29 October 2020

Central Coast Council

2 Hely Street

Wyong, NSW, 2259

Attention: Nathan Burr

Dear Nathan,

Re: Stage 6-7 Warnervale Town Centre Subdivision Development Application 919/2018 Additional Information

Following the meeting on the 6th October with the Hunter & Central Coast Regional Planning Panel please see information, reports and drawings to address the items raised.

- ***Details are required to demonstrate compliance with the provisions of State Environmental Planning Policy No 55 – Remediation of Land.***

Please see attached contamination report prepared by Coffey.

The land being the subject of the current DA is not affected by nor subject to any remediation work being undertaken to the north by Council.

The subject land complies with the provisions of State Environmental Planning Policy No 55 – Remediation of Land.

- ***Details are required to clearly depict the extent of cut and fill at the boundaries of the site and the boundary treatments/conditions.***

See attached the following drawings prepared by Northrop

- SKC100.20: Cut and Fill Plan
- SKC100.30: Section Sheet 01
- SKC100.31: Section Sheet 02
- SKC100.32: Section Sheet 03

Western boundary has been designed to tie into the neighbouring subdivision which is also being undertaken by Landcorp NSW Pty Ltd and is nearing completion. Road MC02 is to tie into the existing stub off Woongarrah Road

Northern Boundary that neighbours the remediated park land features a stacked sandstone retaining wall. The retaining wall is required in order to match the existing level of MC01 and not impact the remediated park land site. The balance of the northern boundary is to tie into existing or batter into stages 8-10.

Eastern Boundary has been designed to tie into existing levels

Southern Boundary has been designed to tie into existing levels

- ***The road designs are to comply with the minimum requirements for local roads in the Wyong Development Control Plan 2013.***

The roads have been designed in accordance with the Warnervale Town Centre Development Control Plan 2012 as advised by Council.

MC01 is consistent with the Warnervale DCP, Type 6, and is consistent with the approved Stage 5 subdivision.

MC02 is consistent with the existing stubb that has been constructed off Woongarah Road

MC03 (in part) is consistent with the Warnervale DCP, Type 11

MC03 (in part) & MC12 is consistent with the Warnervale DPC, Type 12

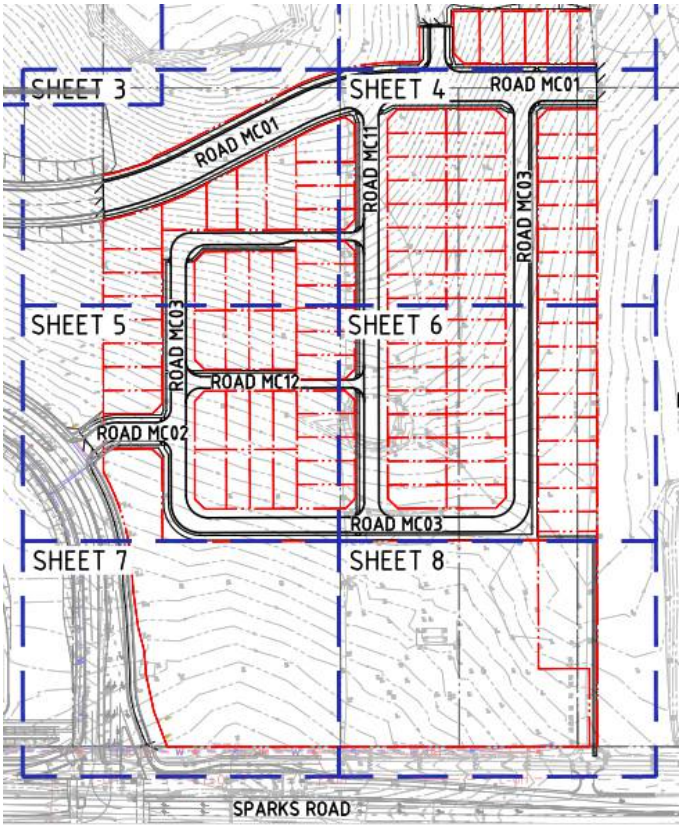
MC04 is consistent with the Warnervale DCP, Type 9

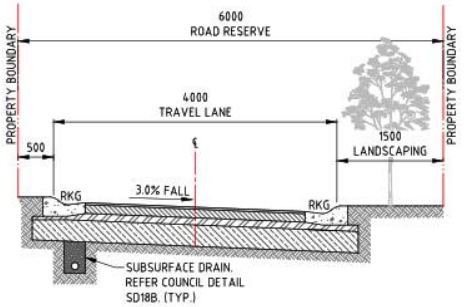
MC11 is consistent with the Warnervale DCP, Type 11

A very minor, but legally permissible variation to the DCP is proposed for the short one-way link roads between MC03 &12 and MC11, see cross section below.

This very minor variation has been provided to reduce traffic movements in this area to create a safer secluded residential zone ideal for young families. It has also been discussed to include 'residents only' signage at the intersection of MC02 and MC03 to further reduce traffic movements in this area. It also provides some variety in road design, creates a safer traffic flow, and reduces ambient noise. It enhances services facilitation, and is a much more intelligent and efficient design all round.

See also attached report prepared by Traffix that concludes the 4m wide one-way carriageways are considered supportable and appropriate from a traffic engineering perspective and is consistent with "access place" requirements outlined in the AMCORD Guidelines.





TYPICAL SECTION
ROAD MC03, CH585 – CH615 AND ROAD MC12, CH60 – CH90
(4m CARRIAGEWAY)

- **Details are required in relation to the relationship of the development to the adjoining school. Consideration to be given to larger lots and boundary treatments to reduce the potential impacts on the school associated with the future residential development on the site.**

The Site subject to this Development Application (DA) is known as Lot 1 DP 371647, Lot 1 DP 375712, Lot 1 DP 376264, Lot 41 DP 1200210, Lot 51 and 52 DP 561032 and Lot 54 and 55 DP 7527.

The applicant's eastern boundary adjoining the school (the "Boundary") runs essentially in a north-south direction, commencing at Sparks Road and running due north for approximately 335m.

The first 135m of the Boundary from Sparks Road has 3 all-weather concrete basketball courts and open playing fields with a wood vegetation zone contained immediately east of the Boundary and situated on the school land.

The vegetation zone comprises of essentially well-established mature trees and bushes up to 25 metres wide.

That wide vegetation zone provides both an acoustic and visual barrier from stage 6 across the Boundary to the school playing fields and basketball courts.

The remaining 200m northern section of the Boundary is lined, on the school side of that boundary, with a series of buildings situated on the school grounds, located 0m-8.5m from the Boundary (other than 1 specific point where there is a slight curvature away from the buildings). It is notable however that the aforesaid vegetation zone continues along the northern boundary so as to continue to create an acoustic and visual barrier , which ends abruptly where the rear (or western) walls of the buildings are situated.

It is critical to bear in mind that the first 109.5m of stages 6-7 will remain undeveloped, for the purposes of this application, comprise of a large residual lot only which is not the subject of any separate residential subdivision application or building application currently before the council or the HRCCPP.

Accordingly, for the first 109.5m of the Boundary, there is no activity and no construction plan (other than a retention basin without any structures thereon) on that parcel of land which adjoins a screened-off school play area on the other side of the wide vegetation barrier situated on the Boundary. The proposed residential lots will have rear lapped and capped timber fencing (imposed on the individual resultant lots via the s88B instrument) and immediately across the Boundary there are only rear walls of buildings and a further vegetation zone with mature established trees, bushes and plants.

Accordingly, with no activity possibly interacting with, or impacting upon, the school's adjacent playing fields, the existence of the significant vegetation corridor on the school's western boundary, and the existence of substantial buildings along most of the northern part of the Boundary, all clearly result in there being no impact or no impact of any concern, of the proposed subdivision on the adjoining school land to the east of the proposed subdivision.

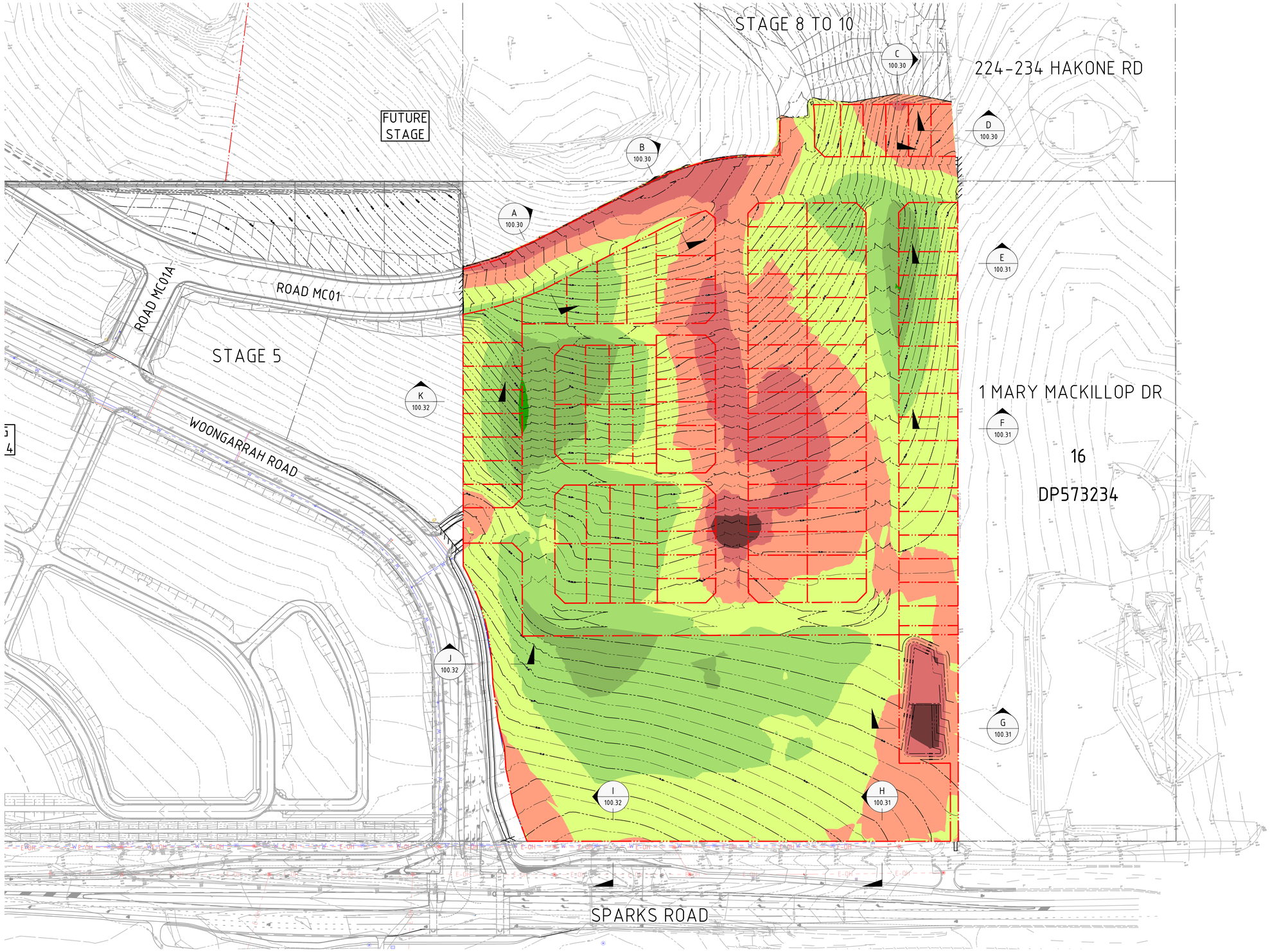
We believe the above addresses the items discussed on the 6th October and would appreciate your prompt review and approval of DA919/2018

Yours faithfully

Colliers International Project Management Pty Ltd

Scott Kneller

Senior Project Manager



LEGEND

- PROPOSED LOT BOUNDARY
- EXISTING BOUNDARY LINE
- EXISTING CONTOURS
- PROPOSED BULK EARTHWORKS CONTOURS
- PROPOSED BATTERS

DEPTH OF CUT

- 99.0m TO - 7.0m	
- 7.0m TO - 6.0m	
- 6.0m TO - 5.0m	
- 5.0m TO - 4.0m	
- 4.0m TO - 3.0m	
- 3.0m TO - 2.0m	
- 2.0m TO - 1.0m	
- 1.0m TO - 0.0m	

DEPTH OF FILL

0.0m TO 1.0m	
1.0m TO 2.0m	
2.0m TO 3.0m	
3.0m TO 4.0m	
4.0m TO 5.0m	
5.0m TO 99.0m	
LIMIT OF WORKS	LIMIT OF WORKS

GENERAL NOTES:

1. REFER SPECIFICATIONS NOTES FOR EARTHWORKS GENERAL REQUIREMENTS.
2. ALL WORKS TO BE CARRIED OUT IN ACCORDANCE WITH COUNCIL / RELEVANT AUTHORITY SPECIFICATIONS AND DETAILS.
3. CAD FILES / DTM FILES TO BE SUPPLIED IN AUTOCAD FORMAT FOR SETOUT PURPOSES (UPON REQUEST).
4. STRIP EXISTING TOPSOIL IN CONSULTATION WITH THE GEOTECHNICAL ENGINEER / REPORT. FOR THE PURPOSES OF EARTHWORKS CALCULATIONS A TOPSOIL STRIPPING DEPTH ASSUMED.
5. NO ALLOWANCE HAS BEEN MADE FOR BULKING FACTORS. NOTE ALL VOLUMES DEPICTED ARE SOLID VOLUMES ONLY AND MAY NOT REFLECT DETAILED EARTHWORKS.
6. NO ALLOWANCE HAS BEEN MADE FOR DETAILED EARTHWORKS; ie SERVICE TRENCHING, DETAILED EXCAVATION, FOOTINGS, RETAINING WALLS AND THE LIKE.
7. THE CONTRACTOR SHALL USE FINAL SURFACE LEVELS AND TYPICAL PAVEMENT DETAILS FOR ACTUAL EARTHWORKS LEVELS.
8. APPROXIMATE EARTHWORK VALUES AS FOLLOWS;
   - 8.1. CUT -18,118cu.m
   - 8.2. FILL 59,557cu.m
   - 8.3. BALANCE 41,439cu.m (IMPORT)
   - 8.4. NOTE: SITE STRIPPING VOLUMES HAVE NOT BEEN INCLUDED IN ABOVE CALCULATIONS.

DESIGNED: P. CORNISH
DRAWN: J. TAI
JOB MANAGER: P. CORNISH
VERIFIER: M. RICHARDS

NOT FOR CONSTRUCTION

REVISION	DESCRIPTION	ISSUED	VER'D	APP'D	DATE
01	ISSUED FOR INFORMATION	MM		PC	15.10.20

CLIENT: Colliers International

DRAWING NOT TO BE USED FOR CONSTRUCTION UNLESS VERIFICATION SIGNATURE HAS BEEN ADDED

ARCHITECT

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SCALE 1:1000 @ A1

0 10 20 30 40 50m

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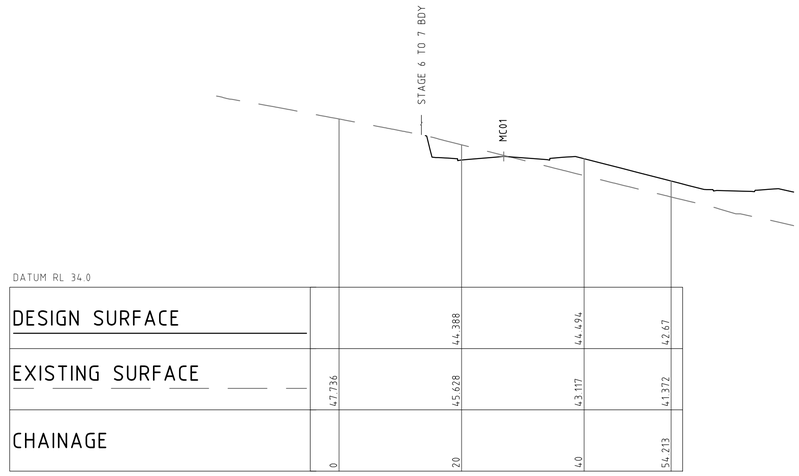
Email sydney@northrop.com.au ABN 81 094 433 100

PROJECT
WARNERVALE TOWN CENTRE
STAGE 6 - 7
RESIDENTIAL PRECINCT SUBDIVISION

DRAWING TITLE
CIVIL ENGINEERING PACKAGE DEVELOPMENT APPLICATION
EARTHWORKS CUT AND FILL PLAN

JOB NUMBER: 171245 - 01
DRAWING NUMBER: SKC100.20
REVISION: 01
DRAWING SHEET SIZE = A1

Found :
Plotted By :
Date



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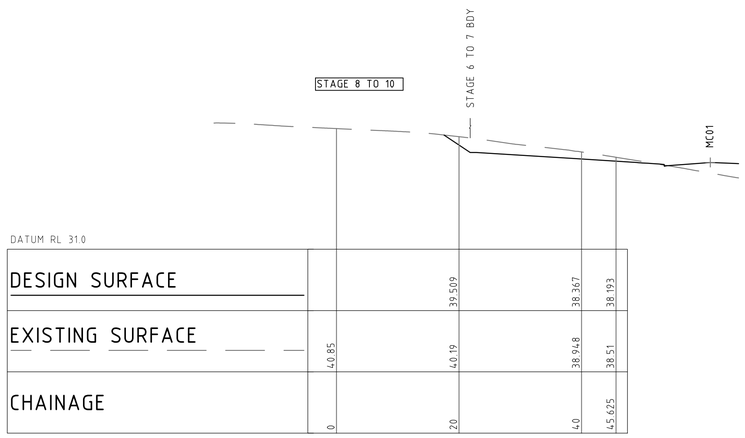
VERTICAL SCALE 1:250@A1



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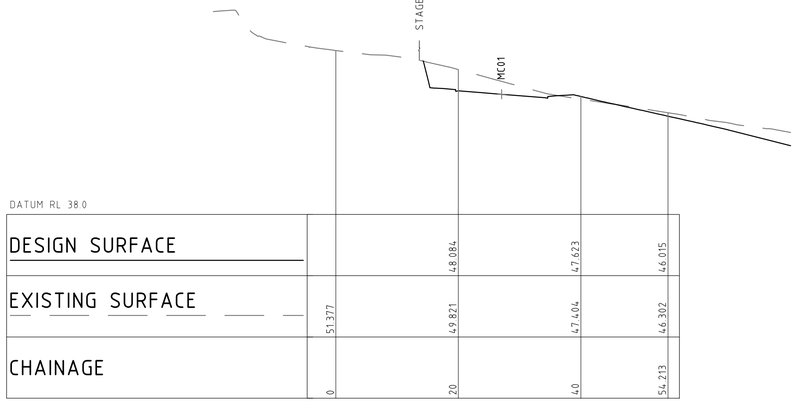

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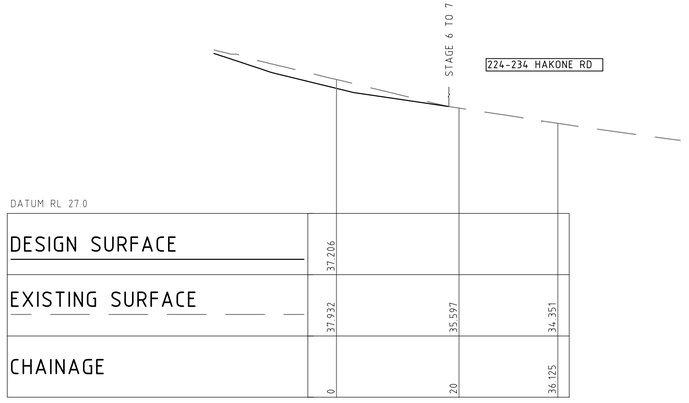

SITE SECTION D

HORIZONTAL SCALE 1:500@A1
VERTICAL SCALE 1:250@A1

DRAWN: J.TAI
DESIGNED: P. CORNISH
JOB MANAGER: P. CORNISH
VERIFIER: M. RICHARDS

FOR INFORMATION

REVISION	DESCRIPTION	ISSUED	VER'D	APP'D	DATE
01	ISSUED FOR INFORMATION	MM		PC	15.10.20

CLIENT

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ARCHITECT

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SCALE 1:500@A1 0 5 10 15 20 25m
SCALE 1:250@A1 0 2 4 6 8 10 12m

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PROJECT
WARNERVALE TOWN CENTRE
STAGE 5
RESIDENTIAL PRECINCT
SUBDIVISION

DRAWING TITLE
CIVIL ENGINEERING
DEVELOPMENT APPLICATION
EARTHWORKS CUT AND FILL
SECTIONS - SHEET 01

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DRAWING NUMBER **SKC100.30**
REVISION **01**
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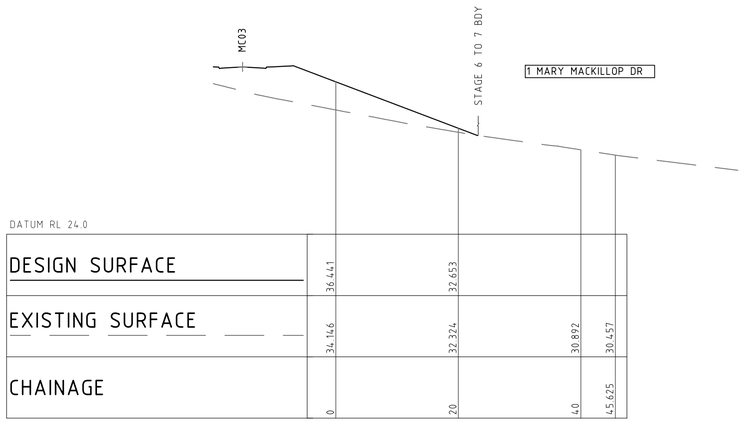
Date : 15-10-20 8:28pm



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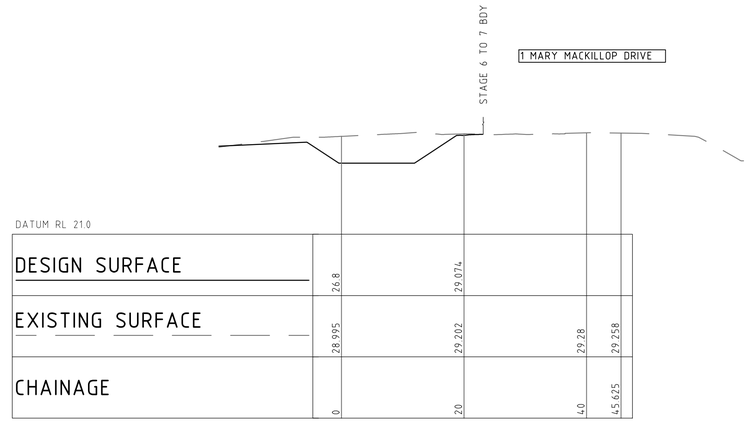

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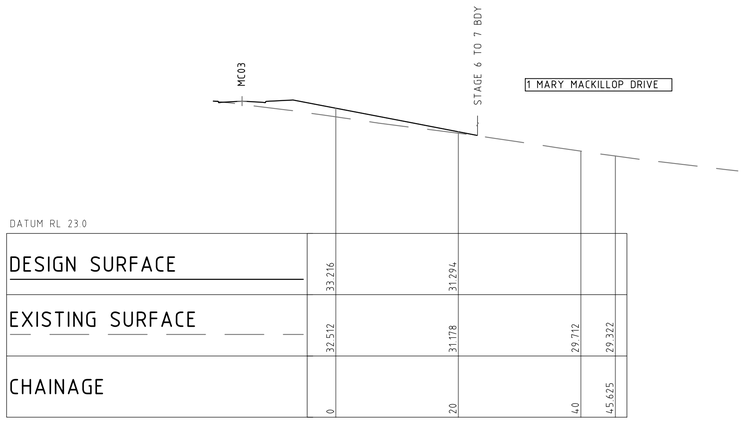

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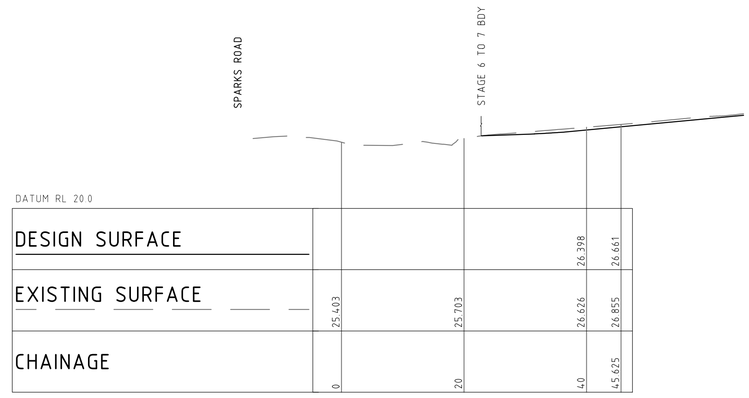

SITE SECTION H

HORIZONTAL SCALE 1:500@A1
VERTICAL SCALE 1:250@A1

DRAWN: J.TAI
DESIGNED: P. CORNISH
JOB MANAGER: P. CORNISH
VERIFIER: M. RICHARDS

FOR INFORMATION

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SCALE 1:250@A1 0 2 4 6 8 10 12m

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STAGE 5
RESIDENTIAL PRECINCT
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DRAWING TITLE
CIVIL ENGINEERING
DEVELOPMENT APPLICATION
EARTHWORKS CUT AND FILL
SECTIONS - SHEET 02

JOB NUMBER **171245 - 01**
DRAWING NUMBER **SKC100.31**
REVISION **01**
DRAWING SHEET SIZE = A1

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Date : 15-10-20 8:28pm

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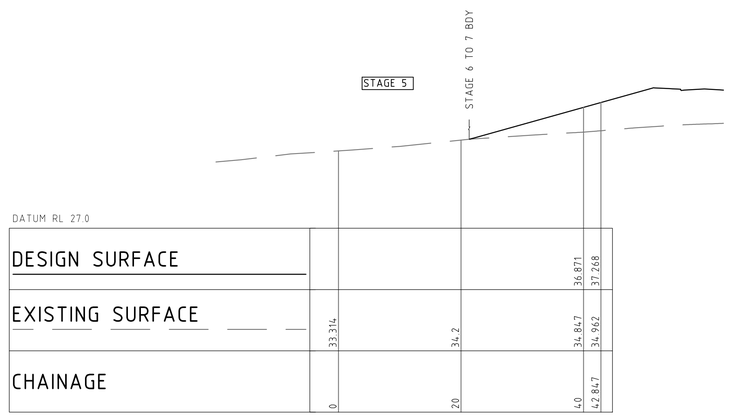

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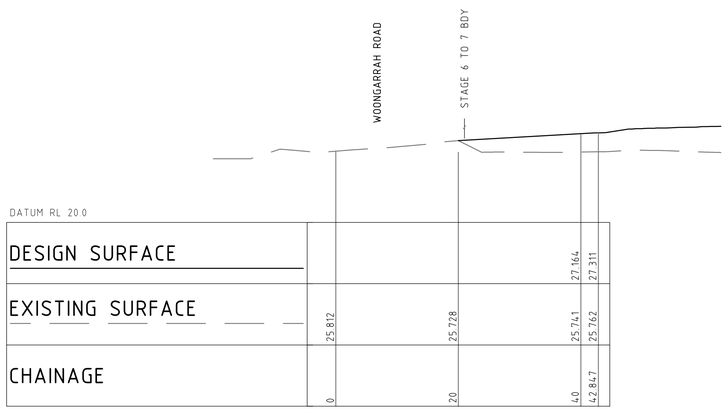

SITE SECTION J

HORIZONTAL SCALE 1:500@A1
VERTICAL SCALE 1:250@A1

DRAWN: J.TAI
DESIGNED: P. CORNISH
JOB MANAGER: P. CORNISH
VERIFIER: M. RICHARDS

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SECTIONS - SHEET 03

JOB NUMBER **171245 - 01**
DRAWING NUMBER **SKC100.32**
REVISION **01**
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Plotted By : MMai
Date : 15-10-20 8:28pm

TRAFFIX
TRAFFIC & TRANSPORT PLANNERS

Suite 2.08, 50 Holt St
Surry Hills, NSW 2010
PO Box 1124
Strawberry Hills NSW 2012

t: (02) 8324 8700
w: www.traffix.com.au

director: Graham Pindar
acn: 065132961
abn: 66065132961

Reference: 18.032r02v02

29 October 2020

Colliers International
Level 30, Grosvenor Place
225 George Street
SYDNEY NSW 2000

Attention: Scott Kneller, Senior Project Manager

Re: **99-107 Sparks Road, Woongarrah**
Proposed Residential Subdivision
Supporting Statement

Dear Scott,

We refer to the subject DA for the proposed residential subdivision located at 99-107 Sparks Road, Woongarrah. TRAFFIX has been engaged to prepare advice regarding the proposed one-way roadways that connect MC03 and MC12 with MC11.

Proposal

The current subdivision layout proposes to include two (2) one-way sections of road that connect MC03 and MC12 with MC11 as shown in the attached plan presented in **Attachment 1**. The proposed one-way sections of road will permit one-way traffic movements in the eastbound direction and will provide convenient vehicle movements without the need to provide conventional turning heads/cul-de-sacs. A summary of the key geometric aspects is provided below:

- 6.0m wide road reserve;
- 4.0m wide travel lane, measured kerb face to kerb face;
- Roll type kerbs;
- 3% nominal crossfall; and
- 1.5m landscape verge on one side only.

It is noted that the proposal is a minor departure from the Warnervale Town Centre DCP 2012 in terms of road alignment and cross section geometry. Discussion on the traffic implications are discussed in detail below.

Geometric Layout

The 4.0m wide one-way carriageways are considered acceptable from a vehicle movement perspective and is consistent with "access place" requirements outlined in the AMCORD Guidelines. To provide context, the AMCORD Guideline provides the following definition for "access places":

"The access place is a street in which the residential environment is dominant, and traffic is completely subservient. The access place will generally be accessible only by one entry and exit point (such as for cul-de-sac). The low speed environment of the access place (desirably below 15 km/h) allows pedestrians and cyclists to share the carriageway and permits a reduction in carriageway and verge widths with subsequent savings in development costs."

According to AMCORD Guidelines, "access places" should have a carriageway width of 3.5-3.7m. The proposed 4.0m carriageway width meets this requirement and should accommodate general and commercial vehicle movements satisfactorily.

It is noted that no pedestrian footpath is provided along the one-way sections of road. This is considered acceptable, noting the limited number of vehicle/pedestrian movements expected and the low speed environment of "access places". Furthermore, the roadways have a straight alignment, further increasing sight distances along the roadway.

The roll kerbs and the nominal 3% crossfall is also consistent with road design principles. It should be noted that vehicle sight distances at the intersection of one-way roads and MC11 are to be verified by the civil engineer taking into consideration the proposed horizontal/vertical alignments and Austroad requirements.

Traffic Impacts

The proposed one-way connecting roadways will provide improved connectivity to the area in general and will provide residents alternative travel routes. It is expected that traffic generated by the residential lots along MC03 and MC12 will be better distributed across the local road network in comparison to a typical turning head/dead-end road arrangement. It is recommended that appropriate traffic signage/line marking be installed (can be suitably conditioned) to clearly advise drivers of the localised one-way traffic conditions.

Conclusion

On the basis of the above, the proposed one-way sections of roadway that connect MC03 and MC12 with MC11 are considered supportable from a traffic engineering perspective.

We trust the above is of assistance and request that you contact the undersigned should you have any queries or require any further information. In the event that any concerns remain, we request an opportunity to discuss these with Council officers prior to any determination being made.

Yours faithfully,

Traffix

Ben Liddell
Senior Engineer

Encl: Attachment 1 – Subdivision Plans

ATTACHMENT 1

Subdivision Plans

HAKONE ROAD

RESIDUE

5211
DP 1200804

56
DP 663062

B4 Mixed Use
PROPOSED
TAVERN/PUB/HOTEL
(STAGE 7)

Stage 7

Stage 6

See Diagram

32
DP 1198972

16
DP 573234

WOONGARRAH ROAD

SPARKS ROAD

753
1.422 ha

RESIDUE
14.04 ha (APPROX.)

PROPOSED (VARIABLE WIDTH) ROAD

(23.4 WIDE) ROAD

738 342 m² | 739 306 m² | 740 306 m² | 741 306 m² | 742 306 m² | 743 301 m²

704 490 m² | 703 360 m² | 702 360 m² | 701 360 m² | 605 360 m² | 604 360 m² | 603 360 m² | 602 347 m²

705 408 m² | 706 426 m² | 707 529 m² | 708 644 m² | 709 554 m² | 710 360 m² | 711 360 m² | 712 303 m²

(11 WIDE) (6 WIDE)

719 456 m² | 718 360 m² | 717 360 m² | 716 360 m² | 713 363 m² | 714 330 m² | 715 345 m² | 610 360 m² | 611 360 m² | 612 316 m²

606 456 m² | 607 360 m² | 608 360 m² | 609 360 m² | 610 360 m² | 611 360 m² | 612 316 m²

(11 WIDE) (6 WIDE)

622 469 m² | 623 360 m² | 624 360 m² | 625 360 m² | 613 342 m² | 614 355 m² | 615 355 m² | 616 355 m² | 617 342 m²

621 469 m² | 620 360 m² | 619 360 m² | 618 360 m²

(18 WIDE)

PROPOSED (16.6 WIDE) ROAD

720 345 m² | 729 348 m² | 721 360 m² | 730 360 m² | 722 360 m² | 731 360 m² | 723 360 m² | 732 360 m² | 724 360 m² | 733 360 m² | 725 360 m² | 734 360 m² | 726 360 m² | 735 360 m² | 727 360 m² | 736 360 m² | 728 327 m² | 737 327 m² | 626 360 m² | 641 360 m² | 627 360 m² | 640 360 m² | 628 360 m² | 639 360 m² | 629 360 m² | 638 360 m² | 630 360 m² | 637 360 m² | 631 360 m² | 636 360 m² | 632 360 m² | 635 360 m² | 633 352 m² | 634 350 m²

PROPOSED (16.6 WIDE) ROAD

744 349 m² | 745 360 m² | 746 360 m² | 747 360 m² | 748 360 m² | 749 360 m² | 750 360 m² | 751 360 m² | 752 360 m² | 642 360 m² | 643 360 m² | 644 360 m² | 645 360 m² | 646 360 m² | 647 360 m² | 648 360 m² | 649 360 m² | 650 329 m²

EASEMENT & BASIN
651
2253 m²

601
23,240 m²

WOONGARRAH ROAD

SPARKS ROAD

DIAGRAM

0m 10 20 40

BAR SCALE
1: 800 (A1)

NOTES

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The dimensions, area and total number of Lots shown hereon are subject to field survey and also to the requirements of Council and any other authority which may have requirements under any relevant legislation.
In particular, no reliance should be placed on the information on this plan for any financial dealings involving the land.
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NOTES CONT'D

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BAR SCALE
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DATE	NO.	REVISION DESCRIPTION
27/06/2018	A	MINOR AMENDMENTS
25/02/2020	B	LAYOUT ALTERED (STAGES 6 & 7), LOT 1 DP376264 IN HEADING
25/02/2020	C	LOT 753 ADDED STAGE 7 (B4 MIXED USE, FUTURE TAVERN), RESIDUE AREA
26/02/2020	D	LOTS 602-605, 701-704, ROAD WIDTH

SCALE 1: 2000
BASE DRAWING SIZE A1
SURVEYED BY: N/A
DATE OF SURVEY: N/A
DRAWN BY: SD
DATE: 19/02/2020
CHECKED BY: RB
DATE: 25/02/2020

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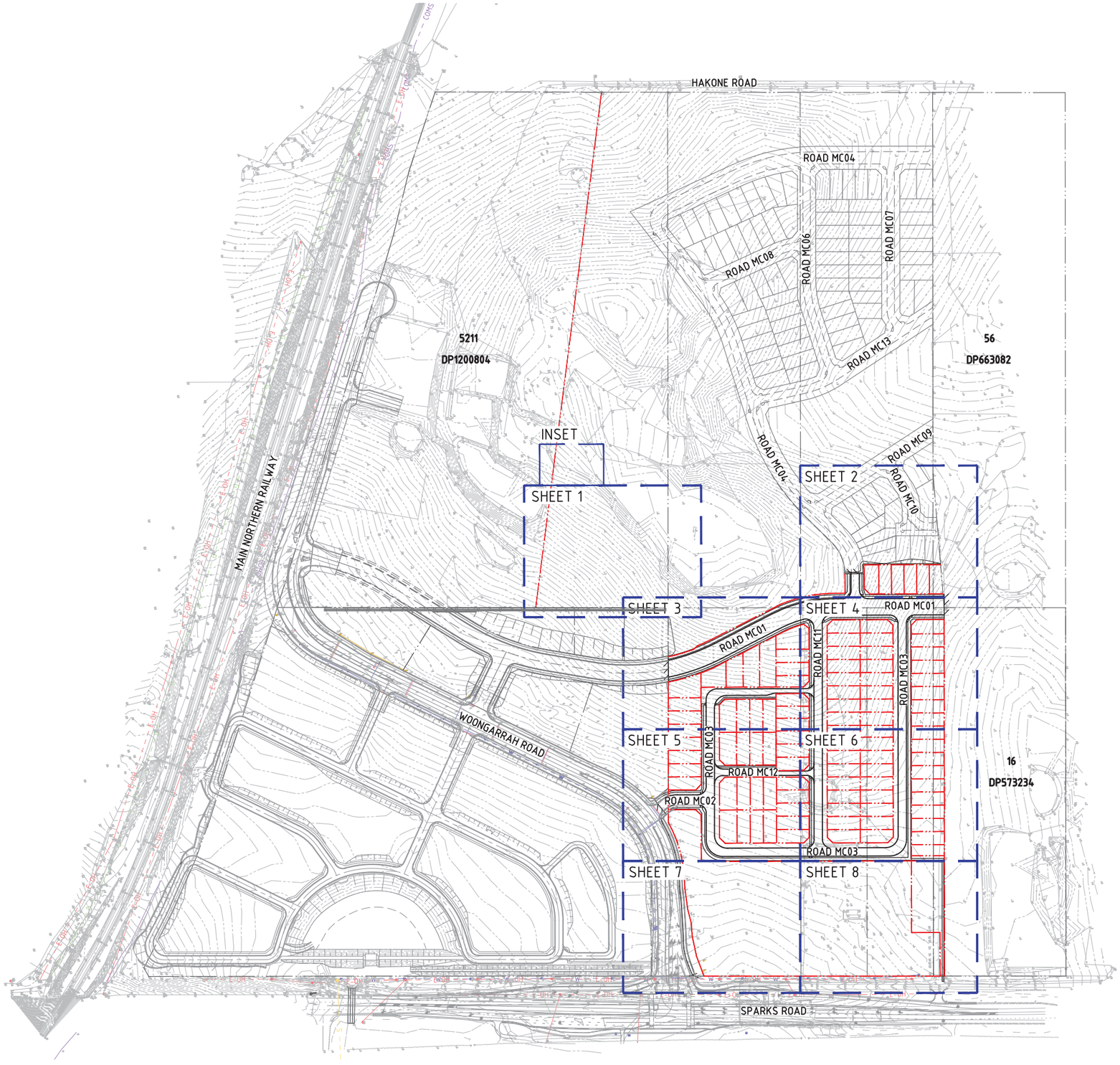
Client: LIRUN DEVELOPMENTS PTY LTD

PLAN OF PROPOSED SUBDIVISION OF LOT 1 DP 371647, LOT 1 DP 375712, LOT 41 DP 1200210, LOTS 54 & 55 DP 7527, LOTS 51 & 52 DP 561032 & LOT 1 DP376264. SPARKS ROAD & HAKONE ROAD, WOONGARRAH

Ref. No: 58451
Ccad Ref: 58451
Acad Ref: 58451-02p
SHEET No: 1 of 1

Date: 26th February, 2020
Datum: N/A
REVISION D



LEGEND

- PROPOSED BOUNDARY LINE
- EXISTING BOUNDARY LINE
- EXISTING EASEMENT LINE

DRAWN: J.TAI DESIGNED: P.CORNISH JOB MANAGER: P.CORNISH VERIFIER: M.RICHARDS

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REVISION	DESCRIPTION	ISSUED	VER'D	APP'D	DATE
1	ISSUED FOR CLIENT REVIEW	SB	-	PC	29.06.18
2	RE-ISSUED FOR DA	AW	-	PC	15.10.18
3	RE-ISSUED FOR DA	UM		PC	27.02.20

CLIENT

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PROJECT
WARNERVALE TOWN CENTRE
STAGE 6 - 7
RESIDENTIAL PRECINCT SUBDIVISION

DRAWING TITLE
CIVIL ENGINEERING PACKAGE DEVELOPMENT APPLICATION
GENERAL ARRANGEMENT PLAN

JOB NUMBER **171245 - 01**
DRAWING NUMBER **DAC03.01** REVISION **3**
DRAWING SHEET SIZE = A1

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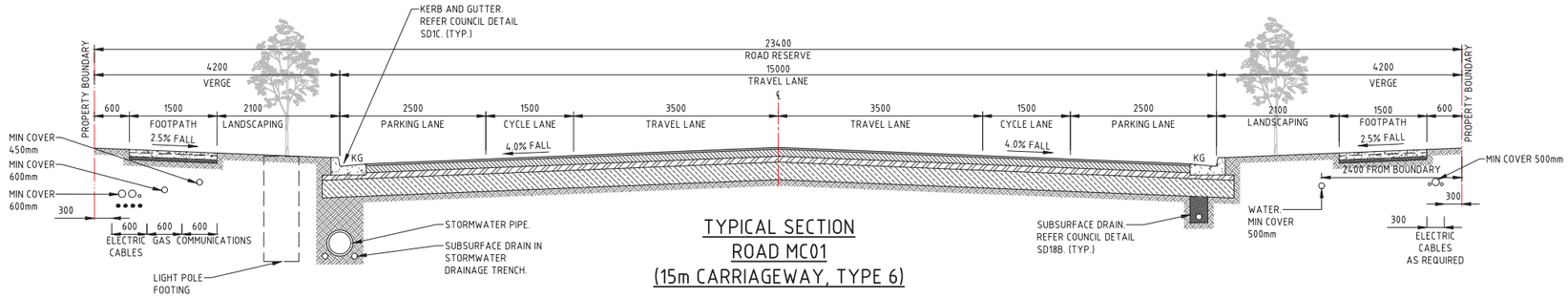

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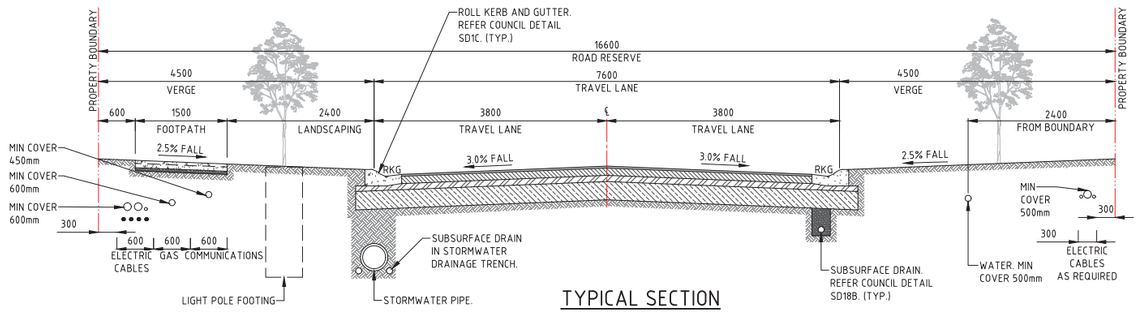

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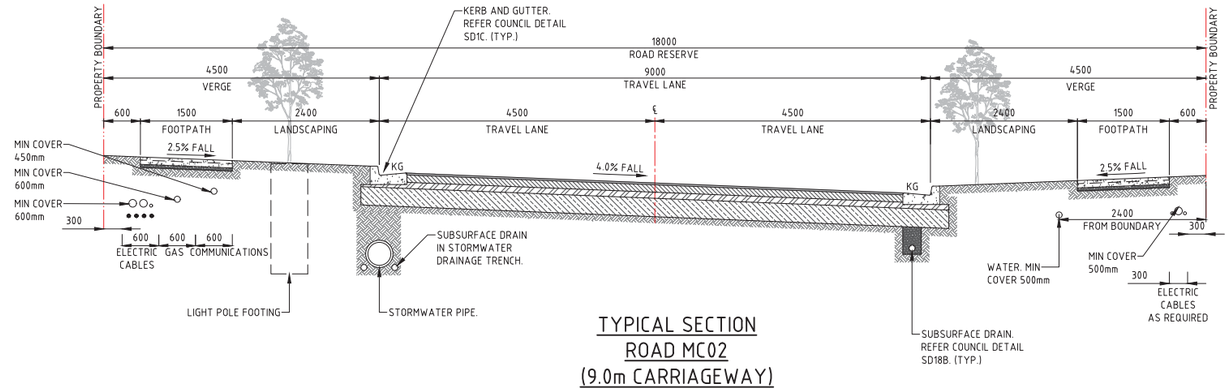

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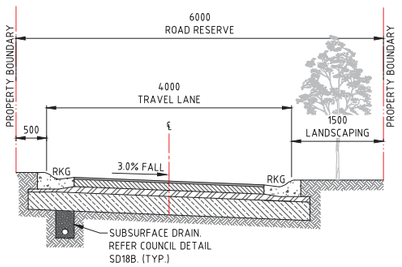

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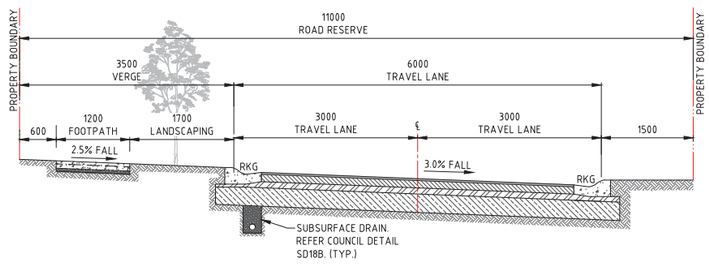

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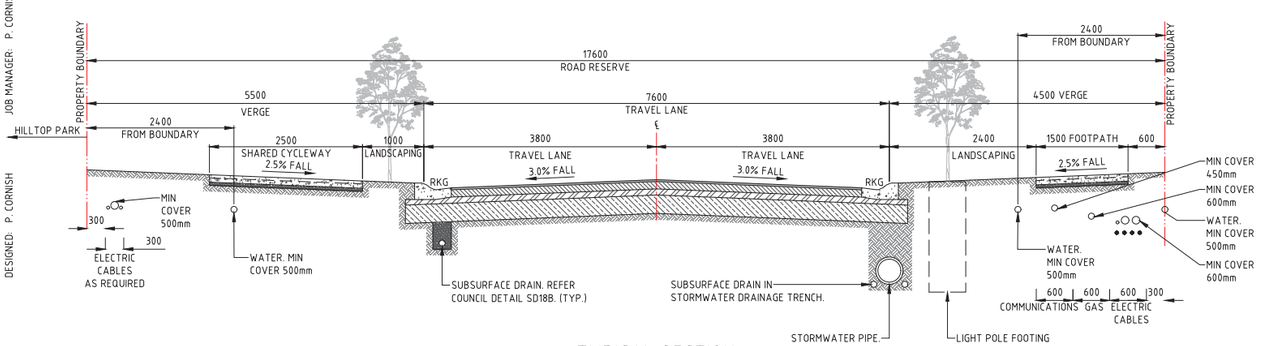

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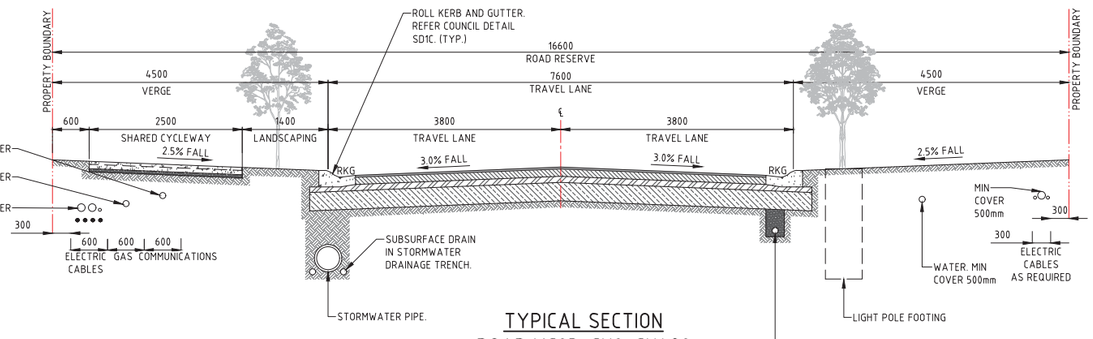

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REVISION	DESCRIPTION	ISSUED	VER'D	APP'D	DATE
1	ISSUED FOR CLIENT REVIEW	SB	-	PC	29.06.18
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SCALE 1:50@A1 (0.0 0.5 1.0 1.5 2.0 2.5m)

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PROJECT
WARNERVALE TOWN CENTRE
STAGE 6 - 7
RESIDENTIAL PRECINCT SUBDIVISION

DRAWING TITLE
CIVIL ENGINEERING PACKAGE DEVELOPMENT APPLICATION
TYPICAL ROAD CROSS SECTIONS

JOB NUMBER: **171245 - 01**
DRAWING NUMBER: **DAC13.01**
REVISION: **3**
DRAWING SHEET SIZE = A1

VERIFIER: M. RICHARDS
JOB MANAGER: P. CORNISH
DESIGNED: P. CORNISH
DRAWN: J. TAI

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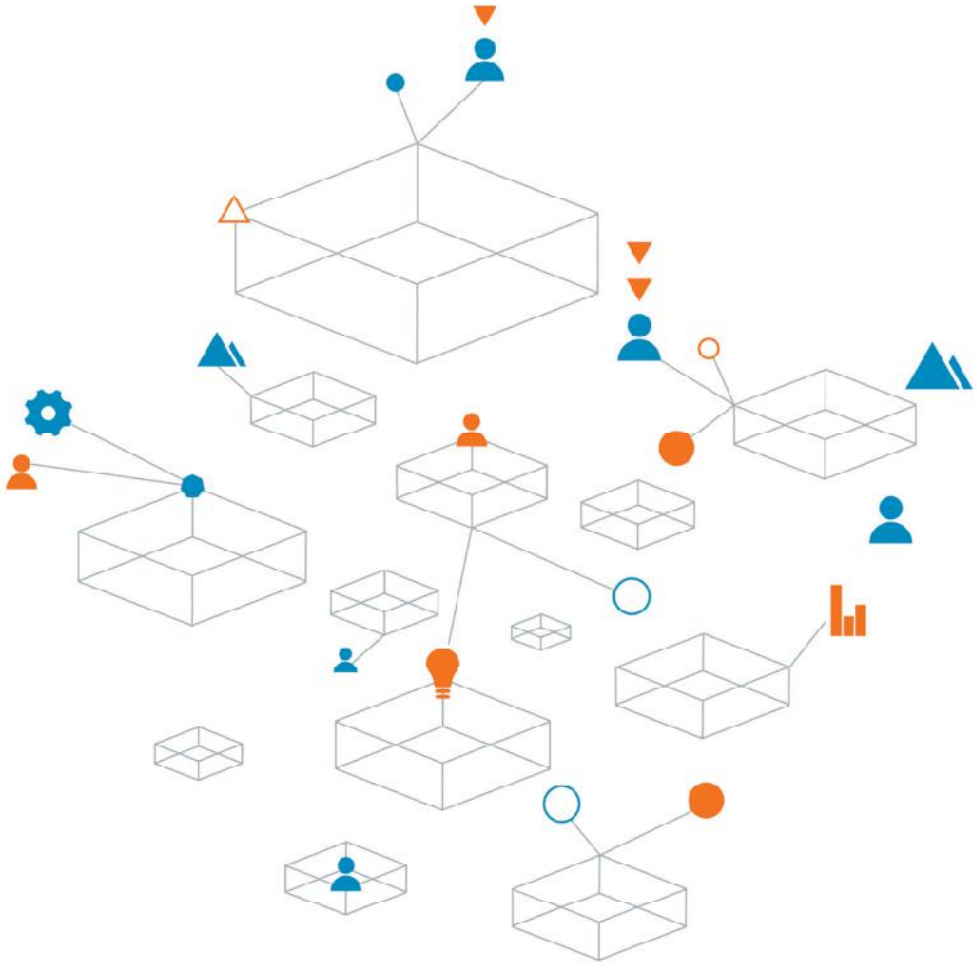
Plotted By: umandal
Date : 26-2-20 9:40pm

Lirun Developments Pty Ltd C/- Colliers International Project Management
Stages 6 - 10 Preliminary Contamination Assessment at 111 Sparks Road, Woongarrah (Lot 1 DP 376264, Lot 41 DP 1200210, Lot 51 DP 561032, Lot 52 DP 561032, Lot 54 DP 7527 & Lot 55 DP 7527)

754-NTLGE216908-AG-AA



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Stages 6 - 10 Preliminary Contamination Assessment at 111 Sparks Road, Woongarrah

Prepared for
Lirun Developments Pty Ltd C/- Colliers International Project Management

Prepared by
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ABN 55 139 460 521

18 January 2019

754-NTLGE216908-AA-AG

R01

Quality information

Revision history

Revision	Description	Date	Originator	Reviewer	Approver
v1 draft	DRAFT	19/12/2018	Sean Blackford	Laurie Fox	Paul Wright
FINAL	FINAL	18/1/2019	Sean Blackford	Laurie Fox	Paul Wright

Distribution

Report Status	No. of copies	Format	Distributed to	Date
FINAL	1	PDF	Scott Kneller	18 January 2019

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Appendices

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Executive Summary

Colliers International Project Management (Colliers) engaged Coffey Services Australia Pty Ltd (Coffey) to carry out a Preliminary Contamination Assessment (PCA) for Stages 6-10 of the proposed Warnervale Town Centre development located at 111 Sparks Road, Woongarrah NSW. The proposed residential sub-division is positioned within land parcels Lot, 1 DP 376264, Lot 41 DP 1200210, Lot 51 DP 561032, Lot 52 DP 561032, Lot 54 DP7527 and Lot 55 DP7527.

