0	122
EP068: Pirimphos-ethyl	23505-41-1	0.05	mg/kg	<0.05	0.5 mg/kg	86.5	70.0	116
EP068: Chlorfenvinphos	470-90-6	0.05	mg/kg	<0.05	0.5 mg/kg	83.1	69.0	121
EP068: Bromophos-ethyl	4824-78-6	0.05	mg/kg	<0.05	0.5 mg/kg	87.3	66.0	118
EP068: Fenamiphos	22224-92-6	0.05	mg/kg	<0.05	0.5 mg/kg	81.6	68.0	124
EP068: Prothiofos	34643-46-4	0.05	mg/kg	<0.05	0.5 mg/kg	79.3	62.0	112
EP068: Ethion	563-12-2	0.05	mg/kg	<0.05	0.5 mg/kg	85.2	68.0	120
EP068: Carbophenothion	786-19-6	0.05	mg/kg	<0.05	0.5 mg/kg	81.6	65.0	127
EP068: Azinphos Methyl	86-50-0	0.05	mg/kg	<0.05	0.5 mg/kg	54.3	41.0	123
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3693704)								
EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	6 mg/kg	100	77.0	125
EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	6 mg/kg	96.3	72.0	124
EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	6 mg/kg	95.7	73.0	127
EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	6 mg/kg	93.3	72.0	126
EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	6 mg/kg	98.6	75.0	127
EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	6 mg/kg	101	77.0	127
EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	6 mg/kg	99.8	73.0	127
EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	6 mg/kg	101	74.0	128
EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	6 mg/kg	88.8	69.0	123
EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	6 mg/kg	92.7	75.0	127
EP075(SIM): Benzo(b+j)fluoranthene	205-99-2	0.5	mg/kg	<0.5	6 mg/kg	92.1	68.0	116
	205-82-3							
EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	6 mg/kg	115	74.0	126
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	6 mg/kg	89.6	70.0	126
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	6 mg/kg	86.3	61.0	121
EP075(SIM): Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	6 mg/kg	84.1	62.0	118
EP075(SIM): Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	6 mg/kg	83.6	63.0	121
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3692879)								
EP080: C6 - C9 Fraction	----	10	mg/kg	<10	26 mg/kg	91.3	68.4	128



Sub-Matrix: SOIL				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike Concentration	Spike Recovery (%) LCS	Acceptable Limits (%) Low      High	
Method: Compound	CAS Number	LOR	Unit	Result				
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3693703)								
EP071: C10 - C14 Fraction	----	50	mg/kg	<50	300 mg/kg	94.8	75.0	129
EP071: C15 - C28 Fraction	----	100	mg/kg	<100	450 mg/kg	90.9	77.0	131
EP071: C29 - C36 Fraction	----	100	mg/kg	<100	300 mg/kg	93.9	71.0	129
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 3692879)								
EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	31 mg/kg	90.3	68.4	128
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 3693703)								
EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	375 mg/kg	92.0	77.0	125
EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	525 mg/kg	91.6	74.0	138
EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	225 mg/kg	95.1	63.0	131
EP080: BTEXN (QCLot: 3692879)								
EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	1 mg/kg	91.9	62.0	116
EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	1 mg/kg	98.5	67.0	121
EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	1 mg/kg	87.3	65.0	117
EP080: meta- & para-Xylene	108-38-3	0.5	mg/kg	<0.5	2 mg/kg	88.0	66.0	118
	106-42-3							
EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	1 mg/kg	83.8	68.0	120
EP080: Naphthalene	91-20-3	1	mg/kg	<1	1 mg/kg	104	63.0	119

## Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: SOIL				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EG005(ED093)T: Total Metals by ICP-AES (QCLot: 3699585)							
EM2108857-039	Anonymous	EG005T: Arsenic	7440-38-2	50 mg/kg	102	70.0	130
		EG005T: Cadmium	7440-43-9	50 mg/kg	102	70.0	130
		EG005T: Chromium	7440-47-3	50 mg/kg	101	68.0	132
		EG005T: Copper	7440-50-8	250 mg/kg	93.8	70.0	130
		EG005T: Lead	7439-92-1	250 mg/kg	102	70.0	130
		EG005T: Nickel	7440-02-0	50 mg/kg	99.0	70.0	130
		EG005T: Zinc	7440-66-6	250 mg/kg	106	66.0	133
EG035T: Total Recoverable Mercury by FIMS (QCLot: 3699584)							
EM2108857-039	Anonymous	EG035T: Mercury	7439-97-6	5 mg/kg	81.2	70.0	130
EP066: Polychlorinated Biphenyls (PCB) (QCLot: 3693706)							
ES2119002-001	QC02	EP066: Total Polychlorinated biphenyls	----	1 mg/kg	96.0	70.0	130