The objectives of the PCA were to:

- Identify evidence of potentially contaminating activities that may be currently occurring or has historically occurred on the site;
- Identify and assess Areas of Environmental Concern (AEC's) and Chemicals of Potential Concern (COPC's) for the site, and develop a preliminary conceptual site model if required; and
- Provide recommendations for further assessment and or management, as required.

A review of historical aerial photographs for the site indicated that portions of the site had previously been used for quarrying activities along with rural residential occupancy. Significant areas of the Site have been and remain uncleared forest with dense tree and grass coverage. Rural residential dwellings were observed in the south-eastern portion of the site constructed sometime between 1965 and 1976. The rural residential buildings were demolished during the period 1996 - 2004.

The desk study and site history review also showed:

- The site was not listed on the NSW EPA Contaminated Land Register or POEO public register.
- The risk associated with nearby properties identified on the NSW EPA Contaminated Land Register or POEO public register was considered to be low.
- The site was not identified within an area of potential acid sulfate soils.
- The following areas of environmental concern were identified;
    - Illegal dumping activities across the Site and proximity to a former quarry/landfill site (across Lot 1 DP376264 and Lot 54 DP7527;
    - Weathering of potential hazardous building materials from former building structures; and
    - Potential landfill gas impact from the landfill/quarry located adjacent to the north west boundary of the site.

The site history investigation undertaken for the site has identified known or possible historical contaminating activities at or near the site. These include the quarry/landfilling operation located approximately in the centre of the proposed development, extending to the north-western boundary, potential illegal dumping and importation of fill of unknown origin onto site, weathering of hazardous building materials surrounding former residence footprint and small-scale pesticide application.

No significant subsurface fill contamination has been identified in samples collected from areas of the Site slated for future redevelopment into sub-divided Lots. Some exceedances of the lead SAC were identified historically in samples collected from the portion of the site to be retained as a riparian corridor.

Fragments of bonded asbestos were identified in various locations during the site walkover. None of the fill samples taken during this current assessment and in the samples collected historically from areas of the Site not associated with the former quarry/landfill, have shown the presence of asbestos. Future excavation works including bulk earthworks for site levelling and the installation of services should be guided by an Unexpected Finds Protocol (UFP) and Asbestos Management Plan (AMP) included as part of the Construction Environmental Management Plan (CEMP).

Landfill gases have been confirmed within the soils associated with the former quarry/landfill, an area which is currently undergoing remediation (capping and the installation of landfill gas mitigation measures). The potential for lateral migration of landfill gas following the completion of capping should be assessed either by Council, (given their retention of the former quarry/landfill) or by the

developer, to obtain assurance that the Lots to be developed in proximity to the former quarry/landfill boundary will not be impacted. The assessment should take the form of landfill gas monitoring bores placed along the boundary in proximity to the proposed Lots followed by a medium term (one year minimum) period of monitoring.

1. Introduction

1.1. General

Coffey Services Australia Pty Ltd (Coffey) was engaged by Colliers International Project Management (Colliers) to carry out a Preliminary Contamination Assessment (PCA) of the proposed Stages 6 – 10 of the Warnervale Town Centre (WTC) development located at 111 Sparks Road Woongarrah, NSW. The proposed WTC development includes the construction of 280 residential dwellings with internal roads and access roads (referred to as the 'site' in this report).

This report addresses the preliminary contamination assessment portion of the scope of work outlined in our proposal dated 13 August 2018 (754-NTLGE216908AC.Rev1 – Fee Proposal for Preliminary Lot Classification at 111 Sparks Road, Warnervale). The works proposed covered for Lot 1 DP371647, Lot 1 DP 375712, Lot 1 DP 376264, Lot 41 DP 1200210, Lots 54 and 55 DP 7527 and Lots 51 and 52 DP 561032, Sparks Road and Hakone Road, Woongarrah.

For the purpose of this report, the client provided the following construction plans and drawings:

- 'Plan of Subdivision of Lot 32, DP1198972 – Stage 5, 113 Sparks Road Woongarah, Rev G dated 14-5-2018'
- 'Plan of proposed subdivision of lot 1 DP 371647, Lot 1 DP 375712, Lot 41 DP 1200210, lot 54 & 55 DP 7527& Lots 51 & 52 DP 561032 Sparks Road and Hakone Road, Woongarrah, Rev 1 dated 31-07-2018'
- 'Drawing Schedule and Locality Plan, Warnervale Town Centre Stage 5 Residential Precinct, Rev 1 dated 09-05-2018'

This report was prepared in accordance with the relevant sections of Chapter 3 in Schedule B2, Guideline of Site Characterisation, in the National Environment Protection (Assessment of Site Contamination) Measure 1999 (2013) (NEPM 1999 (2013)). The scope of this PCA is in accordance with State Planning Policy 55 – Remediation of Land (SEPP 55).

1.2. Objectives

The objectives of the PCA were to:

- Identify evidence of potentially contaminating activities that may be currently occurring or has historically occurred on the site;
- Identify and assess Areas of Environmental Concern (AEC's) and Chemicals of Potential Concern (COPC's) for the site, and develop a preliminary conceptual site model if required; and
- Provide recommendations for further assessment and or management, as required.

1.3. Scope of works

To achieve the above objectives, the following scope of works were undertaken:

- A desk study historical review of past activities at the site with the potential to cause contamination, including:
    - Review of previous reports on this site or adjacent sites;
    - Review of published information and readily available information held in file by Coffey related to soils, geology and hydrogeology;
    - A review of previous site ownership (land titles search) for the lots comprising the site;
    - A review of selected readily available historical aerial photography imagery over the past 53 years;

- A review of the Section 10.7 Planning Certificates held by Council for the lots comprising the site;
- A review of NSW Environment Protection Authority (EPA) notices under the Contaminated Land Management Act (1997) and a search of NSW Office of Water for records for nearby registered groundwater bores; and
- Review and collation of the above information and identification of potential AECs and COPCs for the site

A site walkover to help identify AECs and potential COCs;

- Collection of twelve (12) samples for assessment of fill quality (contamination parameters) and comparison with historical data; and
- Preparation of this report.

1.4. Data Quality Objective Process

The decision that is required to be made is:

- Does soil contamination or areas of environmental concern exist on or in close proximity to the Site that requires management or remediation for the Site to be considered suitable for the intended land use?

As stated in Section 4 of the *Guidelines for the NSW Site Auditor Scheme 3rd ed.* (NSW EPA, 2017) and ASC NEPM (2013) *Schedule B2 Appendix B*, the Data Quality Objective Process (DQO) process is used to "define the type, quantity and quality of data needed to support decisions relating to the environmental condition of a site".

The DQO process adopted for this assessment is provided in Table 1-1 below:

Table 1-1 - DQO Process

DQO	Relevant Report Section
1. State the Problem	Section 1 Introduction
2. Identify the Decision	Section 1 Introduction
3. Identify Inputs to the Decision	Section 2, Site Description and Section 3, Review of Previous Investigations.
4. Define the Study Boundaries	Section 2.1, Site Location and Identification; Figure 2
5. Develop a Decision Rule	Section 6.2, Investigation Levels
6. Specify Limits on Decision Errors	Section **Error! Reference source not found.**, **Error! Reference source not found.**
7. Optimise the Design for obtaining Data	Section 6.1, Scope of works - 2018

2. Site Description

2.1. Site Location and Identification

Table 2-1 - Site Details

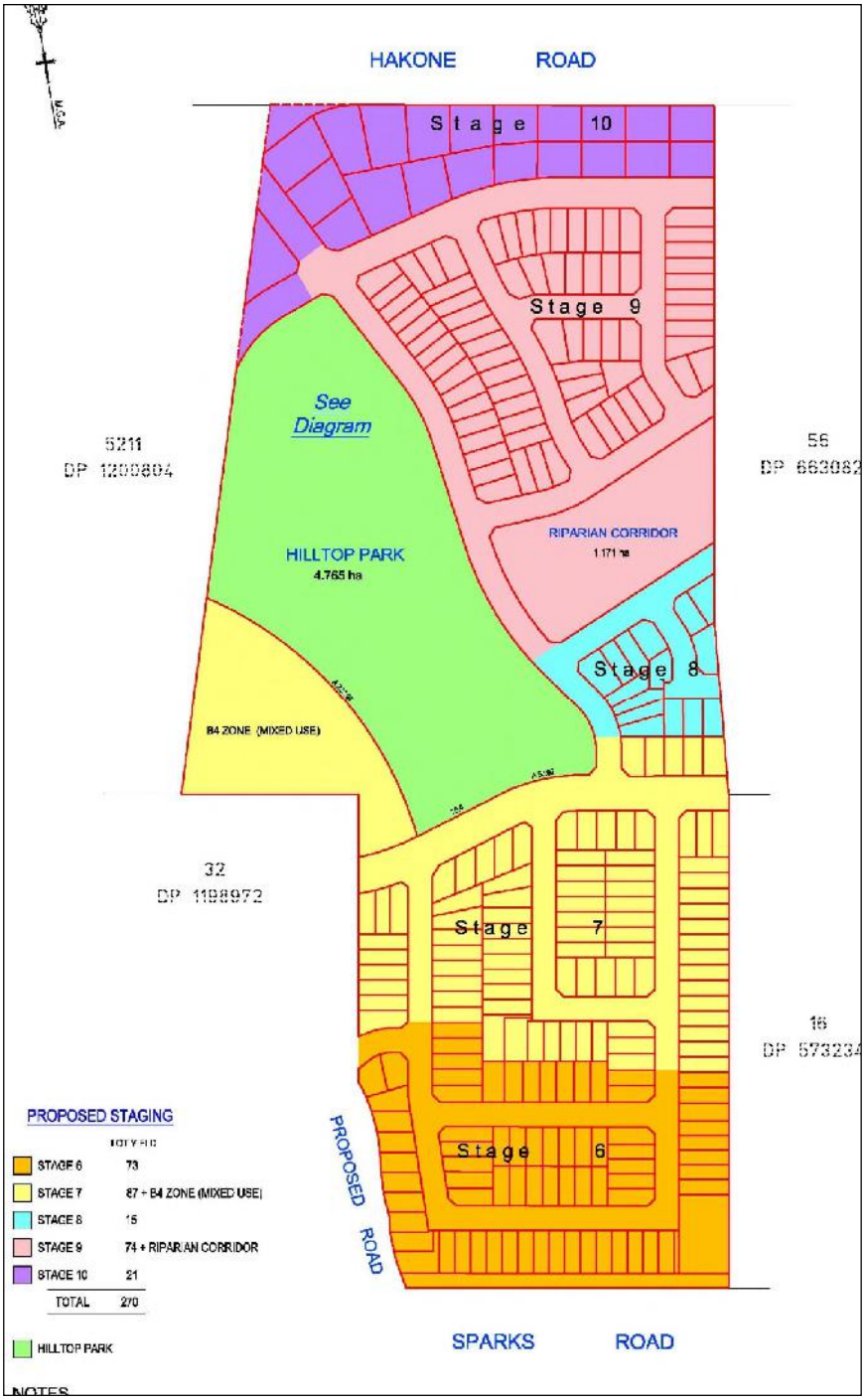
Site Address	111 - 113 Sparks Road, Woongarrah NSW
Approximate Site Area	27.6 Hectares
Title Identification Details	• Lot, 1 DP 376264; • Lot 41 DP 1200210; • Lot 51 DP 561032; • Lot 52 DP 561032; • Lot 54 DP7527 & • Lot 55 DP7527[1].
Current Land Zoning	Per the Section 10.7 Report from the Central Coast Council (CCC) the site is zoned as: • Local Centre (B2); • Mixed Use (B4); • Public Recreation (RE1); • General Residential (R1); • Environmental Conservation (E2); • Environmental Management (E3);
Current Land use	The site is currently vacant and covered by extensive native forest and vegetation. Civil remediation works are ongoing within the former quarry/landfill footprint (which will be retained and managed by Council).
Previous Land use	Parts of the site were historically used as a quarry/landfill (Lot 1 DP376264 and Lot 54 DP7527[2]) and rural residential, with the remainder of the site being vacant eucalypt forest (Mature trees/grass) and vegetation.
Proposed Land use	Proposed Warnervale Town Centre (mixed residential, commercial and open space). Coffey Services Pty Ltd understands that the former landfill is proposed to be developed as Hilltop Park by Council, which will predominately comprise open space being mostly grassed areas, with children's playground, BBQ shelters, concrete pathways and access roads. Final design specifications are yet to be confirmed. Evidence of quarrying activities were identified in the historical imagery. These areas have since been covered by vegetation.
Adjoining Site Uses	• North – Hakone Road, rural-residential properties; • South – Stages (1–4) Warnervale Town Centre, Sparks Road; • East – Vacant bushland, Mackillop Catholic College; • West – Great Northern Railway corridor, rural-residential properties.
Site Coordinates	The centre of the site is located approximately at -33.239252, 151.464647

[1] Lots 54 and 55 DP7527 are not slated for future development and will form part of a retained riparian corridor.
[2] The former quarry/landfill will be retained and managed by Council following the completion of the ongoing remediation and will be repurposed into a public park (Hilltop Park).

2.2. Investigation Area

The layout of the proposed development is shown in Figure 2-1. The investigation area included Stages 6 – 10 as labelled and excluded the proposed Hilltop Park and Riparian Corridor areas, which will be retained and managed by Council.

Figure 2-1- Layout of Proposed Development



2.1. Geology and Soils

Reference to the 1:100,000 scale Gosford-Lake Macquarie Geology Map indicates that the site is underlain by rocks and soils derived from the Narrabeen Formation and Tuggerah Subgroup comprising of laminate, claystone, siltstone and sandstone (Rnu). These rock types generally weather to sandy clayey soils.

2.2. Acid Sulfate Soils

Reference to the Wyong 1:25,000 Acid Sulfate Soil Risk Map indicates that the site is located in an area of no known occurrence of Acid Sulfate soils (ASS).

2.3. Hydrogeology

2.3.1. Groundwater

Groundwater is expected to be present within the sandstone bedrock formation and is likely to flow radially from the top of the ridgeline down parallel to the site surface. Groundwater is expected to follow the general slope of the region discharging at both Woongarrah Creek, located approximately 3km north-east of the site and Porters Creek located approximately 5km to the south-west of the site.

Perched groundwater within the former quarry/landfill area was encountered in previous investigations between approximately 1m and 3m below the ground surface (bgs). There is likely to be some vertical flow down from the perched groundwater to the regional groundwater as the landfill is unlined.

A search of the NSW Office of Water for registered groundwater bores located within a 500 m radius of the site was undertaken. The search revealed that there are nine (9) known groundwater bores registered within this radius. The details of the registered bores are summaries below in Table 2-2. A copy of the groundwater bore search is shown in Appendix E.

Table 2-2 - Summary of Groundwater Bore Data

Bore ID	Status	Purpose	Approximate Distance from Site
GW200674	Active	Monitoring Bore	250 m north
GW200673	Active	Monitoring Bore	80m North
GW200675	Active	Monitoring Bore	100m North
GW200672	Active	Monitoring Bore	80m North
GW200676	Active	Monitoring Bore	100m North
GW200677	Active	Monitoring Bore	150m North
GW200679	Active	Monitoring Bore	150m North
GW200671	Active	Monitoring Bore	200m North
GW200678	Active	Monitoring Bore	250m North

2.3.2. Surface water and drainage

Rain falling on the site is expected to infiltrate into the site soils. Excess surface water run-off is considered to follow the local topography and discharge into Woongarrah Creek located 3km to the north-east of site. Surface water is expected to also discharge in a southern direction from the top of the ridgeline and flow into the municipal stormwater system located south of the site along Sparks Road. Water collected in the stormwater drain is likely to discharge into an unnamed creek approximately 250m south of the site.

3. Review of Previous Investigations

Coffey Services Pty Ltd have previously been engaged by Wyong Shire Council to undertake environmental and geotechnical investigations on adjacent land parcels in 2008 and 2013. A contamination assessment of surrounding land parcels was further provided for Bannister and Hunter Pty Ltd in 2011. These investigations were undertaken for the proposed Warnervale Town Centre development.

3.1. Stage 2 Environmental Site Assessment 2008 (Coffey Geotechnics Pty Ltd)

A Stage 2 ESA was undertaken by Coffey Geotechnics Pty Ltd in 2008 (ref: GEOTKARI02021AA-AL). The investigation was undertaken in the former landfill/quarry footprint (Figure 3).

The scope of work of the Stage 2 ESA included:

- A desktop review of the previous environmental site assessments undertaken;
- Preparation of a Sampling and Analysis Quality Plan (SAQO) to be submitted for approval by the NSW EPA Accredited Project Auditor; and
- A Stage 2 Environmental Site Assessment (ESA) across the nominated areas including:
  - Excavation of test pits and drilling of hand augers and boreholes;
  - Installation of monitoring wells and a round of groundwater sampling;
  - Collection of targeted surface (track and gully) and stockpile soil samples;
  - Collection of discrete surface soil samples to make up 29 composites;
  - Collection of dam water samples;
  - A round of landfill gas monitoring; and
  - Laboratory soil and groundwater analyses.

The investigation included a combination of boreholes, test pits, hand augers, installation of monitoring wells and landfill gas monitoring with the following site observations, conclusions and recommendations provided below:

The following site observations were made during the site walkover undertaken in GEOKARI02021AA-AI (Stage 2 ESA. 2008) with commentary including observations made during the 2017 PCA walkover:

- A disturbed cleared area was observed to the north-western section of the site, along the ridgeline associated with the former quarry/landfill. The area was in the process of being remediated at the time of the site walkover in 2017;
- Relatively undisturbed bushland in the northern, north-eastern, eastern, and south-western portions of the Site along the former quarry margins;
- A partly disturbed and cleared area in the southern portion associated with former rural-residential dwellings.
- A single dirt and gravel/bitumen track cutting diagonally from Hakone Road South through to the top of the ridgeline (former landfill). Isolated piles of illegally dumped waste materials were observed along this track and up to the northern edge of the former landfill.

The following description of the former quarry/landfill was obtained from the Stage 2 ESA, 2008.

"The former quarry/landfill is located on Lot 1 DP376264 and Lot 54 DP7527. This portion of the investigation area is located on the crest of the ridgeline. Surface slopes are irregular, being relatively flat on the filled landfill portion, with steeper embankments (up to 27°) on fill margins. Surface slopes are to the east, south-east, south and south-west around the perimeter of the former landfill.

The former landfill can be divided into two portions. A higher relatively level bench area at RL 53mAHD in the southern and western portion, and a lower more irregular portion at RL 51m-53mAHD in the northern and north-eastern portion. These areas are delineated by a fill embankment that is aligned north-west through the landfill. In the north-eastern portion of the landfill the groundsurface drops down a series of steep embankments to the natural ground surface at RL 48mAHD. A small drainage culvert is located in this area including concrete pipe, and seep water from the base of the landfill was observed to be draining down through the culvert to a natural gully. A small, previously unidentified dam is located in that area (adjacent to EBH 15/MW3).

A dirt, gravel and bitumen access track cuts up to the former quarry/landfill from the north-east, and runs along the southern edge of the area. Numerous piles of domestic and demolition rubble were observed to be present along the southern edge of the access track in the irregular northern portion of the landfill. These include fibro-cement sheeting, steel, G.I., plastic, concrete, wood and trees. Weed vegetation is growing in this area including bananas and coral trees. Some concrete pipes are present along the remainder of the margins of the access track as it passes through the former landfill, and more illegal dumping of rubbish has occurred on the access track just to the south of the former landfill on the boundary between Lot 54 DP7527 and Lot 51 DP561032."

It is important to note that the former quarry/landfill does not form part of the Site (2017 PCA) and the proposed development. The former quarry/landfill remains an area of environmental concern given its proximity to lots proposed to the northeast, southeast and south and the potential for lateral methane gas migration following the completion of capping remediation works.

The following description of the former rural/residential area was obtained from the Stage 2 ESA, 2008.

"The former rural-residential area is located on Lots 51 and 52 DP 561032. A farm dam is located in the centre of Lot 51 along its western boundary. Except for a concrete slab on Lot 52 and remnant introduced vegetation, no remnant structures of the former buildings remain. Some benching of the groundsurface was observed downslope of the dam.

Lot 51 is mainly cleared, especially in the southern portion, and on the southern portion of Lot 52 is cleared, the remained is forested.

A dirt access track (Lot 1 DP375712 and Lot 1 SP371647) is present along the eastern margin of Lot 52, servicing the adjacent school and a residential development. This track peters out in the forested southern portion of Lot 55. No significant dumping of rubbish was observed along the margins of the track, but occasional piles of domestic refuse were observed.

A dirt access track is present between Lot 4[3] and Lot 51, and joins up with the ring track along the southern edge of the former quarry/landfill. Significant numbers of stockpiles (including additional piles placed during the period of the investigation) were observed in this area. The stockpiles mainly consisted of demolition and building waste and minor domestic refuse. Fibro cement sheeting and guttering was also observed."

The conclusions of the Stage 2 ESA, 2008 were as follows:

- Groundwater contamination, within former quarry/landfill footprint, was identified;
- It was observed that multiple points of access to the site were available, and illegal dumping of rubbish, including fibro cement sheeting was ongoing. Coffey recommended that the entire investigation area be secured to prevent further dumping and contamination of the surface of the area;
- A limited asbestos investigation was undertaken with impacts identified within fill material of the former quarry/landfill area, within illegally imported stockpile waste and on the surface of adjacent soils;

[3] Lot 4 DP77738 does not form part of the current investigation.

- Minor heavy metal impacts were identified across the site, generally adjacent to former structures or runoff; and
- Methane was recorded in air space above the standing water level in the monitoring wells, at concentrations greater than NSW EPA Guideline, in the upper flat southern portion of the former quarry/landfill. No monitoring wells were installed in the north-western portion of the former landfill. Given the concentrations of methane recorded, an explosion risk was present in gases extracted from some of the monitoring wells, and confined space entry asphyxiation risks were present by replacement or dilution of oxygen. Inhalation risks for methane were low.

Coffey provided the following recommendations

- The preparation of a Remedial Action Plan (RAP) to explore the appropriate remedial options for the identified dumped rubbish, subsurface impacts within the landfill, and surface impacts in the adjacent land parcels;
- Additional investigation to be undertaken to assess the extent of landfill gas generation across the surface of the landfill and surrounding areas. A plan of management was recommended to manage methane impacts which may include recommendations for capping and methane collection systems;
- The extent of asbestos impact could not be assessed with only limited data collected. Further investigations for asbestos were recommended.

Coffey concluded that the site (landfill/quarry), in its current condition, was not suitable for the proposed land uses (mixed, commercial, open-space and residential) without further investigation.

3.2. Asbestos Validation Report Warnervale Town Centre, Warnervale NSW 2013 (Coffey Environments Pty Ltd)

Coffey Environments Australia Pty Ltd (Coffey) was commissioned by Wyong Shire Council (Council) to undertake asbestos validation works in areas outside the former landfill at the proposed Warnervale Town Centre site. Coffey understands that Asbestos Containing Materials (ACM) were identified on the site in previous investigations undertaken by Coffey and others.

The objective of the works was to validate the areas outside the landfill previously impacted with ACM (in both areas where ACM was identified and removed by EMS, and areas not addressed previously by EMS). In order to meet the objective, Coffey undertook a review of the previous investigations undertaken at the site, a site walkover in the areas where asbestos impacts were previously observed, sampling of surface soils and ACM, laboratory analysis of samples and preparation of a validation report (Coffey Ref: ENAURHOD04424AA-R03b, May 2013)

Based on the review of previous assessments, 48 locations were identified outside the former landfill as being previously impacted with asbestos. A further two locations were identified during the current site investigations. Surface soil samples were collected from each location. Asbestos fragments were also collected at eight of these locations.

The area under discussion within the validation report included the area being assessed in the current Stage 6-10 PCA.

In order to meet the objectives of the assessment, the following works were carried out:

- Review previous investigations undertaken at the site;
- Site walkover in areas where asbestos impacts were previously observed;
- Sampling and laboratory analysis of surface soils and ACM;
- Preparation of an asbestos validation report.

The findings of the validation report were summarised as follows:

"Based on the results of this investigation, asbestos was identified to be present in eight fibre cement fragments observed to be present at eight locations on the site, including six locations where

asbestos containing materials were previously observed and remediated by EMS and two new locations observed during the current fieldwork. The fragments of ACM were sent to the laboratory following fieldwork and hence had been removed from the site. The likely source of these ACM fragments is historical illegal dumping. No evidence of new illegal dumping was observed during site work. Therefore, it is considered that there is a low likelihood of ACM fragments being present at depth in the areas outside of the former landfill. Evidence of surface soil scraping was present in the locations already remediated by EMS. However, ACM fragments were still encountered at some locations remediated by EMS. It is considered that the presence of ACM fragments at these locations was likely due to the nature of asbestos contamination, which could migrate laterally or vertically following soil erosion or rain events (not through new dumping given the randomness and scattering distribution encountered and no presence of new stockpiles observed).

Asbestos was not detected in any of the surface soil samples collected from the locations where asbestos was previously identified and removed by EMS, where asbestos was previously identified by Coffey Geotechnics, and beneath ACM fragments observed in the current fieldwork. Based on this, it is considered that remediation of soil due to fibrous asbestos is not required.

Based on the findings of the validation activities, it is considered that ACM had been remediated at the time of the field investigation at the following locations outside the former landfill at the site:

- *Locations where asbestos containing materials were identified and removed by EMS; and*
- *Locations at the site not identified/addressed by EMS for possible asbestos contamination.*

While the ACM fragments encountered on surface soil during the fieldwork had been removed during sampling, the potential of as yet identified fragments of ACM could be present at the surface soil could not be precluded, due mainly to the size of the site, random nature of the asbestos disposal at the site and the presence of dense vegetation at some locations. It is anticipated that during development the majority of site surface will be scraped to allow for development and this will remove any ACM fragments (if any). Based on this, it is considered that the site will be suitable for the proposed landuses following implementation of an unexpected finds protocol (UFP) during the construction work that outlines procedures and protocols for observation and management of unexpected potential contamination including but not limited to potential ACM.

In areas that will not be developed (such as in zonings E2 Environmental Conservation and E3 Environmental Management, it is considered possible that ACM fragments be encountered in the future. It is recommended that emu walk event(s) be conducted in the undeveloped area following development. Based on the findings of the emu walk event(s), management of asbestos in this area can be decided. "

3.3. Remedial Action Plan – Remediation/management of asbestos and landfill gas at the proposed Warnervale Town Centre, Warnervale NSW 2013 (Coffey Environments Pty Ltd)

A Remedial Action Plan was prepared by Coffey Environments Pty Ltd in 2013 outlining the remediation and management of asbestos and landfill gas within the former landfill (ref: ENAURHOD04424AA).

The overall objective of the project at the time was to render the site suitable for the proposed land uses as per the Wyong LEP 1991 and the Warnervale Town Centre DCP 2012 and Wyong Draft LEP 2012 for the Warnervale Town Centre development. Further objectives of the RAP were also to outline a plan of management for asbestos and landfill gas at the site and prepare a validation report.

To achieve the objectives of the RAP the following activities were completed:

- Review of available historical environmental investigation reports and correspondence;

- Selection of appropriate preferred remediation and/or management method from available remediation options;
- Outline of the procedures for the preferred remediation and/or management method;
- Outline of the procedures for validation, site control and occupational health and safety, as required for the remediation and/or management works;
- Review of the environmental measures to be undertaken during the remedial works to protect the health and safety of the general public and workers and the environment;
- Development of validation criteria and scope of additional works; and
- Preparation of the RAP.

The Coffey RAP identified the following for the asbestos on the site:

- Asbestos was observed within the former landfill footprint during previous investigations within the 2010 Site Audit. No further investigation within the former landfill footprint was undertaken by Coffey Environments in 2012 and 2013.
- Material from the landfill berms is likely to be suitable for placement as surface capping following removal of pockets of anthropogenic materials;
- Potential presence of asbestos in the area outside the former landfill can be managed by implementation of an unexpected finds protocol.

The Coffey RAP identified the following for the landfill gas on the site:

- At the time of the RAP there was evidence of methane being generated within the landfill, but there was no evidence of significant lateral migration of landfill gas outside the former landfill footprint. This suggested that most of the methane was being released vertically through the landfill surface. Following the capping of the landfill (either with berm material or any other compacted or impermeable material) and the site redeveloped, the opportunities for surface emission of gas should be reduced which in turn could increase the lateral migration of landfill gas. It was highlighted that the extent of lateral migration of methane was difficult to predict with a reasonable level of accuracy without landfill gas sampling (outside of the landfill) after placement of capping.

- If left unmitigated, it was considered that there would be potential landfill gas risk to future site users. Therefore, Council should adopt mitigation measure(s) to manage the risk of landfill gas.

Additional to the outcomes of the RAP review, it is further noted that the lateral migration of methane could also impact proposed lots placed close to or within the buffer zone immediately surrounding the landfill boundary.

3.3.1. Landfill Gas Mitigation

The remedial goal with respect to landfill gas was to manage landfill gas so that the site was suitable for the proposed land-uses for the Warnervale Town Centre, development following construction. These land-uses included:

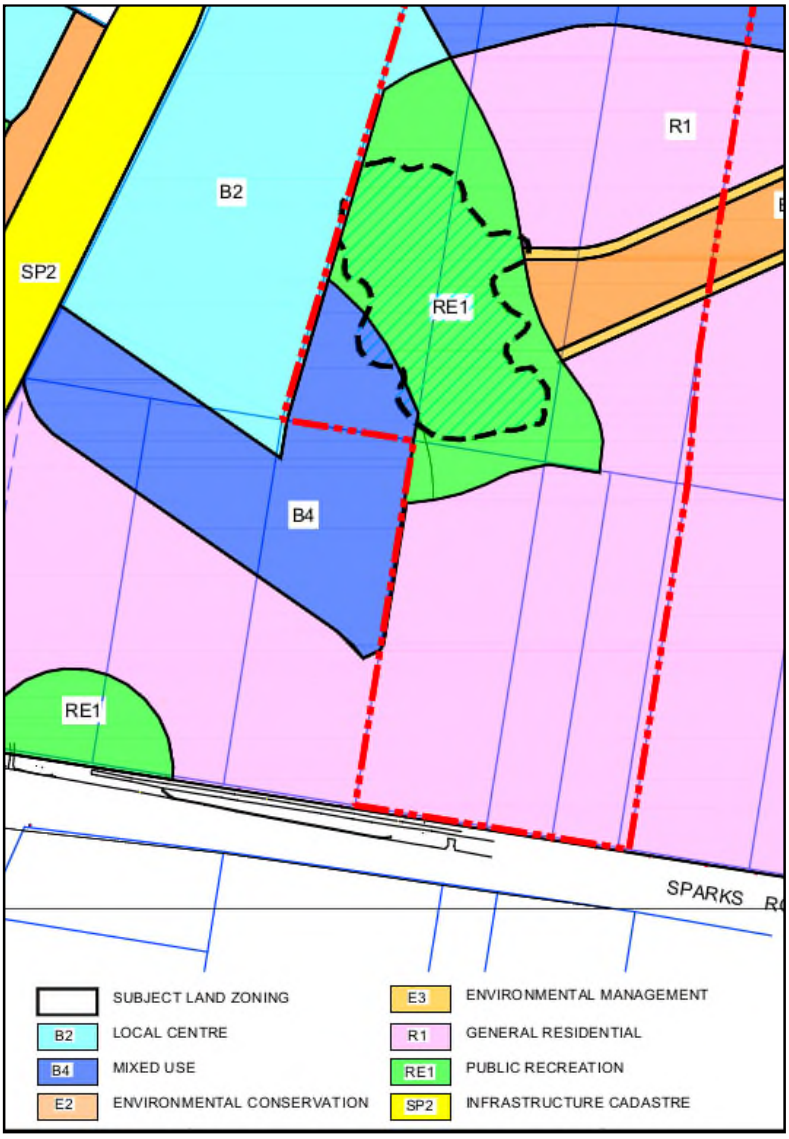
- Open Space in the area of the former landfill/quarry (zoning RE1 Public Recreation);
- Mixed residential, commercial and open space in the area outside the former landfill (zoned: B2 local centre, B4 mixed use, E2 environmental conservation, E3 environmental management, R1 residential and RE1 public recreation).

For the purpose of landfill gas management, the site was divided into the following areas (Figure 3-1).

- **Area 1** – the former landfill footprint area within proposed Public Recreation RE1 zoning;
- **Area 2** – the former landfill footprint area within Mixed Use B4 zoning; and
- **Area 3** – the area outside the former landfill footprint.

Based on previous and current investigations, landfill gas was limited to Areas 1 & 2 respectively.

Figure 3-1 - Land Zoning Intersection with Former Landfill Footprint (Source – ENAURHOD04424-R05b, Figure 23, June 2013)



3.3.2. Preferred Option/s for Landfill Gas Mitigation

Area 3 – The Area outside the Former Landfill footprint (Area 3, which includes proposed Stage 6 – 10 development)

- Based on the uncertainty of the landfill gas mitigation after placement of capping, it was considered that a landfill gas mitigation system would be required for Area 3.
- It was recommended that where possible, underground infrastructure should not traverse the former landfill. Where this was unavoidable, the design should incorporate measures to limit the creation of a preferential pathway for landfill gas migration and minimise or eliminate landfill gas accumulation within the services.
- Venting and sealing the infrastructure and encapsulation by impermeable membrane to prevent landfill gas accumulation.

3.3.3. Validation Strategy

It was proposed in the RAP that landfill gas mitigation system(s) can be validated by undertaking landfill gas measurements in the area(s) targeted for the system(s). This would include landfill gas measurement in the following areas:

- The area of former landfill footprint to assess increase/reduction in landfill gas concentrations;
- The area outside the former landfill footprint to assess potential migration of landfill gas;
- Within proposed building(s) and/or structure(s) (if remediation was not undertaken as per RAP).

The locations, frequency, and length of monitoring will depend on the proposed development and the remediation option(s) chosen. These need to be decided after the proposed development and the remediation option(s) are decided and documented in the environmental management plan for WTC.

The landfill is currently undergoing remediation and validation (undertaken by Synergy) and the outcomes remain unknown at this time. Notification of the successful completion of the remediation and validation should be sought and confirmed with Council.

4. Desktop review and site observations

A desktop study and site observations were conducted as part of the PCA, and included:

- A historical title search dating back 100 years;
- A review of aerial photography from the past 62 years;
- A review of the Section 149 Planning Certificate for the site held by Council;
- A review of NSW EPA notices applying to the site and nearby properties; and
- Site walkover and a limited sampling and laboratory analysis of selected soil samples to measure the potential contamination impact at potential areas of environmental concern and assess the current site conditions compared to historical data.

The information provided from the above reviews are summarised in the sections.

4.1. Site History Review

4.1.1. Historical Title Search

A search of historical titles for the site, (Lot 41 DP1200210, Lots 51 & 52 DP 561032, Lots 54 & 55 DP 7527 and Lot 1 DP 376264), were undertaken by Advanced Legal Searchers Pty Ltd. A list of past registered proprietors for the land parcels was obtained dating back to 1918. The results of the search are included in Appendix A and presented in Table 4-1, Table 4-2 and Table 4-3.

Table 4-1- Summary of Historical Titles (Lot 41 DP 1200120)

Conveyance Book Details	Date	Proprietor	Inferred Land Use
Portion 39 & 41 Parish Munmorah and other land – Area 3498 Acres 3 Roods 23½ Perches – CTVol 2878 Fol 191	1918 - 1923	Albert Hamlyn Warner, esquire	Private
Lot 4 DP 7738 – Area 10 Acres – CTVol 3468 Fol 155	1923 - 1958	Joseph Wilfred Fisher, Farmer	Private
	1958 - 1959	Public Trustee	Private
	1959 - 1990	Ellen Lell, Manufacturer	Private
Lot 4 DP 7738	1990 - 2002	Ellen Lell, Manufacturer	Private
	2002 - 2014	Wyong Shire Council	Commercial
Lot 41 DP 1200210	2014 – to date	Wyong Shire Council	Commercial

Table 4-2: Summary of Historical Titles (Lots 54 & 55 DP 7527 & Lot 1 DP 376264)

Conveyance Book Details	Date	Proprietor	Inferred Land Use
Portion 39 & 41 Parish Munmorah and other land – Area 3498 Acres 3 Roods 23½ Perches – CTVol 2878 Fol 191	1918 - 1946	Albert Hamlyn Warner, esquire	Private
Portion 39 & 41 Parish Munmorah and other land – Area 1870 Acres 2 Roods 1 Perch – CTVol 5563 Fol 71	1946 - 1950	Albert Hamlyn Warner, esquire	Private
Part Portions 39 & 41 Parish Munmorah and other land – Area 675 Acres 2 Roods 12 Perches – CTVol 6189 Fol 181	1950 - 1952	Jerrabomberra Limited	Commercial
Lot 54 & 55 DP 7527 & Lot 1 DP 376264 – Area 38 Acres 2 Roods – CTVol 6494 Fol 179	1952 – 1990	The Council of the Shire of Wyong	Commercial
Lot 54 & 55 DP 7527 & Lot 1 DP 376264 – A/C 6494-179	1990 – to date	The Council of the Shire of Wyong	Commercial

Table 4-3 - Summary of Historical Titles (Lots 51 & 52 DP 561032)

Conveyance Book Details	Date	Proprietor	Inferred Land Use
Lot 5 DP 7738 – Area 10 Acres – CTVol 2926 Fol 2	1919 – 1920	Robert Moorhead, Draper	Private
	1920 - 1934	William Martin Elliot, Builder	Private
	1934 - 1960	Olga Vali, Married Woman	Private
	1960 - 1962	Helene Busche, Spinster	Private
	1962 - 1973	Mabel Hayden, Married Woman	Private
Lot 52 DP 561032 – CTVol 12093 Fol 110	1973 - 1973	Mabel Hayden, Married Woman	Private
	1974 - 1979	Rodney James Hayden, Contract Painter Lynettte Patricia Hayden, His Wife	Private
	1979 - 1988	Alice Doreen Cummins, Married Woman	Private

Lot 52 DP 561032	1988 - 1995	Alice Doreen Cummins, Married Woman	Private
	1995 - 2003	Barry Richard Young	Private
Lot 51 DP 561032 & Lot 52 DP 561032	2003 – to date	Wyong Shire Council	Commercial

4.1.2. Aerial Photograph Review

Aerial photographs of the site were obtained from the Department of Land and Property Information and assessed by a Coffey Environmental Scientist. The results of the aerial photograph review are summarised below in Table 4-4. The aerial photographs are presented in Appendix B.

Table 4-4 - Historical Aerial Summary

Date	Site	Surrounding Land
1965	A cleared area is visible where the former quarry/landfill site was located within the northern half of the site. The quarry appears to be active. The site appears to be forested land with dense tree and grass vegetation within the surrounding areas of the site.	The Main Northern Railway is observed east of site. An unpaved Hakone Road appears to the north of site. Small farm buildings are observed to the west and south-west of site. Buildings and land clearing appear to be for rural-residential purposes.
1976	Portion of the southern area of site appears to have been cleared with buildings being constructed and now visible. A gravel access road is observed cutting diagonally from Hakone Road south through to the landfill. The remainder of the site appears to be the same, operating as an active quarry.	Vegetation clearing is observed surrounding the site with gradual development of surrounding areas for rural residential purposes observed to the south, west and north-west directions. An access track is observed providing access to the landfill from Sparks Road to the South.
1985	The quarrying or landfilling activities appear to be continuing within the site. Vegetation and tree growth has continued throughout some areas of the site.	There is a large residence with two small detached farm sheds observed to the south-east. A large dam lies further south of the residence with unpaved access provided from Sparks Road. Land clearing is evident to the east and north-east between the site and Great Northern Railway corridor. Two large residences and a large metal shed have been constructed to the north with access observed from Hakone Road. The construction of a dam east of the rail corridor is observed. To the south of the dam a residence has been developed with four large detached farm sheds.
1994	The quarrying or landfilling activities appear to have ceased with grassed vegetation covering the formerly disturbed land. The construction of a detached farm shed was observed on the site associated with the residence located within the south eastern corner. The remainder of the site appears relatively unchanged from 1985.	A small brick residence has been constructed to the south with access provided from Sparks Road. Sparks Road is observed to have been completed and covered with the construction of a dual-lane overpass over the Great Northern Railway corridor. The construction of nursery facilities (buildings and greenhouses) is observed to cover approximately one third of the land parcel (Lot 5211 DP1200804) to the east. The remainder of the site remains relatively unchanged since the time of the last photograph.

Date	Site	Surrounding Land
2006	The large brick residence along with four large detached farm sheds observed adjacent east of the rail corridor to the south have been demolished. Regeneration of grass vegetation covering the former quarry or landfill site is evident with scattered waste debris observed in the area.	The demolition of greenhouse outbuildings to the east at the former nursery facility is observed. Initial construction stages of Mackillop Christian College to the East is observed.
2018	The area of the former quarry/landfill of site is observed to have undergone major earthworks since the time of the last photograph. It appears that a capping layer of material has been placed over the quarry/landfill area.	The area to the south of the site appears to have been cleared entirely vegetation for proposed residential sub-division development purposes since the time of the last photograph. The shed and residence to the south east have been demolished and Woongarrah Road forms the southern boundary of the site. Exposed surface soils and stockpiles of removed vegetation observed scattered across the site. The construction of Woongarrah Road is completed adjacent south west with initial construction of WTC Stages 1 to 4 observed further south. The demolition of the three rural-residential properties and associated out buildings for the construction of stages 1 to 4 is evident south west of the proposed site.

4.2. Section 10.7 Planning Certificate

The section 10.7 Certificates for Lot 52 DP 561032, Lot 51 DP 561032, Lot 41 DP 1200210, Lot 54 DP 7527, Lot 55 DP 7527, Lot 1 DP 376264, Lot 1 DP 371647 and Lot 1 DP 375712 were obtained from Central Coast Council. A copy of the certificates is provided in Appendix D. Table 4-5 summarises the information contained within the certificates.

Table 4-5 - Information from section 10.7 Planning Certificates

Address/Allotment	Current Zoning	Critical Habitats	Conservation Areas	Hazard Risk Restrictions	Site Contamination Notices
99 Sparks Road, Woongarrah NSW **(Lot 52 DP 561032)**	(R1) General Residential	None	None	Biodiversity Certified Land Bushfire Prone Land	None
103 Sparks Road, Woongarrah NSW **(Lot 51 DP 561032)**	(R1) General Residential	None	None	Biodiversity Certified Land Bushfire Prone Land	None
107 Sparks Road, Woongarrah NSW **(Lot 41 DP 1200210)**	(RE1) Public Recreation (R1) General Residential (B4) Mixed Use	None	None	Biodiversity Certified Land Bushfire Prone Land	None

Address/Allotment	Current Zoning	Critical Habitats	Conservation Areas	Hazard Risk Restrictions	Site Contamination Notices
236-260 Hakone Road, Woongarrah NSW (Lot 54 DP 7527, Lot 55 DP 7527, Lot 1 DP 376264, Lot 1 DP 371647 & Lot 1 DP 375712)	(RE1) Public Recreation (B4) Mixed Use (R1) General Residential (B2) Local Centre (E3) Environmental Management (E2) Environmental Conservation	None	None	Biodiversity Certified Land Bushfire Prone Land	None

4.3. NSW EPA Records

A search of the NSW EPA database revealed that four (4) sites within the Wyong Shire (Central Coast Council) area are identified on the contaminated land register as having current and/or former notices. The four sites identified are located outside of a 1km radius buffer zone from the site and unlikely to be impacting the study site. A copy of the search is provided in Appendix F with a summary provided in Table 4-6.

Table 4-6 - Contaminated Land Register Search Results

Suburb	Address/Site name	Notices related to site	Distance from site
Bateau Bay	The Entrance Road/Former Landfill	1 current notice	27 km
Warnervale	Aldenham and Railway Roads/Former Timber Treatment Plant	3 former notices	4.0 km
Wyong	Lot 4 Warner Avenue/Drum Dump-Wyong	2 former notices	8.0 km
Wyong	16 Lucca Road /Wyong Bayer & Kemcom	3 former notices	6.5 km

4.4. Site Observations

A Coffey Environmental Scientist visited the site on two occasions, 20 September and 7 December 2018. Site photographs were taken during the visit, and are shown in Appendix C.