Sub-Matrix: SOIL				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EP068A: Organochlorine Pesticides (OC) (QCLot: 3693705)							
ES2119002-001	QC02	EP068: gamma-BHC	58-89-9	0.5 mg/kg	84.5	70.0	130
		EP068: Heptachlor	76-44-8	0.5 mg/kg	74.8	70.0	130
		EP068: Aldrin	309-00-2	0.5 mg/kg	84.8	70.0	130
		EP068: Dieldrin	60-57-1	0.5 mg/kg	92.0	70.0	130
		EP068: Endrin	72-20-8	2 mg/kg	108	70.0	130
		EP068: 4,4'-DDT	50-29-3	2 mg/kg	89.7	70.0	130
EP068B: Organophosphorus Pesticides (OP) (QCLot: 3693705)							
ES2119002-001	QC02	EP068: Diazinon	333-41-5	0.5 mg/kg	94.8	70.0	130
		EP068: Chlorpyrifos-methyl	5598-13-0	0.5 mg/kg	78.9	70.0	130
		EP068: Pirimphos-ethyl	23505-41-1	0.5 mg/kg	78.0	70.0	130
		EP068: Bromophos-ethyl	4824-78-6	0.5 mg/kg	73.8	70.0	130
		EP068: Prothiofos	34643-46-4	0.5 mg/kg	77.3	70.0	130
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3693704)							
ES2119002-001	QC02	EP075(SIM): Acenaphthene	83-32-9	10 mg/kg	87.9	70.0	130
		EP075(SIM): Pyrene	129-00-0	10 mg/kg	70.3	70.0	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3692879)							
ES2118385-005	Anonymous	EP080: C6 - C9 Fraction	----	32.5 mg/kg	112	70.0	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3693703)							
ES2119002-001	QC02	EP071: C10 - C14 Fraction	----	523 mg/kg	87.6	73.0	137
		EP071: C15 - C28 Fraction	----	2319 mg/kg	121	53.0	131
		EP071: C29 - C36 Fraction	----	1714 mg/kg	106	52.0	132
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 3692879)							
ES2118385-005	Anonymous	EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	108	70.0	130
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 3693703)							
ES2119002-001	QC02	EP071: >C10 - C16 Fraction	----	860 mg/kg	103	73.0	137
		EP071: >C16 - C34 Fraction	----	3223 mg/kg	108	53.0	131
		EP071: >C34 - C40 Fraction	----	1058 mg/kg	80.9	52.0	132
EP080: BTEXN (QCLot: 3692879)							
ES2118385-005	Anonymous	EP080: Benzene	71-43-2	2.5 mg/kg	97.6	70.0	130
		EP080: Toluene	108-88-3	2.5 mg/kg	114	70.0	130
		EP080: Ethylbenzene	100-41-4	2.5 mg/kg	109	70.0	130
		EP080: meta- & para-Xylene	108-38-3	2.5 mg/kg	105	70.0	130
			106-42-3				
		EP080: ortho-Xylene	95-47-6	2.5 mg/kg	101	70.0	130
		EP080: Naphthalene	91-20-3	2.5 mg/kg	113	70.0	130



## QA/QC Compliance Assessment to assist with Quality Review

Work Order : **ES2119002**

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Client : **CONSARA PTY LTD**  
Contact : **MS REBECCA ORGANO**  
Project : **C201016 LILYFIELD**  
Site : **----**  
Sampler : **REBECCA ORGANO**  
Order number : **----**

Laboratory : **Environmental Division Sydney**  
Telephone : **+61-2-8784 8555**  
Date Samples Received : **20-May-2021**  
Issue Date : **28-May-2021**  
No. of samples received : **2**  
No. of samples analysed : **1**

This report is automatically generated by the ALS LIMS through interpretation of the ALS Quality Control Report and several Quality Assurance parameters measured by ALS. This automated reporting highlights any non-conformances, facilitates faster and more accurate data validation and is designed to assist internal expert and external Auditor review. Many components of this report contribute to the overall DQO assessment and reporting for guideline compliance.