Observations made during the site walkover at 111 Sparks Road included Lot 1 DP 376264, Lot 54 DP 7527 and Lot 55 DP 7527 in the northern portion of the site and Lot 41 DP 1200120, Lot 51 DP 561032 and Lot 2 DP 561032 in the southern portion of the site:

Northern Portion of site: Lot 1 DP376264 Lot 54 DP7527 and Lot 55 DP7527

- Lot 1 DP376264 and Lot 54 DP7527 were observed to contain mainly dense forested and grassed vegetation in the northern extent of the Lot, with a large cleared area of the former quarry/landfill footprint located in the southern section of the lot;
- Former quarry/landfill area had a perimeter metal and wire fence with silt fencing at the base preventing unwanted site access. A ‘Danger Asbestos’ sign was observed on the exterior of the

fence. No works related to the ongoing landfill remediation was observed at the time of the walkover. However, plant and machinery for large-scale earthworks were observed, parked within the north-western portion of the fenced area. Synergy Pty Ltd are in charge of the civil remediation works at the site, (shown in photos 14 & 24);

- Synergy are responsible for ongoing civil remediation works ongoing in the former quarry/landfill area. A Synergy site office was observed at the start of the access road adjacent Hakone Road;
- A gravel access track was observed cutting diagonally from Hakone Road directly through to the top of the ridgeline (former quarry/landfill);
- Evidence of possible illegal dumping activities were observed south of the gravel track that provides access to the former quarry/landfill from Hakone Road. Excavated soils, concrete and road construction materials observed sporadically dumped;
- A gravel access track from Hakone road provided access to the former quarry/landfill from Hakone Road. Illegal dumping, including excavated soils, concrete, road construction materials and demolition wastes was observed to be present up to 30m south of the gravel access track;
- The site surface soils observed during the site walkover appeared to comprise silty gravelly sands, (shown in photos 12 & 31);
- Dense forest and grassed vegetation occupied the area to the north of the former quarry/landfill footprint. Multiple fallen/snapped trees were observed during the site walkover, (shown in photos 19, 20 & 21);
- A discarded golf cart was observed located in the forested area to the north, no oil leaks or battery wastes were observed (shown in photo 20);
- Bonded Asbestos fragments (about 40 to 50) were observed east of the former quarry/landfill within surface soil material at the time of the walkover. Surface soils impacted approximately 250m^2 grid; (shown in photos 25 – 30). ACM appears to have been washed from civil remediation works within the former quarry/landfill (surface water and sediment runoff). Material appears to be related to surface soils in an east/south-eastern direction; (shown in photos 28 – 30);
- The footprint of a former nursery (identified in Coffey, 2008 and other historical assessments) comprising concrete slabs are directly adjacent to the sites western border (not part of the Site), (shown in photo 22); and
- Two small to medium sized dams are located to the south west of the former landfill/ quarry area, a car body was present on the bank of one of the dams, (shown in photo 23).

Southern Portion of site (Lot 41 DP1200210, Lot 51 DP561032 and Lot 2 DP561032)

Lot 41 DP1200210

- Discarded household and building waste was observed illegally dumped along the southern boundary of Lot 41 DP1200210 adjacent newly constructed access road Woongarrah Road, (shown in photos 2 & 3);
- Several waste stockpiles were observed in the south west corner of the site in close proximity to access roads, these stockpiles were overgrown with vegetation at the time of the site walkover, (shown in photo 2);
- A dirt vehicle access track was observed bisecting Lot 41 and Lot 51 DP561032. The track provided access from Sparks Road before meeting the cleared area observed east of the former landfill/quarry. Multiple small piles of domestic household waste were observed along the eastern boundary of the access track, (shown in photos 7 & 11);
- The remainder of Lot 41 DP1200210 was covered in dense forested and grassed vegetation with multiple fallen/snapped trees observed during the site walkover. The southern portion of the site was densely vegetated bushland, with long grasses and small to medium sized trees, the area was generally undisturbed, (shown in photos 9 & 13);

Lots 51 & 52 DP561032

- A former rural-residential footprint was located on Lots 51 & 52 DP561032. A small field dam was observed in the centre of Lot 51 along the western boundary. No surface sheen or staining was visible at the time of the walkover, (shown in photos 8 & 10);
- An unknown mound/stockpile, covered in grassed vegetation, was observed in the centre of Lot 51 in the location of the former rural residence structure. No remnant structures of the previous residence were observed, (shown in photo 10);
- The remainder of the southern portion of the site was densely vegetated bushland, with long grasses and small to medium sized trees, the area was generally undisturbed, (shown in photo 9);
- The northern section of Lot 52 was covered in dense forested vegetation consisting of mature-age trees and low-lying shrubs. The southern extent of Lot 52 was observed to mainly consist of dense shrub and long grass, (shown in photo 13);
- A gravel vehicle access track was observed along the eastern boundary of Lot 52 DP561032 servicing the local school Mackillop Catholic College and providing access to the southern extent of Lot 55 DP7527. No domestic waste was observed along this track at the time of the walkover;

4.5. Gaps in the Site History

The following information sources were referred to for this assessment:

- NSW EPA;
- Section 10.7 Planning Certificates provided by Central Coast Council;
- Historical Land Title Searches between 1918 and 2018;
- Historical aerial photographs and Google Earth images provided for the period between 1965 and 2018;

Potential data gaps include:

- Status of the remedial works being carried out at the landfill site;
- Information related to the lateral migration of landfill gas and the potential impact at the development boundaries adjacent to the landfill.

5. Preliminary conceptual site model

Based on the site history review and site walkover, a preliminary conceptual site model (CSM) has been developed. Potential areas and chemicals of environmental concern have been summarised in Table 5-1, potentially affected media, receptors and transport mechanisms are included in Table 5-2 and the potential and complete exposure pathways are summarised in Table 5-3.

Table 5-1 - Potentially Areas and chemicals of environmental concern

AEC	Potentially Contaminating Activity	Potential COCs	Likelihood of Contamination*	Comments
1 (Former Quarry/Landfill)	Potential impact of landfill gas, leachate and movement of asbestos with surface water runoff	Methane and landfill gases	Medium to High (in areas close to landfill buffer zone)	Section of the site formerly utilised as a quarry/landfill potential for lateral migration of landfill gas following capping. Movement of asbestos associated with surface water runoff from the landfill.
2 (Entire Site)	Illegal/uncontrolled dumping activities (including asbestos)	Heavy Metals, OCP, TPH, BTEX, PAH, Phenols, PCB, Cyanide, Asbestos & Sulphate	Low to medium (Medium to high risk for presence of bonded asbestos fragments)	Illegal dumping activities observed in surrounding areas. Gravel access trails providing vehicle access from Hakone Rd (north) & Sparks Rd (south). Former quarry/landfill surrounded by densely vegetated areas.
3 (Former building structures and stockpiles of unknown origin)	Presence of fill of unknown origin and quality under and around former building structures	Heavy metals, TRH, BTEX, PAH, OCP, Asbestos	Low to medium	Fill material likely at footprint of former brick residence. Stockpile of unknown fill observed at the rear of former rural-residential residence.
4 (Former building structures)	Weathering of hazardous building materials including lead paint and asbestos and storage of fuels and oils	Heavy Metals, TRH BTEX PAH, Asbestos, OCPs, OPPs	Low to Medium	Unknown building materials used to construct pre-existing building structures.
5 (Pesticide Application)	Small scale pesticide application around former rural-residential buildings	Heavy Metals, OCPs & OPPs.	Low	Pesticide application in area surrounding former building structures in southern portion of the site.

*Notes: * = This is a qualitative assessment of the probability of contamination being detected at the potential AEC.*
Metals - Arsenic, Cadmium, Chromium, Copper, Lead, Mercury, Nickel and Zinc; BTEX - Benzene, Toluene, Ethylbenzene and Xylenes; TRH - Total Recoverable Hydrocarbons; PAH - Polycyclic Aromatic Hydrocarbons; OCP - Organochlorine Pesticides; OPP - Organophosphorus Pesticides; PCB - Polychlorinated Biphenyls; VOC - Volatile Organic Compounds; SVOC - Semi-Volatile Organic Compounds

Table 5-2 - Potentially affected media, receptors and transport mechanisms

Consideration	Information
Potentially Affected Media	Shallow soil – fill material and upper layers of natural residual soil.
Potential Transport Mechanisms & Exposure Pathways	Direct dermal contact with contaminated soil Ingestion of contaminated soil Inhalation of airborne dusts and gases Inhalation of asbestos fibres Migration of methane through rock fractures, bedding partings and soil
Potential Receptors of Contamination	***Construction/maintenance workers*** Potential exposure via direct vapour and gas inhalation Potential exposure via dermal contact with soil and ingestion of soil. Potential exposure via secondary inhalation of airborne dusts (lead and asbestos). Potential explosion risk from build-up of landfill gas ***Future Site Users*** Potential exposure via dermal contact, and ingestion/inhalation of soil and dust. Contact with groundwater is considered unlikely due to groundwater depth anticipated to be greater than 18m bgs. Potential ingress of landfill gas into buildings and structures ***Groundwater*** It is unlikely contaminants from the site could leach from soils into groundwater due to groundwater depth anticipated to be greater than 18m bgs. Perched groundwater within the former landfill/quarry void could impact located at the crest of a ridgeline the site with with runoff from the crest of the ridgeline expected to leak vertically into regional groundwater. ***Surface Water – Porter & Woongarrah Creek*** Lateral transport of surface water and discharge at the nearest surface water receptor – Porters Creek 3km South of site & Woongarrah Creek located 3km north-east of the site.

Table 5-3 - Summary of identified key potential exposure pathways

Receptor	Exposure Pathway	Comment
Construction/ Maintenance Workers	Potentially Complete	There is a potential for workers conducting subsurface works to be exposed to soils containing potential contaminants via dermal contact, ingestion of soils and inhalation of asbestos fibres and landfill gas during earthwork activities.
Future site users	Potentially Complete	There is a potential for future site users to be exposed to soils containing potential contaminants via dermal contact, ingestion and inhalation pathways. There is a potential pathway for ingress of landfill gas into future buildings and structures
Groundwater	Incomplete	Given the depth to the regional groundwater is >15 mbgs, a complete exposure pathway probably does not exist. The landfill/quarry is located in the center of the site and the extent of the perched groundwater outside of the landfill/quarry is unknown.
Surface Water	Incomplete	Given that the distance between the site and nearest surface water body is approximately 3km, a complete exposure pathway probably does not exist.

6. Fieldwork, investigation levels and data quality objectives

Fieldwork activities were undertaken at the site on 4 & 5th October and 5 - 6th November 2018 respectively, to further assess some of the identified plausible potentially complete exposure pathways set out in Table 10.

6.1. Scope of works - 2018

The following scope of works was undertaken:

- Advancement of twelve (12) test bores by assisted by a backhoe excavator with a 300mm auger attachment to a target depth of 1.8m (bgs) across the site;
- Sixteen (16) soil samples were collected, with selected samples analysed from test bore locations (E1-E5) and TP28, TP31, TP32, TP33, TP41, TP42, TP43 and TP44 (Sample locations shown on Figure 2);
- Visual and olfactory observations were noted on field screening sheets. Soil samples were collected using a fresh pair of disposable nitrile loves to prevent cross-contamination. Soil samples were placed in clean, laboratory supplied acid washed glass jars. Samples were stored on ice in a secure cooler while on site and in transit to the analytical laboratories; and
- The soil samples were submitted selectively for laboratory analysis for identified COPC's including Heavy metals (Arsenic, Cadmium, Chromium, Copper, Lead, Mercury, Nickel and Zinc), TRH, BTEX, PAHs, Phenols, OCP/OPP Pesticides and Asbestos in soil (presence/absence).

6.2. Investigation Levels

The screening criteria has been derived on the basis of conservative assumptions relating to land use, receptor behaviour and soil characteristics.

Soil analytical results have been compared against ASC NEPM (2013) health investigation levels (HILs) HIL- A & B 'Residential' and HIL C "open space" criteria based on exposure settings related to the proposed land use.

Discussion of results has also been compared to the ASC NEPM (2013) Health Screening Levels (HSLs) for the same land use setting, (derived from CRC CARE HSLs (CRC CARE, 2011)) for vapour intrusion to provide further evaluation of potential risks to human health resulting from intrusion of hydrocarbon vapours emanating from soil impacts at the site. HSLs have been adopted based on the potential receptors, subsurface lithology and depth from impacts to soil.

To facilitate screening against HILs and HSLs relevant to the site, the following have been included in the soil analytical data table (Table LR1 – Appendix H).

- ASC NEPM (2013) Health Investigation Levels, HIL-A and B, Residential;
- ASC NEPM (2013) Health Investigation Levels, HIL-C, Recreation/Public Open Space;
- ASC NEPM (2013) Soil HSLs for Vapour Intrusion, HSL-A/B Residential, Sand, 0 to <2m; and

The soil screening assessment criteria are for comparative purposes only and should not be regarded as "clean-up" levels.

6.2.1. Adopted Site Assessment Criteria

The site assessment criteria (SAC) adopted for this assessment are included in Table 6-1.

Table 6-1 - Site Assessment Criteria (All concentrations in mg/kg)

Contaminant of Potential Concern	HIL-A	HIL-B	HIL-C	HSL - A/B - 0 to <1m	HSL - A/B 1 to <2m
Arsenic	100	500	300		
Cadmium	20	150	90		
Chromium					
Copper	6000	30000	17000		
Lead	300	1200	600		
Mercury	40	120	80		
Nickel	400	1200	1200		
Zinc	7400	60000	30000		
Aldrin + Dieldrin	6	10	10		
Chlordane	50	90	70		
DDT+DDE+DDD	240	600	400		
Endrin	10	20	20		
Heptachlor	6	10	10		
Hexachlorobenzene	10	15	10		
Methoxychlor	300	500	400		
Toxaphene	20	30	30		
Chlorpyrifos	160	340	250		
Naphthalene				3	
F2-NAPHTHALENE				110	240
C6-C10 less BTEX (F1)				45	70
Benzo(a)pyrene TEQ (medium bound) *	3	4	3		
Naphthalene				3	
Total PAHs	300	400	300		
Pentachlorophenol	100	130	120		
Phenol	3000	45000	40000		
Benzene				0.5	0.5
Ethylbenzene				55	
Toluene				160	220
Xylene Total				40	60

6.3. Asbestos in Soil

The soil investigation levels for the current assessment were established based on the following references:

- NEPC (2013) National Environment Protection (Assessment of Site Contamination) Measure (ASC NEPM 2013); and
- WA Department of Health (2009) Guidelines for the Assessment, Remediation and Management of Asbestos Contaminated Sites in Western Australia.

ASC NEPM (2013) provides assessment criteria for asbestos contaminated sites, which are based on the WA Department of Health (2009) Guidelines. The ASC NEPM Guidelines divide asbestos into three groups:

- Asbestos Containing Material (ACM) '*which is in sound condition although possibly broken or fragmented and the asbestos is bound in a matrix. This is restricted to material that cannot pass through a 7mm x 7mm sieve.'*
- Fibrous asbestos (FA) '*encompasses friable asbestos material such as severely weathered ACM, and asbestos in the form of loose fibrous material such as insulation products.'*
- Asbestos fines (AF) *'It includes free fibres of asbestos, small fibre bundles and also ACM fragments that pass through a 7mm x 7mm sieve.'*

The applicable health screening levels for asbestos contamination in soil are included in Table 6-2.

Table 6-2 - Health Screening Levels for asbestos contamination in soil

	Health Screening Level			
Form of Asbestos	Residential A	Residential B	Recreational C	Commercial/Industrial D
Bonded ACM	0.01%	0.04%	0.02%	0.05%
FA and AF (Friable Asbestos)	0.001%			
All forms of Asbestos	No visible asbestos for surface soils			

6.4. Project Data Quality Objectives

As stated in Section 4 of the *Guidelines for the NSW Site Auditor Scheme 3rd ed.* (NSW EPA. 2017) and ASC NEPM *Schedule B2 Appendix B*, the DQO process is used to "define the type, quantity and quality of data needed to support decisions relating to the environmental condition of a site".

The DQO process adopted for this assessment is provided below:

6.4.1. Step 1: State the Problem

The objectives of the PCA are to:

- Identify/establish potential contamination in soil and groundwater at the site that may be attributable to historical activities on the site and compare to data from 77 sample locations (test pits and hand auger samples) collected in previous investigations;
- Preliminarily assess the suitability if the site for the proposed future residential land use (multi-lot sub-division);
- 16 primary samples were collected from fill soils across the site and compared to data from 77 sample locations previously assessed in other investigations;
- Sample locations (PCA) were based primarily on observations made during the site walkover;

- The soil samples were tested for the following COPC's including Heavy metals (Arsenic, Cadmium, Chromium, Copper, Lead, Mercury, Nickel and Zinc), TRH, BTEX, PAHs, Phenols, OCP/OPP Pesticides and Asbestos in soil (presence/absence).
- Will contamination, if left in place, pose an unacceptable risk to human health or the environment?

6.4.2. Step 2: Identify the Decision

- The potential site contamination is related to historic quarrying activities carried out on site and quarrying and landfill activities carried out at the proposed Hilltop Park location.
- Based on the results there is general compliance with the site assessment criteria for the COPC's assessed with the exception of some exceedances of heavy metal concentrations identified in the historical data set. No exceedances of the SAC were measured in any of the samples collected in the PCA.

6.4.3. Step 3: Identify Inputs to the Decision

The primary inputs to assessing the above include:

- A review of site history information and previous environmental assessments undertaken at the site (Refer to Section 3).
- Laboratories (primary and secondary) are both NATA accredited for the analyses undertaken and the laboratory analytical methods conform to relevant Australian and/or international methods (e.g. USEPA, APHA/AWWA etc).
- Outcome of quality assessment of relevant data (Section **Error! Reference source not found.**).
- Applicable contaminated land guidelines endorsed by NSW EPA and relevant planning guidelines (listed in Section **Error! Reference source not found.**).

6.4.4. Study Boundaries

The study boundaries are defined by the boundaries of the site as shown in Figure 2. Vertically, the site boundary will generally be to approximately 1.2mbgs to characterise the fill across the site.

6.4.5. Decision Rule

The decision rule for soil for each chemical/layer to assess the suitability of the site is as follows:

- QA/QC assessment indicates that the data is usable;
- Where contaminant concentrations for each sample are below the adopted investigation levels, then no further assessment/remediation is required with respect to that chemical/media/area; and
- Where contaminant concentrations are reported to exceed the adopted investigation levels.

6.4.6. Limits of Decision Errors

There are two types of decision errors:

- Sampling errors, which occur when the samples collected are not representative of the conditions within the investigation area; and
- Measurement errors, which occur during sample collection, handling, preparation, analysis and data reduction.

These errors may lead the decision maker to make the following errors:

- Deciding that the site is not contaminated and, therefore, the site is suitable for continued commercial/industrial use when the reverse is true; and
- Deciding that the site is contaminated and, therefore, the site is not suitable for continued commercial/industrial use when the reverse is true.
- The null hypothesis for this study is:

- Contaminant concentrations within the soil and groundwater beneath the site are more than the adopted investigation levels.

An assessment will be made as to the likelihood of a decision error being made based on the results of a QA/QC assessment and the closeness of the data to assessment criteria. Additionally, statistical assessment may be used, where applicable, such as 95% Upper Confidence Limit (UCL) calculations, to manage potential of error in decision making.

7. Analytical Results

Samples were forwarded to NATA accredited laboratories (Eurofins MGT, Oakleigh Victoria (Primary Laboratory) and ALS Environmental, Springvale Victoria (Secondary Laboratory) for the analysis requested. A total of Sixteen (16) Primary samples, including 1 Intra-lab duplicate and 2 inter-lab triplicate samples were collected for field quality assurance/quality control (QA/QC) purposes.

Samples were accompanied by Chain of Custody documentation, received and acknowledged by the laboratories. Soil samples were dispatched on ice and received by the laboratory within recommended holding times.

7.1. QA/QC Results

In order to assess field quality assurance / quality control (QA/QC) procedures, the following field duplicate samples were collected and analysed with the primary samples.

Primary Sample	Field Quality Sample(s)
E3	QC1 (Intra-Lab Duplicate)
TP43 0.2-0.3M	QC2 (Intra-Lab Duplicate (Triplicate))

The relative percentage differences (RPDs) calculated for the contaminants tested were reported within relevant acceptance limit criteria of 50% (acceptable RPD) for the applicable EQL multiplier ranges. The concentrations measured were below 10 times the EQL with many just at or above the EQL.

The laboratory conducted internal quality control using laboratory duplicates, spikes and method blanks. The laboratory internal quality control showed duplicates with laboratory acceptable ranges. The method blank results were recorded below the laboratory limit of reporting and spike recoveries within control limits.

Based on the review of the QA/QC data, it is considered that soil results are likely to be representative of conditions at the sampling locations at the time of sampling and are suitable for use in this site assessment. The results of the QA/QC analysis are provided in Table LR2 (attached).

7.2. Soil Analytical Results

Soil analytical results and comparisons to the relevant screening criteria are presented in Table LR1 (Appendix H). Analytical Laboratory reports and chain of custody (COC) documentation with analysis requests are provided in Appendix I. Concentrations of the COPC's, in each sample tested, were measured below the relevant (NEPM 2013) HIL/HSL A/B 'Residential' and HIL C 'Recreational/Public Open Space' Guidelines.

PCA data has been compared against historical data collected in previous assessments at the Site. This, in order to establish with greater certainty, the status of fill contamination at the Site (Section 7.4).

7.3. Asbestos in soil results

The analytical Laboratory Reports are included in Appendix I, and the results are summarised in Table LR1 shown in Appendix H. The presence of asbestos (as bonded ASM, AF or FA) was not recorded in the (16) sixteen samples analysed. No respirable fibres were recorded in the laboratory samples analysed.

7.4. Previous Data - Stage 2 ESA (GEOTKARI02021AA-A)

Coffey has previously undertaken a field investigation for Wyong Shire Council for the proposed Warnervale Town Centre in March 2008 - Stage 2 Environmental Site Assessment Report (ref GEOTKARI02021AA-AI).

Data from a total of 77 sample locations throughout the site have been included for comparison with the current data set generated from samples collected in this PCA. Combined sample locations are shown in Figure 3.

Analysis of the data showed that concentrations were measured below the adopted investigation levels for TRH, BTEX, PAH, OCP and PCB in the samples analysed. Heavy metals were typically recorded below the adopted SAC at most sample locations with the exception of HA21, HA23 and HA24 where concentrations of lead were found to exceed the HIL A criteria and HA21, HA23 and HA24 with HA24 also exceeding the HIL C open space criteria. It is of note that the samples were collected from the dense bushland in Lots 54 DP7527 and Lot 55 DP7527. These areas are not slated for development and will be part of a retained riparian corridor.

8. Discussion

The results of the assessments to date show the primary risk of potential contamination to be related to the historical dumping of rubbish throughout the site including identification of bonded asbestos on the surface of the soil during this PCA. The presence of surface asbestos fragments was also observed during Coffey's work in 2013 and formed the basis for the recommendation of the inclusion of an unexpected finds protocol to guide future works. The extent of the presence of asbestos fragments is currently unknown at this time.

From the investigations carried out in the past and more recently, samples of fill taken from areas outside of the former quarry/landfill did not show evidence of the presence of friable asbestos in soil. Bonded asbestos fragments were identified on the surface of soil in various locations during the current site walkover.

Given the extensive vegetation cover present on the Site it is possible that bonded asbestos is present in other subsurface fill areas, particularly those that may have been accessible in the past when the vegetation was cleared for quarrying activities and also available for illegal dumping activities.

Future excavation undertaken as part of the site preparation activities/bulk earthworks will need to proceed with an unexpected finds protocol and an asbestos management plan in place to manage contaminated finds and also manage asbestos should this be encountered. These unexpected finds will most likely occur in areas currently covered by dense bushland which may in the past have been accessible and used as part of the historic quarrying activities or used for illegal dumping activities.

The landfill gas risk to lots in close proximity to the boundary of the proposed Hilltop Park (repurposed former quarry/landfill) will need to be assessed following the completion of capping remediation works currently being carried out at the former quarry/landfill. These include lots adjacent to the east and north-east boundaries and lots adjacent to the south-east and southern boundaries of the former landfill. Following capping, it is recommended that a surface and sub-surface assessment of landfill gas be carried out on the Lots close to the quarry boundary (50-100m) as previously identified. The potential for landfill gas to migrate laterally following the completion of capping must be assessed following the expected reduction in vertical migration of gas through the capped surface. It may be prudent for the developer to obtain validation from Council on the effectiveness of the capping and that lateral migration will not impact the lots to be developed close to the boundary of the former quarry/landfill.

9. Conclusions and recommendations

Colliers International Project Management (Colliers) engaged Coffey Services Australia Pty Ltd (Coffey) to carry out a Preliminary Contamination Assessment (PCA) for Stages 6-10 of the proposed Warnervale Town Centre development located at 111 Sparks Road, Woongarrah NSW. The proposed residential sub-division is positioned within land parcels (Lot, 1 DP 376264, Lot 41 DP 1200210, Lot 51 DP 561032, Lot 52 DP 561032, Lot 54 DP7527 and Lot 55 DP7527.

The objectives of the PCA were to:

- Identify evidence of potentially contaminating activities that may be currently occurring or has historically occurred on the site;
- Identify and assess Areas of Environmental Concern (AEC's) and Chemicals of Potential Concern (COPC's) for the site, and develop a preliminary conceptual site model if required; and
- Provide recommendations for further assessment and or management, as required.

A review of historical aerial photographs for the site indicated that portions of the site had previously been used for quarrying activities along with rural residential occupancy. Significant areas of the Site have been and remain uncleared forest with dense tree and grass coverage. Rural residential dwellings were observed in the south-eastern portion of the site constructed sometime between 1965 and 1976. The rural residential buildings were demolished during the period 1996 - 2004.

The desk study and site history review also showed:

- The site was not listed on the NSW EPA Contaminated Land Register or POEO public register.
- The risk associated with nearby properties identified on the NSW EPA Contaminated Land Register or POEO public register was considered to be low.
- The site was not identified within an area of potential acid sulfate soils.
- The following areas of environmental concern were identified;
    - Illegal dumping activities across the Site and proximity to a former quarry/landfill site (across Lot 1 DP376264 and Lot 54 DP7527;
    - Weathering of potential hazardous building materials from former building structures; and
    - Potential landfill gas impact from the landfill/quarry located adjacent to the north east boundary of the site.

The site history investigation undertaken for the site identified known or possible historical contaminating activities at or near the site. These included the quarry/landfilling operation immediately to the north, potential illegal dumping and importation of fill of unknown origin onto site, weathering of hazardous building materials surrounding former residence footprint and small-scale pesticide application.

No significant subsurface fill contamination has been identified in samples collected from areas of the Site slated for future redevelopment into sub-divided Lots. Some exceedances of the lead SAC were identified historically in samples collected from the portion of the site to be retained as a riparian corridor.

Fragments of bonded asbestos were identified in various locations during the site walkover. None of the fill samples taken during this current assessment and in the samples collected historically from areas of the Site not associated with the former quarry/landfill, have shown the presence of asbestos. Future excavation works including bulk earthworks for site levelling and the installation of services should be guided by an Unexpected Finds Protocol (UFP) and Asbestos Management Plan (AMP) included as part of the Construction Environmental Management Plan (CEMP).

Landfill gases have been confirmed within the soils associated with the former quarry/landfill, an area which is currently undergoing remediation (capping and the installation of landfill gas mitigation measures). The potential for lateral migration of landfill gas following the completion of capping should be assessed, either by Council (given their retention of the former quarry/landfill) or by the

developer, to obtain assurance that the Lots to be developed in proximity to the former quarry/landfill boundary will not be impacted. The assessment should take the form of landfill gas monitoring bores placed along the boundary in proximity to the proposed Lots followed by a medium term (one year minimum) period of monitoring.

Important information about your **Coffey** Environmental Report

Introduction

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

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

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

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

Your report has been written for a specific purpose

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

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

Limitations of the Report

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

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

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

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

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

Interpretation of factual data

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

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

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

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

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

Recommendations in this report

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

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

Report for benefit of client

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

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

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

Interpretation by other professionals

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

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

Data should not be separated from the report

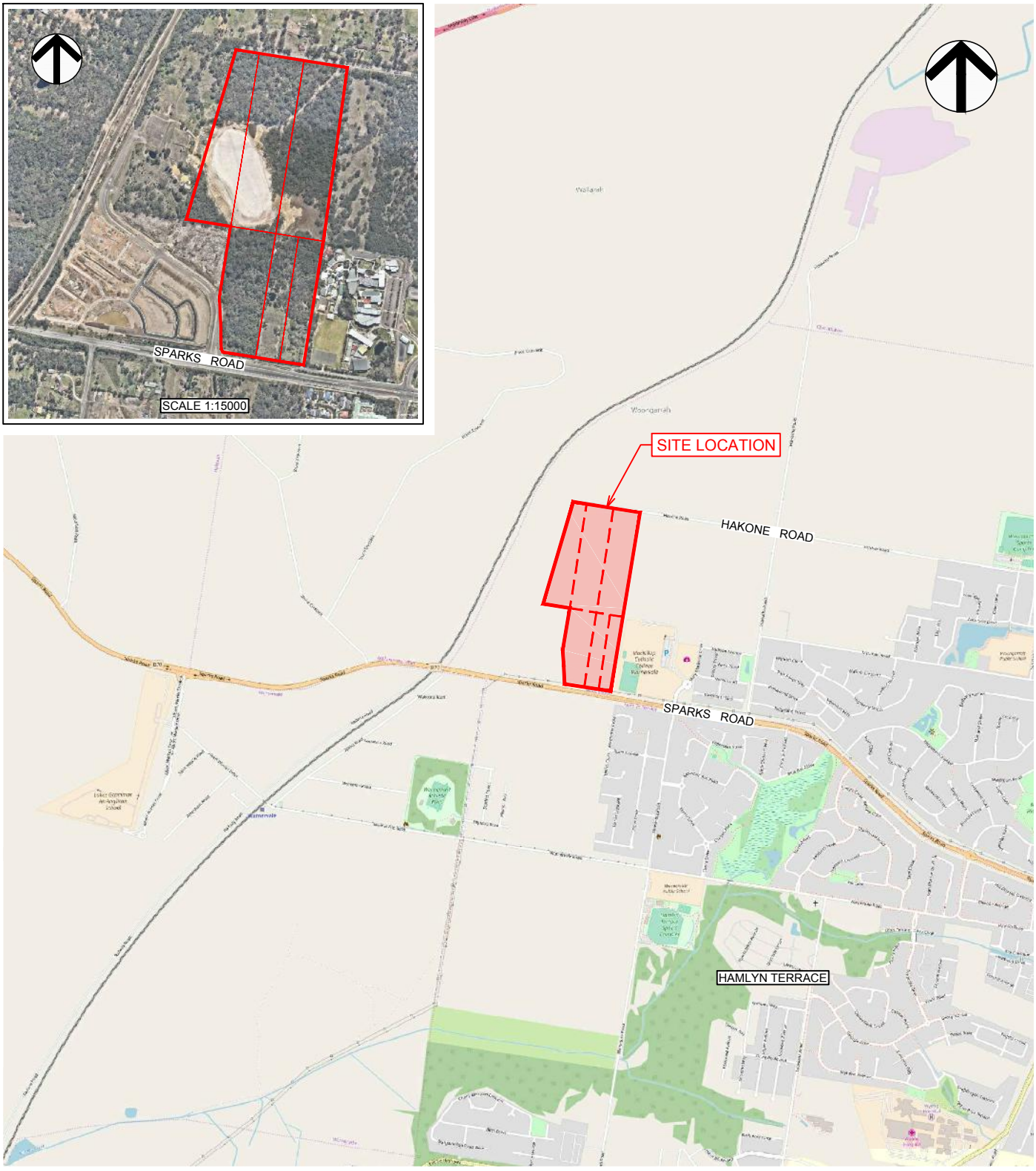
The report as a whole presents the findings of the site assessment and the report should not be copied in part or altered in any way. Logs, figures, laboratory data, drawings, etc. are customarily included in our reports and are developed by scientists or engineers based on their interpretation of field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

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

Responsibility

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

FIGURES



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

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coffey
A TETRA TECH COMPANY

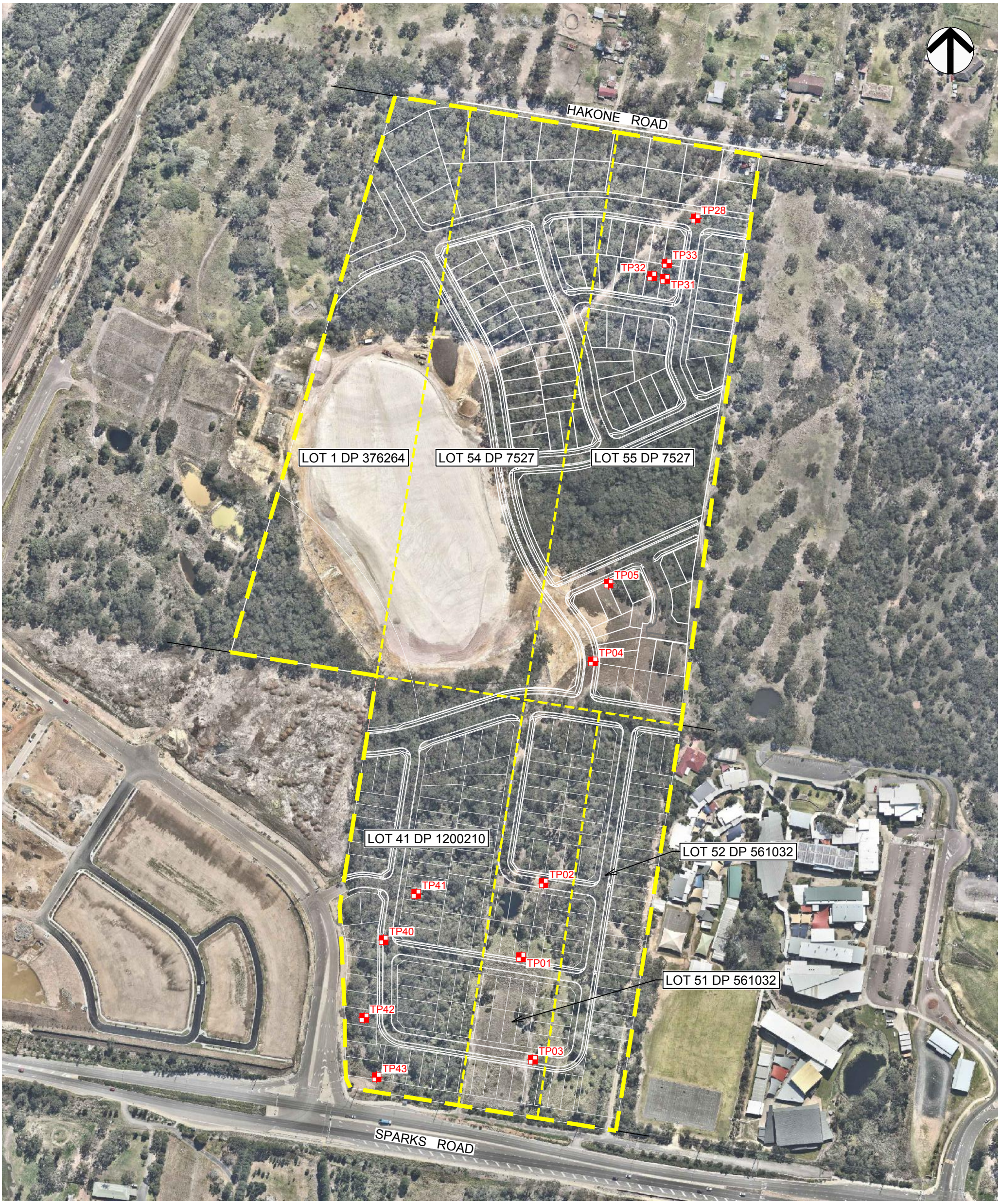
client: LIRUN DEVELOPMENTS PTY LTD
C/- COLLIERS INTERNATIONAL PROJECT MANAGEMENT

project: PRELIMINARY CONTAMINATION ASSESSMENT
111-113 SPARKS ROAD, WOONGARRAH, NSW

title: SITE LOCATION PLAN

project no: 754-NTLGE216908-AG-AA | figure no: FIGURE 1 | rev: A

PLOT DATE: 18/01/2019 3:07:21 PM DWG FILE: F:\1. PROJECTS\4. SYD-GEOTECHNICS\OTHER OFFICES\NTL-GE\NTLGE216908\CAD\754-NTLGE216908-AG-AA.DWG



revision	no.	description	drawn	approved	date
	A	ORIGINAL ISSUE			

LEGEND

SITE BOUNDARY

ENVIRONMENTAL TEST PIT LOCATION - 2018

50 0 50 100 150

Scale (metres) 1:3000

SOURCE: CLIENT - NEARMAP IMAGE - 22/09/2018

drawn	SB / AW
approved	PW
date	18 / 01 / 19
scale	AS SHOWN
original size	A3

coffey
A TETRA TECH COMPANY

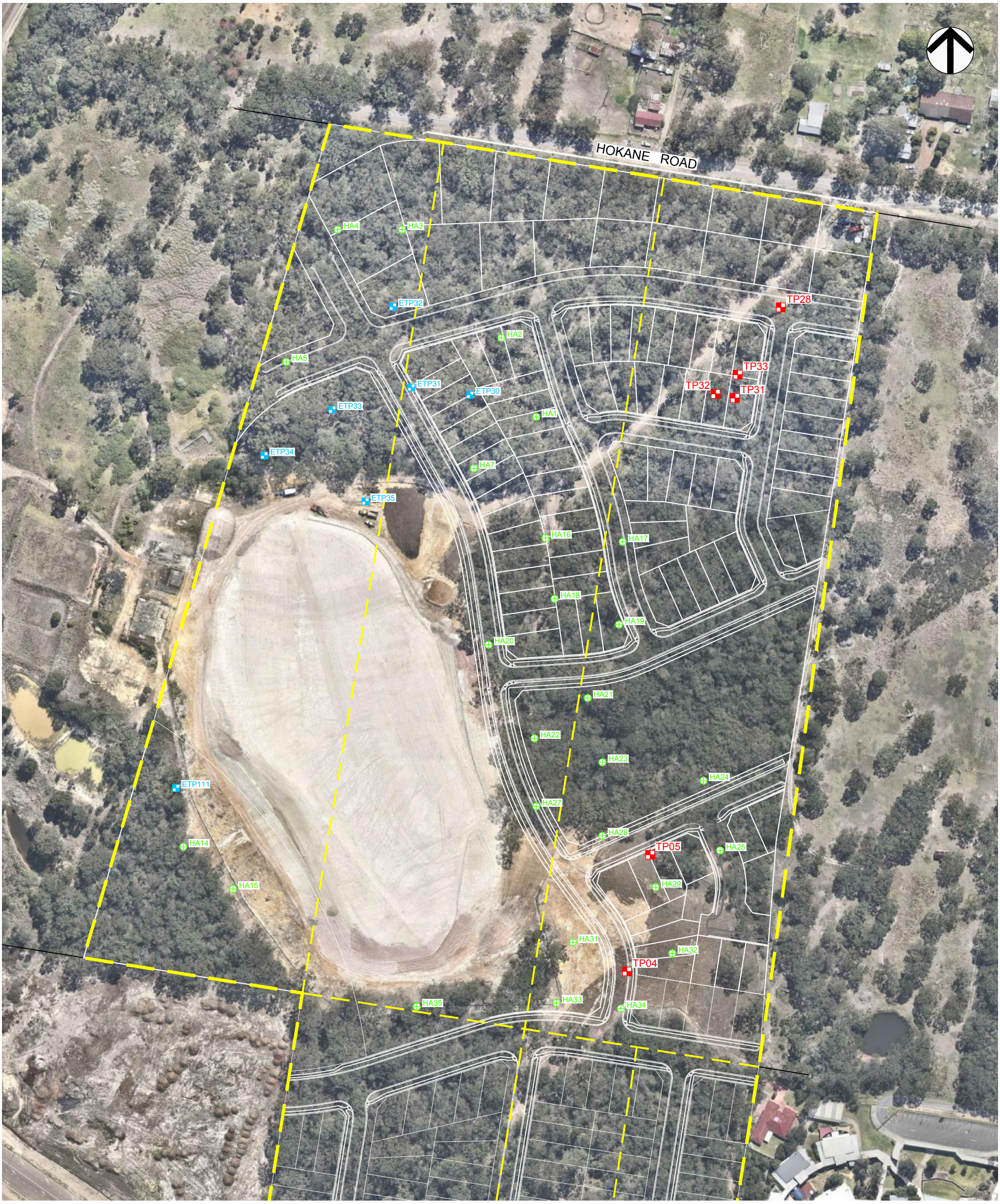
client: LIRUN DEVELOPMENTS PTY LTD

project: PRELIMINARY CONTAMINATION ASSESSMENT
111-113 SPARKS ROAD, WOONGARRAH, NSW

title: LOT IDENTIFICATION PLAN

project no: 754-NTLGE216908-AG-AA | figure no: FIGURE 2 | rev: A

PLOT DATE: 18/01/2019 3:40:14 PM DWG FILE: F:\1. PROJECTS\4. SYD-GEOTECHNICS\OTHER OFFICES\NTL-GE\NTLGE216908\CAD\754-NTLGE216908-AG-AA.DWG



revision	no.	description	drawn	approved	date
	A	ORIGINAL ISSUE			

LEGEND

- SITE BOUNDARY
- ENVIRONMENTAL TEST PIT LOCATION - 2018
- ENVIRONMENTAL TEST PIT LOCATION - 2007
- ENVIRONMENTAL HAND AUGER LOCATION - 2007

20 0 20 40 60 80 100

Scale (metres) 1:2000

SOURCE: CLIENT - NEARMAP IMAGE - 22/09/2018

drawn	SB / AW
approved	PW
date	18 / 01 / 19
scale	AS SHOWN
original size	A3

coffey
A TETRA TECH COMPANY

client: LIRUN DEVELOPMENTS PTY LTD

project: PRELIMINARY CONTAMINATION ASSESSMENT
111-113 SPARKS ROAD, WOONGARRAH, NSW

title: SAMPLE LOCATION PLAN - NORTHERN LOTS

project no: 754-NTLGE216908-AG-AA | figure no: FIGURE 3 | rev: A

PLOT DATE: 18/01/2019 3:39:53 PM DWG FILE: F:\1. PROJECTS\4. SYD-GEOTECHNICS\OTHER OFFICES\NTL-GEN\TLGE216908\CAD\754-NTLGE216908-AG-AA.DWG

revision	no.	description	drawn	approved	date
	A	ORIGINAL ISSUE			

LEGEND

- SITE BOUNDARY
- ENVIRONMENTAL TEST PIT LOCATION - 2018
- ENVIRONMENTAL TEST PIT LOCATION - 2007

10 0 20 40 60

Scale (metres) 1:1250

SOURCE: CLIENT - NEARMAP IMAGE - 22/09/2018

drawn	SB / AW
approved	PW
date	18 / 01 / 19
scale	AS SHOWN
original size	A3

coffey
A TETRA TECH COMPANY

client: LIRUN DEVELOPMENTS PTY LTD

project: PRELIMINARY CONTAMINATION ASSESSMENT
111-113 SPARKS ROAD, WOONGARRAH, NSW

title: SAMPLE LOCATION PLAN - SOUTHERN LOTS

project no: 754-NTLGE216908-AG-AA | figure no: FIGURE 4 | rev: A

PLOT DATE: 18/01/2019 3:25:54 PM DWG FILE: F:\1. PROJECTS\4. SYD-GEOTECHNICS\OTHER OFFICES\NTL-GE\NTLGE216908\CAD\754-NTLGE216908-AG-AA.DWG

Appendix A - Historical Title Search

ADVANCE LEGAL SEARCHERS PTY LTD

(ACN 147 943 842)
ABN 82 147 943 842

18/36 Osborne Road,
Manly NSW 2095

Telephone: +612 9977 6713
Mobile: 0412 169 809
Email: search@alsearchers.com.au

03rd December 2018

COFFEY ENVIRONMENTS PTY LTD
19 Warabrook Boulevard,
WARABROOK NSW 2304

Attention: Sean Blackford

RE: **99 – 107 Sparks Road & 236 – 260 Hakone Road, Woongarrah**
Purchase Order: WARA18-1319
Job Number 754-NTLGE216908

Note 1:	**Lot 41**	**DP 1200210**	(page 1)
Note 2:	**Lot 51**	**DP 561032**	(page 3)
Note 3:	**Lot 52**	**DP 561032**	(page 5)
Note 4:	**Lots 54 & 55**	**DP 7527**	(page 7)
	Lot 1	**DP 376264**	

Note 1:

Current Search

Folio Identifier 41/1200210 (title attached)
DP 1200210 (plan attached)
Dated 30th November 2018
Registered Proprietor:
WYONG SHIRE COUNCIL

Title Tree
Lot 41 DP 1200210

Folio Identifier 41/1200210

Folio Identifier 4/7738

Certificate of Title Volume 3468 Folio 155

Certificate of Title Volume 2878 Folio 191

****

Summary of proprietor(s)
Lot 41 DP 1200210

Year	Proprietor(s)
	(**Lot 41 DP 1200210)**
2014 – todate	Wyong Shire Council
	(Lot 4 DP 7738)
2002 – 2014	Wyong Shire Council
1990 – 2002	Ellen Lell, manufacturer
	(Lot 4 DP 7738 – Area 10 Acres – CTVol 3468 Fol 155)
1959 – 1990	Ellen Lell, manufacturer
1958 – 1959	Public Trustee
1923 – 1958	Joseph Wilfred Fisher, farmer
	(Portions 39 & 41 Parish Munmorah and other land – Area 3498 Acres 3 Roods 23 ½ Perches – CTVol 2878 Fol 191)
1918 – 1923	Albert Hamlyn Warner, esquire

****

Note 2:

Current Search

Folio Identifier 51/561032 (title attached)
DP 561032 (plan attached)
Dated 30th November 2018
Registered Proprietor:
WYONG SHIRE COUNCIL

Title Tree
Lot 51 DP 561032

Folio Identifier 51/561032

Certificate of Title Volume 8658 Folio's 102 & 103

Certificate of Title Volume 8656 Folio's 74 & 75

Folio Identifier 51/561032

Certificate of Title Volume 12093 Folio 109

Certificate of Title Volume 2926 Folio 2

****

Summary of proprietor(s)
Lot 51 DP 561032

Year	Proprietor(s)
	(**Lot 51 DP 561032)**
2004 – todate	Wyong Shire Council
	(Lot 51 DP 561032 – CTVol 8658 Fol's 102 & 103)
2004 – 2004	Wyong Shire Council
2002 – 2004	Austin John Woodbury Florita Woodbury Cornelius Michael Richard Woodbury James Malachy Woodbury
	(Lot 51 DP 561032 – CTVol 8656 Fol's 74 & 75)
2002 – 2002	Austin John Woodbury Florita Woodbury Cornelius Michael Richard Woodbury James Malachy Woodbury
2000 – 2002	Austin John Woodbury Florita Woodbury Cornelius Michael Richard Woodbury James Malachy Woodbury
	(Lot 51 DP 561032)
1995 – 2000	Austin John Woodbury Florita Woodbury Cornelius Michael Richard Woodbury James Malachy Woodbury
1988 – 1995	Austin John Woodbury
	(Lot 51 DP 561032 – CTVol 12093 Fol 109)
1987 – 1988	Austin John Woodbury
1973 – 1987	George Alfred Alexander Gannon, carpenter Leslie Mary Frances Gannon, his wife
1973 – 1973	Mabel Hayden, married woman
	(Lot 5 DP 7738 – Area 10 Acres – CTVol 2926 Fol 2)
1962 – 1973	Mabel Hayden, married woman
1960 – 1962	Helene Busch, spinster
1934 – 1960	Olga Vali, wife of Yolendar Vali, electrician
1920 – 1934	William Martin Elliott, builder
1919 – 1920	Robert Moorhead, draper

****

Note 3:

Current Search

Folio Identifier 52/561032 (title attached)
DP 561032 (plan attached)
Dated 30th November 2018
Registered Proprietor:
WYONG SHIRE COUNCIL

Title Tree
Lot 52 DP 561032

Folio Identifier 52/561032

Certificate of Title Volume 12093 Folio 110

Certificate of Title Volume 2926 Folio 2

****

Summary of proprietor(s)
Lot 52 DP 561032

Year	Proprietor(s)
	(**Lot 52 DP 561032)**
2003 – todate	Wyong Shire Council
1995 – 2003	Barry Richard Young
1995 – 1995	John Dixon Cummins
1988 – 1995	Alice Doreen Cummins, married woman
	(Lot 52 DP 561032 – CTVol 12093 Fol 110)
1979 – 1988	Alice Doreen Cummins, married woman
1974 – 1979	Rodney James Hayden, contract painter Lynette Patricia Hayden, his wife
1973 – 1973	Mabel Hayden, married woman
	(Lot 5 DP 7738 – Area 10 Acres – CTVol 2926 Fol 2)
1962 – 1973	Mabel Hayden, married woman
1960 – 1962	Helene Busch, spinster
1934 – 1960	Olga Vali, wife of Yolendar Vali, electrician
1920 – 1934	William Martin Elliott, builder
1919 – 1920	Robert Moorhead, draper

****

Note 4:

Current Search

Folio Identifier Auto Consol 6494-179 (title attached)
Lots 54 & 55 DP 7527 & Lot 1 DP 376264 (plan's attached)
Dated 30th November 2018
Registered Proprietor:
THE COUNCIL OF THE SHIRE OF WYONG

Title Tree
Lots 54 & 55 DP 7527 & Lot 1 DP 376264

Folio Identifier Auto Consol 6494-179

Certificate of Title Volume 6494 Folio 179

Certificate of Title Volume 6189 Folio 181

Certificate of Title Volume 5563 Folio 71

Certificate of Title Volume 2878 Folio 191

****

Summary of proprietor(s)
Lots 54 & 55 DP 7527 & Lot 1 DP 376264

Year	Proprietor(s)
	(**Lot 54 & 55 DP 7527 & Lot 1 DP 376264 – A/C 6494-179)**
1990 – todate	The Council of the Shire of Wyong
	(Lot 54 & 55 DP 7527 & Lot 1 DP 376264 – Area 38 Acres 2 Roods – CTVol 6494 Fol 179)
1952 – 1990	The Council of the Shire of Wyong
	(Part Portions 39 & 41 Parish Munmorah and other land – Area 675 Acres 2 Roods 12 Perches – CTVol 6189 Fol 181)
1950 – 1952	Jerrabombera Limited
	(Portions 39 & 41 Parish Munmorah and other land – Area 1870 Acres 2 Roods 1 Perch – CTVol 5563 Fol 71)
1946 – 1950	Albert Hamlyn Warner, esquire
	(Portions 39 & 41 Parish Munmorah and other land – Area 3498 Acres 3 Roods 23 ½ Perches – CTVol 2878 Fol 191)
1918 – 1946	Albert Hamlyn Warner, esquire

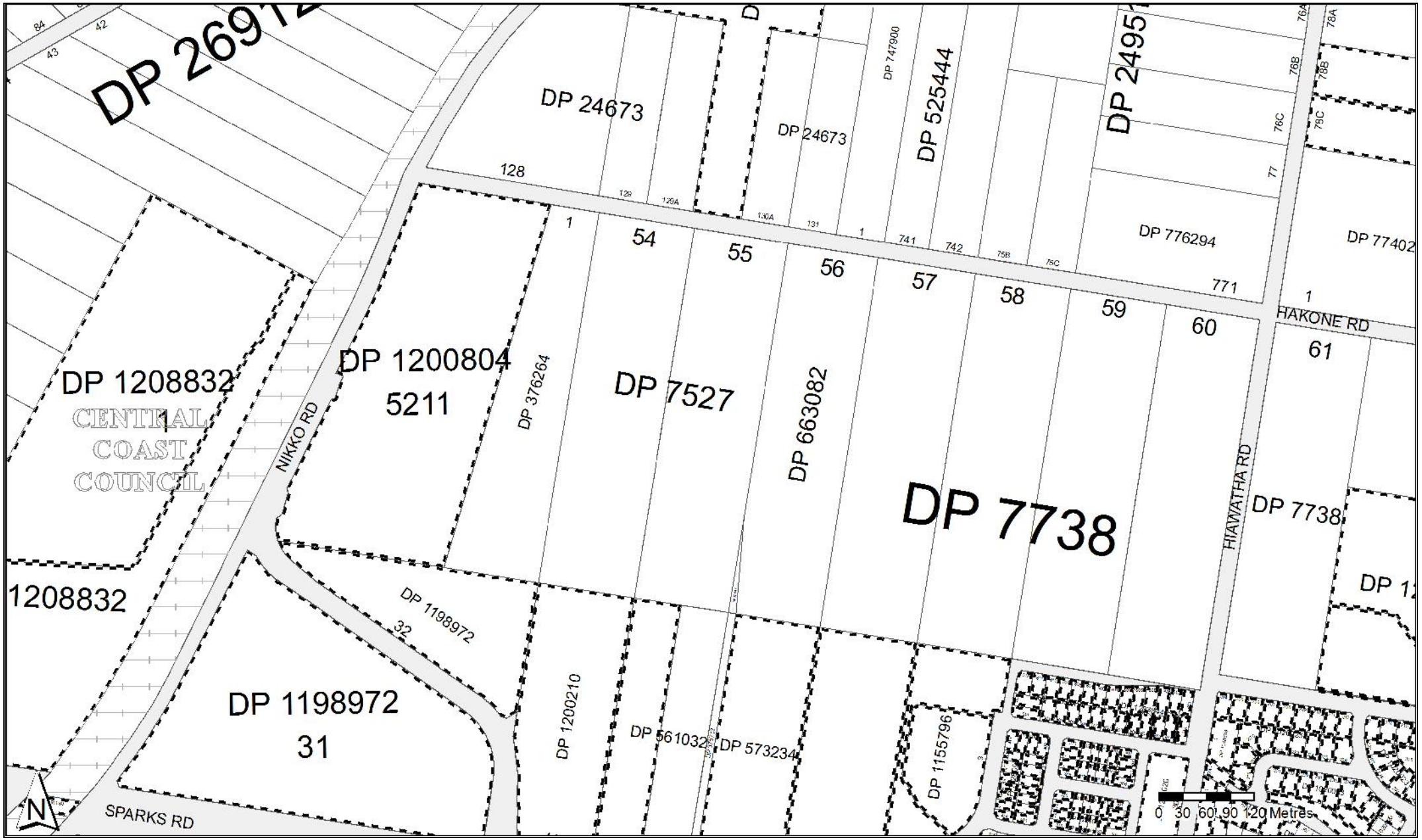
****

LAND REGISTRY SERVICES

Cadastral Records Enquiry Report : Lot 55 DP 7527

Ref : NOUSER

Locality : WOONGARRAH
Parish : MUNMORAH
LGA : CENTRAL COAST
County : NORTHUMBERLAND



This information is provided as a searching aid only.Whilst every endeavour is made to ensure that current map, plan and titling information is accurately reflected, the Registrar General cannot guarantee the information provided. For ALL ACTIVITY PRIOR TO SEPTEMBER 2002 you must refer to the RGs Charting and Reference Maps

	Status	Surv/Comp	Purpose
DP7738			
Lot(s): 7			
DP1057484	REGISTERED	SURVEY	LEASE
DP1155796	REGISTERED	SURVEY	SUBDIVISION
DP24951			
Lot(s): 78B, 78C			
DP1129529	REGISTERED	COMPILATION	EASEMENT
DP561032			
Lot(s): 51			
NSW GAZ. 11-06-2004 Folio : 3719			
LOT 51 DP561032 ACQUIRED FOR THE PURPOSES OF AN AQUATIC CENTRE AND CAR PARK (EXCLUDING MINERALS)			
DP573234			
Lot(s): 16			
DP1155796	REGISTERED	SURVEY	SUBDIVISION
DP1013610			
Lot(s): 139, 140			
DP7738	HISTORICAL	SURVEY	UNRESEARCHED
DP1020020			
Lot(s): 301, 302, 303, 304, 305, 306, 315, 316, 317, 318, 319, 341			
DP7738	HISTORICAL	SURVEY	UNRESEARCHED
DP1013610	HISTORICAL	SURVEY	SUBDIVISION
DP1020023			
Lot(s): 204, 205, 206, 207, 208, 209, 210, 211, 212, 213, 214, 215, 216, 217, 218, 219, 220, 221, 222, 223, 224, 225, 226, 227, 228, 229, 230, 231, 232, 233, 234, 235, 236, 237, 238, 239, 241			
DP7738	HISTORICAL	SURVEY	UNRESEARCHED
DP1013610	HISTORICAL	SURVEY	SUBDIVISION
DP1020020	HISTORICAL	SURVEY	SUBDIVISION
DP1048698			
Lot(s): 1			
DP7738	HISTORICAL	SURVEY	UNRESEARCHED
DP1013610	HISTORICAL	SURVEY	SUBDIVISION
DP1020020	HISTORICAL	SURVEY	SUBDIVISION
DP1020023	HISTORICAL	SURVEY	SUBDIVISION
DP1155796			
Lot(s): 2, 3			
DP7738	HISTORICAL	SURVEY	UNRESEARCHED
DP1191189			
Lot(s): 2			
CA170156 - LOT 2 DP1191189			
DP1198972			
Lot(s): 31			
DP1249368	PRE-ALLOCATED	UNAVAILABLE	SUBDIVISION
Lot(s): 31, 32, 33			
DP7738	HISTORICAL	SURVEY	UNRESEARCHED
DP700096	HISTORICAL	COMPILATION	CONSOLIDATION
DP1197341	HISTORICAL	SURVEY	CONSOLIDATION
DP1200210			
Lot(s): 41			
DP7738	HISTORICAL	SURVEY	UNRESEARCHED
DP1200804			
Lot(s): 5211			
DP594725	HISTORICAL	COMPILATION	CONSOLIDATION
DP1201769			
Lot(s): 1, 2, 3			
DP456250	HISTORICAL	COMPILATION	DEPARTMENTAL
Lot(s): 1			
SP90626	PRE-ALLOCATED	UNAVAILABLE	STRATA PLAN
DP1205234			
Lot(s): 1			
DP24673	HISTORICAL	SURVEY	UNRESEARCHED

	Status	Surv/Comp	Purpose
DP1208832			
Lot(s): 1, 2			
DP357408	HISTORICAL	SURVEY	UNRESEARCHED
DP1226020			
Lot(s): 300, 302, 303, 304, 305, 306, 307, 308, 309, 310, 311, 312, 313, 314, 315, 316, 317, 318, 319, 320, 321, 322, 323, 324, 325, 326, 327, 328, 329, 330, 331, 332			
DP7738	HISTORICAL	SURVEY	UNRESEARCHED
DP1219710	HISTORICAL	SURVEY	SUBDIVISION
DP1219711	HISTORICAL	SURVEY	SUBDIVISION
DP1228098			
Lot(s): 401, 402, 403, 404, 405, 406, 407, 408, 409, 410, 411, 412, 413, 414, 415, 416, 417, 418			
DP7738	HISTORICAL	SURVEY	UNRESEARCHED
DP1219710	HISTORICAL	SURVEY	SUBDIVISION
DP1219711	HISTORICAL	SURVEY	SUBDIVISION
DP1226020	HISTORICAL	SURVEY	SUBDIVISION
DP1233842			
Lot(s): 501, 502, 503, 504, 505, 506, 507, 508, 509, 510, 511, 512, 513, 514			
DP7738	HISTORICAL	SURVEY	UNRESEARCHED
DP1219710	HISTORICAL	SURVEY	SUBDIVISION
DP1219711	HISTORICAL	SURVEY	SUBDIVISION
DP1226020	HISTORICAL	SURVEY	SUBDIVISION
DP1228098	HISTORICAL	SURVEY	SUBDIVISION
DP1233844			
Lot(s): 601, 602, 603, 604, 605, 606, 607, 608, 609, 610, 611, 612, 613, 614			
DP7738	HISTORICAL	SURVEY	UNRESEARCHED
DP1219710	HISTORICAL	SURVEY	SUBDIVISION
DP1219711	HISTORICAL	SURVEY	SUBDIVISION
DP1226020	HISTORICAL	SURVEY	SUBDIVISION
DP1228098	HISTORICAL	SURVEY	SUBDIVISION
DP1233842	HISTORICAL	SURVEY	SUBDIVISION

Plan	Surv/Comp	Purpose
DP7527	SURVEY	UNRESEARCHED
DP7738	SURVEY	UNRESEARCHED
DP24673	SURVEY	UNRESEARCHED
DP24951	SURVEY	UNRESEARCHED
DP26912	SURVEY	UNRESEARCHED
DP120905	COMPILATION	DEPARTMENTAL
DP371647	COMPILATION	UNRESEARCHED
DP375712	COMPILATION	UNRESEARCHED
DP376264	SURVEY	UNRESEARCHED
DP525444	SURVEY	SUBDIVISION
DP555962	COMPILATION	ROAD OR MOTORWAY
DP561032	SURVEY	SUBDIVISION
DP573234	COMPILATION	DEPARTMENTAL
DP608018	COMPILATION	CONSOLIDATION
DP663082	COMPILATION	DEPARTMENTAL
DP747900	COMPILATION	SUBDIVISION
DP749210	COMPILATION	SUBDIVISION
DP774021	COMPILATION	CONSOLIDATION
DP774496	SURVEY	SUBDIVISION
DP776294	COMPILATION	CONSOLIDATION
DP1013610	SURVEY	SUBDIVISION
DP1013610	SURVEY	SUBDIVISION
DP1020020	SURVEY	SUBDIVISION
DP1020020	SURVEY	SUBDIVISION
DP1020023	SURVEY	SUBDIVISION
DP1020023	SURVEY	SUBDIVISION
DP1048698	COMPILATION	CONSOLIDATION
DP1155796	SURVEY	SUBDIVISION
DP1155796	SURVEY	SUBDIVISION
DP1155796	UNRESEARCHED	SUBDIVISION
DP1188061	COMPILATION	DEPARTMENTAL
DP1191189	COMPILATION	LIMITED FOLIO CREATION
DP1198972	SURVEY	SUBDIVISION
DP1200210	SURVEY	SUBDIVISION
DP1200804	SURVEY	ROAD OR MOTORWAY
DP1201769	UNRESEARCHED	SUBDIVISION
DP1201769	SURVEY	SUBDIVISION
DP1205234	COMPILATION	CONSOLIDATION
DP1208832	SURVEY	SUBDIVISION
DP1226020	SURVEY	SUBDIVISION
DP1226020	UNRESEARCHED	SUBDIVISION
DP1228098	SURVEY	SUBDIVISION
DP1233842	UNRESEARCHED	SUBDIVISION
DP1233842	SURVEY	SUBDIVISION
DP1233844	SURVEY	SUBDIVISION
DP1233844	UNRESEARCHED	SUBDIVISION

CERTIFICATE OF TIT

NEW SOUTH WALES

REAL PROPERTY ACT, 1900

08656074

Vol. 8656 Fol. 74

EDITION ISSUED

03 May 2000

CANCELLED(W)

I certify that the person named in the First Schedule is the registered proprietor of an estate in fee simple (or such other estate or interest as is set out below) in the land described subject to the recordings appearing in the Second Schedule and to the provisions of the Real Property Act, 1900.

David Mulcahy
Registrar General.

8656 Fol. 74

(Page 1) Vol.

FIRST TITLE: VOL 256 FOL 229

PRIOR TITLE: 51/561032

LAND REFERRED TO

14991/21441 SHARE IN LOT 51 IN DP561032 AT WARNERVALE IN THE LOCAL GOVERNMENT AREA OF WYONG PARISH OF MUNMORAH COUNTY OF NORTHUMBERLAND

TITLE DIAGRAM: DP561032

FIRST SCHEDULE

~~AUSTIN JOHN WOODBURY AND FLORITA WOODBURY AS JOINT TENANTS~~

SECOND SCHEDULE

1. RESERVATIONS AND CONDITIONS IN THE CROWN GRANT
2. A449766 LAND EXCLUDES MINERALS AND IS SUBJECT TO RIGHTS TO MINE

Vol 8656 Fol 74

PROUDLY PRINTED IN AUSTRALIA L.O. 55

FIRST SCHEDULE (continued)

REGISTERED PROPRIETOR	Registrar General
Austin John Woodbury and Florita Woodbury as joint tenants in ~~3225/21441~~ 8541/21441 share and Cornelius Michael Richard Woodbury in ~~3225/21441~~ 3225/21441 share and James Malachy Woodbury in ~~3225/21441~~ 3225/21441 share as tenants in common by Transfer 8454431. Registered 22-4-2002.	

VOL 8658 FOL 102
VOL 8658 FOL 103

FOLIO CANCELLED

SECOND SCHEDULE (continued)

PARTICULARS	Registrar General	CANCELLATION

NOTATIONS AND UNREGISTERED DEALINGS

8454431 T 32 R		

NOTE: ENTRIES RULED THROUGH AND AUTHENTICATED BY THE SEAL OF THE REGISTRAR GENERAL ARE CANCELLED

CERTIFICATE OF TITL

NEW SOUTH WALES

REAL PROPERTY ACT, 1900

08656075

VOL. FOL.

EDITION ISSUED

03 May 2000

CANCELLED (W)

I certify that the person named in the First Schedule is the registered proprietor of an estate in fee simple (or such other estate or interest as is set out below) in the land described subject to the recordings appearing in the Second Schedule and to the provisions of the Real Property Act, 1900.

David Mulcahy
Registrar General.

FIRST TITLE: VOL 256 FOL 229

PRIOR TITLE: 51/561032

LAND REFERRED TO

6450/21441 SHARE IN LOT 51 IN DP561032 AT WARNERVALE IN THE LOCAL GOVERNMENT AREA OF WYONG PARISH OF MUNMORAH COUNTY OF NORTHUMBERLAND

TITLE DIAGRAM: DP561032

FIRST SCHEDULE

CORNELIUS MICHAEL RICHARD WOODBURY AND JAMES MALACHY WOODBURY AS TENANTS IN COMMON IN EQUAL SHARES

SECOND SCHEDULE

1. RESERVATIONS AND CONDITIONS IN THE CROWN GRANT
2. A449766 LAND EXCLUDES MINERALS AND IS SUBJECT TO RIGHTS TO MINE

Vol 8656 Fol 75

APPROVED PRINTED IN AUSTRALIA
L.O. 55

FIRST SCHEDULE (continued)

REGISTERED PROPRIETOR | Registrar General

FOLIO CANCELLED - NEW FOLIO IS Volume 8658 Folio 103

SECOND SCHEDULE (continued)

PARTICULARS | Registrar General | CANCELLATION

NOTATIONS AND UNREGISTERED DEALINGS

NOTE: ENTRIES RULED THROUGH AND AUTHENTICATED BY THE SEAL OF THE REGISTRAR GENERAL ARE CANCELLED

NEW SOUTH WALES

CERTIFICATE OF TITLE

REAL PROPERTY ACT, 1900

CT08658-102

VOL 8658 FOL.102

EDITION ISSUED
1 MAY 2002

CANCELLED M

I certify that the person named in the First Schedule is the registered proprietor of an estate in fee simple (or such other estate or interest as is set out below) in the land described subject to the recordings appearing in the Second Schedule and to the provisions of the Real Property Act, 1900.

David Mulcahy
Registrar General.

VOL. 8658 FOL.102

FIRST TITLE : VOL.256 FOL.229

PRIOR TITLE: VOL.8656 FOL.74

LAND REFERRED TO

8541/21441
~~8541/14991~~ SHARE IN LOT 51 IN DP561032 AT WARNERVALE IN THE LOCAL GOVERNMENT AREA OF WYONG PARISH OF MUNMORAH COUNTY OF NORTHUMBERLAND

TITLE DIAGRAM: DP561032

FIRST SCHEDULE

~~AUSTIN JOHN WOODBURY AND FLORA WOODBURY AS JOINT TENANTS~~

~~(R 8454432)~~

SECOND SCHEDULE

1. RESERVATIONS AND CONDITIONS IN THE CROWN GRANT(S)
2. A449766 LAND EXCLUDES MINERALS AND IS SUBJECT TO RIGHTS TO MINE

FIRST SCHEDULE (continued)

REGISTERED PROPRIETOR

Registrar General

WYONG SHIRE COUNCIL EXCLUDING THE MINERALS and AUSTIN JOHN WOODBURY and FLORITA WOODBURY as joint tenants of the minerals by Resumption AB2397 . Registered 14.10.2004

SECOND SCHEDULE (continued)

PARTICULARS	Registrar General	CANCELLATION
FOLIO CANCELLED . NEW FOLIO CREATED FOR LOT 51 in DP 561032 . MINERALS REMAIN		

NOTATIONS AND UNREGISTERED DEALINGS

AB 2397 RA R		

NOTE: ENTRIES RULED THROUGH AND AUTHENTICATED BY THE SEAL OF THE REGISTRAR GENERAL ARE CANCELLED

NEW SOUTH WALES

CERTIFICATE OF TITLE

REAL PROPERTY ACT, 1900

CT08658-103

VOL 8658 FOL.103

EDITION ISSUED
1 MAY 2002

CANCELLED M

I certify that the person named in the First Schedule is the registered proprietor of an estate in fee simple (or such other estate or interest as is set out below) in the land described subject to the recordings appearing in the Second Schedule and to the provisions of the Real Property Act, 1900.

David Mulcahy
Registrar General

VOL. 8658 FOL.103

FIRST TITLE : VOL.256 FOL.229

PRIOR TITLE: VOL.8656 FOL.74 and Vol 8656 Fol 75

LAND REFERRED TO

12900/21441
~~6450/14991~~ SHARE IN LOT 51 IN DP561032 AT WARNERVALE IN THE LOCAL GOVERNMENT AREA OF WYONG PARISH OF MUNMORAH COUNTY OF NORTHUMBERLAND

TITLE DIAGRAM: DP561032

FIRST SCHEDULE

~~CORNELIUS MICHAEL RICHARD WOODBURY IN 3225/14991 SHARE AND JAMES MALACHY WOODBURY IN 3225/14991 SHARE AS TENANTS IN COMMON in equal shares~~

~~(R 8454432)~~

SECOND SCHEDULE

1. RESERVATIONS AND CONDITIONS IN THE CROWN GRANT(S)
2. A449766 LAND EXCLUDES MINERALS AND IS SUBJECT TO RIGHTS TO MINE

Vol 8658 Fol 103

FIRST SCHEDULE (continued)

REGISTERED PROPRIETOR

Registrar General

WYONG SHIRE COUNCIL EXCLUDING THE MINERALS and CORNELIUS MICHAEL RICHARD WOODBURY and JAMES MALACHY WOODBURY as tenants in common in equal shares of the Minerals by Resumption AB2397. Registered 14.10.2004

SECOND SCHEDULE (continued)

PARTICULARS	Registrar General	CANCELLATION
FOLIO CANCELLED. NEW FOLIO CREATED FOR LOT 51 in DP561032 MINERALS REMAIN		Rons 14/10/2004

NOTATIONS AND UNREGISTERED DEALINGS

AB2397 RA R

NOTE: ENTRIES RULED THROUGH AND AUTHENTICATED BY THE SEAL OF THE REGISTRAR GENERAL ARE CANCELLED

[redacted]FICATE OF TITLE

NEW SOUTH WALES

229 [redacted]L PROPERTY ACT, 1900

Crown Grant Vol. 256 Fol.2

Prior Title Vol.2926 Fol. 2

Vol. 12093 Fol. 109

Edition issued 1-5-1973

I certify that the person described in the First Schedule is the registered proprietor of the undermentioned estate in the land within described subject nevertheless to such exceptions encumbrances and interests as are shown in the Second Schedule.

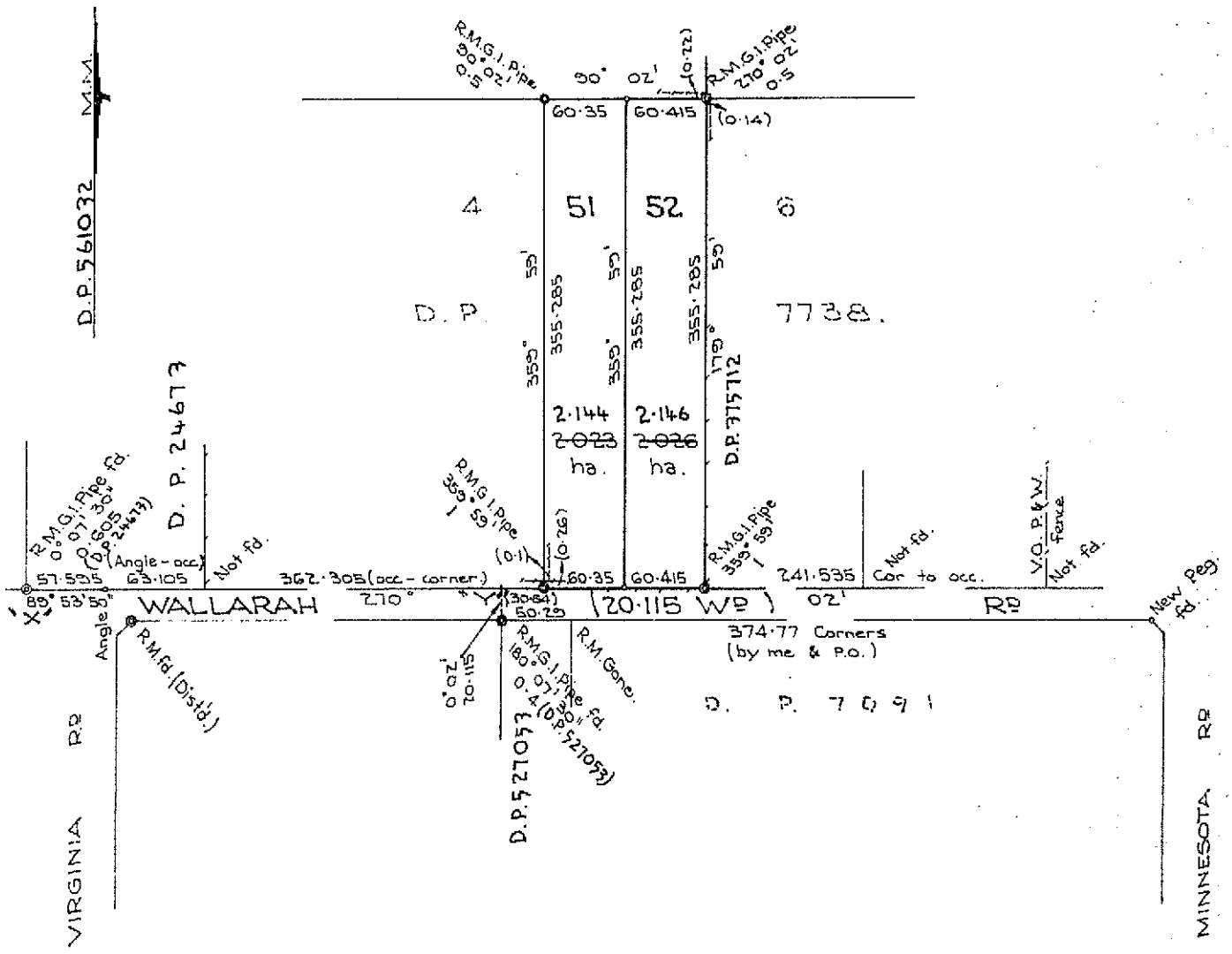
CANCELLED

Registrar General.

SEE AUTO FOLIO

PLAN SHOWING LOCATION OF LAND

LENGTHS ARE IN METRES



S

ESTATE AND LAND REFERRED TO

Estate in Fee Simple in Lot 51 in Deposited Plan 561032 at Warnervale in the Shire of Wyong Parish of Munmorah and County of Northumberland. EXCEPTING THEREOUT all mines, veins and seams of coal and other mines and minerals excepted by Transfer No. A449766.

FIRST SCHEDULE

~~MABEL HAYDEN of Liverpool, Married Woman.~~

GRY

SECOND SCHEDULE

1. Reservations and conditions, if any, contained in the Crown Grant above referred to.
2. Rights to mine as set out in Transfer No. A449766. P
3. ~~Mortgage No. L382860 to The Commercial Bank of Australia Limited. Entered 9-4-1969.~~ Discharged N353783

XE

Registrar General

Vol. 12093 Fol. 169

FIRST SCHEDULE (continued)

REGISTERED PROPRIETOR	INSTRUMENT NATURE	INSTRUMENT NUMBER	INSTRUMENT DATE	ENTERED	Signature of Registrar General
~~George Alfred Alexander Cannon of Warrenvale, Carpenter and Jessie Mary Frances Cannon his wife as joint tenants~~ Austin John Woodbury by Transfer W981768. Registered 21-7-1987.	~~Transfer~~	~~N353784~~	~~22.6.1973~~	~~25.7.1973~~	

~~CANCELLED~~

SEE AUTO FOLIO

SECOND SCHEDULE (continued)

INSTRUMENT NATURE	INSTRUMENT NUMBER	INSTRUMENT DATE	PARTICULARS	ENTERED	Signature of Registrar General	CANCELLATION		
~~Mortgage~~	~~N353785~~	~~22.6.1973~~	~~to Desmond Lancelot Smith of Kilburn Heights Bank Officer and John Thomas of Ashfield, Clerk~~	~~25.7.1973~~		Discharged	V298039	
~~V298040 Mortgage to Westpac Banking Corporation Registered 23-8-1984.~~						Discharged	W981767.	

(Page 2 of 2 pages)

NOTE: ENTRIES RULED THROUGH AND AUTHENTICATED BY THE SEAL OF THE REGISTRAR GENERAL ARE CANCELLED

[redacted]FICATE OF TITLE

NEW SOUTH WALES

[redacted]L PROPERTY ACT, 1900

Crown Grant Vol. 256 Fol. 2

Prior Title Vol. 2926 Fol. 2

Vol. 12093 Fol. 110

Edition issued 1-5-1973

I certify that the person described in the First Schedule is the registered proprietor of the undermentioned estate in the land within described subject nevertheless to such exceptions encumbrances and interests as are shown in the Second Schedule.

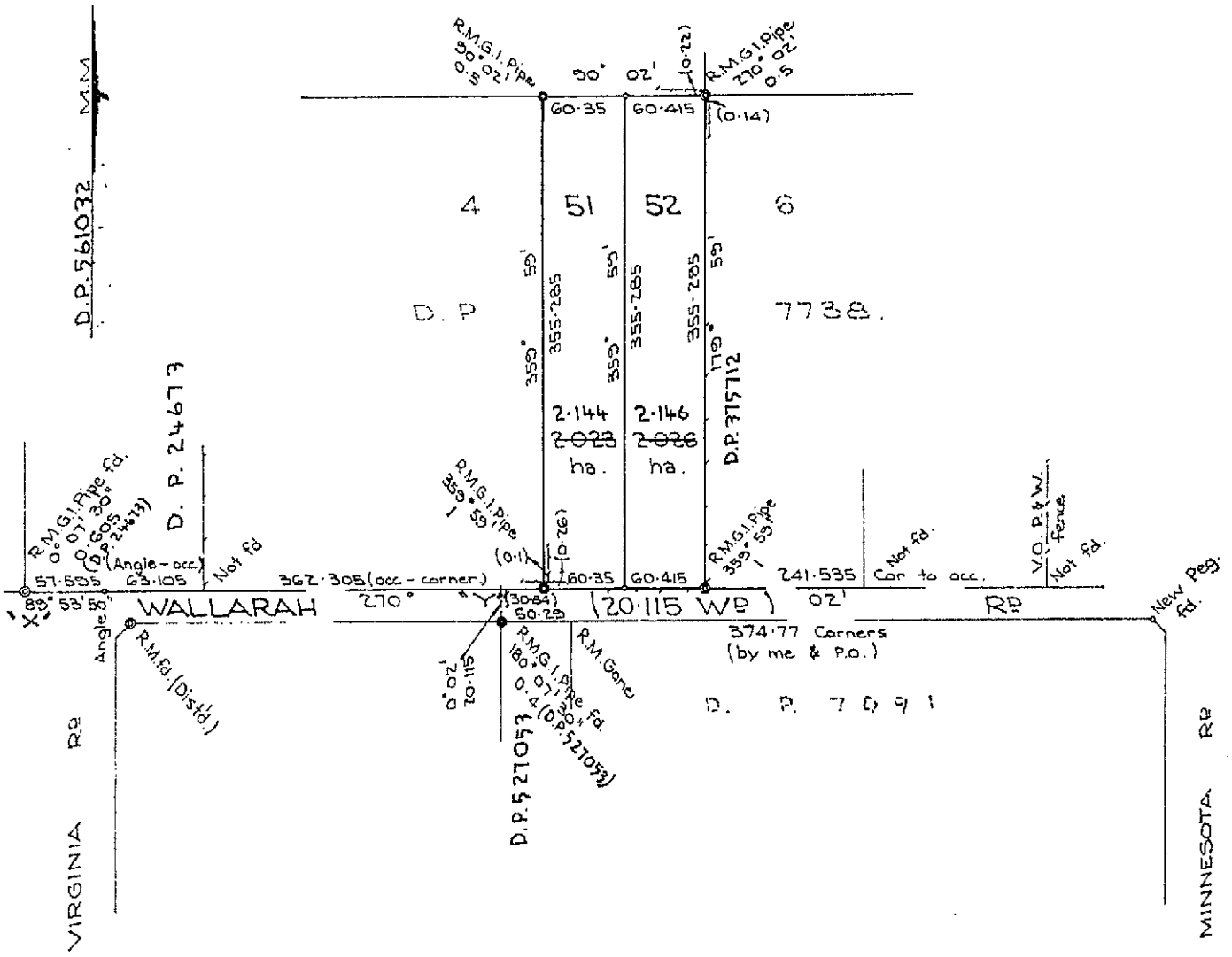
CANCELLED

Registrar General.

SEE AUTO FOLIO

PLAN SHOWING LOCATION OF LAND

LENGTHS ARE IN METRES



S

ESTATE AND LAND REFERRED TO

Estate in Fee Simple in Lot 52 in Deposited Plan 561032 at Warnervale in the Shire of Wyong Parish of Munmorah and County of Northumberland. EXCEPTING THEREOUT all mines, veins and seams of coal and other mines and minerals excepted by Transfer No. A449766.

FIRST SCHEDULE

~~MABEL HAYDEN of Liverpool, Married Woman.~~

GRY

SECOND SCHEDULE

1. Reservations and conditions, if any, contained in the Crown Grant above referred to.
2. Rights to mine as set out in Transfer No. A449766. P
3. ~~Mortgage No. L382860 to The Commercial Bank of Australia Limited. Entered 9-4-1969~~ Discharged N778322

XE

Registrar General

Vol. 12093 Fol. 110

FIRST SCHEDULE (continued)

REGISTERED PROPRIETOR	INSTRUMENT NATURE	INSTRUMENT NUMBER	INSTRUMENT DATE	ENTERED	Signature of Registrar General
~~Rodney James Hayden of Warnervale, Contract Painter and Lynette Patricia Hayden his wife as joint tenants~~	Transfer	N878745	13-5-1974	14-6-1974	
Alice Doreen Cummins of Wentworthville, Married Woman	Transfer	R287581	------	28-6-1979	

CANCELLED

SEE AUTO FOLIO

N878745
Q661889 N
R287580 - 1/2

SECOND SCHEDULE (continued)

INSTRUMENT NATURE	INSTRUMENT NUMBER	INSTRUMENT DATE	PARTICULARS	ENTERED	Signature of Registrar General	CANCELLATION		
~~Mortgage~~	~~Q661889~~	------	~~to The Commercial Bank of Australia Limited.~~	~~2-5-1978~~		Discharged	R287580	

NOTE: ENTRIES RULED THROUGH AND AUTHENTICATED BY THE SEAL OF THE REGISTRAR GENERAL ARE CANCELLED

Form: 97-01T
Licence: 026CN/0526/96

TRANSFER

New South Wales
Real Property Act 1900

6719732V

Instructions for filling out this form are available from the Land Titles Office

Office of State Revenue use only

NEW SOUTH WALES DUTY
13-03-2000 0000254737-001
SECTION 18(3)
DUTY $ **********2.00

(A) **LAND TRANSFERRED**
Show no more than 20 titles
If appropriate, specify the share or part transferred.

FOLIO IDENTIFIER 51/561032

(B) **LODGED BY**

LTO Box	Name, Address or DX and Telephone
502X	Low Doherty & Stratford DX 8109 Blacktown REFERENCE (15 character maximum): GPD/SC

(C) **TRANSFEROR** **AUSTIN JOHN WOODBURY and FLORITA WOODBURY**

(D) acknowledges receipt of the consideration of **$160,000.00**

and as regards the land specified above transfers to the transferee an estate in fee simple **AS TO A 6450/21441 SHARE.**

(E) Encumbrances (if applicable) 1. 2. 3.

(F) **TRANSFEREE**

T **TS** (s713 LGA) **TW** (Sheriff)	**CORNELIUS MICHAEL RICHARD WOODBURY and JAMES MALACHY WOODBURY**

(G) **TENANCY:** TENANTS IN COMMON IN EQUAL SHARES

(H) We certify this dealing correct for the purposes of the Real Property Act 1900. **DATE** 29th March, 2000

Signed in my presence by the transferor who is personally known to me.

.....
Signature of Witness

Peter John Writer
Name of Witness (BLOCK LETTERS)

Solicitor
The Entrance
Address of Witness

x A J Woodbury
x F. Woodbury
Signature of Transferor

Signed in my presence by the transferee who is personally known to me.

.....
Signature of Witness

.....
Name of Witness (BLOCK LETTERS)

.....
Address of Witness

.....
Signature of Transferee's Solicitor
GARY PATRICK DOHERTY

NB: if signed on the transferee's behalf by a solicitor or licensed conveyancer, show the signatory's full name in block letters.

CHECKED BY (LTO use)

97-01T

TRANSFER

Real Property Act, 1900

0
506904 F

(1)

Office of State Revenue use only

OFFICE OF STATE REVENUE
1994/95 STAMP DUTY (N.S.W. TREASURY) N2
DUTY $2 —— 1ST REC No MK 3394

(A) **LAND TRANSFERRED**
Show no more than 20 References to Title.
If appropriate, specify the share transferred.

Certificate of Title Folio Identifier 52/561032

(B) **LODGED BY**

L.T.O. Box	Name, Address or DX and Telephone
37Y	UBC REFERENCE (max. 15 characters): 2545 512514 SS

(C) **TRANSFEROR** JOHN DIXON CUMMINS

(D) acknowledges receipt of the consideration of $320,000.00
and as regards the land specified above transfers to the Transferee an estate in fee simple

(E) subject to the following **ENCUMBRANCES** 1. .... 2. .... 3. ....

(F) **TRANSFEREE**

T / TS (s713 LGA) / TW (Sheriff)	BARRY RICHARD YOUNG of 18 Benwerrin Road Wamberal
	~~TENANCY:~~

(G)

(H) We certify this dealing correct for the purposes of the Real Property Act, 1900. **DATED** 1ST AUGUST 1995.

Signed in my presence by the Transferor who is personally known to me.

[signature]
Signature of Witness

GREGORY JOHN CUMMINS
Name of Witness (BLOCK LETTERS)

8 CROMWELL COURT, BLACKBURN 3130.
Address of Witness

John D. Cummins
Signature of Transferor

Signed in my presence by the Transferee who is personally known to me.

....
Signature of Witness

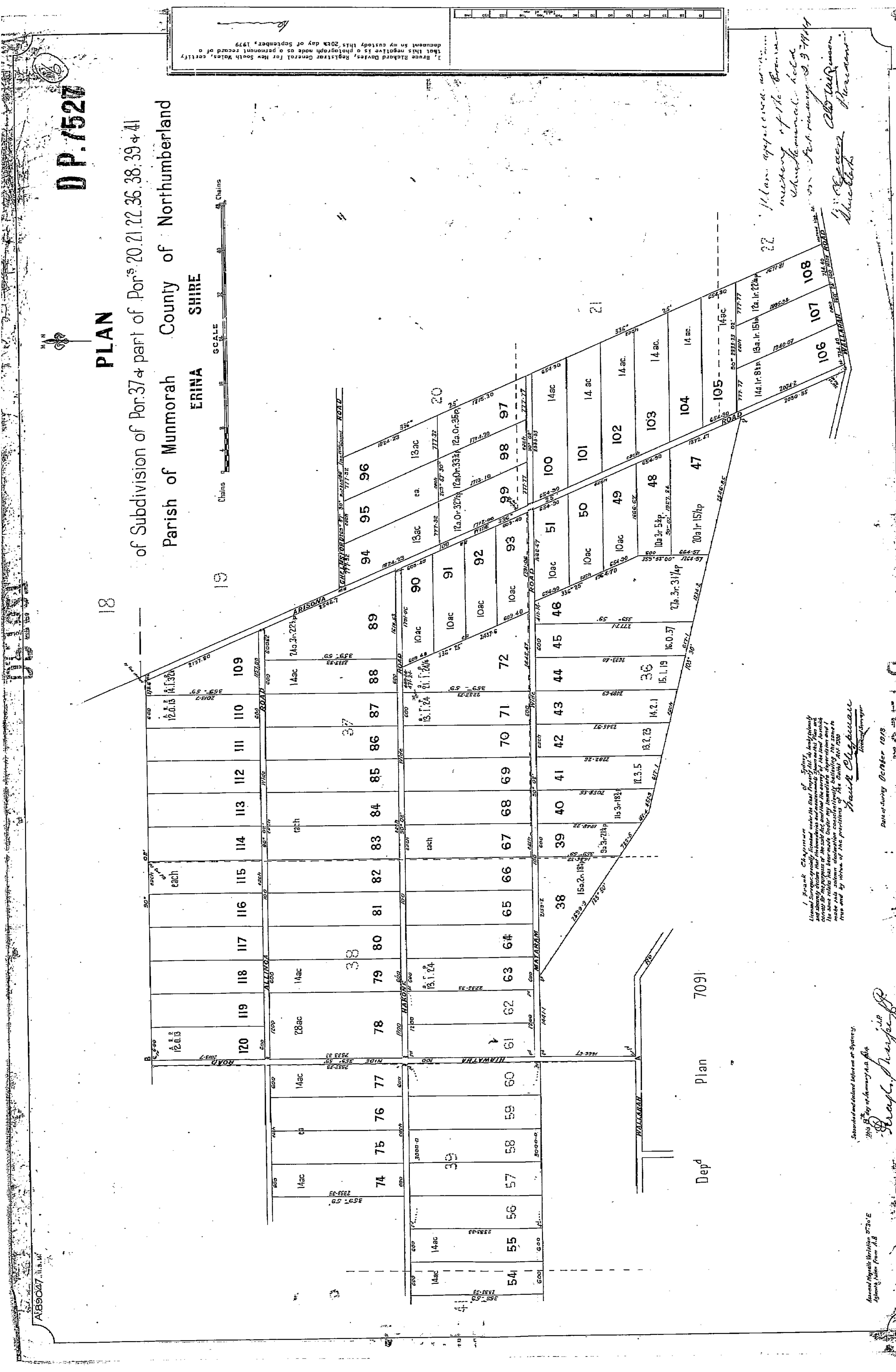
....
Name of Witness (BLOCK LETTERS)

....
Address of Witness

[signature]
Signature of Transferee
Mark Francis Cotter, Solicitor for Transferee

INSTRUCTIONS FOR FILLING OUT THIS FORM ARE AVAILABLE FROM THE LAND TITLES OFFICE

CHECKED BY (office use only) 2/8/



CONVERSION TABLE ADDED IN REGISTRAR GENERAL'S DEPARTMENT

DP 7527

LINKS	METRES
54.9	11.045
64.9	13.055
100	20.115
103.06	20.73
119.1	23.96
119.16	23.97
186.4	37.5
278.6	56.05
413.19	83.11
457.9	92.11
471.24	94.8
600	120.7
600.62	120.83
609.4	122.59
617.1	124.14
630	126.74
654.9	131.74
664.57	133.69
722.5	145.34
734.4	147.74
777.32	156.37
777.77	156.46
1157	232.75
1200	241.4
1234.2	248.28
1264.57	254.39
1372.47	276.1
1441.1	289.9
1445.47	290.78
1446.32	290.95
1I18.63	325.62
1666.67	335.28
1671.81	336.31
1I12	344.4
1113.1	344.62
1114.2	344.84
1I15.3	345.06
1791.86	360.3
1805.94	363.3
1824.23	366.98
1848.22	371.8
1927.89	387.82
1940.07	390.28
1964.7	395.23
2013.7	405.09
2030.35	408.44
2058.55	414.11
2074.2	417.26
2159.2	434.36
2197.8	442.13
2202.26	443.02
2333.33	469.39
2345.97	471.93
2437.6	490.37
2489.69	500.8
2546.65	512.3
2546.7	512.3
2599.9	523
2633.4	529.8
2777.1	558.7
3000	603.5
16666.67	3352.8

AC RD P	HA
9 3 21 1/4	3.999
10 - -	4.047
10 3 5 1/4	4.364
11 3 18 3/4	4.8
12 - 13	4.889
12 - 32 1/2	4.938
12 - 33 3/4	4.942
12 - 35	4.945
12 1 22 1/2	5.014
12 3 5	5.172
13 - -	5.261

CONVERSION TABLE ADDED IN REGISTRAR GENERAL'S DEPARTMENT

DP 7527 CONTINUED

AC RD P	HA
13 1 15 1/2	5.4
13 1 24	5.423
13 2 23	5.521
14 - -	5.666
14 1 8 1/2	5.788
14 1 32 1/2	5.899
14 2 1	5.87
15 1 19	6.22
15 2 18 1/4	6.319
16 - 37	6.568
20 1 15 1/2	8.234
21 1 24 1/4	8.651
24 3 22 1/2	10.07
24 3 32 1/2	10.1
27 3 31 1/4	11.31
28 - -	11.33

~~F193545~~ Negative Prepared

F577180

F 577180

FP37626

Plan Form No.6 (for transfers, leases, etc.)

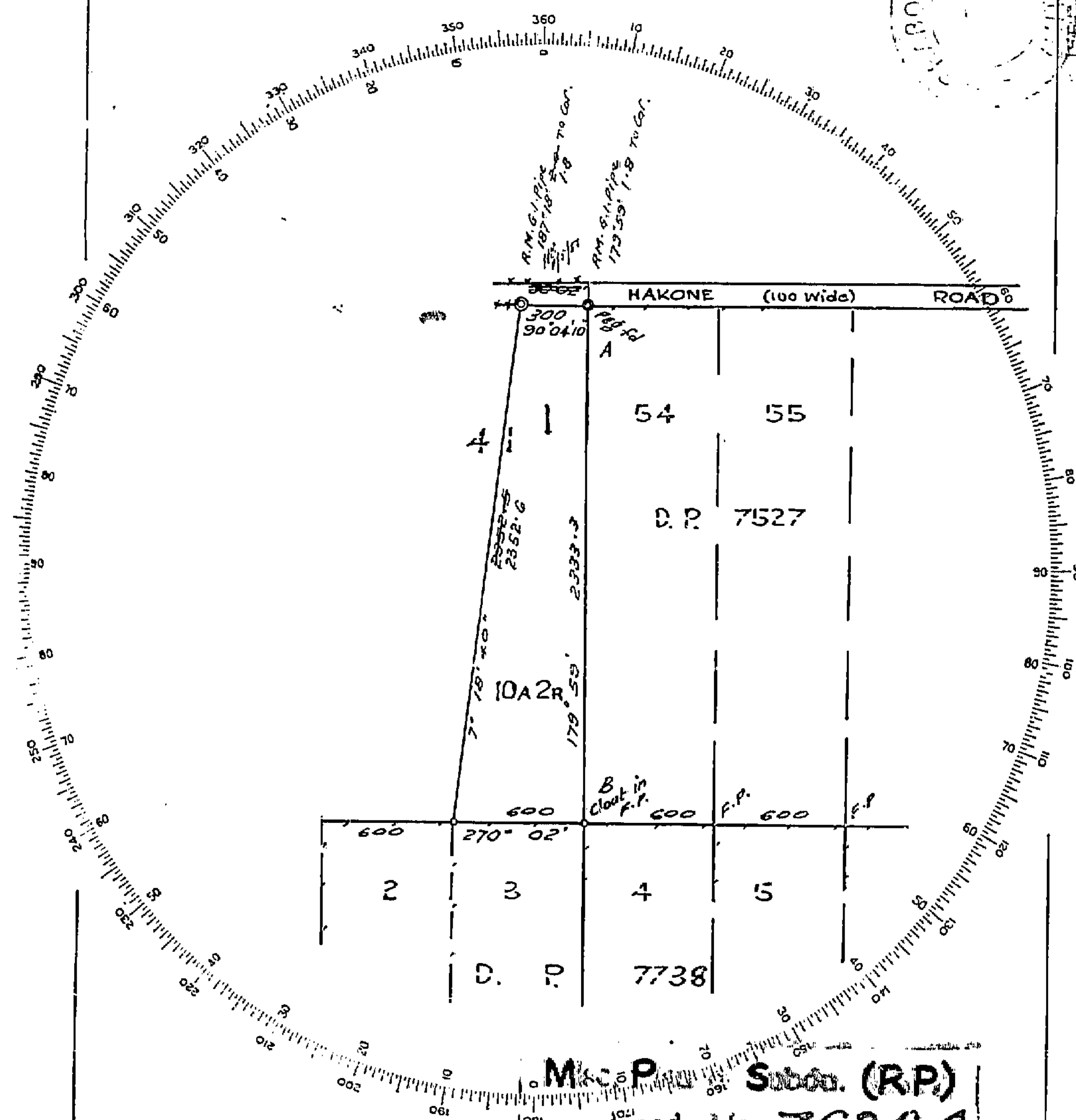
Municipality of
Shire of Wyong

PLAN

of part of Portion 41

Parish of Munmorah County of Northumberland

Scale 6 Chains to an Inch.



M.C.P. Subdn. (RP)
Regd. No. 76264

Approved by Council and covered by Council Clerks Certificate

No. 252 of 25/11/49

Golding
Council Clerk

I Leonard Arthur Bannister of Gosford a Surveyor registered under the Surveyor's Act, 1929, do hereby solemnly and sincerely declare (a) that all boundaries and measurements shown on this plan are correct, (b) that all survey marks found and relevant physical objects on or adjacent to the boundaries are correctly represented, (c) that all physical objects indicated actually exist in the positions shown, (d) that the whole of the material facts in relation to the land are correctly represented, (e) that the survey represented in this plan has been made in accordance with the Survey Practice Regulations, 1933 *(1) by me ~~(2) under my supervision, the character and extent of which was as required by the Survey Practice Regulations, 1933, and~~ was completed on †9-9-1949 and the reference marks have been placed as shown hereon.

And I make this solemn declaration conscientiously believing the same to be true, and by virtue of the provisions of the Oaths Act, 1900

Subscribed and declared before me at Gosford this 18th day of September A.D. 1949

F. de. Wheeler J.P. Justice of Peace

(Signature) L. Bannister
Surveyor registered under the Surveyors Act, 1929.

Azimuth A-B.

*Strike out either (1) or (2). †Insert date of Survey.

Copy of plan filed as 168124

This is the plan marked "A" referred to in Memorandum of Transfer

WYONG SHIRE COUNCIL
President

Signatures of parties

CONVERSION TABLE ADDED IN DEPARTMENT OF LANDS

DP 376264

LINKS	METRES
1.8	0.362
100	20.117
300	60.350
600	120.701
2333.3	469.385
2352.6	473.268

AC	RD	P	HA
10	2	-	4.249

Table of mm

I, Bruce Richard Davies, Registrar General for New South Wales, certify that this negative is a photograph made as a permanent record of a document in my custody this 19th day of January, 1979

1

Plan Form 1

PLAN OF

SUBDIVISION OF LOT 5
D.P. 7738.