Brief method summaries and references are also provided to assist in traceability.

### Summary of Outliers

#### Outliers : Quality Control Samples

This report highlights outliers flagged in the Quality Control (QC) Report.

- **NO Method Blank value outliers occur.**
- **NO Duplicate outliers occur.**
- **NO Laboratory Control outliers occur.**
- **NO Matrix Spike outliers occur.**
- **For all regular sample matrices, NO surrogate recovery outliers occur.**

#### Outliers : Analysis Holding Time Compliance

- **NO Analysis Holding Time Outliers exist.**

#### Outliers : Frequency of Quality Control Samples

- **NO Quality Control Sample Frequency Outliers exist.**



## Analysis Holding Time Compliance

If samples are identified below as having been analysed or extracted outside of recommended holding times, this should be taken into consideration when interpreting results.

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times (referencing USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for VOC in soils vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: **SOIL**

Evaluation: ✖ = Holding time breach ; ✔ = Within holding time.

Method	Sample Date	Extraction / Preparation			Analysis		
Container / Client Sample ID(s)		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EA055: Moisture Content (Dried @ 105-110°C)							
Soil Glass Jar - Unpreserved (EA055) QC02	17-May-2021	----	----	----	26-May-2021	31-May-2021	✓
EG005(ED093)T: Total Metals by ICP-AES							
Soil Glass Jar - Unpreserved (EG005T) QC02	17-May-2021	26-May-2021	13-Nov-2021	✓	27-May-2021	13-Nov-2021	✓
EG035T: Total Recoverable Mercury by FIMS							
Soil Glass Jar - Unpreserved (EG035T) QC02	17-May-2021	26-May-2021	14-Jun-2021	✓	28-May-2021	14-Jun-2021	✓
EP066: Polychlorinated Biphenyls (PCB)							
Soil Glass Jar - Unpreserved (EP066) QC02	17-May-2021	25-May-2021	31-May-2021	✓	26-May-2021	04-Jul-2021	✓
EP068A: Organochlorine Pesticides (OC)							
Soil Glass Jar - Unpreserved (EP068) QC02	17-May-2021	25-May-2021	31-May-2021	✓	26-May-2021	04-Jul-2021	✓
EP068B: Organophosphorus Pesticides (OP)							
Soil Glass Jar - Unpreserved (EP068) QC02	17-May-2021	25-May-2021	31-May-2021	✓	26-May-2021	04-Jul-2021	✓
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons							
Soil Glass Jar - Unpreserved (EP075(SIM)) QC02	17-May-2021	25-May-2021	31-May-2021	✓	25-May-2021	04-Jul-2021	✓
EP080/071: Total Petroleum Hydrocarbons							
Soil Glass Jar - Unpreserved (EP080) QC02	17-May-2021	23-May-2021	31-May-2021	✓	26-May-2021	31-May-2021	✓
Soil Glass Jar - Unpreserved (EP071) QC02	17-May-2021	25-May-2021	31-May-2021	✓	25-May-2021	04-Jul-2021	✓
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions							
Soil Glass Jar - Unpreserved (EP080) QC02	17-May-2021	23-May-2021	31-May-2021	✓	26-May-2021	31-May-2021	✓
Soil Glass Jar - Unpreserved (EP071) QC02	17-May-2021	25-May-2021	31-May-2021	✓	25-May-2021	04-Jul-2021	✓

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Work Order : ES2119002  
Client : CONSARA PTY LTD  
Project : C201016 LILYFIELD



Matrix: **SOIL**

Evaluation: ✖ = Holding time breach ; ✔ = Within holding time.