~~Mun.~~/Shire/~~City~~ WYONG

~~Town or~~ Locality WARNERVALE

Parish MUNMORAH

County NORTHUMBERLAND

LENGTHS ARE IN METRES
REDUCTION RATIO ~~Scale~~ 1:4000

D. P. 561032 (E)

Registered: 2/4/73

C.A.: Nº 2476 OF 31/1/1973

Title System: TORRENS

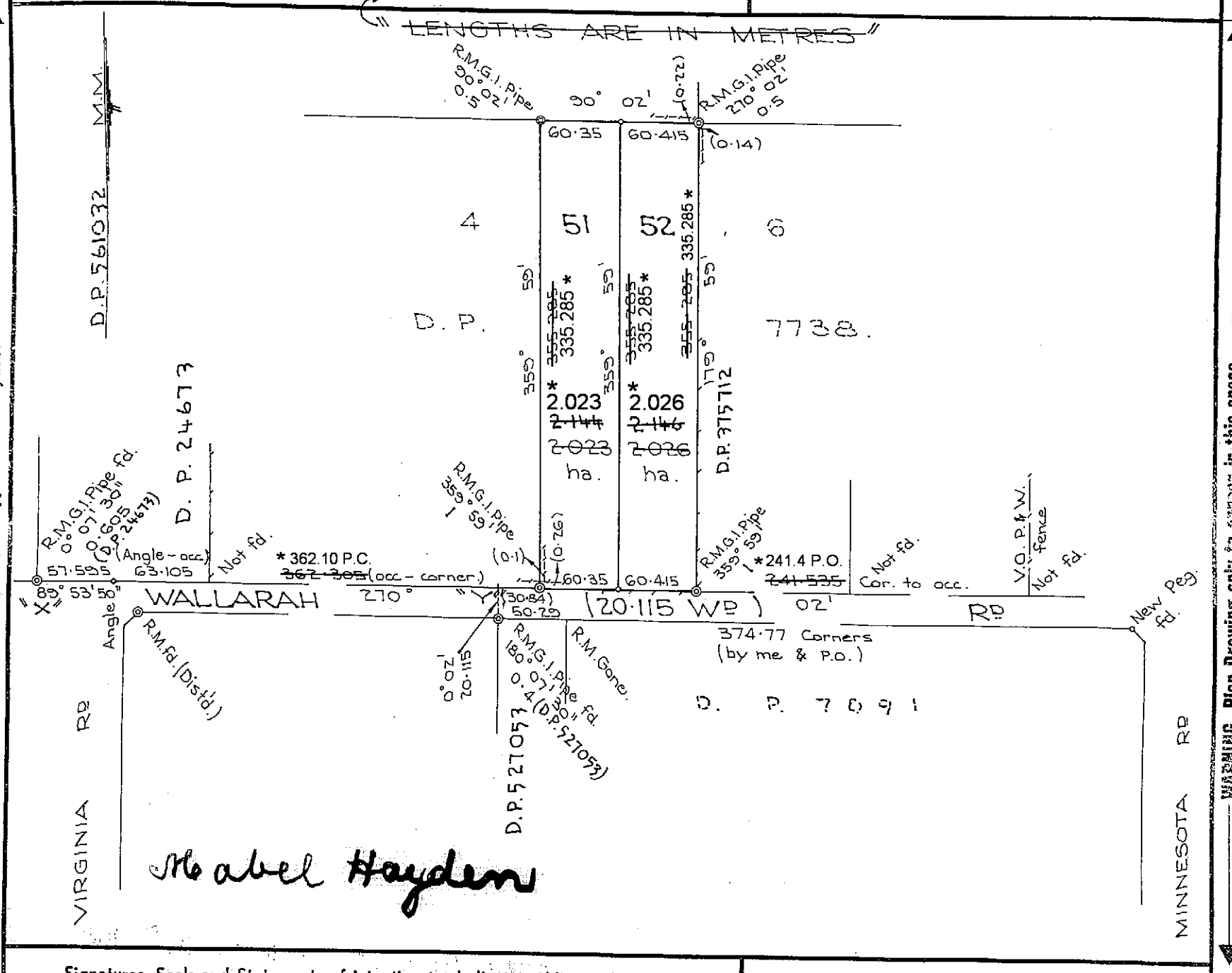
Purpose: SUBDIVISION

Ref. Map: PARISH

Last Plan: D.P. 7738

OFFICE USE ONLY.
N 0 0 2 A 1 A

~~LENGTHS ARE IN METRES~~



Mabel Hayden

Signatures, Seals and Statements of intention to dedicate public roads or public reserves or create drainage reserves, easements, or restrictions as to user.

THE COMMERCIAL BANK OF AUSTRALIA LIMITED
by its Attorney

and I, the said Attorney, state that I have not received any notice of the revocation of the Power of Attorney, registered No. ~~11235~~ Miscellaneous Register under the authority of which I have just executed the within Instrument.

I, Ian Gilbert EVERITT.

of Patteson & Everitt P/L Wyong.

a surveyor registered under the Surveyors Act, 1929, as amended, hereby certify that the survey represented in this plan is accurate and has been made *(1) by me ~~(2) under my immediate supervision~~ in accordance with the Survey Practice Regulations, 1933, and was completed on †10.1.72

Signature: Surveyor Registered under Surveyors Act, 1929, as amended.

Datum Line of Azimuth. X — Y

*Strike out either (1) or (2). †Insert date of survey.

Council Clerk's Certificate.

I hereby certify that—

(a) the requirements of the Local Government Act, 1919 (other than the requirements for the registration of plans), and

*(b) the requirements of section 34B of the †Metropolitan Water, Sewerage, and Drainage Act, 1924, as amended, †Hunter District Water, Sewerage, and Drainage Act, 1938, as amended,

have been complied with by the applicant in relation to the proposed SUBDIVISION (insert "~~new road~~" or "subdivision") set out herein.

Subdivision No. 2476

Date 31-1-73

(Signature) Golding Council Clerk.

*This part of certificate to be deleted where the application is only for the opening of a new road or where the land to be subdivided is wholly outside the areas of operations of the Metropolitan Water Sewerage and Drainage Board and the Hunter District Water Board.

†Delete if inapplicable.

M.P.D.

SURVEYOR'S REFERENCE. 1813

WARNING. Plan Drawing only to appear in this space.

WARNING. Plan Drawing only to appear in this space.

* DIMENSIONS AND AREA OF LOTS 51 & 52 AMENDED VIDE 2014-838 11.07.2014

AREAS AMENDED IN REG. GEN. DEPT. 2/4/73

P.M. 71666 FD.

P.M. 71672 FD.

65° 11' 45" - 453.09 ME.
65° 11' 54" - 453.093 P.O. GND.

190° 18' 19" - 472.585

54

D.P. 7527

1

D.P. 376264

R.M. G.I.P. FD.
193° 15' - 0.975
(D.P. 1197341)

R.M. G.I.P. FD.
99° 09' - 0.5
(D.P. 561032)

99° 11' 00" NO FCE.

120.7

G.I.N. IN EAST SIDE O.R.P.

M.G.A.

30° 11' 35" - 613.23 ME.
30° 11' 30" - 613.232 P.O. GND.

32

POST & WIRE FCE. ABT. 25 YRS. OLD

50"

195.61

FCE.

50"

PEG & R.M. STAR IRON PICKET. FD.
15° 08' - 0.83
(D.P. 1198972)

41
3.81 ha

33

06'

(31.205)

R.M. G.I.P.
284° 28' - 3.38

335.275

LINE PEG

06'

FCE.

R.M. G.I.P. GONE
(D.P. 1197341)

① ② ③ ④ ⑤ ⑥ ⑦

R.M. G.I.P.
244° 02' - 5.785

D.P. 561032

(170.04)

189°

NO

51

52

31

ROAD WIDENING
2367m²

9°

139.695

ROAD 15.73 WIDE

NO

(R)
(S)

R.M. G.I.P FD.
109° 18' - 1.005
(D.P. 1142588)

R.M. D.H.& W. IN POWER POLE
306° 04' - 6.355

R.M. G.I.P. FD. NOW GONE
9° 07' - 1.0 (D.P. 561032)

R.M. G.I.P. GONE
(D.P. 561032)

289.025

15.73 32.22 88.48

99° 03' 10" 61° 17' 26.555 8.705 99° 10' 00" NO FCE.

'X'

(D.P. 1198972)

276° 18' 00" 326.122

R.M. SPIKE GONE.
(D.P. 1197341)

R.M. D.H.& W. IN POWER POLE
86° 50' - 13.765

P.M. 71671 FD.

278° 50' 47" - 260.975 ME.
278° 50' 47" - 260.970 P.O. GND.

'Y'

S.S.M. 65900 FD.

SPARKS

(VAR. WIDTH)

ROAD

SHORT LINE TABLE

No.	BEARING	CHORD	ARC	RADIUS
1	173° 07' 10"	52.75	53.215	116
2	186° 05' 00"	8.8	-	-
3	181° 37' 45"	19.015	-	-
4	175° 11' 35"	13.995	-	-
5	185° 28' 00"	10.91	-	-
6	177° 16' 25"	18.485	-	-
7	168° 59' 45"	20.03	-	-

MARK	M.G.A. CO-ORDINATES EASTING	M.G.A. CO-ORDINATES NORTHING	HOR' CLASS	HOR' ORDER	METHOD	ORIGIN
SSM 65900	356496.548	6320805.147	B	2	TRAVERSE	SCIMS
PM 71671	356238.721	6320845.275	B	2	TRAVERSE	SCIMS
PM 71672	356547.067	6321375.239	B	2	TRAVERSE	SCIMS
PM 71666	356958.306	6321565.271	B	2	TRAVERSE	SCIMS
SOURCE: C.A.L.M. (S.C.I.M.S.) 27-05-2014			COMBINED SCALE FACTOR= 0.999848			ZONE: 56

(R) RIGHT OF CARRIAGEWAY 5 WIDE VIDE AF 89708

(S) EASEMENT TO DRAIN SEWAGE 5 WIDE VIDE AF 89708

SURVEYOR:
CHRISTOPHER LEWIS EGGELING
DATE OF SURVEY: 22-7-2014
SURVEYOR'S REF: 57072-17DP

PLAN OF ROAD WIDENING WITHIN LOT 4
D.P. 7738

LGA: WYONG
LOCALITY: WOONGARRAH
SUBDIVISION NO: 50-2014
LENGTHS ARE IN METRES. REDUCTION RATION 1: 1500

REGISTERED
12.9.2014

DP1200210

10 20 30 40 50 Table of mm 90 100 110 120 130 140

PLAN FORM 6 (2013) WARNING: Creasing or folding will lead to rejection ePlan

DEPOSITED PLAN ADMINISTRATION SHEET

Sheet 1 of 2 sheet(s)

Office Use Only

Registered: 12.9.2014

Title System: TORRENS

Purpose: SUBDIVISION

Office Use Only

DP1200210

PLAN OF ROAD WIDENING WITHIN LOT 4
D.P. 7738

LGA: WYONG

Locality: WOONGARRAH

Parish: MUNMORAH

County: NORTHUMBERLAND

Crown Lands NSW/Western Lands Office Approval

I, ... (Authorised Officer) in approving this plan certify that all necessary approvals in regard to the allocation of the land shown herein have been given.

Signature: .....

Date: .....

File Number: .....

Office: .....

Subdivision Certificate

I, ROSS PETERSON

Authorised Person/~~General Manager/*Accredited Certifier~~, certify that the provisions of s.109J of the *Environmental Planning and Assessment Act 1979* have been satisfied in relation to the proposed subdivision, new road or reserve set out herein.

Signature: RPeterson

~~Accreditation number~~: .....

Consent Authority: WYONG SHIRE COUNCIL

Date of endorsement: 19-8-2014

Subdivision Certificate number: 50-2014

~~File number~~: .....

*Strike through if inapplicable.

Survey Certificate

I, CHRISTOPHER EGGELING .....

of BANNISTER & HUNTER PTY LTD, 75 MANN ST, GOSFORD .....

a surveyor registered under the *Surveying and Spatial Information Act 2002*, certify that:

*(a) The land shown in the plan was surveyed in accordance with the *Surveying and Spatial Information Regulation 2012*, is accurate and the survey was completed on 22 / 07 / 2014 .....

~~*(b) The part of the land shown in the plan (*being/*excluding ^ ....) was surveyed in accordance with the *Surveying and Spatial Information Regulation 2012*, is accurate and the survey was completed on, ... the part not surveyed was compiled in accordance with that Regulation.~~

~~*(c) The land shown in this plan was compiled in accordance with the *Surveying and Spatial Information Regulation 2012*.~~

Signature: C. Eggeling Dated: 21-7-2014

Surveyor ID: 991.....

Datum Line: X Y.....

Type: ~~*Urban~~/*Rural

The terrain is *Level-Undulating / ~~*Steep-Mountainous~~.

*Strike through if inapplicable.

^Specify the land actually surveyed or specify any land shown in the plan that is not the subject of the survey.

Statements of intention to dedicate public roads create public reserves and drainage reserves, acquire/resume land.

IT IS INTENDED TO DEDICATE THE LAND MARKED ROAD WIDENING TO THE PUBLIC AS PUBLIC ROAD

Plans used in the preparation of survey/compilation.

D.P. 1197341

D.P. 7738

D.P. 561032

D.P. 1198972

If space is insufficient continue on PLAN FORM 6A

Signatures, Seals and Section 88B Statements should appear on PLAN FORM 6A

Surveyor's Reference: 57072-17DP

PLAN FORM 6A (2012) WARNING: Creasing or folding will lead to rejection ePlan

DEPOSITED PLAN ADMINISTRATION SHEET

Sheet 2 of 2 sheet(s)

Office Use Only

Registered: 12.9.2014

Office Use Only

DP1200210

PLAN OF ROAD WIDENING WITHIN LOT 4 D.P.7738

Subdivision Certificate number: 50-2014

Date of Endorsement: 19-8-2014

This sheet is for the provision of the following information as required:

- A schedule of lots and addresses - See 60(c) *SSI Regulation 2012*
- Statements of intention to create and release affecting interests in accordance with section 88B *Conveyancing Act 1919*
- Signatures and seals- see 195D *Conveyancing Act 1919*
- Any information which cannot fit in the appropriate panel of sheet 1 of the administration sheets.

LOT NO.	ADDRESS
41	107 SPARKS ROAD WOONGARRAH 2259

WITNESS

Deborah Mark

PRINT NAME

8 Birriga Rd Noraville

HOME ADDRESS

MICHAEL WHITTAKER
GENERAL MANAGER
WYONG SHIRE COUNCIL
PURSUANT TO DELEGATION
UNDER S.377 OF THE
LOCAL GOVERNMENT ACT 1993
WHICH IS CURRENT AND VALID
AS AT THE DATE OF EXECUTION
OF THIS INSTRUMENT.

If space is insufficient use additional annexure sheet

Surveyor's Reference: 57072-17DP

NEW SOUTH WALES LAND REGISTRY SERVICES - HISTORICAL SEARCH

SEARCH DATE
30/11/2018 9:39AM

FOLIO: 4/7738

First Title(s): SEE PRIOR TITLE(S)
Prior Title(s): VOL 3468 FOL 155

Recorded	Number	Type of Instrument	C.T. Issue
18/2/1989		TITLE AUTOMATION PROJECT	LOT RECORDED FOLIO NOT CREATED
14/6/1990		CONVERTED TO COMPUTER FOLIO	FOLIO CREATED CT NOT ISSUED
26/2/2002	8387225	DEPARTMENTAL DEALING	
2/5/2002	8557591	TRANSFER	EDITION 1
12/9/2014	DP1200210	DEPOSITED PLAN	FOLIO CANCELLED RESIDUE REMAINS

*** END OF SEARCH ***

advlegs PRINTED ON 30/11/2018

NEW SOUTH WALES LAND REGISTRY SERVICES - HISTORICAL SEARCH

SEARCH DATE
30/11/2018 9:29AM

FOLIO: 52/561032

First Title(s): SEE PRIOR TITLE(S)
Prior Title(s): VOL 12093 FOL 110

Recorded	Number	Type of Instrument	C.T. Issue
28/3/1988		TITLE AUTOMATION PROJECT	LOT RECORDED FOLIO NOT CREATED
29/7/1988		CONVERTED TO COMPUTER FOLIO	FOLIO CREATED CT NOT ISSUED
26/6/1995	O332107	TRANSMISSION APPLICATION	EDITION 1
4/9/1995	O506904	TRANSFER	
4/9/1995	O506905	MORTGAGE	EDITION 2
20/9/1995	O549014	MORTGAGE	EDITION 3
7/5/1996	2134237	DISCHARGE OF MORTGAGE	EDITION 4
24/11/1998	5415374	MORTGAGE	EDITION 5
15/1/2001	7347262	CAVEAT	
11/6/2002	8671703	WITHDRAWAL OF CAVEAT	
19/9/2003	9990957	DISCHARGE OF MORTGAGE	
19/9/2003	9990958	TRANSFER	EDITION 6

*** END OF SEARCH ***

advlegs PRINTED ON 30/11/2018

NEW SOUTH WALES LAND REGISTRY SERVICES - TITLE SEARCH

FOLIO: 41/1200210

SEARCH DATE	TIME	EDITION NO	DATE
30/11/2018	9:26 AM	1	12/9/2014

LAND

LOT 41 IN DEPOSITED PLAN 1200210
AT WOONGARRAH
LOCAL GOVERNMENT AREA CENTRAL COAST
PARISH OF MUNMORAH COUNTY OF NORTHUMBERLAND
TITLE DIAGRAM DP1200210

FIRST SCHEDULE

WYONG SHIRE COUNCIL

SECOND SCHEDULE (2 NOTIFICATIONS)

1 RESERVATIONS AND CONDITIONS IN THE CROWN GRANT(S)
2 A952609 LAND EXCLUDES MINERALS AND IS SUBJECT TO RIGHTS TO MINE

NOTATIONS

UNREGISTERED DEALINGS: NIL

*** END OF SEARCH ***

advlegs PRINTED ON 30/11/2018

NEW SOUTH WALES LAND REGISTRY SERVICES - TITLE SEARCH

FOLIO: 51/561032

SEARCH DATE	TIME	EDITION NO	DATE
30/11/2018	9:26 AM	2	14/10/2004

LAND

LOT 51 IN DEPOSITED PLAN 561032
AT WARNERVALE
LOCAL GOVERNMENT AREA CENTRAL COAST
PARISH OF MUNMORAH COUNTY OF NORTHUMBERLAND
TITLE DIAGRAM DP561032

FIRST SCHEDULE

WYONG SHIRE COUNCIL (RA AB2397)

SECOND SCHEDULE (2 NOTIFICATIONS)

1 A449766 LAND EXCLUDES MINERALS AND IS SUBJECT TO RIGHTS TO MINE
2 AB2397 LAND EXCLUDES MINERALS

NOTATIONS

UNREGISTERED DEALINGS: NIL

*** END OF SEARCH ***

advlegs PRINTED ON 30/11/2018

NEW SOUTH WALES LAND REGISTRY SERVICES - TITLE SEARCH

FOLIO: 52/561032

SEARCH DATE	TIME	EDITION NO	DATE
30/11/2018	9:27 AM	6	19/9/2003

LAND

LOT 52 IN DEPOSITED PLAN 561032
AT WARNERVALE
LOCAL GOVERNMENT AREA CENTRAL COAST
PARISH OF MUNMORAH COUNTY OF NORTHUMBERLAND
TITLE DIAGRAM DP561032

FIRST SCHEDULE

WYONG SHIRE COUNCIL (T 9990958)

SECOND SCHEDULE (2 NOTIFICATIONS)

1 RESERVATIONS AND CONDITIONS IN THE CROWN GRANT(S)
2 A449766 LAND EXCLUDES MINERALS AND IS SUBJECT TO RIGHTS TO MINE

NOTATIONS

NOTE: THE CERTIFICATE OF TITLE FOR THIS FOLIO OF THE REGISTER DOES NOT INCLUDE SECURITY FEATURES INCLUDED ON COMPUTERISED CERTIFICATES OF TITLE ISSUED FROM 4TH JANUARY, 2004. IT IS RECOMMENDED THAT STRINGENT PROCESSES ARE ADOPTED IN VERIFYING THE IDENTITY OF THE PERSON(S) CLAIMING A RIGHT TO DEAL WITH THE LAND COMPRISED IN THIS FOLIO.

UNREGISTERED DEALINGS: NIL

*** END OF SEARCH ***

advlegs PRINTED ON 30/11/2018

NEW SOUTH WALES LAND REGISTRY SERVICES - TITLE SEARCH

FOLIO: AUTO CONSOL 6494-179

SEARCH DATE	TIME	EDITION NO	DATE
30/11/2018	9:27 AM	-	-

VOL 6494 FOL 179 IS THE CURRENT CERTIFICATE OF TITLE

LAND

LAND DESCRIBED IN SCHEDULE OF PARCELS
LOCAL GOVERNMENT AREA CENTRAL COAST
PARISH OF MUNMORAH COUNTY OF NORTHUMBERLAND
TITLE DIAGRAM SEE SCHEDULE OF PARCELS

FIRST SCHEDULE

THE COUNCIL OF THE SHIRE OF WYONG (T F577180)

SECOND SCHEDULE (1 NOTIFICATION)

1 RESERVATIONS AND CONDITIONS IN THE CROWN GRANT(S)

NOTATIONS

UNREGISTERED DEALINGS: NIL

SCHEDULE OF PARCELS	TITLE DIAGRAM
LOTS 54-55 IN DP7527	DP7527
LOT 1 IN DP376264	DP376264.

*** END OF SEARCH ***

advlegs PRINTED ON 30/11/2018

Appendix B - Historical Aerial Photos

Approximate Site Boundary

drawn	**SR**	client:	**Lirun Developments Pty Ltd C/- Colliers International Project management**	
approved		project:	**Preliminary Contmaination Assessment, 111 Sparks Road, Warnervale NSW**	
date	**11/30/2018**			
scale	**NTS**	title:	**2006 Aerial Photgraph**	
original size	**A4**	project no:	**754-NTLGE216908**	figure no: **2006**

coffey
A TETRA TECH COMPANY

Approximate site boundary

drawn	**SR**	client:	**Lirun Developments Pty Ltd C/- Colliers International Project management**	
approved		project:	**Preliminary Contmaination Assessment, 111 Sparks Road, Warnervale NSW**	
date	**11/30/2018**			
scale	**NTS**	title:	**1994 Aerial Photgraph**	
original size	**A4**	project no:	**754-NTLGE216908**	figure no: **1994**

Approximate site boundary

drawn	**SR**	client:	**Lirun Developments Pty Ltd C/- Colliers International Project management**	
approved		project:	**Preliminary Contmaination Assessment, 111 Sparks Road, Warnervale NSW**	
date	**11/30/2018**			
scale	**NTS**	title:	**1985 Aerial Photgraph**	
original size	**A4**	project no:	**754-NTLGE216908**	figure no: **1985**

coffey
A TETRA TECH COMPANY

Approximate site boundary

drawn	**SR**	client:	**Lirun Developments Pty Ltd C/- Colliers International Project management**	
approved		project:	**Preliminary Contmaination Assessment, 111 Sparks Road, Warnervale NSW**	
date	**11/30/2018**			
scale	**NTS**	title:	**1976 Aerial Photgraph**	
original size	**A4**	project no:	**754-NTLGE216908**	figure no: **1976**

Approximate site boundary

drawn	**SR**	client:	**Lirun Developments Pty Ltd C/- Colliers International Project management**	
approved		project:	**Preliminary Contmaination Assessment, 111 Sparks Road, Warnervale NSW**	
date	**11/30/2018**			
scale	**NTS**	title:	**1965 Aerial Photgraph**	
original size	**A4**	project no:	**754-NTLGE216908**	figure no: **1965**

coffey
A TETRA TECH COMPANY

Appendix C - Site Photographs

Appendix C – Selected Site Photographs

Photograph 1:
View South – Towards Sparks Road

Photograph 2:
View South – Eastern site boundary, stockpiles of illegally discarded domestic waste

Photograph 3:
View North – Illegally discarded building waste and stockpiles covered in grassed vegetation

Photograph 4:
View North West – Mulch stockpiles observed on adjacent proposed Stage 5 of WTC development

Photograph 5:
View West – Electrical and NBN services observed along the sites southern boundary

Photograph 6:
View East – Southern Site boundary, adjacent Sparks Road

Photograph 7:

View North – Dirt Access trail dissecting Lot 41 and Lot 51 DP 561032

Photograph 8:

View North – Former rural residential property footprint.

Photograph 9:

View West – Dense grass vegetation and fallen tree observed in Lot 41 DP1200210

Photograph 10:

View North – Unknown mound/stockpile covered in grass vegetation, north of the former rural resdential footprint.

Photograph 11:

View West – Discarded tyre obseved within dense grass vegetation in Lot 41 DP1200210

Photograph 12:

Fallen tree and Silty Sand/Sandy clay material observed with surface materials

Photograph 13:

View North – Fallen tree observed over the dirt access trail dissecting Lot 41 and Lot 51 DP 561032

Photograph 14:

View North – 'Warning Asbestos' signage viewed on the former quarry/landfill area perimeter fence line

Photograph 15:

View North – Eastern perimter fence line of former quarry/landfill

Photograph 16:

View East - Clearing observed for the propsed Riparian corridor WTC development.

Photograph 17:

View North East – Ridgline and gully observed within former quarry/landfill footprint.

Photograph 18:

View North - Temporary fencing observed restricting access into the former quarry/landfill area of the site

Photograph 19:

View North – Dense forest and vegetation observed north of the former landfill

Photograph 20:

Abandoned golf cart observed in north west section of site

Photograph 21:

Stcokpile of fallen trees and branches observed north of the former landfill

Photograph 22:

View North-West - Boundary of landfill area and former nursery site, looking north west

Photograph 23:

Abandoned car body observed in dam located in the south western section of site

Photograph 24:

View East – Current condition of the former quarry under remediation by Synergy

Photograph 25:

Bonded ACM fragment observed in surface soils adjacent East of the former quarry/landfill fence line

Photograph 26:

Cluster of bonded ACM fragments within surface soils.

Photograph 27:

Bonded ACM fragment observed in surface soils adjacent East of the former quarry/landfill fence line

Photograph 28:

Asbestos Fragments in site surface soil located in 250m^2 Grid adjacent East of the former quarry/landfill fence line

Photograph 31:

Soil profile observed during Test Pitting works

Photograph 32:

View west along Hakone Road

Appendix D - Section 10.7 Certificates

ABN 73 149 644 003
Certificate No:21253
Reference No: NTLGE216908 (6-10):134446

Coffey Environments
9 Cardiff Rd
NEW LAMBTON HEIGHTS NSW 2305

SECTION 10.7(2) AND (5) PLANNING CERTIFICATE

This Planning Certificate is issued on 29 November 2018 in respect to the land described below, pursuant to s.10.7 of the Environmental Planning and Assessment Act 1979

Fee paid:	$133.00
Receipt No:	13314459
Receipt Date:	29 November 2018

DESCRIPTION OF LAND
COUNTY OF NORTHUMBERLAND

Property Address:	99 Sparks Road, WOONGARRAH NSW 2259
Property Description:	Lot 52 DP 561032
Property Owner:	Central Coast Council

The information contained within this certificate relates to the land.

1 RELEVANT PLANNING INSTRUMENTS AND DEVELOPMENT CONTROL PLANS

1.1 Environmental Planning Instruments which apply to the land

Wyong Local Environmental Plan 2013

State Environmental Planning Policy (Housing for Seniors or People with a Disability) 2004
State Environmental Planning Policy No 21 – Caravan Parks
State Environmental Planning Policy No 30 – Intensive Agriculture
State Environmental Planning Policy No 36 – Manufactured Home Estates
State Environmental Planning Policy No 44 – Koala Habitat Protection
State Environmental Planning Policy No 50 – Canal Estate Development
State Environmental Planning Policy No 55 – Remediation of Land
State Environmental Planning Policy No 62 – Sustainable Aquaculture
State Environmental Planning Policy No 64 – Advertising and Signage
State Environmental Planning Policy No 65 – Design Quality of Residential Flat Development
State Environmental Planning Policy (State Significant Precincts) 2005
State Environmental Planning Policy (Building Sustainability Index: BASIX) 2004

State Environmental Planning Policy (Mining, Petroleum Production and Extractive Industries) 2007
State Environmental Planning Policy (Infrastructure) 2007
State Environmental Planning Policy (Exempt and Complying Development Codes) 2008
State Environmental Planning Policy (Affordable Rental Housing) 2009
State Environmental Planning Policy (State and Regional Development) 2011
State Environmental Planning Policy (Miscellaneous Consent Provisions) 2007
State Environmental Planning Policy (Vegetation in Non-Rural Areas) 2017
State Environmental Planning Policy (Educational Establishments and Child Care Facilities) 2017

1.2 Proposed Environmental Planning Instruments which will apply to the land and is or has been the subject the subject of community consultation or public exhibition

The land is not subject to any Draft Local Environmental Plans.

Draft Amendment to State Environmental Planning Policy No 44 – Koala Habitat Protection
Draft State Environmental Planning Policy (Primary Production and Rural Development) 2017

1.3 Development Control Plans

Development Control Plan 2013 applies to this land.

2 ZONING AND LAND USE

a Identity of the Zone

Lot 52 DP 561032

R1 General Residential

For each of the environmental planning instruments referred to in clause 1, please refer to the attached land use table to determine (b), (c) and (d) listed below:

b development that may be carried out within the zone without the need for development consent,

c development which may not be carried out within the zone except with development consent and

d development which is prohibited within the zone

e Development Standards applying to the land

Nil

f Critical Habitat

Nil

g Conservation Area

Nil

h Environmental Heritage

Nil

2A ZONING AND LAND USE UNDER STATE ENVIRONMENTAL PLANNING POLICY (SYDNEY REGION GROWTH CENTRES) 2006

Not applicable

3 COMPLYING DEVELOPMENT

Whether or not the land is land on which complying development can be carried out under each of the codes for complying development because of the provisions of clause 1.17A (c) and (d) and 1.19 of *State Environmental Planning Policy (Exempt and Complying Development Codes) 2008?*

1. PART 3 – HOUSING CODE

   a Complying Development under the General Housing Code **may** be carried out on the land.

2. PART 3A – RURAL HOUSING CODE

   a Complying development under the Rural Housing Code **may** be carried out on the land providing the land is not less than the minimum lot size for the erection of a dwelling house under the Wyong Local Environmental Plan 2013.

3. PART 3B – LOW RISE MEDIUM HOUSING CODE

   a Complying Development under the Low Rise Medium Density Housing Code **may** be carried out on the land.

4. PART 4 – HOUSING ALTERATIONS CODE

   a Complying development under the Housing Alterations Code **may** be carried out on the land.

5. PART 4A – GENERAL DEVELOPMENT CODE

a Complying development under the General Development Code **may** be carried out on the land.

6. PART 5 – COMMERCIAL AND INDUSTRIAL ALTERATIONS CODE

a Complying development under the Commercial and Industrial Alterations Code **may** be carried out on the land.

7. PART 5A – COMMERCIAL AND INDUSTRIAL (NEW BUILDINGS AND ADDITIONS) CODE

a Complying development under the Commercial and Industrial (New Buildings and Additions) Code **may** be carried out on the land.

8. PART 5B – CONTAINER RECYCLING FACILITIES CODE

a Complying Development under the Container Recycling Facilities Code **may** be carried out on the land.

9. PART 6 – SUBDIVISIONS CODE

a Complying development under the Subdivisions Code **may** be carried out on the land.

10. PART 7 – DEMOLITION CODE

a Complying development under the Demolition code **may** be carried out on the land.

11. PART 8 – FIRE SAFETY CODE

a Complying development under the Fire Safety Code **may** be carried out on the land.

4, 4A (Repealed)

4B ANNUAL CHARGES UNDER LOCAL GOVERNMENT ACT 1993 FOR COASTAL PROTECTION SERVICES THAT RELATE TO EXISTING COASTAL PROTECTION WORKS

The owner (or any previous owner) of the land has not consented in writing to the land being subject to annual charges under section 496B of the *Local Government Act 1993* for coastal protection services that relate to existing coastal protection works.

5 MINE SUBSIDENCE

The land is not within a proclaimed Mine Subsidence District.

6 ROAD WIDENING OR ROAD ALIGNMENT

1. DIVISION 2 SECTION 25 OF THE ROADS ACT 1993

   The land is not affected by road realignment or road widening under the above.

2. ENVIRONMENTAL PLANNING INSTRUMENT

   The land is not affected by road widening or road re-alignment under the above.

3. COUNCIL RESOLUTIONS

   The land is not affected by road widening or road re-alignment under the above.

   However, it should be noted that this parcel either fronts or abuts a road under the control of the Roads and Maritime Services. For further details regarding road widening please refer to that agency.

7 COUNCIL AND OTHER PUBLIC AUTHORITY POLICIES TO RESTRICT DEVELOPMENT DUE TO RISK

This land is **not** affected by a policy that restricts the development of the land because of the likelihood of land slip, bushfire, tidal inundation, subsidence, acid sulphate soils or any other risk (other than flooding).

7A FLOOD RELATED DEVELOPMENT CONTROLS

1. Development on this land for the purposes of dwelling houses, dual occupancies, multi dwelling housing or residential flat buildings (not including development for the purposes of group homes or senior housing) and for other purposes is **not** subject to flood related development controls.

2. Development on this land or part of the land for any other purpose is **not** subject to flood related development controls.

A word or expression used in this clause has the same meaning as it has in the *Floodplain Development Manual* (ISBN 0 7347 5476 0), published by the NSW Government in April 2005, unless it is otherwise defined in this Plan.

8 LAND RESERVED FOR ACQUISITION

The following environmental planning instruments and proposed environmental planning instruments make provisions for the acquisition of land by a public authority as referred to in Section 3.15 of the Act:

Nil

9 CONTRIBUTION PLANS

The land is subject to Section 94 Contributions Plan – Warnervale District.

The land is subject to Section 94 Development Contributions Plan – Warnervale Town Centre.

This land is subject to the Wyong Shire Section 94A Levy Development Contributions Plan.

This land is subject to the Section 94 Contributions Plan for Wyong Shire No. 11 - Shirewide Infrastructure, Services and Facilities.

9A BIODIVERSITY CERTIFIED LAND

The land **is** biodiversity certified land within the meaning of Part 7AA of the *Threatened Species Conservation Act 1995*.

10 BIOBANKING AGREEMENTS

Council has not been notified by the Director-General of the Department of Planning and Environment of an agreement issued under Part 7A of the *Threatened Species Conservation Act 1995*.

11 BUSHFIRE PRONE LAND

The information currently available to Council indicates **all** of the land is shown as bush fire prone land according to the Act.

12 PROPERTY VEGETATION PLAN

This land is not subject to a property vegetation plan under the Native Vegetation Act 2003.

NOTE: The advice provided in this section is based on notification by the Local Land Services - Greater Sydney of the approval of a plan. Further information about property vegetation plans should be obtained from that Authority.

13 ORDER UNDER TREES (DISPUTES BETWEEN NEIGHBOURS) ACT 2006

Council has not been notified of an Order issued under the Trees (Disputes between Neighbours) Act 2006.

NOTE: This advice is based on information provided by the Land and Environment Court.

14 DIRECTIONS UNDER PART 3A

Not Applicable

15 SITE COMPATIBILITY CERTIFICATES AND CONDITIONS FOR SENIORS HOUSING

Council is not aware of there being a valid Site Compatibility Certificate issued by the Director-General of the Department of Planning and Environment in respect of the land.

NOTE: This advice is based on information provided by the NSW Department of Planning and Environment.

16 SITE COMPATIBILITY CERTIFICATES FOR INFRASTUCTURE

Council is not aware of there being a valid Site Compatibility Certificate issued by the Director-General of the Department of Planning and Environment in respect of the land.

NOTE: This advice is based on information provided by the NSW Department of Planning and Environment.

17 SITE COMPATIBILITY CERTIFICATES FOR AFFORDABLE RENTAL HOUSING

Council is not aware of there being a valid Site Compatibility Certificate issued by the Director-General of the Department of Planning and Environment in respect of the land.

NOTE: This advice is based on information provided by the NSW Department of Planning and Environment.

18 PAPER SUBDIVISION INFORMATION

1. THE NAME OF ANY DEVELOPMENT PLAN ADOPTED BY A RELEVANT AUTHORITY THAT APPLIES TO THIS LAND OR THAT IS PROPOSED TO BE SUBJECT TO A CONSENT BALLOT.

   Nil

2. THE DATE OF ANY SUBDIVISION ORDER THAT APPLIES TO THIS LAND.

   Not applicable

Words and expressions used in this clause have the same meaning as they have in Part 16C of this Regulation.

19 SITE VERIFICATION CERTIFICATE

Council is not aware of a Site Verification Certificate having been issued by the Director-General of the Department of Planning and Environment in respect to this land.

Note: A site verification certificate sets out the Director-General's opinion as to whether the land concerned is or is not biophysical strategic agricultural land or critical industry cluster land—see Division 3 of Part 4AA of *State Environmental Planning Policy (Mining, Petroleum Production and Extractive Industries) 2007*.

20 LOOSE-FILL ASBESTOS INSULATION

This land does not include any residential premises (within the meaning of Division 1A of Part 8 of the *Home Building Act 1989*) that are listed on the register that is required to be maintained under that Division. That register lists residential premises that contain or have contained loose-fill asbestos insulation.

21 AFFECTED BUILDING NOTICES AND BUILDING PRODUCT RECTIFICFATION ORDERS (Building Products Safety Act 2017)

1. Is there any affected building notice of which the council is aware that is in force in respect of the land?

   No

2.a Is there any building product rectification order of which the council is aware that is in force in respect of the land and has not been fully complied with?

   No

2.b Is there any notice of intention to make a building product rectification order of which the council is aware has been given in respect of the land and is outstanding.

   No

22 CONTAMINATED LAND MANAGEMENT ACT 1997

Nil Prescribed Matters

23 ADVICE PROVIDED PURSUANT TO S.10.7(5) OF THE ENVIRONMENTAL PLANNING AND ASSESSMENT ACT 1979

23.1 Prescribed Streams

Approval of the NSW Office of Water is required before the removal of any native vegetation within 20 metres of a prescribed stream. Contact the Office of Water for details.

23.2 Special Contributions Area Order

Department of Planning document - to constitute certain land in the Central Coast Local Government area as a Special Contributions Area (enquiries to the Department of Planning and Environment).

Special Infrastructure Contributions Plan

Department of Planning document - outlines a proposal to fund the provision of sub-regional and regional infrastructure (enquiries to the Department of Planning and Environment).

*****

For any enquiries regarding this Certificate please contact Council's Customer Contact Centre on 4350 5555.

Ananya Senjuti
Signed on Behalf of Council

LAND USE TABLE

Zone R1 General Residential

Wyong Local Environmental Plan 2013

1 Objectives of zone

- To provide for the housing needs of the community.
- To provide for a variety of housing types and densities.
- To enable other land uses that provide facilities or services to meet the day to day needs of residents.
- To promote “walkable” neighbourhoods.
- To ensure development is compatible with the scale and character of the local area and complements the existing streetscape.

2 Permitted without consent

Home occupations

3 Permitted with consent

Attached dwellings; Bed and breakfast accommodation; Boarding houses; Boat launching ramps; Boat sheds; Car parks; Caravan parks; Centre-based child care facilities; Community facilities; Dual occupancies; Dwelling houses; Educational establishments; Emergency services facilities; Environmental facilities; Environmental protection works; Exhibition homes; Exhibition villages; Flood mitigation works; Group homes; Home-based child care; Home businesses; Home industries; Home occupations (sex services); Hostels; Hotel or motel accommodation; Information and education facilities; Jetties; Multi dwelling housing; Neighbourhood shops; Places of public worship; Recreation areas; Residential flat buildings; Respite day care centres; Roads; Secondary dwellings; Semi-detached dwellings; Seniors housing; Serviced apartments; Shop top housing; Signage; Water recycling facilities; Water reticulation systems; Water storage facilities

4 Prohibited

Any development not specified in item 2 or 3

ABN 73 149 644 003
Certificate No:21252
Reference No: NTLGE216908 (6-10):134446

Coffey Environments
9 Cardiff Rd
NEW LAMBTON HEIGHTS NSW 2305

SECTION 10.7(2) AND (5) PLANNING CERTIFICATE

This Planning Certificate is issued on 29 November 2018 in respect to the land described below, pursuant to s.10.7 of the Environmental Planning and Assessment Act 1979

Fee paid:	$133.00
Receipt No:	13314459
Receipt Date:	29 November 2018

DESCRIPTION OF LAND
COUNTY OF NORTHUMBERLAND

Property Address:	103 Sparks Road, WOONGARRAH NSW 2259
Property Description:	Lot 51 DP 561032
Property Owner:	Central Coast Council

The information contained within this certificate relates to the land.

1 RELEVANT PLANNING INSTRUMENTS AND DEVELOPMENT CONTROL PLANS

1.1 Environmental Planning Instruments which apply to the land

Wyong Local Environmental Plan 2013

State Environmental Planning Policy (Housing for Seniors or People with a Disability) 2004
State Environmental Planning Policy No 21 – Caravan Parks
State Environmental Planning Policy No 30 – Intensive Agriculture
State Environmental Planning Policy No 36 – Manufactured Home Estates
State Environmental Planning Policy No 44 – Koala Habitat Protection
State Environmental Planning Policy No 50 – Canal Estate Development
State Environmental Planning Policy No 55 – Remediation of Land
State Environmental Planning Policy No 62 – Sustainable Aquaculture
State Environmental Planning Policy No 64 – Advertising and Signage
State Environmental Planning Policy No 65 – Design Quality of Residential Flat Development
State Environmental Planning Policy (State Significant Precincts) 2005
State Environmental Planning Policy (Building Sustainability Index: BASIX) 2004

State Environmental Planning Policy (Mining, Petroleum Production and Extractive Industries) 2007
State Environmental Planning Policy (Infrastructure) 2007
State Environmental Planning Policy (Exempt and Complying Development Codes) 2008
State Environmental Planning Policy (Affordable Rental Housing) 2009
State Environmental Planning Policy (State and Regional Development) 2011
State Environmental Planning Policy (Miscellaneous Consent Provisions) 2007
State Environmental Planning Policy (Vegetation in Non-Rural Areas) 2017
State Environmental Planning Policy (Educational Establishments and Child Care Facilities) 2017

1.2 Proposed Environmental Planning Instruments which will apply to the land and is or has been the subject the subject of community consultation or public exhibition

The land is not subject to any Draft Local Environmental Plans.

Draft Amendment to State Environmental Planning Policy No 44 – Koala Habitat Protection
Draft State Environmental Planning Policy (Primary Production and Rural Development) 2017

1.3 Development Control Plans

Development Control Plan 2013 applies to this land.

2 ZONING AND LAND USE

a Identity of the Zone

Lot 51 DP 561032

R1 General Residential

For each of the environmental planning instruments referred to in clause 1, please refer to the attached land use table to determine (b), (c) and (d) listed below:

b development that may be carried out within the zone without the need for development consent,

c development which may not be carried out within the zone except with development consent and

d development which is prohibited within the zone

e Development Standards applying to the land

Nil

f Critical Habitat

Nil

g Conservation Area

Nil

h Environmental Heritage

Nil

2A ZONING AND LAND USE UNDER STATE ENVIRONMENTAL PLANNING POLICY (SYDNEY REGION GROWTH CENTRES) 2006

Not applicable

3 COMPLYING DEVELOPMENT

Whether or not the land is land on which complying development can be carried out under each of the codes for complying development because of the provisions of clause 1.17A (c) and (d) and 1.19 of *State Environmental Planning Policy (Exempt and Complying Development Codes) 2008?*

1. PART 3 – HOUSING CODE

   a Complying Development under the General Housing Code **may** be carried out on the land.

2. PART 3A – RURAL HOUSING CODE

   a Complying development under the Rural Housing Code **may** be carried out on the land providing the land is not less than the minimum lot size for the erection of a dwelling house under the Wyong Local Environmental Plan 2013.

3. PART 3B – LOW RISE MEDIUM HOUSING CODE

   a Complying Development under the Low Rise Medium Density Housing Code **may** be carried out on the land.

4. PART 4 – HOUSING ALTERATIONS CODE

   a Complying development under the Housing Alterations Code **may** be carried out on the land.

5. PART 4A – GENERAL DEVELOPMENT CODE

a Complying development under the General Development Code **may** be carried out on the land.

6. PART 5 – COMMERCIAL AND INDUSTRIAL ALTERATIONS CODE

a Complying development under the Commercial and Industrial Alterations Code **may** be carried out on the land.

7. PART 5A – COMMERCIAL AND INDUSTRIAL (NEW BUILDINGS AND ADDITIONS) CODE

a Complying development under the Commercial and Industrial (New Buildings and Additions) Code **may** be carried out on the land.

8. PART 5B – CONTAINER RECYCLING FACILITIES CODE

a Complying Development under the Container Recycling Facilities Code **may** be carried out on the land.

9. PART 6 – SUBDIVISIONS CODE

a Complying development under the Subdivisions Code **may** be carried out on the land.

10. PART 7 – DEMOLITION CODE

a Complying development under the Demolition code **may** be carried out on the land.

11. PART 8 – FIRE SAFETY CODE

a Complying development under the Fire Safety Code **may** be carried out on the land.

4, 4A (Repealed)

4B ANNUAL CHARGES UNDER LOCAL GOVERNMENT ACT 1993 FOR COASTAL PROTECTION SERVICES THAT RELATE TO EXISTING COASTAL PROTECTION WORKS

The owner (or any previous owner) of the land has not consented in writing to the land being subject to annual charges under section 496B of the *Local Government Act 1993* for coastal protection services that relate to existing coastal protection works.

5 MINE SUBSIDENCE

The land is not within a proclaimed Mine Subsidence District.

6 ROAD WIDENING OR ROAD ALIGNMENT

1. DIVISION 2 SECTION 25 OF THE ROADS ACT 1993

   The land is not affected by road realignment or road widening under the above.

2. ENVIRONMENTAL PLANNING INSTRUMENT

   The land is not affected by road widening or road re-alignment under the above.

3. COUNCIL RESOLUTIONS

   The land is not affected by road widening or road re-alignment under the above.

   However, it should be noted that this parcel either fronts or abuts a road under the control of the Roads and Maritime Services. For further details regarding road widening please refer to that agency.

7 COUNCIL AND OTHER PUBLIC AUTHORITY POLICIES TO RESTRICT DEVELOPMENT DUE TO RISK

This land is **not** affected by a policy that restricts the development of the land because of the likelihood of land slip, bushfire, tidal inundation, subsidence, acid sulphate soils or any other risk (other than flooding).

7A FLOOD RELATED DEVELOPMENT CONTROLS

1. Development on this land for the purposes of dwelling houses, dual occupancies, multi dwelling housing or residential flat buildings (not including development for the purposes of group homes or senior housing) and for other purposes is **not** subject to flood related development controls.

2. Development on this land or part of the land for any other purpose is **not** subject to flood related development controls.

A word or expression used in this clause has the same meaning as it has in the *Floodplain Development Manual* (ISBN 0 7347 5476 0), published by the NSW Government in April 2005, unless it is otherwise defined in this Plan.

8 LAND RESERVED FOR ACQUISITION

The following environmental planning instruments and proposed environmental planning instruments make provisions for the acquisition of land by a public authority as referred to in Section 3.15 of the Act:

Nil

9 CONTRIBUTION PLANS

The land is subject to Section 94 Contributions Plan – Warnervale District.

The land is subject to Section 94 Development Contributions Plan – Warnervale Town Centre.

This land is subject to the Wyong Shire Section 94A Levy Development Contributions Plan.

This land is subject to the Section 94 Contributions Plan for Wyong Shire No. 11 - Shirewide Infrastructure, Services and Facilities.

9A BIODIVERSITY CERTIFIED LAND

The land **is** biodiversity certified land within the meaning of Part 7AA of the *Threatened Species Conservation Act 1995*.

10 BIOBANKING AGREEMENTS

Council has not been notified by the Director-General of the Department of Planning and Environment of an agreement issued under Part 7A of the *Threatened Species Conservation Act 1995*.

11 BUSHFIRE PRONE LAND

The information currently available to Council indicates **all** of the land is shown as bush fire prone land according to the Act.

12 PROPERTY VEGETATION PLAN

This land is not subject to a property vegetation plan under the Native Vegetation Act 2003.

NOTE: The advice provided in this section is based on notification by the Local Land Services - Greater Sydney of the approval of a plan. Further information about property vegetation plans should be obtained from that Authority.

13 ORDER UNDER TREES (DISPUTES BETWEEN NEIGHBOURS) ACT 2006

Council has not been notified of an Order issued under the Trees (Disputes between Neighbours) Act 2006.

NOTE: This advice is based on information provided by the Land and Environment Court.

14 DIRECTIONS UNDER PART 3A

Not Applicable

15 SITE COMPATIBILITY CERTIFICATES AND CONDITIONS FOR SENIORS HOUSING

Council is not aware of there being a valid Site Compatibility Certificate issued by the Director-General of the Department of Planning and Environment in respect of the land.

NOTE: This advice is based on information provided by the NSW Department of Planning and Environment.

16 SITE COMPATIBILITY CERTIFICATES FOR INFRASTUCTURE

Council is not aware of there being a valid Site Compatibility Certificate issued by the Director-General of the Department of Planning and Environment in respect of the land.

NOTE: This advice is based on information provided by the NSW Department of Planning and Environment.

17 SITE COMPATIBILITY CERTIFICATES FOR AFFORDABLE RENTAL HOUSING

Council is not aware of there being a valid Site Compatibility Certificate issued by the Director-General of the Department of Planning and Environment in respect of the land.

NOTE: This advice is based on information provided by the NSW Department of Planning and Environment.

18 PAPER SUBDIVISION INFORMATION

1. THE NAME OF ANY DEVELOPMENT PLAN ADOPTED BY A RELEVANT AUTHORITY THAT APPLIES TO THIS LAND OR THAT IS PROPOSED TO BE SUBJECT TO A CONSENT BALLOT.

   Nil

2. THE DATE OF ANY SUBDIVISION ORDER THAT APPLIES TO THIS LAND.

   Not applicable

Words and expressions used in this clause have the same meaning as they have in Part 16C of this Regulation.