Method	Sample Date	Extraction / Preparation			Analysis		
Container / Client Sample ID(s)		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP080: BTEXN							
Soil Glass Jar - Unpreserved (EP080) QC02	17-May-2021	23-May-2021	31-May-2021	✓	26-May-2021	31-May-2021	✓





## Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(were) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **SOIL**

Evaluation: ✖ = Quality Control frequency not within specification ; ✔ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)		Quality Control Specification	
Analytical Methods	Method	QC	Regular	Actual	Expected		Evaluation
Laboratory Duplicates (DUP)							
Moisture Content	EA055	2	20	10.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (SIM)	EP075(SIM)	1	9	11.11	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	1	5	20.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	1	5	20.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	2	19	10.53	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	2	20	10.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	2	17	11.76	10.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	2	16	12.50	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
PAH/Phenols (SIM)	EP075(SIM)	1	9	11.11	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	1	5	20.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	1	5	20.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	19	5.26	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	17	5.88	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	16	6.25	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
PAH/Phenols (SIM)	EP075(SIM)	1	9	11.11	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	1	5	20.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	1	5	20.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	19	5.26	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	17	5.88	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	16	6.25	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
PAH/Phenols (SIM)	EP075(SIM)	1	9	11.11	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	1	5	20.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	1	5	20.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	19	5.26	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	17	5.88	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	16	6.25	5.00	✓	NEPM 2013 B3 & ALS QC Standard



## Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
Moisture Content	EA055	SOIL	In house: A gravimetric procedure based on weight loss over a 12 hour drying period at 105-110 degrees C. This method is compliant with NEPM Schedule B(3).
Total Metals by ICP-AES	EG005T	SOIL	In house: Referenced to APHA 3120; USEPA SW 846 - 6010. Metals are determined following an appropriate acid digestion of the soil. The ICPAES technique ionises samples in a plasma, emitting a characteristic spectrum based on metals present. Intensities at selected wavelengths are compared against those of matrix matched standards. This method is compliant with NEPM Schedule B(3)
Total Mercury by FIMS	EG035T	SOIL	In house: Referenced to AS 3550, APHA 3112 Hg - B (Flow-injection (SnCl <sub>2</sub> ) (Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. Mercury in solids are determined following an appropriate acid digestion. Ionic mercury is reduced online to atomic mercury vapour by SnCl <sub>2</sub> which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM Schedule B(3)
Polychlorinated Biphenyls (PCB)	EP066	SOIL	In house: Referenced to USEPA SW 846 - 8270 Extracts are analysed by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM Schedule B(3).
Pesticides by GCMS	EP068	SOIL	In house: Referenced to USEPA SW 846 - 8270 Extracts are analysed by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This technique is compliant with NEPM Schedule B(3).
TRH - Semivolatile Fraction	EP071	SOIL	In house: Referenced to USEPA SW 846 - 8015 Sample extracts are analysed by Capillary GC/FID and quantified against alkane standards over the range C10 - C40. Compliant with NEPM Schedule B(3).
PAH/Phenols (SIM)	EP075(SIM)	SOIL	In house: Referenced to USEPA SW 846 - 8270. Extracts are analysed by Capillary GC/MS in Selective Ion Mode (SIM) and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM Schedule B(3)
TRH Volatiles/BTEX	EP080	SOIL	In house: Referenced to USEPA SW 846 - 8260. Extracts are analysed by Purge and Trap, Capillary GC/MS. Quantification is by comparison against an established 5 point calibration curve. Compliant with NEPM Schedule B(3) amended.
Preparation Methods	Method	Matrix	Method Descriptions
Hot Block Digest for metals in soils sediments and sludges	EN69	SOIL	In house: Referenced to USEPA 200.2. Hot Block Acid Digestion 1.0g of sample is heated with Nitric and Hydrochloric acids, then cooled. Peroxide is added and samples heated and cooled again before being filtered and bulked to volume for analysis. Digest is appropriate for determination of selected metals in sludge, sediments, and soils. This method is compliant with NEPM Schedule B(3).
Methanolic Extraction of Soils for Purge and Trap	ORG16	SOIL	In house: Referenced to USEPA SW 846 - 5030A. 5g of solid is shaken with surrogate and 10mL methanol prior to analysis by Purge and Trap - GC/MS.
Tumbler Extraction of Solids	ORG17	SOIL	In house: Mechanical agitation (tumbler). 10g of sample, Na <sub>2</sub> SO <sub>4</sub> and surrogate are extracted with 30mL 1:1 DCM/Acetone by end over end tumble. The solvent is decanted, dehydrated and concentrated (by KD) to the desired volume for analysis.



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