19 SITE VERIFICATION CERTIFICATE

Council is not aware of a Site Verification Certificate having been issued by the Director-General of the Department of Planning and Environment in respect to this land.

Note: A site verification certificate sets out the Director-General's opinion as to whether the land concerned is or is not biophysical strategic agricultural land or critical industry cluster land—see Division 3 of Part 4AA of *State Environmental Planning Policy (Mining, Petroleum Production and Extractive Industries) 2007*.

20 LOOSE-FILL ASBESTOS INSULATION

This land does not include any residential premises (within the meaning of Division 1A of Part 8 of the *Home Building Act 1989*) that are listed on the register that is required to be maintained under that Division. That register lists residential premises that contain or have contained loose-fill asbestos insulation.

21 AFFECTED BUILDING NOTICES AND BUILDING PRODUCT RECTIFICFATION ORDERS (Building Products Safety Act 2017)

1. Is there any affected building notice of which the council is aware that is in force in respect of the land?

   No

2.a Is there any building product rectification order of which the council is aware that is in force in respect of the land and has not been fully complied with?

   No

2.b Is there any notice of intention to make a building product rectification order of which the council is aware has been given in respect of the land and is outstanding.

   No

22 CONTAMINATED LAND MANAGEMENT ACT 1997

Nil Prescribed Matters

23 ADVICE PROVIDED PURSUANT TO S.10.7(5) OF THE ENVIRONMENTAL PLANNING AND ASSESSMENT ACT 1979

23.1 Prescribed Streams

Approval of the NSW Office of Water is required before the removal of any native vegetation within 20 metres of a prescribed stream. Contact the Office of Water for details.

23.2 Special Contributions Area Order

Department of Planning document - to constitute certain land in the Central Coast Local Government area as a Special Contributions Area (enquiries to the Department of Planning and Environment).

Special Infrastructure Contributions Plan

Department of Planning document - outlines a proposal to fund the provision of sub-regional and regional infrastructure (enquiries to the Department of Planning and Environment).

*****

For any enquiries regarding this Certificate please contact Council's Customer Contact Centre on 4350 5555.

Ananya Senjuti
Signed on Behalf of Council

LAND USE TABLE

Zone R1 General Residential

Wyong Local Environmental Plan 2013

1 Objectives of zone

- To provide for the housing needs of the community.
- To provide for a variety of housing types and densities.
- To enable other land uses that provide facilities or services to meet the day to day needs of residents.
- To promote “walkable” neighbourhoods.
- To ensure development is compatible with the scale and character of the local area and complements the existing streetscape.

2 Permitted without consent

Home occupations

3 Permitted with consent

Attached dwellings; Bed and breakfast accommodation; Boarding houses; Boat launching ramps; Boat sheds; Car parks; Caravan parks; Centre-based child care facilities; Community facilities; Dual occupancies; Dwelling houses; Educational establishments; Emergency services facilities; Environmental facilities; Environmental protection works; Exhibition homes; Exhibition villages; Flood mitigation works; Group homes; Home-based child care; Home businesses; Home industries; Home occupations (sex services); Hostels; Hotel or motel accommodation; Information and education facilities; Jetties; Multi dwelling housing; Neighbourhood shops; Places of public worship; Recreation areas; Residential flat buildings; Respite day care centres; Roads; Secondary dwellings; Semi-detached dwellings; Seniors housing; Serviced apartments; Shop top housing; Signage; Water recycling facilities; Water reticulation systems; Water storage facilities

4 Prohibited

Any development not specified in item 2 or 3

ABN 73 149 644 003
Certificate No:21250
Reference No: NTLGE216908 (6-10):134446

Coffey Environments
9 Cardiff Rd
NEW LAMBTON HEIGHTS NSW 2305

SECTION 10.7(2) AND (5) PLANNING CERTIFICATE

This Planning Certificate is issued on 29 November 2018 in respect to the land described below, pursuant to s.10.7 of the Environmental Planning and Assessment Act 1979

Fee paid:	$133.00
Receipt No:	13314459
Receipt Date:	29 November 2018

DESCRIPTION OF LAND
COUNTY OF NORTHUMBERLAND

Property Address:	107 Sparks Road, WOONGARRAH NSW 2259
Property Description:	Lot 41 DP 1200210
Property Owner:	Central Coast Council

The information contained within this certificate relates to the land.

1 RELEVANT PLANNING INSTRUMENTS AND DEVELOPMENT CONTROL PLANS

1.1 Environmental Planning Instruments which apply to the land

Wyong Local Environmental Plan 2013

State Environmental Planning Policy (Housing for Seniors or People with a Disability) 2004
State Environmental Planning Policy No 21 – Caravan Parks
State Environmental Planning Policy No 30 – Intensive Agriculture
State Environmental Planning Policy No 36 – Manufactured Home Estates
State Environmental Planning Policy No 44 – Koala Habitat Protection
State Environmental Planning Policy No 50 – Canal Estate Development
State Environmental Planning Policy No 55 – Remediation of Land
State Environmental Planning Policy No 62 – Sustainable Aquaculture
State Environmental Planning Policy No 64 – Advertising and Signage
State Environmental Planning Policy No 65 – Design Quality of Residential Flat Development
State Environmental Planning Policy (State Significant Precincts) 2005
State Environmental Planning Policy (Building Sustainability Index: BASIX) 2004

State Environmental Planning Policy (Mining, Petroleum Production and Extractive Industries) 2007
State Environmental Planning Policy (Infrastructure) 2007
State Environmental Planning Policy (Exempt and Complying Development Codes) 2008
State Environmental Planning Policy (Affordable Rental Housing) 2009
State Environmental Planning Policy (State and Regional Development) 2011
State Environmental Planning Policy (Miscellaneous Consent Provisions) 2007
State Environmental Planning Policy (Vegetation in Non-Rural Areas) 2017
State Environmental Planning Policy (Educational Establishments and Child Care Facilities) 2017

1.2 Proposed Environmental Planning Instruments which will apply to the land and is or has been the subject the subject of community consultation or public exhibition

The land is not subject to any Draft Local Environmental Plans.

Draft Amendment to State Environmental Planning Policy No 44 – Koala Habitat Protection
Draft State Environmental Planning Policy (Primary Production and Rural Development) 2017

1.3 Development Control Plans

Development Control Plan 2013 applies to this land.

2 ZONING AND LAND USE

a Identity of the Zone

Lot 41 DP 1200210

RE1 Public Recreation

R1 General Residential

B4 Mixed Use

For each of the environmental planning instruments referred to in clause 1, please refer to the attached land use table to determine (b), (c) and (d) listed below:

b development that may be carried out within the zone without the need for development consent,

c development which may not be carried out within the zone except with development consent and

d development which is prohibited within the zone

e Development Standards applying to the land

Nil

f Critical Habitat

Nil

g Conservation Area

Nil

h Environmental Heritage

Nil

2A ZONING AND LAND USE UNDER STATE ENVIRONMENTAL PLANNING POLICY (SYDNEY REGION GROWTH CENTRES) 2006

Not applicable

3 COMPLYING DEVELOPMENT

Whether or not the land is land on which complying development can be carried out under each of the codes for complying development because of the provisions of clause 1.17A (c) and (d) and 1.19 of *State Environmental Planning Policy (Exempt and Complying Development Codes) 2008?*

1. PART 3 – HOUSING CODE

   a Complying Development under the General Housing Code **may** be carried out on the land.

2. PART 3A – RURAL HOUSING CODE

   a Complying development under the Rural Housing Code **may** be carried out on the land providing the land is not less than the minimum lot size for the erection of a dwelling house under the Wyong Local Environmental Plan 2013.

3. PART 3B – LOW RISE MEDIUM HOUSING CODE

   a Complying Development under the Low Rise Medium Density Housing Code **may** be carried out on the land.

4. PART 4 – HOUSING ALTERATIONS CODE

a Complying development under the Housing Alterations Code **may** be carried out on the land.

5. PART 4A – GENERAL DEVELOPMENT CODE

a Complying development under the General Development Code **may** be carried out on the land.

6. PART 5 – COMMERCIAL AND INDUSTRIAL ALTERATIONS CODE

a Complying development under the Commercial and Industrial Alterations Code **may** be carried out on the land.

7. PART 5A – COMMERCIAL AND INDUSTRIAL (NEW BUILDINGS AND ADDITIONS) CODE

a Complying development under the Commercial and Industrial (New Buildings and Additions) Code **may** be carried out on the land.

8. PART 5B – CONTAINER RECYCLING FACILITIES CODE

a Complying Development under the Container Recycling Facilities Code **may** be carried out on the land.

9. PART 6 – SUBDIVISIONS CODE

a Complying development under the Subdivisions Code **may** be carried out on the land.

10. PART 7 – DEMOLITION CODE

a Complying development under the Demolition code **may** be carried out on the land.

11. PART 8 – FIRE SAFETY CODE

a Complying development under the Fire Safety Code **may** be carried out on the land.

4, 4A (Repealed)

4B ANNUAL CHARGES UNDER LOCAL GOVERNMENT ACT 1993 FOR COASTAL PROTECTION SERVICES THAT RELATE TO EXISTING COASTAL PROTECTION WORKS

The owner (or any previous owner) of the land has not consented in writing to the land being subject to annual charges under section 496B of the *Local Government Act 1993* for coastal protection services that relate to existing coastal protection works.

5 MINE SUBSIDENCE

The land is not within a proclaimed Mine Subsidence District.

6 ROAD WIDENING OR ROAD ALIGNMENT

1. DIVISION 2 SECTION 25 OF THE ROADS ACT 1993

   The land is not affected by road realignment or road widening under the above.

2. ENVIRONMENTAL PLANNING INSTRUMENT

   The land is not affected by road widening or road re-alignment under the above.

3. COUNCIL RESOLUTIONS

   The land is not affected by road widening or road re-alignment under the above.

   However, it should be noted that this parcel either fronts or abuts a road under the control of the Roads and Maritime Services. For further details regarding road widening please refer to that agency.

7 COUNCIL AND OTHER PUBLIC AUTHORITY POLICIES TO RESTRICT DEVELOPMENT DUE TO RISK

This land is **not** affected by a policy that restricts the development of the land because of the likelihood of land slip, bushfire, tidal inundation, subsidence, acid sulphate soils or any other risk (other than flooding).

7A FLOOD RELATED DEVELOPMENT CONTROLS

1. Development on this land for the purposes of dwelling houses, dual occupancies, multi dwelling housing or residential flat buildings (not including development for the purposes of group homes or senior housing) and for other purposes is **not** subject to flood related development controls.

2. Development on this land or part of the land for any other purpose is **not** subject to flood related development controls.

A word or expression used in this clause has the same meaning as it has in the *Floodplain Development Manual* (ISBN 0 7347 5476 0), published by the NSW Government in April 2005, unless it is otherwise defined in this Plan.

8 LAND RESERVED FOR ACQUISITION

The following environmental planning instruments and proposed environmental planning instruments make provisions for the acquisition of land by a public authority as referred to in Section 3.15 of the Act:

Nil

9 CONTRIBUTION PLANS

The land is subject to Section 94 Contributions Plan – Warnervale District.

The land is subject to Section 94 Development Contributions Plan – Warnervale Town Centre.

This land is subject to the Wyong Shire Section 94A Levy Development Contributions Plan.

This land is subject to the Section 94 Contributions Plan for Wyong Shire No. 11 - Shirewide Infrastructure, Services and Facilities.

9A BIODIVERSITY CERTIFIED LAND

The land **is** biodiversity certified land within the meaning of Part 7AA of the *Threatened Species Conservation Act 1995*.

10 BIOBANKING AGREEMENTS

Council has not been notified by the Director-General of the Department of Planning and Environment of an agreement issued under Part 7A of the *Threatened Species Conservation Act 1995*.

11 BUSHFIRE PRONE LAND

The information currently available to Council indicates **all** of the land is shown as bush fire prone land according to the Act.

12 PROPERTY VEGETATION PLAN

This land is not subject to a property vegetation plan under the Native Vegetation Act 2003.

NOTE: The advice provided in this section is based on notification by the Local Land Services - Greater Sydney of the approval of a plan. Further information about property vegetation plans should be obtained from that Authority.

13 ORDER UNDER TREES (DISPUTES BETWEEN NEIGHBOURS) ACT 2006

Council has not been notified of an Order issued under the Trees (Disputes between Neighbours) Act 2006.

NOTE: This advice is based on information provided by the Land and Environment Court.

14 DIRECTIONS UNDER PART 3A

Not Applicable

15 SITE COMPATIBILITY CERTIFICATES AND CONDITIONS FOR SENIORS HOUSING

Council is not aware of there being a valid Site Compatibility Certificate issued by the Director-General of the Department of Planning and Environment in respect of the land.

NOTE: This advice is based on information provided by the NSW Department of Planning and Environment.

16 SITE COMPATIBILITY CERTIFICATES FOR INFRASTUCTURE

Council is not aware of there being a valid Site Compatibility Certificate issued by the Director-General of the Department of Planning and Environment in respect of the land.

NOTE: This advice is based on information provided by the NSW Department of Planning and Environment.

17 SITE COMPATIBILITY CERTIFICATES FOR AFFORDABLE RENTAL HOUSING

Council is not aware of there being a valid Site Compatibility Certificate issued by the Director-General of the Department of Planning and Environment in respect of the land.

NOTE: This advice is based on information provided by the NSW Department of Planning and Environment.

18 PAPER SUBDIVISION INFORMATION

1. THE NAME OF ANY DEVELOPMENT PLAN ADOPTED BY A RELEVANT AUTHORITY THAT APPLIES TO THIS LAND OR THAT IS PROPOSED TO BE SUBJECT TO A CONSENT BALLOT.

   Nil

2. THE DATE OF ANY SUBDIVISION ORDER THAT APPLIES TO THIS LAND.

   Not applicable

Words and expressions used in this clause have the same meaning as they have in Part 16C

of this Regulation.

19 SITE VERIFICATION CERTIFICATE

Council is not aware of a Site Verification Certificate having been issued by the Director-General of the Department of Planning and Environment in respect to this land.

Note: A site verification certificate sets out the Director-General's opinion as to whether the land concerned is or is not biophysical strategic agricultural land or critical industry cluster land—see Division 3 of Part 4AA of *State Environmental Planning Policy (Mining, Petroleum Production and Extractive Industries) 2007*.

20 LOOSE-FILL ASBESTOS INSULATION

This land does not include any residential premises (within the meaning of Division 1A of Part 8 of the *Home Building Act 1989*) that are listed on the register that is required to be maintained under that Division. That register lists residential premises that contain or have contained loose-fill asbestos insulation.

21 AFFECTED BUILDING NOTICES AND BUILDING PRODUCT RECTIFICFATION ORDERS (Building Products Safety Act 2017)

1. Is there any affected building notice of which the council is aware that is in force in respect of the land?

   No

2.a Is there any building product rectification order of which the council is aware that is in force in respect of the land and has not been fully complied with?

   No

2.b Is there any notice of intention to make a building product rectification order of which the council is aware has been given in respect of the land and is outstanding.

   No

22 CONTAMINATED LAND MANAGEMENT ACT 1997

Nil Prescribed Matters

23 ADVICE PROVIDED PURSUANT TO S.10.7(5) OF THE ENVIRONMENTAL PLANNING AND ASSESSMENT ACT 1979

23.1 Prescribed Streams

Approval of the NSW Office of Water is required before the removal of any native vegetation within 20 metres of a prescribed stream. Contact the Office of Water for

details.

23.2 Special Contributions Area Order
Department of Planning document - to constitute certain land in the Central Coast Local Government area as a Special Contributions Area (enquiries to the Department of Planning and Environment).

Special Infrastructure Contributions Plan
Department of Planning document - outlines a proposal to fund the provision of sub-regional and regional infrastructure (enquiries to the Department of Planning and Environment).

*****

For any enquiries regarding this Certificate please contact Council's Customer Contact Centre on 4350 5555.

Ananya Senjuti
Signed on Behalf of Council

LAND USE TABLE

Zone RE1 Public Recreation

Wyong Local Environmental Plan 2013

1 Objectives of zone

- To enable land to be used for public open space or recreational purposes.
- To provide a range of recreational settings and activities and compatible land uses.
- To protect and enhance the natural environment for recreational purposes.
- To provide linked open space for ecosystem continuity, public access, local community recreation and waterway protection.
- To provide space for integrated stormwater treatment devices for flow and water quality management.
- To enable ancillary development that complements land zoned for recreational purposes.

2 Permitted without consent

Nil.

3 Permitted with consent

Boat launching ramps; Boat sheds; Building identification signs; Business identification signs; Camping grounds; Caravan parks; Charter and tourism boating facilities; Centre-based child care facilities; Community facilities; Eco-tourist facilities; Emergency services facilities; Entertainment facilities; Environmental facilities; Environmental protection works; Flood mitigation works; Food and drink premises; Function centres; Information and education facilities; Jetties; Kiosks; Marinas; Markets; Mooring pens; Moorings; Public administration buildings; Recreation areas; Recreation facilities (indoor); Recreation facilities (major); Recreation facilities (outdoor); Registered clubs; Respite day care centres; Roads; Sewerage systems; Waste or resource management facilities; Water recreation structures; Water supply systems

4 Prohibited

Any development not specified in item 2 or 3

LAND USE TABLE

Zone R1 General Residential
Wyong Local Environmental Plan 2013

1 Objectives of zone

- To provide for the housing needs of the community.
- To provide for a variety of housing types and densities.
- To enable other land uses that provide facilities or services to meet the day to day needs of residents.
- To promote “walkable” neighbourhoods.
- To ensure development is compatible with the scale and character of the local area and complements the existing streetscape.

2 Permitted without consent

Home occupations

3 Permitted with consent

Attached dwellings; Bed and breakfast accommodation; Boarding houses; Boat launching ramps; Boat sheds; Car parks; Caravan parks; Centre-based child care facilities; Community facilities; Dual occupancies; Dwelling houses; Educational establishments; Emergency services facilities; Environmental facilities; Environmental protection works; Exhibition homes; Exhibition villages; Flood mitigation works; Group homes; Home-based child care; Home businesses; Home industries; Home occupations (sex services); Hostels; Hotel or motel accommodation; Information and education facilities; Jetties; Multi dwelling housing; Neighbourhood shops; Places of public worship; Recreation areas; Residential flat buildings; Respite day care centres; Roads; Secondary dwellings; Semi-detached dwellings; Seniors housing; Serviced apartments; Shop top housing; Signage; Water recycling facilities; Water reticulation systems; Water storage facilities

4 Prohibited

Any development not specified in item 2 or 3

LAND USE TABLE

Zone B4 Mixed Use
Wyong Local Environmental Plan 2013

1 Objectives of zone

- To provide a mixture of compatible land uses.
- To integrate suitable business, office, residential, retail and other development in accessible locations so as to maximise public transport patronage and encourage walking and cycling.
- To permit residential accommodation while maintaining active retail, business and other non-residential uses at street level.
- To encourage development that supports or complements the primary office and retail functions of the zone.
- To minimise conflict between land uses within the zone and land uses within adjoining zones.

2 Permitted without consent

Nil

3 Permitted with consent

Boarding houses; Centre-based child care facilities; Commercial premises; Community facilities; Educational establishments; Entertainment facilities; Function centres; Hotel or motel accommodation; Information and education facilities; Medical centres; Passenger transport facilities; Recreation facilities (indoor); Registered clubs; Residential flat buildings; Respite day care centres; Restricted premises; Roads; Seniors housing; Sewage reticulation systems; Shop top housing; Water reticulation systems; Water storage facilities; Any other development not specified in item 2 or 4.

4 Prohibited

Agriculture; Air transport facilities; Airstrips; Animal boarding or training establishments; Boat building and repair facilities; Camping grounds; Caravan parks; Cemeteries; Crematoria; Depots; Eco-tourist facilities; Electricity generating works; Exhibition homes; Exhibition villages; Extractive industries; Farm buildings; Forestry; Freight transport facilities; Heavy industrial storage establishments; Industrial retail outlets; Industrial training facilities; Industries; Marinas; Mortuaries; Open cut mining; Residential accommodation; Resource recovery facilities; Rural industries; Sewerage systems; Sex services premises; Storage premises; Transport depots; Truck depots; Vehicle body repair workshops; Vehicle repair stations; Warehouse or distribution centres; Waste disposal facilities; Water supply systems; Wharf or boating facilities; Wholesale supplies

ABN 73 149 644 003
Certificate No:19936
Reference No: NTLGE216908-02:130374

Coffey Environments
9 Cardiff Rd
NEW LAMBTON HEIGHTS NSW 2305

SECTION 10.7(2) AND (5) PLANNING CERTIFICATE

This Planning Certificate is issued on 12 September 2018 in respect to the land described below, pursuant to s.10.7 of the Environmental Planning and Assessment Act 1979

Fee paid:	$133.00
Receipt No:	13105024
Receipt Date:	5 September 2018

DESCRIPTION OF LAND
COUNTY OF NORTHUMBERLAND

Property Address:	236-260 Hakone Road, WOONGARRAH NSW 2259
Property Description:	Lot 54 DP 7527, Lot 55 DP 7527, Lot 1 DP 376264, Lot 1 DP 371647, Lot 1 DP 375712
Property Owner:	Central Coast Council

The information contained within this certificate relates to the land.

1 RELEVANT PLANNING INSTRUMENTS AND DEVELOPMENT CONTROL PLANS

1.1 Environmental Planning Instruments which apply to the land

Wyong Local Environmental Plan 2013

State Environmental Planning Policy (Vegetation in Non-Rural Areas) 2017
State Environmental Planning Policy (Educational Establishments and Child Care Facilities) 2017
State Environmental Planning Policy (Housing for Seniors or People with a Disability) 2004
State Environmental Planning Policy No 21 – Caravan Parks
State Environmental Planning Policy No 30 – Intensive Agriculture
State Environmental Planning Policy No 36 – Manufactured Home Estates
State Environmental Planning Policy No 44 – Koala Habitat Protection
State Environmental Planning Policy No 50 – Canal Estate Development
State Environmental Planning Policy No 55 – Remediation of Land
State Environmental Planning Policy No 62 – Sustainable Aquaculture

State Environmental Planning Policy No 64 – Advertising and Signage
State Environmental Planning Policy No 65 – Design Quality of Residential Flat Development
State Environmental Planning Policy (State Significant Precincts) 2005
State Environmental Planning Policy (Building Sustainability Index: BASIX) 2004
State Environmental Planning Policy (Mining, Petroleum Production and Extractive Industries) 2007
State Environmental Planning Policy (Infrastructure) 2007
State Environmental Planning Policy (Exempt and Complying Development Codes) 2008
State Environmental Planning Policy (Affordable Rental Housing) 2009
State Environmental Planning Policy (State and Regional Development) 2011
State Environmental Planning Policy (Miscellaneous Consent Provisions) 2007

1.2 Proposed Environmental Planning Instruments which will apply to the land and is or has been the subject the subject of community consultation or public exhibition

The land is not subject to any Draft Local Environmental Plans.

Draft Amendment to State Environmental Planning Policy (Infrastructure) 2007
Draft Amendment to State Environmental Planning Policy No 44 – Koala Habitat Protection

1.3 Development Control Plans

Development Control Plan 2013 applies to this land.

2 ZONING AND LAND USE

a Identity of the Zone

Lot 1 DP 376264

RE1 Public Recreation
Lot 55 DP 7527

E3 Environmental Management
Lot 1 DP 376264

B4 Mixed Use
Lot 1 DP 376264

R1 General Residential
Lot 55 DP 7527

E2 Environmental Conservation
Lot 1 DP 376264

B2 Local Centre

For each of the environmental planning instruments referred to in clause 1, please refer to the attached land use table to determine (b), (c) and (d) listed below:

b development that may be carried out within the zone without the need for development consent,

c development which may not be carried out within the zone except with development consent and

d development which is prohibited within the zone

e Development Standards applying to the land

Development standards applying to the land fix minimum land dimensions for the erection of a dwelling-house on this land.

The minimum land dimension so fixed is 40ha.

f Critical Habitat

Nil

g Conservation Area

Nil

h Environmental Heritage

Nil

2A ZONING AND LAND USE UNDER STATE ENVIRONMENTAL PLANNING POLICY (SYDNEY REGION GROWTH CENTRES) 2006

Not applicable

3 COMPLYING DEVELOPMENT

Whether or not the land is land on which complying development can be carried out under each of the codes for complying development because of the provisions of clause 1.17A (c) and (d) and 1.19 of *State Environmental Planning Policy (Exempt and Complying Development Codes) 2008?*

1. PART 3 – HOUSING CODE

a Complying Development under the General Housing Code **may** be carried out on the land.

2. PART 3A – RURAL HOUSING CODE

a Complying development under the Rural Housing Code **may** be carried out on the land providing the land is not less than the minimum lot size for the erection of a dwelling house under the Wyong Local Environmental Plan 2013.

3. PART 4 – HOUSING ALTERATIONS CODE

a Complying development under the Housing Alterations Code **may** be carried out on the land.

4. PART 4A – GENERAL DEVELOPMENT CODE

a Complying development under the General Development Code **may** be carried out on the land.

5. PART 5 – COMMERCIAL AND INDUSTRIAL ALTERATIONS CODE

a Complying development under the Commercial and Industrial Alterations Code **may** be carried out on the land.

6. PART 5A – COMMERCIAL AND INDUSTRIAL (NEW BUILDINGS AND ADDITIONS) CODE

a Complying development under the Commercial and Industrial (New Buildings and Additions) Code **may** be carried out on the land.

7. PART 6 – SUBDIVSIONS CODE

a Complying development under the Subdivisions Code **may** be carried out on the land.

8. PART 7 – DEMOLITION CODE

a Complying development under the Demolition code **may** be carried out on the land.

9. PART 8 – FIRE SAFETY CODE

a Complying development under the Fire Safety Code **may** be carried out on the land.

4B ANNUAL CHARGES UNDER LOCAL GOVERNMENT ACT 1993 FOR COASTAL PROTECTION SERVICES THAT RELATE TO EXISTING COASTAL

PROTECTION WORKS

The owner (or any previous owner) of the land has not consented in writing to the land being subject to annual charges under section 496B of the *Local Government Act 1993* for coastal protection services that relate to existing coastal protection works.

5 MINE SUBSIDENCE

The land is not within a proclaimed Mine Subsidence District.

6 ROAD WIDENING OR ROAD ALIGNMENT

1. DIVISION 2 SECTION 25 OF THE ROADS ACT 1993

   The land is not affected by road realignment or road widening under the above.

2. ENVIRONMENTAL PLANNING INSTRUMENT

   The land is not affected by road widening or road re-alignment under the above.

3. COUNCIL RESOLUTIONS

   The land is not affected by road widening or road re-alignment under the above.
   The land is not affected by road widening or road re-alignment under the above.

   However, it should be noted that this parcel either fronts or abuts a road under the control of the Roads and Maritime Services. For further details regarding road widening please refer to that agency.

7 COUNCIL AND OTHER PUBLIC AUTHORITY POLICIES TO RESTRICT DEVELOPMENT DUE TO RISK

This land is **not** affected by a policy that restricts the development of the land because of the likelihood of land slip, bushfire, tidal inundation, subsidence, acid sulphate soils or any other risk (other than flooding).

7A FLOOD RELATED DEVELOPMENT CONTROLS

1. Development on this land for the purposes of dwelling houses, dual occupancies, multi dwelling housing or residential flat buildings (not including development for the purposes of group homes or senior housing) and for other purposes is **not** subject to flood related development controls.

2. Development on this land or part of the land for any other purpose is **not** subject to flood related development controls.

A word or expression used in this clause has the same meaning as it has in the *Floodplain Development Manual* (ISBN 0 7347 5476 0), published by the NSW Government in April 2005, unless it is otherwise defined in this Plan.

8 LAND RESERVED FOR ACQUISITION

The following environmental planning instruments and proposed environmental planning instruments make provisions for the acquisition of land by a public authority as referred to in Section 3.15 of the Act:

Nil

9 CONTRIBUTION PLANS

The land is subject to Section 94 Contributions Plan – Warnervale District.

The land is subject to Section 94 Development Contributions Plan – Warnervale Town Centre.

This land is subject to the Wyong Shire Section 94A Levy Development Contributions Plan.

This land is subject to the Section 94 Contributions Plan for Wyong Shire No. 11 - Shirewide Infrastructure, Services and Facilities.

9A BIODIVERSITY CERTIFIED LAND

The land **is** biodiversity certified land within the meaning of Part 7AA of the *Threatened Species Conservation Act 1995*.

10 BIOBANKING AGREEMENTS

Council has not been notified by the Director-General of the Department of Planning and Environment of an agreement issued under Part 7A of the *Threatened Species Conservation Act 1995*.

11 BUSHFIRE PRONE LAND

The information currently available to Council indicates **all** of the land is shown as bush fire prone land according to the Act.

12 PROPERTY VEGETATION PLAN

This land is not subject to a property vegetation plan under the Native Vegetation Act 2003.

NOTE: The advice provided in this section is based on notification by the Local Land Services - Greater Sydney of the approval of a plan. Further information about property vegetation plans should be obtained from that Authority.

13 ORDER UNDER TREES (DISPUTES BETWEEN NEIGHBOURS) ACT 2006

Council has not been notified of an Order issued under the Trees (Disputes between Neighbours) Act 2006.

NOTE: This advice is based on information provided by the Land and Environment Court.

14 DIRECTIONS UNDER PART 3A

Not Applicable

15 SITE COMPATIBILITY CERTIFICATES AND CONDITIONS FOR SENIORS HOUSING

Council is not aware of there being a valid Site Compatibility Certificate issued by the Director-General of the Department of Planning and Environment in respect of the land.

NOTE: This advice is based on information provided by the NSW Department of Planning and Environment.

16 SITE COMPATIBILITY CERTIFICATES FOR INFRASTUCTURE

Council is not aware of there being a valid Site Compatibility Certificate issued by the Director-General of the Department of Planning and Environment in respect of the land.

NOTE: This advice is based on information provided by the NSW Department of Planning and Environment.

17 SITE COMPATIBILITY CERTIFICATES FOR AFFORDABLE RENTAL HOUSING

Council is not aware of there being a valid Site Compatibility Certificate issued by the Director-General of the Department of Planning and Environment in respect of the land.

NOTE: This advice is based on information provided by the NSW Department of Planning and Environment.

18 PAPER SUBDIVISION INFORMATION

1. THE NAME OF ANY DEVELOPMENT PLAN ADOPTED BY A RELEVANT AUTHORITY THAT APPLIES TO THIS LAND OR THAT IS PROPOSED TO BE SUBJECT TO A CONSENT BALLOT.

   Nil

2. THE DATE OF ANY SUBDIVISION ORDER THAT APPLIES TO THIS LAND.

   Not applicable

Words and expressions used in this clause have the same meaning as they have in Part 16C of this Regulation.

19 SITE VERIFICATION CERTIFICATE

Council is not aware of a Site Verification Certificate having been issued by the Director-General of the Department of Planning and Environment in respect to this land.

Note: A site verification certificate sets out the Director-General's opinion as to whether the land concerned is or is not biophysical strategic agricultural land or critical industry cluster land—see Division 3 of Part 4AA of *State Environmental Planning Policy (Mining, Petroleum Production and Extractive Industries) 2007*.

20 LOOSE-FILL ASBESTOS INSULATION

This land does not include any residential premises (within the meaning of Division 1A of Part 8 of the *Home Building Act 1989*) that are listed on the register that is required to be maintained under that Division. That register lists residential premises that contain or have contained loose-fill asbestos insulation.

21 AFFECTED BUILDING NOTICES AND BUILDING PRODUCT RECTIFICFATION ORDERS (Building Products Safety Act 2017)

1. Is there any affected building notice of which the council is aware that is in force in respect of the land?

   No

2.a Is there any building product rectification order of which the council is aware that is in force in respect of the land and has not been fully complied with?

   No

2.b Is there any notice of intention to make a building product rectification order of which the council is aware has been given in respect of the land and is outstanding.

   No

22 CONTAMINATED LAND MANAGEMENT ACT 1997

Nil Prescribed Matters

23 ADVICE PROVIDED PURSUANT TO S.10.7(5) OF THE ENVIRONMENTAL PLANNING AND ASSESSMENT ACT 1979

23.1 Prescribed Streams

Approval of the NSW Office of Water is required before the removal of any native vegetation within 20 metres of a prescribed stream. Contact the Office of Water for details.

23.2 Special Contributions Area Order

Department of Planning document - to constitute certain land in the Central Coast Local Government area as a Special Contributions Area (enquiries to the Department of Planning and Environment).

Special Infrastructure Contributions Plan

Department of Planning document - outlines a proposal to fund the provision of sub-regional and regional infrastructure (enquiries to the Department of Planning and Environment).

*****

For any enquiries regarding this Certificate please contact Council's Customer Contact Centre on 4350 5555.

Tim Ennis
Signed on Behalf of Council

LAND USE TABLE

Zone RE1 Public Recreation

Wyong Local Environmental Plan 2013

1 Objectives of zone

- To enable land to be used for public open space or recreational purposes.
- To provide a range of recreational settings and activities and compatible land uses.
- To protect and enhance the natural environment for recreational purposes.
- To provide linked open space for ecosystem continuity, public access, local community recreation and waterway protection.
- To provide space for integrated stormwater treatment devices for flow and water quality management.
- To enable ancillary development that complements land zoned for recreational purposes.

2 Permitted without consent

Nil.

3 Permitted with consent

Boat launching ramps; Boat sheds; Building identification signs; Business identification signs; Camping grounds; Caravan parks; Charter and tourism boating facilities; Centre-based child care facilities; Community facilities; Eco-tourist facilities; Emergency services facilities; Entertainment facilities; Environmental facilities; Environmental protection works; Flood mitigation works; Food and drink premises; Function centres; Information and education facilities; Jetties; Kiosks; Marinas; Markets; Mooring pens; Moorings; Public administration buildings; Recreation areas; Recreation facilities (indoor); Recreation facilities (major); Recreation facilities (outdoor); Registered clubs; Respite day care centres; Roads; Sewerage systems; Waste or resource management facilities; Water recreation structures; Water supply systems

4 Prohibited

Any development not specified in item 2 or 3

LAND USE TABLE

Zone E3 Environmental Management

Wyong Local Environmental Plan 2013

1 Objectives of zone

- To protect, manage and restore areas with special ecological, scientific, cultural or aesthetic values.
- To provide for a limited range of development that does not have an adverse effect on those values.

2 Permitted without consent

Home occupations

3 Permitted with consent

Bed and breakfast accommodation; Building identification signs; Business identification signs; Community facilities; Dual occupancies; Dwelling houses; Eco-tourist facilities; Emergency services facilities; Environmental facilities; Environmental protection works; Extensive agriculture; Farm buildings; Farm stay accommodation; Flood mitigation works; Home-based child care; Home businesses; Home industries; Horticulture; Information and education facilities; Recreation areas; Research stations; Roads; Roadside stalls; Secondary dwellings; Sewage treatment plants; Water recreation structures; Water recycling facilities; Water supply systems

4 Prohibited

Industries; Multi dwelling housing; Residential flat buildings; Retail premises; Seniors housing; Service stations; Warehouse or distribution centres; Any other development not specified in item 2 or 3.

LAND USE TABLE

Zone B4 Mixed Use
Wyong Local Environmental Plan 2013

1 Objectives of zone

- To provide a mixture of compatible land uses.
- To integrate suitable business, office, residential, retail and other development in accessible locations so as to maximise public transport patronage and encourage walking and cycling.
- To permit residential accommodation while maintaining active retail, business and other non-residential uses at street level.
- To encourage development that supports or complements the primary office and retail functions of the zone.
- To minimise conflict between land uses within the zone and land uses within adjoining zones.

2 Permitted without consent

Nil

3 Permitted with consent

Boarding houses; Centre-based child care facilities; Commercial premises; Community facilities; Educational establishments; Entertainment facilities; Function centres; Hotel or motel accommodation; Information and education facilities; Medical centres; Passenger transport facilities; Recreation facilities (indoor); Registered clubs; Residential flat buildings; Respite day care centres; Restricted premises; Roads; Seniors housing; Sewage reticulation systems; Shop top housing; Water reticulation systems; Water storage facilities; Any other development not specified in item 2 or 4.

4 Prohibited

Agriculture; Air transport facilities; Airstrips; Animal boarding or training establishments; Boat building and repair facilities; Camping grounds; Caravan parks; Cemeteries; Crematoria; Depots; Eco-tourist facilities; Electricity generating works; Exhibition homes; Exhibition villages; Extractive industries; Farm buildings; Forestry; Freight transport facilities; Heavy industrial storage establishments; Industrial retail outlets; Industrial training facilities; Industries; Marinas; Mortuaries; Open cut mining; Residential accommodation; Resource recovery facilities; Rural industries; Sewerage systems; Sex services premises; Storage premises; Transport depots; Truck depots; Vehicle body repair workshops; Vehicle repair stations; Warehouse or distribution centres; Waste disposal facilities; Water supply systems; Wharf or boating facilities; Wholesale supplies

LAND USE TABLE

Zone R1 General Residential

Wyong Local Environmental Plan 2013

1 Objectives of zone

- To provide for the housing needs of the community.
- To provide for a variety of housing types and densities.
- To enable other land uses that provide facilities or services to meet the day to day needs of residents.
- To promote “walkable” neighbourhoods.
- To ensure development is compatible with the scale and character of the local area and complements the existing streetscape.

2 Permitted without consent

Home occupations

3 Permitted with consent

Attached dwellings; Bed and breakfast accommodation; Boarding houses; Boat launching ramps; Boat sheds; Car parks; Caravan parks; Centre-based child care facilities; Community facilities; Dual occupancies; Dwelling houses; Educational establishments; Emergency services facilities; Environmental facilities; Environmental protection works; Exhibition homes; Exhibition villages; Flood mitigation works; Group homes; Home-based child care; Home businesses; Home industries; Home occupations (sex services); Hostels; Hotel or motel accommodation; Information and education facilities; Jetties; Multi dwelling housing; Neighbourhood shops; Places of public worship; Recreation areas; Residential flat buildings; Respite day care centres; Roads; Secondary dwellings; Semi-detached dwellings; Seniors housing; Serviced apartments; Shop top housing; Signage; Water recycling facilities; Water reticulation systems; Water storage facilities

4 Prohibited

Any development not specified in item 2 or 3

LAND USE TABLE

Zone E2 Environmental Conservation
Wyong Local Environmental Plan 2013

1 Objectives of zone

- To protect, manage and restore areas of high ecological, scientific, cultural or aesthetic values.
- To prevent development that could destroy, damage or otherwise have an adverse effect on those values.
- To protect endangered ecological communities, coastal wetlands and littoral rainforests.
- To enable development of public works and environmental facilities if such development would not have a detrimental impact on ecological, scientific, cultural or aesthetic values.

2 Permitted without consent

Nil.

3 Permitted with consent

Eco-tourist facilities; Environmental facilities; Environmental protection works; Flood mitigation works; Recreation areas; Research stations; Roads; Water reticulation systems.

4 Prohibited

Business premises; Hotel or motel accommodation; Industries; Multi dwelling housing; Recreation facilities (major); Residential flat buildings; Restricted premises; Retail premises; Seniors housing; Service stations; Warehouse or distribution centres; Any other development not specified in item 2 or 3.

LAND USE TABLE

Zone B2 Local Centre

Wyong Local Environmental Plan 2013

1 Objectives of zone

- To provide a range of retail, business, entertainment and community uses that serve the needs of people who live in, work in and visit the local area.
- To encourage employment opportunities in accessible locations.
- To maximise public transport patronage and encourage walking and cycling.
- To permit residential accommodation while maintaining active retail, business and other non-residential uses at street level.
- To minimise conflict between land uses within the zone and land uses within adjoining zones.

2 Permitted without consent

Nil

3 Permitted with consent

Boarding houses; Centre-based child care facilities; Commercial premises; Community facilities; Educational establishments; Entertainment facilities; Function centres; Information and education facilities; Medical centres; Passenger transport facilities; Recreation facilities (indoor); Registered clubs; Respite day care centres; Restricted premises; Roads; Service stations; Sewage reticulation systems; Shop top housing; Tourist and visitor accommodation; Water reticulation systems; Water storage facilities; Any other development not specified in item 2 or 4

4 Prohibited

Agriculture; Air transport facilities; Airstrips; Animal boarding or training establishments; Boat building and repair facilities; Camping grounds; Caravan parks; Cemeteries; Correctional centres; Crematoria; Depots; Eco-tourist facilities; Electricity generating works; Exhibition homes; Exhibition villages; Extractive industries; Farm buildings; Forestry; Freight transport facilities; Heavy industrial storage establishments; Industrial retail outlets; Industrial training facilities; Industries; Marinas; Mortuaries; Open cut mining; Recreation facilities (outdoor); Research stations; Residential accommodation; Resource recovery facilities; Rural industries; Sewerage systems; Storage premises; Transport depots; Truck depots; Vehicle body repair workshops; Vehicle repair stations; Warehouse or distribution centres; Waste disposal facilities; Water supply systems; Wharf or boating facilities; Wholesale supplies

Appendix E - Groundwater Bore Search

Hunter Region

bookmark this page

All data times are Eastern Standard Time

Map

Appendix F - Contaminated Land Search

Search results

Your search for: LGA: Wyong Shire Council

Matched 9 notices relating to 4 sites.

Search Again Refine Search

Suburb	Address	Site Name	Notices related to this site
BATEAU BAY	The Entrance ROAD	Former landfill	1 current
WARNERVALE	Aldenham and Railway ROADS	Former Timber Treatment Plant	3 former
WYONG	Lot 4 Warner AVENUE	Drum Dump - Wyong	2 former
WYONG	16 Lucca ROAD	Wyong Bayer/Kemcon	3 former

11 December 2018

Appendix G - Borehole Logs

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Engineering Log - Excavation

		Excavation ID.	***TP01***
		sheet:	1 of 1
		project no.	***754-NTLGE216908-AG***
client:	***LIRUN DEVELOPEMENTS PTY LTD***	date excavated:	***04 Oct 2018***
principal:	***COLLIERS INTERNATIONAL PTY LTD***	date completed:	***04 Oct 2018***
project:	***STAGES 6 - 10, 111 SPARKS ROAD, WARNERVALE***	logged by:	***KF***
location:	***111 SPARKS ROAD, WARNERVALE NSW***	checked by:	***NS***

position: Not Specified | surface elevation: Not Specified | pit orientation: | DCP id.: GEOT_DCP

equipment type: 2-4t Excavator Track | excavation method: 300mm BUCKET | excavation dimensions: 1.5 m long 0.3 m wide

excavation information | **material substance**

method	support	penetration (1 2 3)	water	samples & field tests	RL (m)	depth (m)	graphic log	classification symbol	material description (**SOIL TYPE**: plasticity or particle characteristic, colour, secondary and minor components)	moisture condition	consistency / relative density	hand penetrometer (kPa) 100 200 300 400	DCP (blows/150 mm) 2 4 6 8 10 12	structure and additional observations
BH	N		Not Encountered			0.0		SP	**TOPSOIL: SILTY SAND**: fine grained, dark brown, with grass and tree rootlets.	D	L to D			**TOPSOIL**
									SANDSTONE: fine to medium grained, orange-brown, highly weathered, low to medium strength.					**BEDROCK** DCP REFUSAL
						0.5			Test pit TP01 terminated at 0.5 m Refusal					
						1.0								
						1.5								
						2.0								
						2.5								

method
- N natural exposure
- X existing excavation
- BH backhoe bucket
- B bulldozer blade
- R ripper
- E excavator

support
- N none
- S shoring

penetration
1 2 3 — no resistance ranging to refusal

water
- 10-Oct-12 water level on date shown
- water inflow
- water outflow

samples & field tests
- U## undisturbed sample ##mm diameter
- D disturbed sample
- B bulk disturbed sample
- E environmental sample
- HP hand penetrometer (kPa)
- N standard penetration test (SPT)
- N* SPT - sample recovered
- Nc SPT with solid cone
- VS vane shear peak/remouded (uncorrected kPa)
- R refusal

classification symbol & soil description based on Unified Classification System

moisture
- D dry
- M moist
- W wet
- W_P plastic limit
- W_L liquid limit

consistency / relative density

VS	very soft
S	soft
F	firm
St	stiff
VSt	very stiff
H	hard
Fb	friable
VL	very loose
L	loose
MD	medium dense
D	dense
VD	very dense

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Engineering Log - Excavation

		Excavation ID.	***TP02***
		sheet:	1 of 1
		project no.	***754-NTLGE216908-AG***
client:	***LIRUN DEVELOPEMENTS PTY LTD***	date excavated:	***04 Oct 2018***
principal:	***COLLIERS INTERNATIONAL PTY LTD***	date completed:	***04 Oct 2018***
project:	***STAGES 6 - 10, 111 SPARKS ROAD, WARNERVALE***	logged by:	***KF***
location:	***111 SPARKS ROAD, WARNERVALE NSW***	checked by:	***NS***

position: Not Specified | surface elevation: Not Specified | pit orientation: | DCP id.: GEOT_DCP

equipment type: 2-4t Excavator Track | excavation method: 300mm BUCKET | excavation dimensions: 1.5 m long 0.3 m wide

excavation information | **material substance**

method	support	penetration (1 2 3)	water	samples & field tests	RL (m)	depth (m)	graphic log	classification symbol	material description (**SOIL TYPE**: plasticity or particle characteristic, colour, secondary and minor components)	moisture condition	consistency / relative density	hand penetrometer (kPa) 100 200 300 400	DCP (blows/150 mm) 2 4 6 8 10 12	structure and additional observations
BH	N		Not Encountered					SM	**TOPSOIL: SILTY SAND**: fine grained, dark brown, with tree roots and pieces of ceremic pipe.	D	MD to D			**TOPSOIL / FILL**
				CBR				SC	**CLAYEY SAND**: fine to medium grained, orange and pale grey.	<Wp	VSt to H			**EXTREMELY WEATHERED MATERIAL**
						0.5			Test pit TP02 terminated at 0.45 m Refusal					DCP REFUSAL
						1.0								
						1.5								
						2.0								
						2.5								

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method
- N natural exposure
- X existing excavation
- BH backhoe bucket
- B bulldozer blade
- R ripper
- E excavator

support
- N none
- S shoring

penetration
1 2 3 — no resistance ranging to refusal

water
10-Oct-12 water level on date shown
water inflow
water outflow

samples & field tests
- U## undisturbed sample ##mm diameter
- D disturbed sample
- B bulk disturbed sample
- E environmental sample
- HP hand penetrometer (kPa)
- N standard penetration test (SPT)
- N* SPT - sample recovered
- Nc SPT with solid cone
- VS vane shear peak/remouded (uncorrected kPa)
- R refusal

classification symbol & soil description based on Unified Classification System

moisture
- D dry
- M moist
- W wet
- W_P plastic limit
- W_L liquid limit

consistency / relative density

VS	very soft
S	soft
F	firm
St	stiff
VSt	very stiff
H	hard
Fb	friable
VL	very loose
L	loose
MD	medium dense
D	dense
VD	very dense

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Engineering Log - Excavation

client:	*LIRUN DEVELOPEMENTS PTY LTD*	Excavation ID.	*TP03*
principal:	*COLLIERS INTERNATIONAL PTY LTD*	sheet:	1 of 1
project:	*STAGES 6 - 10, 111 SPARKS ROAD, WARNERVALE*	project no.	*754-NTLGE216908-AG*
location:	*111 SPARKS ROAD, WARNERVALE NSW*	date excavated:	*04 Oct 2018*
		date completed:	*04 Oct 2018*
		logged by:	*KF*
		checked by:	*NS*

position: Not Specified | surface elevation: Not Specified | pit orientation: | DCP id.: GEOT_DCP

equipment type: 2-4t Excavator Track | excavation method: 300mm BUCKET | excavation dimensions: 1.5 m long 0.3 m wide

excavation information | **material substance**

method	support	penetration	water	samples & field tests	RL (m)	depth (m)	graphic log	classification symbol	material description (SOIL TYPE: plasticity or particle characteristic, colour, secondary and minor components)	moisture condition	consistency / relative density	hand penetrometer (kPa)	DCP (blows/ 150 mm)	structure and additional observations
BH	N	1 2 3	Not Encountered			0.0		SM	**TOPSOIL: SILTY SAND**: fine grained, dark brown, with tree and grass rootlets.	D	MD	100 200 300 400	2 4 6 8 10 12	**TOPSOIL**
								SC	**CLAYEY SAND**: fine grained, orange, brown and pale grey, with tree roots.	<Wp	VD		DCP REFUSAL	**RESIDUAL SOIL/EXTREMELY WEATHERED MATERIAL** DCP REFUSAL
						0.5			**SILTSTONE**: pale grey and red, highly weathered, very low strength.					**EXTREMELY WEATHERED MATERIAL**
						1.0			**SANDSTONE**: pale grey and orange, with SILTSTONE laminations, highly weathered, low to medium strength.					**BEDROCK**
									Test pit TP03 terminated at 1.1 m Refusal					
						1.5								
						2.0								
						2.5								

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method
- N natural exposure
- X existing excavation
- BH backhoe bucket
- B bulldozer blade
- R ripper
- E excavator

support
- N none
- S shoring

penetration
1 2 3 — no resistance ranging to refusal

water
10-Oct-12 water level on date shown
water inflow
water outflow

samples & field tests
- U## undisturbed sample ##mm diameter
- D disturbed sample
- B bulk disturbed sample
- E environmental sample
- HP hand penetrometer (kPa)
- N standard penetration test (SPT)
- N* SPT - sample recovered
- Nc SPT with solid cone
- VS vane shear peak/remouded (uncorrected kPa)
- R refusal

classification symbol & soil description based on Unified Classification System

moisture
- D dry
- M moist
- W wet
- W_P plastic limit
- W_L liquid limit

consistency / relative density

VS	very soft
S	soft
F	firm
St	stiff
VSt	very stiff
H	hard
Fb	friable
VL	very loose
L	loose
MD	medium dense
D	dense
VD	very dense

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Engineering Log - Excavation

		Excavation ID.	***TP04***
		sheet:	1 of 1
		project no.	***754-NTLGE216908-AG***
client:	***LIRUN DEVELOPEMENTS PTY LTD***	date excavated:	***04 Oct 2018***
principal:	***COLLIERS INTERNATIONAL PTY LTD***	date completed:	***04 Oct 2018***
project:	***STAGES 6 - 10, 111 SPARKS ROAD, WARNERVALE***	logged by:	***KF***
location:	***111 SPARKS ROAD, WARNERVALE NSW***	checked by:	***NS***

position: Not Specified | surface elevation: Not Specified | pit orientation: | DCP id.: GEOT_DCP

equipment type: 2-4t Excavator Track | excavation method: 300mm BUCKET | excavation dimensions: 1.5 m long 0.3 m wide

excavation information | **material substance**

method	support	penetration (1 2 3)	water	samples & field tests	RL (m)	depth (m)	graphic log	classification symbol	material description (SOIL TYPE: plasticity or particle characteristic, colour, secondary and minor components)	moisture condition	consistency / relative density	hand penetrometer (kPa) 100 200 300 400	DCP (blows/150 mm) 2 4 6 8 10 12	structure and additional observations
BH	N		Not Encountered	U50		0.5		SM	**SILTY SAND**: fine grained, dark brown, with grass roots.	D	D to VD			**TOPSOIL**
														DCP REFUSAL
								CH	**CLAY**: high plasticity, orange-brown.	<Wp				**RESIDUAL SOIL**
						1.0			**SANDSTONE**: fine - medium grained, pale grey, distinctly weathered, low to medium strength, highly weathered, very low to low strength.					**HIGHLY WEATHERED ROCK**
						1.5			Test pit TP04 terminated at 1.5 m Refusal					
						2.0								
						2.5								

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method
- N natural exposure
- X existing excavation
- BH backhoe bucket
- B bulldozer blade
- R ripper
- E excavator

support
- N none
- S shoring

penetration
1 2 3 — no resistance ranging to refusal

water
10-Oct-12 water level on date shown
water inflow
water outflow

samples & field tests
- U## undisturbed sample ##mm diameter
- D disturbed sample
- B bulk disturbed sample
- E environmental sample
- HP hand penetrometer (kPa)
- N standard penetration test (SPT)
- N* SPT - sample recovered
- Nc SPT with solid cone
- VS vane shear peak/remouded (uncorrected kPa)
- R refusal

classification symbol & soil description based on Unified Classification System

moisture
- D dry
- M moist
- W wet
- W_P plastic limit
- W_L liquid limit

consistency / relative density

VS	very soft
S	soft
F	firm
St	stiff
VSt	very stiff
H	hard
Fb	friable
VL	very loose
L	loose
MD	medium dense
D	dense
VD	very dense

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Engineering Log - Excavation

		Excavation ID.	***TP05***
		sheet:	1 of 1
		project no.	***754-NTLGE216908-AG***
client:	***LIRUN DEVELOPEMENTS PTY LTD***	date excavated:	***04 Oct 2018***
principal:	***COLLIERS INTERNATIONAL PTY LTD***	date completed:	***04 Oct 2018***
project:	***STAGES 6 - 10, 111 SPARKS ROAD, WARNERVALE***	logged by:	***KF***
location:	***111 SPARKS ROAD, WARNERVALE NSW***	checked by:	***NS***

position: Not Specified | surface elevation: Not Specified | pit orientation: | DCP id.: GEOT_DCP

equipment type: 2-4t Excavator Track | excavation method: 300mm BUCKET | excavation dimensions: 1.5 m long 0.3 m wide

excavation information | **material substance**

method	support	penetration (1 2 3)	water	samples & field tests	RL (m)	depth (m)	graphic log	classification symbol	material description (SOIL TYPE: plasticity or particle characteristic, colour, secondary and minor components)	moisture condition	consistency / relative density	hand penetrometer (kPa) 100 200 300 400	DCP (blows/150 mm) 2 4 6 8 10 12	structure and additional observations
BH	N		Not Encountered	CBR		0.5		SC	**TOPSOIL: CLAYEY SAND**: fine grained, brown, CLAY medium plasticity, with fine grained, sub-angular GRAVEL, with grass and tree roots.	D to M	MD to D			**TOPSOIL**
									SILTSTONE: grey and dark red, with laminations and interbeds of SANDSTONE, highly weathered, very low to low strength.					**EXTREMELY WEATHERED MATERIAL**
						1.0								DCP REFUSAL
						1.5								
						2.0			Test pit TP05 terminated at 1.8 m Refusal					
						2.5								

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method
- N natural exposure
- X existing excavation
- BH backhoe bucket
- B bulldozer blade
- R ripper
- E excavator

support
- N none
- S shoring

penetration
1 2 3 — no resistance ranging to refusal

water
10-Oct-12 water level on date shown
water inflow
water outflow

samples & field tests
- U## undisturbed sample ##mm diameter
- D disturbed sample
- B bulk disturbed sample
- E environmental sample
- HP hand penetrometer (kPa)
- N standard penetration test (SPT)
- N* SPT - sample recovered
- Nc SPT with solid cone
- VS vane shear peak/remouded (uncorrected kPa)
- R refusal

classification symbol & soil description based on Unified Classification System

moisture
- D dry
- M moist
- W wet
- W_P plastic limit
- W_L liquid limit

consistency / relative density

VS	very soft
S	soft
F	firm
St	stiff
VSt	very stiff
H	hard
Fb	friable
VL	very loose
L	loose
MD	medium dense
D	dense
VD	very dense

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Engineering Log - Excavation

		Excavation ID.	***TP28***
		sheet:	1 of 1
		project no.	***754-NTLGE216908-AG***
client:	***LIRUN DEVELOPMENTS PTY LTD***	date excavated:	***05 Nov 2018***
principal:	***COLLIERS INTERNATIONAL PROJECT MANAGEMENT***	date completed:	***05 Nov 2018***
project:	***STAGE 6 - 10, 111 SPARKS ROAD, WARNERVALE***	logged by:	***RB***
location:	***111 SPARKS ROAD, WARNERVALE NSW***	checked by:	

position: Not Specified | surface elevation: Not Specified | pit orientation:
equipment type: | excavation method: | excavation dimensions:

excavation information | **material substance**

method	support	penetration (1 2 3)	water	samples & field tests	RL (m)	depth (m)	graphic log	classification symbol	material description (SOIL TYPE: plasticity or particle characteristic, colour, secondary and minor components)	moisture condition	consistency / relative density	hand penetrometer (kPa) 100 200 300 400	structure and additional observations
E	N		Not Observed	E		0.0		SM	**TOPSOIL: SILTY SAND**: fine - medium grained, brown, with grass/ tree rootlets, trace of clay.	M			**TOPSOIL**
								CH	**CLAY**: brown, pale brown and orange, trace of fine to medium grained sand, tree rootlets.	>Wp			**RESIDUAL SOIL**
						0.5							
						1.0		SC	**CLAYEY SAND**: fine - medium grained, grey, orange and brown.	M			**EXTREMELY WEATHERED MATERIAL**
									SANDSTONE: fine - medium grained, fine, orange and grey, low - medium strength.	M			**BEDROCK**
						1.5			Test pit TP28 terminated at 1.5 m Target depth				
						2.0							
						2.5							
						3.0							
						3.5							

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method
- N natural exposure
- X existing excavation
- BH backhoe bucket
- B bulldozer blade
- R ripper
- E excavator

support
- N none
- S shoring

penetration
1 2 3 — no resistance ranging to refusal

water
10-Oct-12 water level on date shown
water inflow
water outflow

samples & field tests
- U## undisturbed sample ##mm diameter
- D disturbed sample
- B bulk disturbed sample
- E environmental sample
- HP hand penetrometer (kPa)
- N standard penetration test (SPT)
- N* SPT - sample recovered
- Nc SPT with solid cone
- VS vane shear peak/remouded (uncorrected kPa)
- R refusal

classification symbol & soil description
based on Unified Classification System

moisture
- D dry
- M moist
- W wet
- W_P plastic limit
- W_L liquid limit

consistency / relative density

VS	very soft
S	soft
F	firm
St	stiff
VSt	very stiff
H	hard
Fb	friable
VL	very loose
L	loose
MD	medium dense
D	dense
VD	very dense

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Engineering Log - Excavation

		Excavation ID.	***TP31***
		sheet:	1 of 1
		project no.	***754-NTLGE216908-AG***
client:	***LIRUN DEVELOPMENTS PTY LTD***	date excavated:	***06 Nov 2018***
principal:	***COLLIERS INTERNATIONAL PROJECT MANAGEMENT***	date completed:	***06 Nov 2018***
project:	***STAGE 6 - 10, 111 SPARKS ROAD, WARNERVALE***	logged by:	***RB***
location:	***111 SPARKS ROAD, WARNERVALE NSW***	checked by:	

position: Not Specified | surface elevation: Not Specified | pit orientation:
equipment type: | excavation method: | excavation dimensions:

excavation information | **material substance**

method	support	penetration (1 2 3)	water	samples & field tests	RL (m)	depth (m)	graphic log	classification symbol	material description (SOIL TYPE: plasticity or particle characteristic, colour, secondary and minor components)	moisture condition	consistency / relative density	hand penetrometer (kPa) 100 200 300 400	structure and additional observations
E	N			E		0.5		SM	**FILL: SILTY SAND**: fine - medium grained, brown, with fine to medium angular to subangular gravel, tree/ grass rootlets.	M			**FILL**
				E		1.0		SC	**CLAYEY SAND**: fine - medium grained, high plasticity, orange, pale brown.	M			**EXTREMELY WEATHERED MATERIAL**
									SANDSTONE: fine - medium grained, orange, brown and grey, distinctly weathered, very low - medium strength.	M			**BEDROCK**
						1.5			Test pit TP31 terminated at 1.1 m Refusal				
						2.0							
						2.5							
						3.0							
						3.5							

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method
- N natural exposure
- X existing excavation
- BH backhoe bucket
- B bulldozer blade
- R ripper
- E excavator

support
- N none
- S shoring

penetration
1 2 3 — no resistance ranging to refusal

water
- 10-Oct-12 water level on date shown
- water inflow
- water outflow

samples & field tests
- U## undisturbed sample ##mm diameter
- D disturbed sample
- B bulk disturbed sample
- E environmental sample
- HP hand penetrometer (kPa)
- N standard penetration test (SPT)
- N* SPT - sample recovered
- Nc SPT with solid cone
- VS vane shear peak/remouded (uncorrected kPa)
- R refusal

classification symbol & soil description
based on Unified Classification System

moisture
- D dry
- M moist
- W wet
- W_P plastic limit
- W_L liquid limit

consistency / relative density

VS	very soft
S	soft
F	firm
St	stiff
VSt	very stiff
H	hard
Fb	friable
VL	very loose
L	loose
MD	medium dense
D	dense
VD	very dense

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Engineering Log - Excavation

Excavation ID.	***TP32***		
sheet:	1 of 1		
project no.	***754-NTLGE216908-AG***		
client:	***LIRUN DEVELOPMENTS PTY LTD***	date excavated:	***06 Nov 2018***
principal:	***COLLIERS INTERNATIONAL PROJECT MANAGEMENT***	date completed:	***06 Nov 2018***
project:	***STAGE 6 - 10, 111 SPARKS ROAD, WARNERVALE***	logged by:	***RB***
location:	***111 SPARKS ROAD, WARNERVALE NSW***	checked by:	

position: Not Specified | surface elevation: Not Specified | pit orientation:
equipment type: | excavation method: | excavation dimensions:

excavation information | **material substance**

method	support	penetration 1 2 3	water	samples & field tests	RL (m)	depth (m)	graphic log	classification symbol	material description (SOIL TYPE: plasticity or particle characteristic, colour, secondary and minor components)	moisture condition	consistency / relative density	hand penetrometer (kPa) 100 200 300 400	structure and additional observations
E	N			E		0.5		CL	**FILL: Sandy CLAY**: low plasticity, orange, brown, with grass rootlets.	>Wp			**FILL**
				E		1.0		CH	**CLAY**: high plasticity, orange, pale brown, tree rootlets.	>Wp			**RESIDUAL SOIL**
						1.5		SM	**SILTY SAND**: fine - medium grained, orange, brown.	M			**EXTREMELY WEATHERED MATERIAL**
						2.0			Test pit TP32 terminated at 2.3 m Target depth				
						2.5							
						3.0							
						3.5							

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method
- N natural exposure
- X existing excavation
- BH backhoe bucket
- B bulldozer blade
- R ripper
- E excavator

support
- N none
- S shoring

penetration
1 2 3 — no resistance ranging to refusal

water
- 10-Oct-12 water level on date shown
- water inflow
- water outflow

samples & field tests
- U## undisturbed sample ##mm diameter
- D disturbed sample
- B bulk disturbed sample
- E environmental sample
- HP hand penetrometer (kPa)
- N standard penetration test (SPT)
- N* SPT - sample recovered
- Nc SPT with solid cone
- VS vane shear peak/remouded (uncorrected kPa)
- R refusal

classification symbol & soil description
based on Unified Classification System

moisture
- D dry
- M moist
- W wet
- W_P plastic limit
- W_L liquid limit

consistency / relative density

VS	very soft
S	soft
F	firm
St	stiff
VSt	very stiff
H	hard
Fb	friable
VL	very loose
L	loose
MD	medium dense
D	dense
VD	very dense

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Engineering Log - Excavation

Excavation ID.	***TP33***		
sheet:	1 of 1		
project no.	***754-NTLGE216908-AG***		
client:	***LIRUN DEVELOPMENTS PTY LTD***	date excavated:	***05 Nov 2018***
principal:	***COLLIERS INTERNATIONAL PROJECT MANAGEMENT***	date completed:	***05 Nov 2018***
project:	***STAGE 6 - 10, 111 SPARKS ROAD, WARNERVALE***	logged by:	***RB***
location:	***111 SPARKS ROAD, WARNERVALE NSW***	checked by:	

position: Not Specified | surface elevation: Not Specified | pit orientation:
equipment type: | excavation method: | excavation dimensions:

excavation information | **material substance**

method	support	penetration 1 2 3	water	samples & field tests	RL (m)	depth (m)	graphic log	classification symbol	material description (SOIL TYPE: plasticity or particle characteristic, colour, secondary and minor components)	moisture condition	consistency / relative density	hand penetrometer (kPa) 100 200 300 400	structure and additional observations
E	N			E		0.5		CH	**FILL: CLAY**: orange, brown and grey, with fine grained sand.	>Wp			**FILL**
				E		1.0		SM	**TOPSOIL: SILTY SAND**: fine - medium grained, brown, with low plasticity silt.	M			**TOPSOIL**
						1.5		CH	**Sandy CLAY**: orange, with fine to medium grained sand.	>Wp			**RESIDUAL SOIL**
									SANDSTONE: fine - medium grained, orange brown, distinctly weathered, very low - medium strength.	M			**BEDROCK**
						2.0			Test pit TP33 terminated at 1.5 m				
						2.5							
						3.0							
						3.5							

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method
- N natural exposure
- X existing excavation
- BH backhoe bucket
- B bulldozer blade
- R ripper
- E excavator

support
- N none
- S shoring

penetration
1 2 3 — no resistance ranging to refusal

water
10-Oct-12 water level on date shown
water inflow
water outflow

samples & field tests
- U## undisturbed sample ##mm diameter
- D disturbed sample
- B bulk disturbed sample
- E environmental sample
- HP hand penetrometer (kPa)
- N standard penetration test (SPT)
- N* SPT - sample recovered
- Nc SPT with solid cone
- VS vane shear peak/remouded (uncorrected kPa)
- R refusal

classification symbol & soil description
based on Unified Classification System

moisture
- D dry
- M moist
- W wet
- W_P plastic limit
- W_L liquid limit

consistency / relative density

VS	very soft
S	soft
F	firm
St	stiff
VSt	very stiff
H	hard
Fb	friable
VL	very loose
L	loose
MD	medium dense
D	dense
VD	very dense

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Engineering Log - Excavation

		Excavation ID.	***TP41***
		sheet:	1 of 1
		project no.	***754-NTLGE216908-AG***
client:	***LIRUN DEVELOPEMENTS PTY LTD***	date excavated:	***05 Nov 2018***
principal:	***COLLIERS INTERNATIONAL PTY LTD***	date completed:	***05 Nov 2018***
project:	***STAGES 6 - 10, 111 SPARKS ROAD, WARNERVALE***	logged by:	***RB***
location:	***111 SPARKS ROAD, WARNERVALE NSW***	checked by:	

position: Not Specified | surface elevation: Not Specified | pit orientation: | DCP id.: GEOT_DCP

equipment type: 2-4t Excavator Track | excavation method: 300mm BUCKET | excavation dimensions: 1.5 m long 0.3 m wide

excavation information | **material substance**

method	support	penetration	water	samples & field tests	RL (m)	depth (m)	graphic log	classification symbol	material description (**SOIL TYPE**: plasticity or particle characteristic, colour, secondary and minor components)	moisture condition	consistency / relative density	hand penetrometer (kPa)	DCP (blows/ 150 mm)	structure and additional observations
BH	N	1 2 3	Not Encountered	E; U50		0.5		ML	**TOPSOIL: Sandy SILT**: low liquid limit, dark brown, fine grained sand, with tree/grass rootlets.	M		100 200 300 400	2 4 6 8 10 12	**TOPSOIL**
								CH	**CLAY**: high plasticity, pale brown, orange and grey, with trace rootlets.	>Wp			DCP	**RESIDUAL SOIL** DCP REFUSAL
									SILTSTONE: pale grey, extremely to moderately weathered, very low to medium strength.	M				**EXTREMELY WEATHERED MATERIAL**
						1.0			Test pit TP41 terminated at 0.9 m Refusal					
						1.5								
						2.0								
						2.5								

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method
- N natural exposure
- X existing excavation
- BH backhoe bucket
- B bulldozer blade
- R ripper
- E excavator

support
- N none
- S shoring

penetration
1 2 3 — no resistance ranging to refusal

water
10-Oct-12 water level on date shown
water inflow
water outflow

samples & field tests
- U## undisturbed sample ##mm diameter
- D disturbed sample
- B bulk disturbed sample
- E environmental sample
- HP hand penetrometer (kPa)
- N standard penetration test (SPT)
- N* SPT - sample recovered
- Nc SPT with solid cone
- VS vane shear peak/remouded (uncorrected kPa)
- R refusal

classification symbol & soil description based on Unified Classification System

moisture
- D dry
- M moist
- W wet
- W_P plastic limit
- W_L liquid limit

consistency / relative density

VS	very soft
S	soft
F	firm
St	stiff
VSt	very stiff
H	hard
Fb	friable
VL	very loose
L	loose
MD	medium dense
D	dense
VD	very dense

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Engineering Log - Excavation

		Excavation ID.	***TP42***
		sheet:	1 of 1
		project no.	***754-NTLGE216908-AG***
client:	***LIRUN DEVELOPEMENTS PTY LTD***	date excavated:	***05 Nov 2018***
principal:	***COLLIERS INTERNATIONAL PTY LTD***	date completed:	***05 Nov 2018***
project:	***STAGES 6 - 10, 111 SPARKS ROAD, WARNERVALE***	logged by:	***RB***
location:	***111 SPARKS ROAD, WARNERVALE NSW***	checked by:	

position: Not Specified | surface elevation: Not Specified | pit orientation: | DCP id.: GEOT_DCP

equipment type: 2-4t Excavator Track | excavation method: 300mm BUCKET | excavation dimensions: 1.5 m long 0.3 m wide

excavation information | **material substance**

method	support	penetration (1 2 3)	water	samples & field tests	RL (m)	depth (m)	graphic log	classification symbol	material description (**SOIL TYPE**: plasticity or particle characteristic, colour, secondary and minor components)	moisture condition	consistency / relative density	hand penetrometer (kPa) 100 200 300 400	DCP (blows/150 mm) 2 4 6 8 10 12	structure and additional observations
BH	N		Not Encountered	E		0.0		ML	**TOPSOIL: Sandy SILT**: low liquid limit, brown, fine sand, with tree/grass rootlets.	M				**TOPSOIL**
				CBR										
				CBR		0.5		CH	**CLAY**: high plasticity, orange, grey, with tree rootlets.	>Wp				**RESIDUAL SOIL**
														DCP REFUSAL
						1.0		SW	**CLAYEY SAND**: fine to medium grained, orange, grey, pale brown.	M				**EXTREMELY WEATHERED MATERIAL**
						1.5			**SANDSTONE**: fine to medium grained, pale grey, distinctly weathered, very low to medium strength.					**BEDROCK**
									Test pit TP42 terminated at 1.8 m Refusal					
						2.0								
						2.5								

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method
- N natural exposure
- X existing excavation
- BH backhoe bucket
- B bulldozer blade
- R ripper
- E excavator

support
- N none
- S shoring

penetration
1 2 3 — no resistance ranging to refusal

water
10-Oct-12 water level on date shown
water inflow
water outflow

samples & field tests
- U## undisturbed sample ##mm diameter
- D disturbed sample
- B bulk disturbed sample
- E environmental sample
- HP hand penetrometer (kPa)
- N standard penetration test (SPT)
- N* SPT - sample recovered
- Nc SPT with solid cone
- VS vane shear peak/remouded (uncorrected kPa)
- R refusal

classification symbol & soil description
based on Unified Classification System

moisture
- D dry
- M moist
- W wet
- W_P plastic limit
- W_L liquid limit

consistency / relative density

VS	very soft
S	soft
F	firm
St	stiff
VSt	very stiff
H	hard
Fb	friable
VL	very loose
L	loose
MD	medium dense
D	dense
VD	very dense

coffey
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Engineering Log - Excavation

		Excavation ID.	***TP43***
		sheet:	1 of 1
		project no.	***754-NTLGE216908-AG***
client:	***LIRUN DEVELOPEMENTS PTY LTD***	date excavated:	***05 Nov 2018***
principal:	***COLLIERS INTERNATIONAL PTY LTD***	date completed:	***05 Nov 2018***
project:	***STAGES 6 - 10, 111 SPARKS ROAD, WARNERVALE***	logged by:	***RB***
location:	***111 SPARKS ROAD, WARNERVALE NSW***	checked by:	

position: Not Specified | surface elevation: Not Specified | pit orientation: | DCP id.: GEOT_DCP

equipment type: 2-4t Excavator Track | excavation method: 300mm BUCKET | excavation dimensions: 1.5 m long 0.3 m wide

excavation information | **material substance**

method	support	penetration (1 2 3)	water	samples & field tests	RL (m)	depth (m)	graphic log	classification symbol	material description (**SOIL TYPE**: plasticity or particle characteristic, colour, secondary and minor components)	moisture condition	consistency / relative density	hand penetrometer (kPa) 100 200 300 400	DCP (blows/150 mm) 2 4 6 8 10 12	structure and additional observations
BH	N		Not Encountered	E				SW	**TOPSOIL: SILTY SAND**: fine grained, dark brown, low plasticity silt, with tree/grss rootlets.	M				**TOPSOIL**
				E										
				U50		0.5		CH	**CLAY**: high plasticity, pale brown, orange, grey, with tree rootlets.	>Wp				**RESIDUAL SOIL**
						1.0								
						1.5		SW	**SILTY SAND**: fine to medium grained, pale brown to grey, with clay.	M				**EXTREMELY WEATHERED MATERIAL**
									SANDSTONE: fine to medium grained, orange, brown-grey, distinctly weathered, very low to medium strength.					**BEDROCK**
						2.0			Test pit TP43 terminated at 2.0 m Refusal					
						2.5								

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method
- N natural exposure
- X existing excavation
- BH backhoe bucket
- B bulldozer blade
- R ripper
- E excavator

support
- N none
- S shoring

penetration
1 2 3 — no resistance ranging to refusal

water
10-Oct-12 water level on date shown
water inflow
water outflow

samples & field tests
- U## undisturbed sample ##mm diameter
- D disturbed sample
- B bulk disturbed sample
- E environmental sample
- HP hand penetrometer (kPa)
- N standard penetration test (SPT)
- N* SPT - sample recovered
- Nc SPT with solid cone
- VS vane shear peak/remouded (uncorrected kPa)
- R refusal

classification symbol & soil description
based on Unified Classification System

moisture
- D dry
- M moist
- W wet
- W_P plastic limit
- W_L liquid limit

consistency / relative density

VS	very soft
S	soft
F	firm
St	stiff
VSt	very stiff
H	hard
Fb	friable
VL	very loose
L	loose
MD	medium dense
D	dense
VD	very dense

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Engineering Log - Excavation

		Excavation ID.	***TP44***
		sheet:	1 of 1
		project no.	***754-NTLGE216908-AG***
client:	***LIRUN DEVELOPEMENTS PTY LTD***	date excavated:	***05 Nov 2018***
principal:	***COLLIERS INTERNATIONAL PTY LTD***	date completed:	***05 Nov 2018***
project:	***STAGES 6 - 10, 111 SPARKS ROAD, WARNERVALE***	logged by:	***RB***
location:	***111 SPARKS ROAD, WARNERVALE NSW***	checked by:	

position: Not Specified | surface elevation: Not Specified | pit orientation: | DCP id.: GEOT_DCP

equipment type: 2-4t Excavator Track | excavation method: 300mm BUCKET | excavation dimensions: 1.5 m long 0.3 m wide

excavation information | **material substance**

method	support	penetration (1 2 3)	water	samples & field tests	RL (m)	depth (m)	graphic log	classification symbol	material description (**SOIL TYPE**: plasticity or particle characteristic, colour, secondary and minor components)	moisture condition	consistency / relative density	hand penetrometer (kPa) 100 200 300 400	DCP (blows/150 mm) 2 4 6 8 10 12	structure and additional observations
BH	N		Not Encountered	E		0.0		SW	**TOPSOIL: SILTY SAND**: fine grained, dark brown, with grass rootlets.	M				**TOPSOIL**
				E		0.5		SW	**CLAYEY SAND**: fine to medium grained, orange, brown, grey.					**RESIDUAL SOIL**
						1.0								
						1.5		SW	**SILTY SAND**: fine to medium grained, orange, grey.					DCP REFUSAL **EXTREMELY WEATHERED MATERIAL**
									SANDSTONE: fine to medium grained, orange, grey, distinctly weathered, very low to medium strength.					**BEDROCK**
						2.0			Test pit TP44 terminated at 1.8 m Refusal					
						2.5								

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method
- N natural exposure
- X existing excavation
- BH backhoe bucket
- B bulldozer blade
- R ripper
- E excavator

support
- N none
- S shoring

penetration
1 2 3 — no resistance ranging to refusal

water
10-Oct-12 water level on date shown
water inflow
water outflow

samples & field tests
- U## undisturbed sample ##mm diameter
- D disturbed sample
- B bulk disturbed sample
- E environmental sample
- HP hand penetrometer (kPa)
- N standard penetration test (SPT)
- N* SPT - sample recovered
- Nc SPT with solid cone
- VS vane shear peak/remouded (uncorrected kPa)
- R refusal

classification symbol & soil description based on Unified Classification System

moisture
- D dry
- M moist
- W wet
- W_P plastic limit
- W_L liquid limit

consistency / relative density

VS	very soft
S	soft
F	firm
St	stiff
VSt	very stiff
H	hard
Fb	friable
VL	very loose
L	loose
MD	medium dense
D	dense
VD	very dense

Appendix H - Analytical Results Tables

colliers International Project Management,
111 Sparks Road Woongarrah

Table LR1
Soil Investigation Results
Stages 6-10 WTC Development
754-NTLGE216908

Method_Type	ChemName	Units	EQL	HIL-A (1)	HIL-B (2)	HIL-C (3)	HSL - A/B - 0 to <1m (4)	HSL - A/B 1 to <2m (5)	754-NTLGE216908															
								Field_ID	E1 (TP01)	E2 (TP02)	E3 (TP03)	E4 (TP04)	E5 (TP05)	TP28 0.1-0.2M	TP31 0.1-0.2M	TP31 0.6-0.7M	TP32 0.3-0.5M	TP32 1.0-1.2M	TP33 0.1-0.2M	TP33 0.7-0.8M	TP41 0.1-0.2M	TP42 0.3-0.5M	TP43 0.2-0.3M	TP44 0.3-0.5M
								Sample Dtae	04-Oct-18	04-Oct-18	04-Oct-18	04-Oct-18	04-Oct-18	05-Nov-18	05-Nov-18	05-Nov-18	06-Nov-18	06-Nov-18	06-Nov-18	05-Nov-18	05-Nov-18	05-Nov-18	05-Nov-18	05-Nov-18
Heavy Metal	Arsenic	mg/kg	2	100	500	300			7.8	3.5	4.6	3.8	14	3.9	<2	8.9	4.9	10	11	10	6.3	<2	2.4	<2
	Cadmium	mg/kg	0.4	20	150	90			<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4
	Chromium	mg/kg	5						7.4	6.7	6.5	<5	12	<5	<5	6.2	7.2	11	7.3	<5	<5	<5	<5	<5
	Copper	mg/kg	5	6000	30000	17000			<5	7.3	7.3	<5	<5	<5	<5	<5	<5	8	<5	<5	<5	<5	<5	<5
	Lead	mg/kg	5	300	1200	600			9.4	9.1	9.5	97	10	6.7	5.5	6.4	9.5	9.7	22	6.9	9.3	<5	8.8	<5
	Mercury	mg/kg	0.1	40	120	80			1.6	0.2	0.1	0.4	0.3	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	Nickel	mg/kg	5	400	1200	1200			<5	5.1	5.7	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
	Zinc	mg/kg	5	7400	60000	30000			13	34	45	310	110	14	<5	5.1	9.5	19	10	9.4	8.7	<5	12	14
	Moisture Content (dried @ 103°C)	%	1						18	14	16	15	25	10	11	10	15	19	18	10	15	12	16	8.7
Asbestos	Asbetos in Soil	P/A	-						A	A	A	A	A	-	-	-	-	-	-	-	-	-	-	-
OCP	4,4-DDE	mg/kg	0.05						<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
	a-BHC	mg/kg	0.05						<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
	Aldrin	mg/kg	0.05						<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
	Aldrin + Dieldrin	mg/kg	0.05	6	10	10			<0.05	<0.05	0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
	b-BHC	mg/kg	0.05						<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
	Chlordane	mg/kg	0.1	50	90	70			<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	cis-Chlordane	mg/kg	0.1						-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	trans-Chlordane	mg/kg	0.1						-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	trans-Nonachlor	mg/kg	0.1						-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	d-BHC	mg/kg	0.05						<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
	DDD	mg/kg	0.05						<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
	DDT	mg/kg	0.05						<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
	DDT+DDE+DDD	mg/kg	0.05	240	600	400			<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
	Dieldrin	mg/kg	0.05						<0.05	<0.05	0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
	Endosulfan I	mg/kg	0.05						<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
	Endosulfan II	mg/kg	0.05						<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
	Endosulfan sulphate	mg/kg	0.05						<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
	Endrin	mg/kg	0.05	10	20	20			<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
	Endrin aldehyde	mg/kg	0.05						<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
	Endrin ketone	mg/kg	0.05						<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
	g-BHC (Lindane)	mg/kg	0.05						<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
	Heptachlor	mg/kg	0.05	6	10	10			<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
	Heptachlor epoxide	mg/kg	0.05						<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
	Hexachlorobenzene	mg/kg	0.05	10	15	10			<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
	Methoxychlor	mg/kg	0.05	300	500	400			<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
	Toxaphene	mg/kg	1	20	30	30			<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
	Vic EPA IWRG 621 OCP (Total)*	MG/KG	0.1						<0.1	<0.1	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	Vic EPA IWRG 621 Other OCP (Total)*	MG/KG	0.1						<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
OPP	Azinophos methyl	mg/kg	0.2						<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
	Bolstar (Sulprofos)	mg/kg	0.2						<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
	Bromophos-ethyl	mg/kg	0.1						-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Chlorfenvinphos	mg/kg	0.2						<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
	Chlorpyrifos	mg/kg	0.2	160	340	250			<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
	Chlorpyrifos-methyl	mg/kg	0.2						<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
	Coumaphos	mg/kg	2						<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
	Demeton-O	mg/kg	0.2						<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
	Demeton-S	mg/kg	0.2						<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
	Diazinon	mg/kg	0.2						<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
	Dichlorvos	mg/kg	0.2						<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
	Dimethoate	mg/kg	0.2						<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
	Disulfoton	mg/kg	0.2						<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
	EPN	mg/kg	0.2						<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
	Ethion	mg/kg	0.2						<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
	Ethoprop	mg/kg	0.2						<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
	Fenitrothion	mg/kg	0.2						<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
	Fensulfothion	mg/kg	0.2						<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
	Fenthion	mg/kg	0.2						<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
	Malathion	mg/kg	0.2						<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
	Merphos	mg/kg	0.2						<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
	Methyl parathion	mg/kg	0.2						<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
	Mevinphos (Phosdrin)	mg/kg	0.2						<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
	Monocrotophos	mg/kg	2						<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
	Naled (Dibrom)	mg/kg	0.2						<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
	Omethoate	mg/kg	2						<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
	Parathion	mg/kg	0.2						<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
	Phorate	mg/kg	0.2						<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
	Pirimiphos-methyl	mg/kg	0.2						<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
	Pyrazophos	mg/kg	0.2						<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
	Ronnel	mg/kg	0.2						<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
	Terbufos	mg/kg	0.2						<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
	Trichloronate	mg/kg	0.2						<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
	Tetrachlorvinphos	mg/kg	0.2						<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
	Tokuthion	mg/kg	0.2						<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Organic	Naphthalene	mg/kg	0.5				3		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	F2-NAPHTHALENE	mg/kg	50				110	240	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50
	C6 - C9	mg/kg	20						<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20
	C10 - C40 (Sum of total)	mg/kg	100						<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100
	C6-C10 less BTEX (F1)	mg/kg	20				45	70	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20
	C10-C16	mg/kg	50						<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50
	C16-C34	mg/kg	100						<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100
	C34-C40	mg/kg	100						<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100
	C6 - C10	mg/kg	20						<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20
PAH	Acenaphthene	mg/kg	0.5						<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Acenaphthylene	mg/kg	0.5						<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Anthracene	mg/kg	0.5						<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Benzo(a)anthracene	mg/kg	0.5						<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Benzo(a)pyrene	mg/kg	0.5						<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Benzo(a)pyrene TEQ (lower bound) *	MG/KG	0.5						<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Benzo(a)pyrene TEQ (medium bound) *	MG/KG	0.5						0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
	Benzo(a)pyrene TEQ (upper bound) *	MG/KG	0.5						1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2
	Benzo(g,h,i)perylene	mg/kg	0.5						<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Benzo(k)fluoranthene	mg/kg	0.5						<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Chrysene	mg/kg	0.5						<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Benzo[b+j]fluoranthene	mg/kg	0.5						<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Dibenz(a,h)anthracene	mg/kg	0.5						<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Fluoranthene	mg/kg	0.5						<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Fluorene	mg/kg	0.5						<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Indeno(1,2,3-c,d)pyrene	mg/kg	0.5						<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Naphthalene	mg/kg	0.5				3		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Phenanthrene	mg/kg	0.5						<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Pyrene	mg/kg	0.5						<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Total PAHs	mg/kg	0.5	300	400	300			<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
SVOC	2,4,5-trichlorophenol	mg/kg	1						-	-	-	-	-	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
	2,4,6-trichlorophenol	mg/kg	1						-	-	-	-	-	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
	2,4-dichlorophenol	mg/kg	0.5						-	-	-	-	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	2,4-dimethylphenol	mg/kg	0.5						-	-	-	-	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	2,4-dinitrophenol	mg/kg	5						-	-	-	-	-	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
	2,6-dichlorophenol	mg/kg	0.5						-	-	-	-	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	2-chlorophenol	mg/kg	0.5						-	-	-	-	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	2-methylphenol	mg/kg	0.2						-	-	-	-	-	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
	2-nitrophenol	mg/kg	1						-	-	-	-	-	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
	3-&4-methylphenol	mg/kg	0.4						-	-	-	-	-	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4
	4,6-Dinitro-2-methylphenol	mg/kg	5						-	-	-	-	-	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
	4,6-Dinitro-o-cyclohexyl phenol	mg/kg	20						-	-	-	-	-	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20
	4-chloro-3-methylphenol	mg/kg	1						-	-	-	-	-	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
	4-nitrophenol	mg/kg	5						-	-	-	-	-	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
	Dinoseb	mg/kg	20						-	-	-	-	-	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20
	Pentachlorophenol	mg/kg	1	100	130	120			-	-	-	-	-	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
	Phenol	mg/kg	0.5	3000	45000	40000			-	-	-	-	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	tetrachlorophenols	mg/kg	1						-	-	-	-	-	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
	Phenols (Total Halogenated)	mg/kg	1						-	-	-	-	-	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
	Phenols (Total Non Halogenated)	mg/kg	20						-	-	-	-	-	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20
TPH	C10 - C14	mg/kg	20						<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20
	C15 - C28	mg/kg	50						<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50
	C29 - C36	mg/kg	50						<50	<50	<50	<50	<50	89	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50
	C10 - C36 (Sum of total)	mg/kg	50						<50	<50	<50	<50	<50	89	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50
Volatile	Benzene	mg/kg	0.1				0.5	0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	Ethylbenzene	mg/kg	0.1				55		<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	Toluene	mg/kg	0.1				160	220	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	Xylene (m & p)	mg/kg	0.2						<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
	Xylene (o)	mg/kg	0.1						<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	Xylene Total	mg/kg	0.3				40	60	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3
	Cyanide Total	mg/kg	0.5						-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	PCBs (Sum of Total)	mg/kg	0.9						-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Total VOC	mg/kg	26						-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Method_Type	ChemName	Test Pit Results GEOTKARIO2021AA (2007) Southern Lots (Lot 51 DP 561032 & Lot 52 DP561032)																										
	Field_ID	ETP75	ETP75	ETP76	ETP77	ETP78	ETP78	ETP79	ETP80	ETP80	ETP81	ETP82 - 0.0 - 0.1	ETP82 - 0.4 - 0.5	ETP83	ETP84	ETP84	ETP89	ETP93	ETP93	ETP94	ETP95	ETP95	ETP96	ETP97	ETP98	ETP99	ETP100	ETP100
	Sample Dtae	25-Sep-07	25-Sep-07	25-Sep-07	25-Sep-07	25-Sep-07	25-Sep-07	25-Sep-07	25-Sep-07	25-Sep-07	25-Sep-07	25-Sep-07	25-Sep-07	25-Sep-07	25-Sep-07	25-Sep-07	25-Sep-07	25-Sep-07	25-Sep-07	25-Sep-07	25-Sep-07	25-Sep-07	25-Sep-07	25-Sep-07	25-Sep-07	25-Sep-07	25-Sep-07	25-Sep-07
Heavy Metal	Arsenic	8	10	<3	8	12	8	8	4	<3	<3	4	5	<3	4	6	4	7	31	3	8	10	10	7	<3	4	4	4
	Cadmium	0.5	0.3	0.2	0.1	0.3	0.2	0.2	0.2	0.1	<0.1	0.2	0.3	0.1	0.1	0.2	0.2	0.2	1.1	0.1	0.2	0.4	0.2	<0.1	0.1	0.2	0.3	0.2
	Chromium	5.2	22	5.6	6.5	8.2	9	5.5	8.3	5.6	4.8	5.2	12	2.6	3.5	7.2	3	7.1	23	4.3	9.9	10	6.5	4.3	3.9	3.8	5.2	5.3
	Copper	7.1	11	6.8	8.8	11	11	9.5	8.8	7.1	6.6	7.3	12	3.8	4.4	2.3	3.8	5	6.3	7	9.1	8.8	5.6	5.2	4.4	11	24	1.4
	Lead	8	49	7	6	9.4	13	9.7	18	9	9	23	9.4	10	9.4	9	9	11	46	9.5	12	18	11	6	42	17	33	6
	Mercury	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.05	<0.05
	Nickel	2.1	5.5	3.6	2.6	2.2	3.5	3	5.6	5.4	5.1	2.5	7	0.9	1.3	1.9	1.2	3.9	3.2	2.1	5.6	4.3	2.2	2.1	1.9	2.2	1.9	1.3
	Zinc	15	920	17	18	26	24	28	70	39	33	120	17	30	83	7.7	52	27	23	75	26	25	15	14	6.1	85	210	8.9
	Moisture Content (dried @ 103°C)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Asbestos	Asbetos in Soil	A	-	A	A	-	-	A	-	-	A	A	-	-	-	-	A	-	-	DETECT SMF	-	-	-	-	-	-	A	-
OCP	4,4-DDE	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	a-BHC	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Aldrin	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Aldrin + Dieldrin	<0.2	-	-	<0.2	-	-	<0.2	-	-	<0.2	<0.2	-	-	-	-	0.35	-	-	<0.2	-	-	<0.2	<0.2	<0.2	<0.2	<0.2	-
	b-BHC	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Chlordane	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	cis-Chlordane	<0.1	-	-	<0.1	-	-	<0.1	-	-	<0.1	<0.1	-	-	-	-	0.99	-	-	<0.1	-	-	<0.1	<0.1	<0.1	<0.1	0.1	-
	trans-Chlordane	<0.1	-	-	<0.1	-	-	<0.1	-	-	<0.1	<0.1	-	-	-	-	1.5	-	-	<0.1	-	-	<0.1	<0.1	<0.1	<0.1	0.9	-
	trans-Nonachlor	<0.1	-	-	<0.1	-	-	<0.1	-	-	<0.1	<0.1	-	-	-	-	0.8	-	-	<0.1	-	-	<0.1	<0.1	-	-	-	-
	d-BHC	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	DDD	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	DDT	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	DDT+DDE+DDD	<0.3	-	-	<0.3	-	-	<0.3	-	-	<0.3	<0.3	-	-	-	-	<0.3	-	-	<0.3	-	-	<0.3	<0.3	<0.3	<0.3	<0.3	-
	Dieldrin	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Endosulfan I	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Endosulfan II	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Endosulfan sulphate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Endrin	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Endrin aldehyde	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Endrin ketone	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	g-BHC (Lindane)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Heptachlor	<0.1	-	-	<0.1	-	-	<0.1	-	-	<0.1	<0.1	-	-	-	-	<0.1	-	-	<0.1	-	-	<0.1	<0.1	<0.1	<0.1	0.5	-
	Heptachlor epoxide	<0.1	-	-	<0.1	-	-	<0.1	-	-	<0.1	<0.1	-	-	-	-	0.2	-	-	<0.1	-	-	<0.1	<0.1	<0.1	<0.1	0.7	-
	Hexachlorobenzene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Methoxychlor	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Toxaphene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Vic EPA IWRG 621 OCP (Total)*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Vic EPA IWRG 621 Other OCP (Total)*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OPP	Azinophos methyl	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Bolstar (Sulprofos)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Bromophos-ethyl	<0.1	-	-	<0.1	-	-	<0.1	-	-	<0.1	<0.1	-	-	-	-	<0.1	-	-	<0.1	-	-	<0.1	<0.1	<0.1	<0.1	<0.1	-
	Chlorfenvinphos	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Chlorpyrifos	<0.1	-	-	<0.1	-	-	<0.1	-	-	<0.1	<0.1	-	-	-	-	<0.1	-	-	<0.1	-	-	<0.1	<0.1	<0.1	<0.1	<0.1	-
	Chlorpyrifos-methyl	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Coumaphos	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Demeton-O	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Demeton-S	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Diazinon	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Dichlorvos	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Dimethoate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Disulfoton	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	EPN	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Ethion	<0.1	-	-	<0.1	-	-	<0.1	-	-	<0.1	<0.1	-	-	-	-	<0.1	-	-	<0.1	-	-	<0.1	<0.1	<0.1	<0.1	<0.1	-
	Ethoprop		-	-		-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Fenitrothion	<0.1	-	-	<0.1	-	-	<0.1	-	-	<0.1	<0.1	-	-	-	-	<0.1	-	-	<0.1	-	-	<0.1	<0.1	<0.1	<0.1	<0.1	-
	Fensulfothion	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Fenthion	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Malathion	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Merphos	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Methyl parathion	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Mevinphos (Phosdrin)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Monocrotophos	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Naled (Dibrom)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Omethoate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Parathion	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Phorate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Pirimiphos-methyl	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Pyrazophos	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Ronnel	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Terbufos	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Trichloronate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Tetrachlorvinphos	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Tokuthion	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Organic	Naphthalene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	F2-NAPHTHALENE	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	C6 - C9	<20	<20		<20	-	-	<20			<20	<20	-	-	-	-	<20	-	-	<20	-	-	-	-	-	-	<20	-
	C10 - C40 (Sum of total)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	C6-C10 less BTEX (F1)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	C10-C16	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	C16-C34	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	C34-C40	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	C6 - C10	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
PAH	Acenaphthene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Acenaphthylene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.1	-
	Anthracene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Benzo(a)anthracene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.1	-
	Benzo(a)pyrene	<0.05	<0.05	-	<0.05	-	-	<0.05	-	-	<0.05	<0.05	-	-	-	-	<0.05	-	-	<0.05	-	-	-	-	-	-	0.12	-
	Benzo(a)pyrene TEQ (lower bound) *	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Benzo(a)pyrene TEQ (medium bound) *	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Benzo(a)pyrene TEQ (upper bound) *	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Benzo(g,h,i)perylene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Benzo(k)fluoranthene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Chrysene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.1	-
	Benzo[b+j]fluoranthene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Dibenz(a,h)anthracene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Fluoranthene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.1	-
	Fluorene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Indeno(1,2,3-c,d)pyrene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Naphthalene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Phenanthrene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Pyrene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.2	-
	Total PAHs	<1.55	<1.55		<1.55			<1.55			<1.55	<1.55					<1.55			<1.75							<1.72	-
SVOC	2,4,5-trichlorophenol	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2,4,6-trichlorophenol	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2,4-dichlorophenol	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2,4-dimethylphenol	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2,4-dinitrophenol	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2,6-dichlorophenol	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2-chlorophenol	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2-methylphenol	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2-nitrophenol	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	3-&4-methylphenol	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	4,6-Dinitro-2-methylphenol	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	4,6-Dinitro-o-cyclohexyl phenol	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	4-chloro-3-methylphenol	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	4-nitrophenol	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Dinoseb	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Pentachlorophenol	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Phenol	0.6	<0.5	-	1.7	-	-	<0.5	-	-	0.6	1.6	-	-	-	-	<0.5	-	-	1.7	-	-	-	-	-	-	<0.5	-
	tetrachlorophenols	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Phenols (Total Halogenated)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Phenols (Total Non Halogenated)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TPH	C10 - C14	<20	<20	-	<20	-	-	<20	-	-	<20	<20	-	-	-	-	<20	-	-	<20	-	-	-	-	-	-	<20	-
	C15 - C28	<50	<50	-	<50	-	-	<50	-	-	<50	<50	-	-	-	-	<50	-	-	92	-	-	-	-	-	-	<50	-
	C29 - C36	<50	<50	-	<50	-	-	<50	-	-	<50	<50	-	-	-	-	<50	-	-	150	-	-	-	-	-	-	<50	-
	C10 - C36 (Sum of total)	<120	<120	-	<120	-	-	<120	-	-	<120	<120	-	-	-	-	<120	-	-	252	-	-	-	-	-	-	<120	-
Volatile	Benzene	<0.5	<0.5	-	<0.5	-	-	<0.5	-	-	<0.5	<0.5	-	-	-	-	<0.5	-	-	<0.5	-	-	-	-	-	-	<0.5	-
	Ethylbenzene	<0.5	<0.5	-	<0.5	-	-	<0.5	-	-	<0.5	<0.5	-	-	-	-	<0.5	-	-	<0.5	-	-	-	-	-	-	<0.5	-
	Toluene	<0.5	<0.5	-	<0.5	-	-	<0.5	-	-	<0.5	<0.5	-	-	-	-	<0.5	-	-	<0.5	-	-	-	-	-	-	<0.5	-
	Xylene (m & p)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Xylene (o)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Xylene Total	<1.5	<1.5	-	<1.5	-	-	<1.5	-	-	<1.5	<1.5	-	-	-	-	<1.5	-	-	<1.5	-	-	-	-	-	-	<1.5	-
	Cyanide Total	<0.5	-	<0.5	<0.5	-	-	<0.5	-	-	<0.5	<0.5	-	-	-	-	<0.5	-	-	<0.5	-	-	-	-	-	-	<0.5	-
	PCBs (Sum of Total)	<0.9	-	-	<0.9	-	-	<0.9	-	-	<0.9	<0.9	-	-	-	-	<0.9	-	-	<0.9	-	-	<0.9	<0.9	-	-	-	-
	Total VOC	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Result	Concentration exceeds adopted human health criteria - Residential - A Soil
Result	Concentration exceeds adopted human health criteria - Residential - B Soil
Result	Concentration exceeds adopted human health criteria - Recreation/Public Open Space
Result	Concentration exceeds adopted health screening level, vapour intrusion (Residential) - Sand 0 - <2m

Notes:

-	**Not Analysed**
P	**Present**
A	**Absent**
1	**NEPC (2013) National Environmental Protection (Assessment of Site Contamination) Measure (NEPM 2013) - Table 1A(1): Health Investigation Levels**
2	**NEPC (2013) National Environmental Protection (Assessment of Site Contamination) Measure (NEPM 2013) - Table 1A(1): Health Investigation Levels**
3	**NEPC (2013) National Environmental Protection (Assessment of Site Contamination) Measure (NEPM 2013) - Table 1A(1): Health Investigation Levels**
4	**NEPC (2013) National Environmental Protection (Assessment of Site Contamination) Measure (NEPM 2013) - Table 1A(3) HSL A/B Low - High density residential 0 <1m**
5	**NEPC (2013) National Environmental Protection (Assessment of Site Contamination) Measure (NEPM 2013) - Table 1A(3) HSL A/B Low - High density residential 1 <2m**

Result	Stage 2 ESA 2007 (GEOTKARI02021AA-AI) Northern Lots
Result	Stage 2 ESA 2007 (GEOTKARI02021AA-AI) Southern Lots

colliers International Project Management,
111 Sparks Road Woongarrah

Table LR1
Soil Investigation Results
Stages 6-10 WTC Development
754-NTLGE216908

Method_Type	ChemName	Units	EQL	HIL-A (1)	HIL-B (2)	HIL-C (3)	ETP101	ETP101	ETP102	ETP103	ETP103	ETP104	ETP104	ETP105	ETP105	ETP106	ETP106
							25-Sep-07	25-Sep-07	25-Sep-07	25-Sep-07	25-Sep-07	25-Sep-07	25-Sep-07	25-Sep-07	25-Sep-07	25-Sep-07	25-Sep-07
Heavy Metal	Arsenic	mg/kg	2	100	500	300	<3	3	5	3	4	<3	<3	7	8	6	5
	Cadmium	mg/kg	0.4	20	150	90	0.3	0.1	0.2	0.2	0.2	0.2	0.2	<0.3	<0.3	<0.3	<0.3
	Chromium	mg/kg	5				4.3	4.3	3.7	3.3	6.4	6	2.3	4.2	4.6	3.9	6.1
	Copper	mg/kg	5	6000	30000	17000	12	5.4	23	5.6	6.2	8.9	0.93	3.4	3.6	4.4	3
	Lead	mg/kg	5	300	1200	600	26	8	13	15	12	24	6	17	9.2	22	8
	Mercury	mg/kg	0.1	40	120	80	<0.05	<0.05	0.09	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
	Nickel	mg/kg	5	400	1200	1200	2	1.7	1.3	1.7	4.1	3.9	1.3	1.2	1.2	0.94	3.8
	Zinc	mg/kg	5	7400	60000	30000	120	22	100	63	23	130	4.6	58	9.7	45	9.5
	Moisture Content (dried @ 103°C)	%	1				-	-	-	-	-	-	-	-	-	-	-
Asbestos	Asbetos in Soil	P/A	-				-	-	-	A	-	A	-	-	-	-	-
OCP	4,4-DDE	mg/kg	0.05				-	-	-	-	-	-	-	-	-	-	-
	a-BHC	mg/kg	0.05				-	-	-	-	-	-	-	-	-	-	-
	Aldrin	mg/kg	0.05				-	-	-	-	-	-	-	-	-	-	-
	Aldrin + Dieldrin	mg/kg	0.05	6	10	10	-	-	<0.2	<0.2	-	<0.2	-	-	-	<0.2	-
	b-BHC	mg/kg	0.05				-	-	-	-	-	-	-	-	-	-	-
	Chlordane	mg/kg	0.1	50	90	70	-	-	-	-	-	-	-	-	-	-	-
	cis-Chlordane	mg/kg	0.1				-	-	<0.1	<0.1	-	<0.1	-	-	-	<0.1	-
	trans-Chlordane	mg/kg	0.1				-	-	<0.1	<0.1	-	<0.1	-	-	-	<0.1	-
	trans-Nonachlor	mg/kg	0.1				-	-	-	-	-	-	-	-	-	<0.1	-
	d-BHC	mg/kg	0.05				-	-	-	-	-	-	-	-	-	-	-
	DDD	mg/kg	0.05				-	-	-	-	-	-	-	-	-	-	-
	DDT	mg/kg	0.05				-	-	-	-	-	-	-	-	-	-	-
	DDT+DDE+DDD	mg/kg	0.05	240	600	400	-	-	<0.3	<0.3	-	<0.3	-	-	-	<0.3	-
	Dieldrin	mg/kg	0.05				-	-	-	-	-	-	-	-	-	-	-
	Endosulfan I	mg/kg	0.05				-	-	-	-	-	-	-	-	-	-	-
	Endosulfan II	mg/kg	0.05				-	-	-	-	-	-	-	-	-	-	-
	Endosulfan sulphate	mg/kg	0.05				-	-	-	-	-	-	-	-	-	-	-
	Endrin	mg/kg	0.05	10	20	20	-	-	-	-	-	-	-	-	-	-	-
	Endrin aldehyde	mg/kg	0.05				-	-	-	-	-	-	-	-	-	-	-
	Endrin ketone	mg/kg	0.05				-	-	-	-	-	-	-	-	-	-	-
	g-BHC (Lindane)	mg/kg	0.05				-	-	-	-	-	-	-	-	-	-	-
	Heptachlor	mg/kg	0.05	6	10	10	-	-	<0.1	<0.1	-	<0.1	-	-	-	<0.1	-
	Heptachlor epoxide	mg/kg	0.05				-	-	<0.1	<0.1	-	<0.1	-	-	-	<0.1	-
	Hexachlorobenzene	mg/kg	0.05	10	15	10	-	-	-	-	-	-	-	-	-	-	-
	Methoxychlor	mg/kg	0.05	300	500	400	-	-	-	-	-	-	-	-	-	-	-
	Toxaphene	mg/kg	1	20	30	30	-	-	-	-	-	-	-	-	-	-	-
	Vic EPA IWRG 621 OCP (Total)*	MG/KG	0.1				-	-	-	-	-	-	-	-	-	-	-
	Vic EPA IWRG 621 Other OCP (Total)*	MG/KG	0.1				-	-	-	-	-	-	-	-	-	-	-
OPP	Azinophos methyl	mg/kg	0.2				-	-	-	-	-	-	-	-	-	-	-
	Bolstar (Sulprofos)	mg/kg	0.2				-	-	-	-	-	-	-	-	-	-	-
	Bromophos-ethyl	mg/kg	0.1				-	-	<0.1	<0.1	-	<0.1	-	-	-	<0.1	-
	Chlorfenvinphos	mg/kg	0.2				-	-	-	-	-	-	-	-	-	-	-
	Chlorpyrifos	mg/kg	0.2	160	340	250	-	-	<0.1	<0.1	-	<0.1	-	-	-	<0.1	-
	Chlorpyrifos-methyl	mg/kg	0.2				-	-	-	-	-	-	-	-	-	-	-
	Coumaphos	mg/kg	2				-	-	-	-	-	-	-	-	-	-	-
	Demeton-O	mg/kg	0.2				-	-	-	-	-	-	-	-	-	-	-
	Demeton-S	mg/kg	0.2				-	-	-	-	-	-	-	-	-	-	-
	Diazinon	mg/kg	0.2				-	-	-	-	-	-	-	-	-	-	-
	Dichlorvos	mg/kg	0.2				-	-	-	-	-	-	-	-	-	-	-
	Dimethoate	mg/kg	0.2				-	-	-	-	-	-	-	-	-	-	-
	Disulfoton	mg/kg	0.2				-	-	-	-	-	-	-	-	-	-	-
	EPN	mg/kg	0.2				-	-	-	-	-	-	-	-	-	-	-
	Ethion	mg/kg	0.2				-	-	<0.1	<0.1	-	<0.1	-	-	-	<0.1	-
	Ethoprop	mg/kg	0.2				-	-	-	-	-	-	-	-	-	-	-
	Fenitrothion	mg/kg	0.2				-	-	<0.1	<0.1	-	<0.1	-	-	-	<0.1	-
	Fensulfothion	mg/kg	0.2				-	-	-	-	-	-	-	-	-	-	-
	Fenthion	mg/kg	0.2				-	-	-	-	-	-	-	-	-	-	-
	Malathion	mg/kg	0.2				-	-	-	-	-	-	-	-	-	-	-
	Merphos	mg/kg	0.2				-	-	-	-	-	-	-	-	-	-	-
	Methyl parathion	mg/kg	0.2				-	-	-	-	-	-	-	-	-	-	-
	Mevinphos (Phosdrin)	mg/kg	0.2				-	-	-	-	-	-	-	-	-	-	-
	Monocrotophos	mg/kg	2				-	-	-	-	-	-	-	-	-	-	-
	Naled (Dibrom)	mg/kg	0.2				-	-	-	-	-	-	-	-	-	-	-
	Omethoate	mg/kg	2				-	-	-	-	-	-	-	-	-	-	-
	Parathion	mg/kg	0.2				-	-	-	-	-	-	-	-	-	-	-
	Phorate	mg/kg	0.2				-	-	-	-	-	-	-	-	-	-	-
	Pirimiphos-methyl	mg/kg	0.2				-	-	-	-	-	-	-	-	-	-	-
	Pyrazophos	mg/kg	0.2				-	-	-	-	-	-	-	-	-	-	-
	Ronnel	mg/kg	0.2				-	-	-	-	-	-	-	-	-	-	-
	Terbufos	mg/kg	0.2				-	-	-	-	-	-	-	-	-	-	-
	Trichloronate	mg/kg	0.2				-	-	-	-	-	-	-	-	-	-	-
	Tetrachlorvinphos	mg/kg	0.2				-	-	-	-	-	-	-	-	-	-	-
	Tokuthion	mg/kg	0.2				-	-	-	-	-	-	-	-	-	-	-
Organic	Naphthalene	mg/kg	0.5				-	-	-	-	-	-	-	-	-	-	-
	F2-NAPHTHALENE	mg/kg	50				-	-	-	-	-	-	-	-	-	-	-
	C6 - C9	mg/kg	20				<20			<20	-	<20	-				
	C10 - C40 (Sum of total)	mg/kg	100				-	-	-	-	-	-	-	-	-	-	-
	C6-C10 less BTEX (F1)	mg/kg	20				-	-	-	-	-	-	-	-	-	-	-
	C10-C16	mg/kg	50				-	-	-	-	-	-	-	-	-	-	-
	C16-C34	mg/kg	100				-	-	-	-	-	-	-	-	-	-	-
	C34-C40	mg/kg	100				-	-	-	-	-	-	-	-	-	-	-
	C6 - C10	mg/kg	20				-	-	-	-	-	-	-	-	-	-	-
PAH	Acenaphthene	mg/kg	0.5				-	-	-	-	-	-	-	-	-	-	-
	Acenaphthylene	mg/kg	0.5				<0.1	-	-	<0.1	-	<0.1	-	-	-	-	-
	Anthracene	mg/kg	0.5				-	-	-	-	-	-	-	-	-	-	-
	Benzo(a)anthracene	mg/kg	0.5				<0.1	-	-	<0.1	-	<0.1	-	-	-	-	-
	Benzo(a)pyrene	mg/kg	0.5				0.06	-	-	<0.05	-	<0.05	-	-	-	-	-
	Benzo(a)pyrene TEQ (lower bound) *	MG/KG	0.5				-	-	-	-	-	-	-	-	-	-	-
	Benzo(a)pyrene TEQ (medium bound) *	MG/KG	0.5				-	-	-	-	-	-	-	-	-	-	-
	Benzo(a)pyrene TEQ (upper bound) *	MG/KG	0.5				-	-	-	-	-	-	-	-	-	-	-
	Benzo(g,h,i)perylene	mg/kg	0.5				-	-	-	-	-	-	-	-	-	-	-
	Benzo(k)fluoranthene	mg/kg	0.5				-	-	-	-	-	-	-	-	-	-	-
	Chrysene	mg/kg	0.5				<0.1	-	-	<0.1	-	<0.1	-	-	-	-	-
	Benzo[b+j]fluoranthene	mg/kg	0.5				-	-	-	-	-	-	-	-	-	-	-
	Dibenz(a,h)anthracene	mg/kg	0.5				-	-	-	-	-	-	-	-	-	-	-
	Fluoranthene	mg/kg	0.5				0.1	-	-	<0.1	-	<0.1	-	-	-	-	-
	Fluorene	mg/kg	0.5				-	-	-	-	-	-	-	-	-	-	-
	Indeno(1,2,3-c,d)pyrene	mg/kg	0.5				-	-	-	-	-	-	-	-	-	-	-
	Naphthalene	mg/kg	0.5				-	-	-	-	-	-	-	-	-	-	-
	Phenanthrene	mg/kg	0.5				-	-	-	-	-	-	-	-	-	-	-
	Pyrene	mg/kg	0.5				0.1	-	-	<0.1	-	<0.1	-	-	-	-	-
	Total PAHs	mg/kg	0.5	300	400	300	<1.56	-	-	<1.55	-	<1.55	-				
SVOC	2,4,5-trichlorophenol	mg/kg	1				-	-	-	-	-	-	-	-	-	-	-
	2,4,6-trichlorophenol	mg/kg	1				-	-	-	-	-	-	-	-	-	-	-
	2,4-dichlorophenol	mg/kg	0.5				-	-	-	-	-	-	-	-	-	-	-
	2,4-dimethylphenol	mg/kg	0.5				-	-	-	-	-	-	-	-	-	-	-
	2,4-dinitrophenol	mg/kg	5				-	-	-	-	-	-	-	-	-	-	-
	2,6-dichlorophenol	mg/kg	0.5				-	-	-	-	-	-	-	-	-	-	-
	2-chlorophenol	mg/kg	0.5				-	-	-	-	-	-	-	-	-	-	-
	2-methylphenol	mg/kg	0.2				-	-	-	-	-	-	-	-	-	-	-
	2-nitrophenol	mg/kg	1				-	-	-	-	-	-	-	-	-	-	-
	3-&4-methylphenol	mg/kg	0.4				-	-	-	-	-	-	-	-	-	-	-
	4,6-Dinitro-2-methylphenol	mg/kg	5				-	-	-	-	-	-	-	-	-	-	-
	4,6-Dinitro-o-cyclohexyl phenol	mg/kg	20				-	-	-	-	-	-	-	-	-	-	-
	4-chloro-3-methylphenol	mg/kg	1				-	-	-	-	-	-	-	-	-	-	-
	4-nitrophenol	mg/kg	5				-	-	-	-	-	-	-	-	-	-	-
	Dinoseb	mg/kg	20				-	-	-	-	-	-	-	-	-	-	-
	Pentachlorophenol	mg/kg	1	100	130	120	-	-	-	-	-	-	-	-	-	-	-
	Phenol	mg/kg	0.5	3000	45000	40000	1.9	-	-	2.5	-	1.2	-	-	-	-	-
	tetrachlorophenols	mg/kg	1				-	-	-	-	-	-	-	-	-	-	-
	Phenols (Total Halogenated)	mg/kg	1				-	-	-	-	-	-	-	-	-	-	-
	Phenols (Total Non Halogenated)	mg/kg	20				-	-	-	-	-	-	-	-	-	-	-
TPH	C10 - C14	mg/kg	20				<20	-	-	<20	-	<20	-	-	-	-	-
	C15 - C28	mg/kg	50				<50	-	-	<50	-	<50	-	-	-	-	-
	C29 - C36	mg/kg	50				<50	-	-	<50	-	<50	-	-	-	-	-
	C10 - C36 (Sum of total)	mg/kg	50				<120	-	-	<120	-	<120	-	-	-	-	-
Volatile	Benzene	mg/kg	0.1				<0.5	-	-	<0.5	-	<0.5	-	<0.5	<0.5	<0.5	<0.5
	Ethylbenzene	mg/kg	0.1				<0.5	-	-	<0.5	-	<0.5	-	<0.5	<0.5	<0.5	<0.5
	Toluene	mg/kg	0.1				<0.5	-	-	<0.5	-	<0.5	-	<0.5	<0.5	<0.5	<0.5
	Xylene (m & p)	mg/kg	0.2				-	-	-	-	-	-	-	-	-	-	-
	Xylene (o)	mg/kg	0.1				-	-	-	-	-	-	-	-	-	-	-
	Xylene Total	mg/kg	0.3				<1.5	-	-	<1.5	-	<1.5	-	<1.5	<1.5	<1.5	<1.5
	Cyanide Total	mg/kg	0.5					-	-	<0.5	-	<0.5	-	-	-	-	-
	PCBs (Sum of Total)	mg/kg	0.9				-	-	-	-	-	-	-	-	-	<0.9	-
	Total VOC	mg/kg	26				-	-	-	-	-	-	-	-	-	-	-

Method_Type	ChemName	ETP31	ETP31	ETP32	ETP33	ETP34	ETP35	ETP111	HA1	HA1	HA2	HA3	HA3	HA4	HA5	HA5	HA7	HA7	HA14	HA15	HA16	HA17
		19-Sep-07	19-Sep-07	19-Sep-07	19-Sep-07	19-Sep-07	19-Sep-07	25-Sep-07	24-Sep-07	24-Sep-07	24-Sep-07	24-Sep-07	24-Sep-07	24-Sep-07	24-Sep-07	24-Sep-07	27-Sep-07	27-Sep-07	27-Sep-07	27-Sep-07	28-Sep-07	28-Sep-07
Heavy Metal	Arsenic	<3	3	<3	<3	5	7	<3	5	5	4	4	<3	4	6	8	6	10	<3	<3-6	<3	4
	Cadmium	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	0.3	0.2	0.2	0.2	0.2	0.1	0.5	0.3	<0.1	<0.1	0.2	0.2	0.2	0.2
	Chromium	6.4	9.7	2.2	2.8	13	12	9.6	11	7.4	12	12	7.7	8.3	29	15	8.9	18	5.5	5.2-8.3	6.6	6.5
	Copper	1.6	0.6	1.4	0.6	<0.5	1	0.9	0.9	9.7	0.9	1.2	7.6	1.7	12	13	1.4	3	12	9.5-10	12	14
	Lead	6	3	4	3	4	4	6	12	15	12	12	17	8	19	21	5	8	150	98	160	190
	Mercury	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.07	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
	Nickel	0.8	<0.5	0.7	<0.5	<0.5	<0.5	<0.5	0.93	11	0.97	0.7	6.1	1.3	14	3.6	<0.5	1.1	8.6	6.4	7.3	7.5
	Zinc	12	1.1	5.7	1.8	0.9	0.9	2.5	14	42	16	7.7	28	43	47	27	3.2	6.4	40	31	34	37
	Moisture Content (dried @ 103°C)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Asbestos	Asbetos in Soil	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	A	A
OCP	4,4-DDE	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	a-BHC	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Aldrin	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Aldrin + Dieldrin	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	b-BHC	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Chlordane	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	cis-Chlordane	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	trans-Chlordane	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	trans-Nonachlor	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	d-BHC	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	DDD	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	DDT	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	DDT+DDE+DDD	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Dieldrin	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Endosulfan I	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Endosulfan II	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Endosulfan sulphate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Endrin	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Endrin aldehyde	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Endrin ketone	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	g-BHC (Lindane)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Heptachlor	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Heptachlor epoxide	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Hexachlorobenzene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Methoxychlor	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Toxaphene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Vic EPA IWRG 621 OCP (Total)*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Vic EPA IWRG 621 Other OCP (Total)*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OPP	Azinophos methyl	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Bolstar (Sulprofos)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Bromophos-ethyl	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Chlorfenvinphos	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Chlorpyrifos	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Chlorpyrifos-methyl	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Coumaphos	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Demeton-O	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Demeton-S	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Diazinon	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Dichlorvos	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Dimethoate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Disulfoton	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	EPN	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Ethion	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Ethoprop	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Fenitrothion	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Fensulfothion	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Fenthion	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Malathion	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Merphos	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Methyl parathion	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Mevinphos (Phosdrin)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Monocrotophos	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Naled (Dibrom)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Omethoate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Parathion	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Phorate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Pirimiphos-methyl	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Pyrazophos	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Ronnel	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Terbufos	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Trichloronate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Tetrachlorvinphos	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Tokuthion	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Organic	Naphthalene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	F2-NAPHTHALENE	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	C6 - C9	<20		<20	<20	<20	<20	<20	<20		<20	<20		<20	<20		<20		<20	<20	<20	<20
	C10 - C40 (Sum of total)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	C6-C10 less BTEX (F1)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	C10-C16	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	C16-C34	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	C34-C40	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	C6 - C10	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
PAH	Acenaphthene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Acenaphthylene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Anthracene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Benzo(a)anthracene	<0.1	-	-	-	-	-	<0.1	-	-	<0.1	-	-	<0.1	-	-	-	-	-	<0.1	-	-
	Benzo(a)pyrene	<0.05	-	-	-	-	-	<0.05	-	-	<0.05	-	-	<0.05	-	-	-	-	-	0.07	-	-
	Benzo(a)pyrene TEQ (lower bound) *	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Benzo(a)pyrene TEQ (medium bound) *	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Benzo(a)pyrene TEQ (upper bound) *	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Benzo(g,h,i)perylene	<0.1	-	-	-	-	-	<0.1	-	-	<0.1	-	-	<0.1	-	-	-	-	-	0.1	-	-
	Benzo(k)fluoranthene	<0.2	-	-	-	-	-	<0.2	-	-	<0.2	-	-	<0.2	-	-	-	-	-	<0.2	-	-
	Chrysene	<0.1	-	-	-	-	-	<0.1	-	-	<0.1	-	-	<0.1	-	-	-	-	-	<0.1	-	-
	Benzo[b+j]fluoranthene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Dibenz(a,h)anthracene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Fluoranthene	<0.1	-	-	-	-	-	<0.1	-	-	<0.1	-	-	<0.1	-	-	-	-	-	<0.1	-	-
	Fluorene	<0.1	-	-	-	-	-	<0.1	-	-	<0.1	-	-	<0.1	-	-	-	-	-	<0.1	-	-
	Indeno(1,2,3-c,d)pyrene	<0.1	-	-	-	-	-	<0.1	-	-	<0.1	-	-	<0.1	-	-	-	-	-	0.1	-	-
	Naphthalene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Phenanthrene	<0.1	-	-	-	-	-	<0.1	-	-	<0.1	-	-	<0.1	-	-	-	-	-	<0.1	-	-
	Pyrene	<0.1	-	-	-	-	-	<0.1	-	-	<0.1	-	-	<0.1	-	-	-	-	-	<0.1	-	-
	Total PAHs	<1.65	-	-	-	-	-	<1.55	-	-	<1.55	-	-	<1.55	-	-	-	-	-	<1.57	-	-
SVOC	2,4,5-trichlorophenol	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2,4,6-trichlorophenol	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2,4-dichlorophenol	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2,4-dimethylphenol	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2,4-dinitrophenol	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2,6-dichlorophenol	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2-chlorophenol	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2-methylphenol	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2-nitrophenol	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	3-&4-methylphenol	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	4,6-Dinitro-2-methylphenol	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	4,6-Dinitro-o-cyclohexyl phenol	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	4-chloro-3-methylphenol	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	4-nitrophenol	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Dinoseb	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Pentachlorophenol	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Phenol	1.4	-	-	-	-	-	<0.5	-	-	0.7		-	<0.5	-	-	-	-	-	<0.5	-	-
	tetrachlorophenols	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Phenols (Total Halogenated)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Phenols (Total Non Halogenated)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TPH	C10 - C14	<20	-	<20	<20	<20	<20	<20	<20	-	<20	<20	-	<20	<20	-	<20	-	<20	<20	<20	<20
	C15 - C28	270	-	56	<50	<50	<50	<50	<50	-	50	54	-	<50	<50	-	<50	-	<50	<50	<50	<50
	C29 - C36	290	-	68	<50	<50	<50	<50	56	-	66	76	-	54	52	-	<50	-	61	<50	<50	<50
	C10 - C36 (Sum of total)	570	-	134	<120	<120	<120	<120	91	-	126	140	-	89	<120	-	<120	-	96	<120	<120	<120
Volatile	Benzene	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	-	<0.5	<0.5	-	<0.5	-	<0.5	<0.5	<0.5	<0.5
	Ethylbenzene	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	-	<0.5	<0.5	-	<0.5	-	<0.5	<0.5	<0.5	<0.5
	Toluene	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	-	<0.5	<0.5	-	<0.5	-	<0.5	<0.5	<0.5	<0.5
	Xylene (m & p)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Xylene (o)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Xylene Total	<1.5	-	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	-	<1.5	<1.5	-	<1.5	<1.5	-	<1.5	-	<1.5	<1.5	<1.5	<1.5
	Cyanide Total	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	PCBs (Sum of Total)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Total VOC	-	-	-	-	-	-	-	-	-			-			-		-				

Method_Type	ChemName	HA18	HA19	HA20	HA20	HA21	HA22	HA23	HA24	HA25	HA27	HA28	HA28	HA29	HA29	HA30	HA30	HA31	HA32
		28-Sep-07	28-Sep-07	28-Sep-07	28-Sep-07	28-Sep-07	28-Sep-07	28-Sep-07	28-Sep-07	28-Sep-07	04-Oct-07	04-Oct-07	04-Oct-07	04-Oct-07	04-Oct-07	04-Oct-07	04-Oct-07	04-Oct-07	04-Oct-07
Heavy Metal	Arsenic	3	<3	4	9	3	<3	<3	3	<3	5	3	8	<3	8	3	10	4	4
	Cadmium	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.1	0.3	0.2	0.5	0.2	0.4	0.2	0.5	0.2	0.2
	Chromium	6	6.4	7.1	24	6.9	5.4	5.8	6.7	4	8.6	5.7	35	6.2	28	5.8	37	6.6	8.3
	Copper	15	11	12	2.8	14	11	11	20	9.5	21	9.2	22	12	20	10	26	22	8.7
	Lead	150	170	150	6	320	120	760	580	220	100	110	9.5	150	7	71	9.5	180	18
	Mercury	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
	Nickel	6.7	7.7	6.9	0.6	7.5	7.1	5.5	10	5.4	6.9	5.2	<0.5	7.9	<0.5	6.5	1.7	6.5	4.7
	Zinc	32	34	35	6.1	38	33	32	81	28	34	45	5.5	38	4.3	43	7.4	38	42
	Moisture Content (dried @ 103°C)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Asbestos	Asbetos in Soil	A	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OCP	4,4-DDE	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	a-BHC	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Aldrin	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Aldrin + Dieldrin	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	b-BHC	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Chlordane	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	cis-Chlordane	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	trans-Chlordane	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	trans-Nonachlor	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	d-BHC	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	DDD	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	DDT	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	DDT+DDE+DDD	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Dieldrin	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Endosulfan I	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Endosulfan II	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Endosulfan sulphate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Endrin	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Endrin aldehyde	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Endrin ketone	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	g-BHC (Lindane)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Heptachlor	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Heptachlor epoxide	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Hexachlorobenzene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Methoxychlor	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Toxaphene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Vic EPA IWRG 621 OCP (Total)*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Vic EPA IWRG 621 Other OCP (Total)*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OPP	Azinophos methyl	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Bolstar (Sulprofos)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Bromophos-ethyl	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Chlorfenvinphos	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Chlorpyrifos	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Chlorpyrifos-methyl	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Coumaphos	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Demeton-O	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Demeton-S	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Diazinon	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Dichlorvos	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Dimethoate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Disulfoton	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	EPN	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Ethion	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Ethoprop	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Fenitrothion	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Fensulfothion	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Fenthion	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Malathion	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Merphos	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Methyl parathion	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Mevinphos (Phosdrin)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Monocrotophos	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Naled (Dibrom)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Omethoate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Parathion	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Phorate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Pirimiphos-methyl	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Pyrazophos	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Ronnel	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Terbufos	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Trichloronate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Tetrachlorvinphos	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Tokuthion	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Organic	Naphthalene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	F2-NAPHTHALENE	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	C6 - C9	<20	<20			<20	<20	<20	<20	<20	<20	<20				<20		<20	<20
	C10 - C40 (Sum of total)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	C6-C10 less BTEX (F1)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	C10-C16	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	C16-C34	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	C34-C40	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	C6 - C10	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
PAH	Acenaphthene	-	-	-	-	-	-	-	-	-	-	-	-		-	-	-		-
	Acenaphthylene	-	-	-	-	-	-	-	-	-	-	-	-		-	-	-		-
	Anthracene	-	-	-	-	-	-	-	-	-	-	-	-		-	-	-		-
	Benzo(a)anthracene	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	-	-	-	0.2	-
	Benzo(a)pyrene	-	-	-	-	-	-	-	-	-	-	-	-	0.13	-	-	-	0.17	-
	Benzo(a)pyrene TEQ (lower bound) *	-	-	-	-	-	-	-	-	-	-	-	-		-	-	-		-
	Benzo(a)pyrene TEQ (medium bound) *	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Benzo(a)pyrene TEQ (upper bound) *	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Benzo(g,h,i)perylene	-	-	-	-	-	-	-	-	-	-	-	-	0.2	-	-	-	0.2	-
	Benzo(k)fluoranthene	-	-	-	-	-	-	-	-	-	-	-	-	0.3	-	-	-	0.4	-
	Chrysene	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	-	-	-	0.1	-
	Benzo[b+j]fluoranthene	-	-	-	-	-	-	-	-	-	-	-	-		-	-	-		-
	Dibenz(a,h)anthracene	-	-	-	-	-	-	-	-	-	-	-	-		-	-	-		-
	Fluoranthene	-	-	-	-	-	-	-	-	-	-	-	-	0.2	-	-	-	0.3	-
	Fluorene	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	-	-	-	<0.1	-
	Indeno(1,2,3-c,d)pyrene	-	-	-	-	-	-	-	-	-	-	-	-	0.2	-	-	-	0.2	-
	Naphthalene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Phenanthrene	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	-	-	-	0.1	-
	Pyrene	-	-	-	-	-	-	-	-	-	-	-	-	0.2	-	-	-	0.3	-
	Total PAHs	-	-	-	-	-	-	-	-	-	-	-	-	<2.13	-	-	-	<2.57	-
SVOC	2,4,5-trichlorophenol	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2,4,6-trichlorophenol	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2,4-dichlorophenol	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2,4-dimethylphenol	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2,4-dinitrophenol	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2,6-dichlorophenol	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2-chlorophenol	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2-methylphenol	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2-nitrophenol	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	3-&4-methylphenol	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	4,6-Dinitro-2-methylphenol	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	4,6-Dinitro-o-cyclohexyl phenol	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	4-chloro-3-methylphenol	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	4-nitrophenol	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Dinoseb	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Pentachlorophenol	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Phenol	-	-	-	-	-	-	-	-	-	-	-	-	<0.5	-	-	-	<0.5	-
	tetrachlorophenols	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Phenols (Total Halogenated)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Phenols (Total Non Halogenated)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TPH	C10 - C14	<20	<20			<20	<20	<20	<20	<20	<20	<20				<20		<20	<20
	C15 - C28	<50	<50			<50	<50	<50	<50	<50	<50	<50				<50		<50	<50
	C29 - C36	<50	<50			<50	<50	<50	<50	<50	58	<50				61		51	80
	C10 - C36 (Sum of total)	<120	<120			<120	<120	<120	<120	<120	93	<120				96		86	115
Volatile	Benzene	<0.5	<0.5			<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5		<0.5		<0.5		<0.5	<0.5
	Ethylbenzene	<0.5	<0.5			<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5		<0.5		<0.5		<0.5	<0.5
	Toluene	<0.5	<0.5			<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5		<0.5		<0.5		<0.5	<0.5
	Xylene (m & p)	-	-			-	-	-	-	-	-	-		-		-		-	-
	Xylene (o)	-	-			-	-	-	-	-	-	-		-		-		-	-
	Xylene Total	<1.5	<1.5			<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5		<1.5		<1.5		<1.5	<1.5
	Cyanide Total	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	PCBs (Sum of Total)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Total VOC																		

Result	Concentration exceeds adopted human health criteria - Residential - A Soil
Result	Concentration exceeds adopted human health criteria - Residential - B Soil
Result	Concentration exceeds adopted human health criteria - Recreation/Public Open Spa
Result	Concentration exceeds adopted health screening level, vapour intrusion (Residentia

Notes:

-	**Not Analysed**
P	**Present**
A	**Absent**
1	**NEPC (2013) National Environmental Protection (Assessment of Site Contamination) Measu**
2	**NEPC (2013) National Environmental Protection (Assessment of Site Contamination) Measu**
3	**NEPC (2013) National Environmental Protection (Assessment of Site Contamination) Measu**
4	**NEPC (2013) National Environmental Protection (Assessment of Site Contamination) Measu**
5	**NEPC (2013) National Environmental Protection (Assessment of Site Contamination) Measu**

Result	Stage 2 ESA 2007 (GEOTKARI02021AA-AI) Northern Lots
Result	Stage 2 ESA 2007 (GEOTKARI02021AA-AI) Southern Lots

coffey
A TETRA TECH COMPANY

Table LR1
Soil Investigation Results
Stages 6-10 WTC Development
754-NTLGE216908

													GEOTKARIO2021AA - Lot 1 DP 376264 and Lot 54 DP 7527 - Former Landfill																								
							HA32	HA33	HA34	HA34	HA35	HA35	EBH13	EBH13	EBH16	EBH16	EBH17	EBH17	EBH18	EBH18	EBH19	EBH20	EBH21	EBH21	EBH22	EBH24	EBH25	EBH26	EBH22	EBH25	EBH26	ETP73	ETP73	ETP107	ETP107	ETP108	ETP108
							04-Oct-07	04-Oct-07	04-Oct-07	04-Oct-07	04-Oct-07	04-Oct-07	13-Sep-07	13-Sep-07	14-Sep-07	14-Sep-07	14-Sep-07	14-Sep-07	14-Sep-07	14-Sep-07	14-Sep-07	17-Sep-07	17-Sep-07	17-Sep-07	17-Sep-07	17-Sep-07	17-Sep-07	17-Sep-07	17-Sep-07	17-Sep-07	17-Sep-07	25-Sep-07	25-Sep-07	25-Sep-07	25-Sep-07	25-Sep-07	25-Sep-07
Method_Type	**ChemName**	**Units**	**EQL**	**HIL-A (1)**	**HIL-B (2)**	**HIL-C (3)**																															
Heavy Metal	Arsenic	mg/kg	2	100	500	300	9	4	4	9	3	8	<3	4	6	<3	9	8	<3	5	5	<3	<3	<3	<3	<3	<3	<3	5	7	<3	<3	<3	3	<3	<3	<3
	Cadmium	mg/kg	0.4	20	150	90	0.4	0.2	0.2	<0.1	0.2	0.4	0.2	0.2	0.3	0.1	0.2	0.2	0.2	0.2	0.2	<0.1	<0.1	<0.1	0.1	<0.1	0.2	0.1	0.2	0.3	0.1	0.2	0.1	0.2	<0.1	<0.1	0.2
	Chromium	mg/kg	5				28	7.9	8.3	30	6.5	27	8.9	8.1	11	6.8	18	17	6.6	7.3	11	3.8	4.3	5.5	5.3	9.4	9.8	5.9	7.7	17	6.7	10	5.5	6	5.3	3.9	3.7
	Copper	mg/kg	5	6000	30000	17000	19	9	12	21	7.5	19	15	6.7	13	0.5	6.1	6.3	9.9	6.4	6.4	1.4	2.2	0.9	8.7	6.3	9.5	6.5	5.8	3.8	4.5	4.1	7.7	4	1.9	1	6.7
	Lead	mg/kg	5	300	1200	600	9	17	12	7	11	7	21	14	12	4	4	3	9	28	7	4	5	6	23	8	34	11	10	13	9.6	27	16	6	4	5	16
	Mercury	mg/kg	0.1	40	120	80	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.18
	Nickel	mg/kg	5	400	1200	1200	1	5.5	14	<0.5	5.7	<0.5	12	4.4	15	0.6	<0.5	<0.5	7	2.4	5.2	1	1.7	0.9	5.1	8.8	12	5.6	4	4.1	2.7	2.5	6	4	1.9	2.6	3.2
	Zinc	mg/kg	5	7400	60000	30000	6.1	40	46	3.9	34	4	53	31	30	3	2.8	1.8	25	29	14	5.5	7	4.3	44	13	28	17	18	17	13	16	31	12	4	6.2	42
	Moisture Content (dried @ 103°C)	%	1				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Asbestos	Asbetos in Soil	P/A	-				-	P	-	-	P	-	-	-	ND		ND		ND			ND				ND	ND					ND	-	-	-	-	-
OCP	4,4-DDE	mg/kg	0.05				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	a-BHC	mg/kg	0.05				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Aldrin	mg/kg	0.05				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Aldrin + Dieldrin	mg/kg	0.05	6	10	10	-	-	-	-	-	-	<0.2	-	-	<0.2	-	<0.2	-	<0.2	<0.2	<0.2	<0.2	-	-	<0.2	<0.2	-	<0.2	-	<0.2	<0.2	-	-	<0.2	<0.2	-
	b-BHC	mg/kg	0.05				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Chlordane	mg/kg	0.1	50	90	70	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	cis-Chlordane	mg/kg	0.1				-	-	-	-	-	-	<0.2	-	-	<0.2	-	<0.2	-	<0.2	<0.2	<0.2	<0.2	-	-	<0.2	<0.2	-	<0.2	-	<0.2	<0.2	-	-	<0.2	<0.2	-
	trans-Chlordane	mg/kg	0.1				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	trans-Nonachlor	mg/kg	0.1				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	d-BHC	mg/kg	0.05				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	DDD	mg/kg	0.05				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	DDT	mg/kg	0.05				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	DDT+DDE+DDD	mg/kg	0.05	240	600	400	-	-	-	-	-	-	<0.3	-	-	<0.3	-	<0.3	-	<0.3	<0.3	<0.3	<0.3	-	-	<0.3	<0.3	-	<0.3	-	<0.3	<0.3	-	-	<0.3	<0.3	-
	Dieldrin	mg/kg	0.05				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Endosulfan I	mg/kg	0.05				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Endosulfan II	mg/kg	0.05				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Endosulfan sulphate	mg/kg	0.05				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Endrin	mg/kg	0.05	10	20	20	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Endrin aldehyde	mg/kg	0.05				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Endrin ketone	mg/kg	0.05				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	g-BHC (Lindane)	mg/kg	0.05				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Heptachlor	mg/kg	0.05	6	10	10	-	-	-	-	-	-	<0.1	-	-	<0.1	-	<0.1	-	<0.1	<0.1	<0.1	<0.1	-	-	<0.1	<0.1	-	<0.1	-	<0.1	<0.1	-	-	<0.1	<0.1	-
	Heptachlor epoxide	mg/kg	0.05				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Hexachlorobenzene	mg/kg	0.05	10	15	10	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Methoxychlor	mg/kg	0.05	300	500	400	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Toxaphene	mg/kg	1	20	30	30	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Vic EPA IWRG 621 OCP (Total)*	MG/KG	0.1				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Vic EPA IWRG 621 Other OCP (Total)*	MG/KG	0.1				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OPP	Azinophos methyl	mg/kg	0.2				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Bolstar (Sulprofos)	mg/kg	0.2				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Bromophos-ethyl	mg/kg	0.1				-	-	-	-	-	-	<0.1	-	-	<0.1	-	<0.1	-	<0.1	<0.1	<0.1	<0.1	-	-	<0.1	<0.1	-	<0.1	-	<0.1	<0.1	-	-	<0.1	<0.1	-
	Chlorfenvinphos	mg/kg	0.2				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Chlorpyrifos	mg/kg	0.2	160	340	250	-	-	-	-	-	-	<0.1	-	-	<0.1	-	<0.1	-	<0.1	<0.1	<0.1	<0.1	-	-	<0.1	<0.1	-	<0.1	-	<0.1	<0.1	-	-	<0.1	<0.1	-
	Chlorpyrifos-methyl	mg/kg	0.2				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Coumaphos	mg/kg	2				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Demeton-O	mg/kg	0.2				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Demeton-S	mg/kg	0.2				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Diazinon	mg/kg	0.2				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Dichlorvos	mg/kg	0.2				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Dimethoate	mg/kg	0.2				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Disulfoton	mg/kg	0.2				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	EPN	mg/kg	0.2				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Ethion	mg/kg	0.2				-	-	-	-	-	-	<0.1	-	-	<0.1	-	<0.1	-	<0.1	<0.1	<0.1	<0.1	-	-	<0.1	<0.1	-	<0.1	-	<0.1	<0.1	-	-	<0.1	<0.1	-
	Ethoprop	mg/kg	0.2				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Fenitrothion	mg/kg	0.2				-	-	-	-	-	-	<0.1	-	-	<0.1	-	<0.1	-	<0.1	<0.1	<0.1	<0.1	-	-	<0.1	<0.1	-	<0.1	-	<0.1	<0.1	-	-	<0.1	<0.1	-
	Fensulfothion	mg/kg	0.2				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Fenthion	mg/kg	0.2				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Malathion	mg/kg	0.2				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Merphos	mg/kg	0.2				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Methyl parathion	mg/kg	0.2				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Mevinphos (Phosdrin)	mg/kg	0.2				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Monocrotophos	mg/kg	2				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Naled (Dibrom)	mg/kg	0.2				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Omethoate	mg/kg	2				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Parathion	mg/kg	0.2				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Phorate	mg/kg	0.2				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Pirimiphos-methyl	mg/kg	0.2				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Pyrazophos	mg/kg	0.2				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Ronnel	mg/kg	0.2				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Terbufos	mg/kg	0.2				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Trichloronate	mg/kg	0.2				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Tetrachlorvinphos	mg/kg	0.2				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Tokuthion	mg/kg	0.2				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Organic	Naphthalene	mg/kg	0.5				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	F2-NAPHTHALENE	mg/kg	50				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	C6 - C9	mg/kg	20					<20	<20		<20		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	C10 - C40 (Sum of total)	mg/kg	100				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	C6-C10 less BTEX (F1)	mg/kg	20				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	C10-C16	mg/kg	50				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	C16-C34	mg/kg	100				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	C34-C40	mg/kg	100				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	C6 - C10	mg/kg	20				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
PAH	Acenaphthene	mg/kg	0.5				-	-	-	-	-	-	<0.1	-	-	<0.1	-	<0.1	-	0.1	<0.1	<0.1	<0.1	-	-	<0.1	<0.1		<0.1		<0.1	<0.1		-	<0.1	<0.1	-
	Acenaphthylene	mg/kg	0.5				-	-	-	-	-	-	<0.1	-	-	<0.1	-	<0.1	-	<0.1	<0.1	<0.1	<0.1	-	-	<0.1	<0.1		0.4		<0.1	<0.1		-	<0.1	<0.1	-
	Anthracene	mg/kg	0.5				-	-	-	-	-	-	<0.1	-	-	<0.1	-	<0.1	-	0.3	<0.1	<0.1	<0.1	-	-	<0.1	<0.1		0.2		<0.1	<0.1		-	<0.1	<0.1	-
	Benzo(a)anthracene	mg/kg	0.5				-	-	-	-	-	-	<0.1	-	-	<0.1	-	<0.1	-	0.6	<0.1	<0.1	<0.1	-	-	<0.1	<0.1		0.6		<0.1	<0.1		-	<0.1	<0.1	-
	Benzo(a)pyrene	mg/kg	0.5				-	-	-	-	-	-	0.09	-	-	0.06	-	<0.05	-	0.61	<0.05	<0.05	<0.05	-	-	0.08	<0.05		0.85		<0.05	<0.05		-	<0.05	<0.05	-
	Benzo(a)pyrene TEQ (lower bound) *	MG/KG	0.5				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Benzo(a)pyrene TEQ (medium bound) *	MG/KG	0.5				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Benzo(a)pyrene TEQ (upper bound) *	MG/KG	0.5				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Benzo(g,h,i)perylene	mg/kg	0.5				-	-	-	-	-	-	0.1	-	-	<0.1	-	<0.1	-	0.7	<0.1	<0.1	<0.1	-	-	0.1	<0.1		0.9		<0.1	<0.1		-	<0.1	<0.1	-
	Benzo(k)fluoranthene	mg/kg	0.5				-	-	-	-	-	-	<0.2	-	-	<0.2	-	<0.2	-	0.8	<0.2	<0.2	<0.2	-	-	<0.2	<0.2		0.9		<0.2	<0.2		-	<0.2	<0.2	-
	Chrysene	mg/kg	0.5				-	-	-	-	-	-	<0.1	-	-	<0.1	-	<0.1	-	0.4	<0.1	<0.1	<0.1	-	-	<0.1	<0.1		0.6		<0.1	<0.1		-	<0.1	<0.1	-
	Benzo[b+j]fluoranthene	mg/kg	0.5				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Dibenz(a,h)anthracene	mg/kg	0.5				-	-	-	-	-	-	<0.1	-	-	<0.1	-	<0.1	-	0.1	<0.1	<0.1	<0.1	-	-	<0.1	<0.1		0.2		<0.1	<0.1		-	<0.1	<0.1	-
	Fluoranthene	mg/kg	0.5				-	-	-	-	-	-	0.1	-	-	<0.1	-	<0.1	-	1.4	<0.1	<0.1	<0.1	-	-	<0.1	<0.1		0.8		<0.1	<0.1		-	<0.1	<0.1	-
	Fluorene	mg/kg	0.5				-	-	-	-	-	-	<0.1	-	-	<0.1	-	<0.1	-	<0.2	<0.1	<0.1	<0.1	-	-	<0.1	<0.1		<0.1		<0.1	<0.1		-	<0.1	<0.1	-
	Indeno(1,2,3-c,d)pyrene	mg/kg	0.5				-	-	-	-	-	-	<0.1	-	-	<0.1	-	<0.1	-	0.7	<0.1	<0.1	<0.1	-	-	<0.1	<0.1		0.7		<0.1	<0.1		-	<0.1	<0.1	-
	Naphthalene	mg/kg	0.5				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Phenanthrene	mg/kg	0.5				-	-	-	-	-	-	<0.1	-	-	0.1	-	<0.1	-	1.1	<0.1	<0.1	<0.1	-	-	<0.1	<0.1		0.6		<0.1	<0.1		-	<0.1	<0.1	-
	Pyrene	mg/kg	0.5				-	-	-	-	-	-	0.1	-	-	0.1	-	<0.1	-	1.2	<0.1	<0.1	<0.1	-	-	<0.1	<0.1		1.4		0.1	<0.1		-	<0.1	<0.1	-
	Total PAHs	mg/kg	0.5	300	400	300	-	-	-	-	-	-	<1.59	-	-	<1.56	-	<1.55	-	<8.41	<1.55	<1.55	<1.55	-	-	<1.58	<1.55		<8.45		<1.55	<1.55		-	<1.55	<1.55	-
SVOC	2,4,5-trichlorophenol	mg/kg	1				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2,4,6-trichlorophenol	mg/kg	1				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2,4-dichlorophenol	mg/kg	0.5				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2,4-dimethylphenol	mg/kg	0.5				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2,4-dinitrophenol	mg/kg	5				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2,6-dichlorophenol	mg/kg	0.5				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2-chlorophenol	mg/kg	0.5				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2-methylphenol	mg/kg	0.2				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2-nitrophenol	mg/kg	1				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	3-&4-methylphenol	mg/kg	0.4				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	4,6-Dinitro-2-methylphenol	mg/kg	5				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	4,6-Dinitro-o-cyclohexyl phenol	mg/kg	20				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	4-chloro-3-methylphenol	mg/kg	1				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	4-nitrophenol	mg/kg	5				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Dinoseb	mg/kg	20				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Pentachlorophenol	mg/kg	1	100	130	120	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Phenol	mg/kg	0.5	3000	45000	40000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	tetrachlorophenols	mg/kg	1				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Phenols (Total Halogenated)	mg/kg	1				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Phenols (Total Non Halogenated)	mg/kg	20				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TPH	C10 - C14	mg/kg	20					<20	<20		<20	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	C15 - C28	mg/kg	50					<50	73		<50	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	C29 - C36	mg/kg	50					84	110		63	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	C10 - C36 (Sum of total)	mg/kg	50					119	193		98	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Volatile	Benzene	mg/kg	0.1					<0.5	<0.5		<0.5	-	<0.5	-	-	<0.5	-	<0.5	-	<0.5	<0.5	<0.5	<0.5	-	-	<0.5	<0.5	-	<0.5	-	<0.5	<0.5	-	-	<0.5	<0.5	-
	Ethylbenzene	mg/kg	0.1					<0.5	<0.5		<0.5	-	<0.5	-	-	<0.5	-	<0.5	-	<0.5	<0.5	<0.5	<0.5	-	-	<0.5	<0.5	-	<0.5	-	<0.5	<0.5	-	-	<0.5	<0.5	-
	Toluene	mg/kg	0.1					<0.5	<0.5		<0.5	-	<0.5	-	-	<0.5	-	<0.5	-	<0.5	<0.5	<0.5	<0.5	-	-	<0.5	<0.5	-	<0.5	-	<0.5	<0.5	-	-	<0.5	<0.5	-
	Xylene (m & p)	mg/kg	0.2					-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Xylene (o)	mg/kg	0.1					-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Xylene Total	mg/kg	0.3					<1.5	<1.5		<1.5	-	<1.5	-	-	<1.5	-	<1.5	-	<1.5	<1.5	<1.5	<1.5	-	-	<1.5	<1.5	-	<1.5	-	<1.5	<1.5	-	-	<1.5	<1.5	-
	Cyanide Total	mg/kg	0.5				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	PCBs (Sum of Total)	mg/kg	0.9				-	-	-	-	-	-	<0.9	-	-	<0.9	-	<0.9	-	<0.9	<0.9	<0.9	<0.9	-	-	<0.9	<0.9	-	<0.9	-	<0.9	<0.9	-	-	<0.9	<0.9	-
	Total VOC	mg/kg	26									-	<26	-	-	<26	-	<26	-	<26	<26	<26	<26	-	-	<26	<26	-	<26	-	<26	<26	-	-	<26	<26	-

Result	Concentration exceeds adopted human health criteria - Residential - A Soil
Result	Concentration exceeds adopted human health criteria - Residential - B Soil
Result	Concentration exceeds adopted human health criteria - Recreation/Public Open Spa
Result	Concentration exceeds adopted health screening level, vapour intrusion (Residentia

Notes:
- Not Analysed
P Present
A Absent
1 NEPC (2013) National Environmental Protection (Assessment of Site Contamination) Measu
2 NEPC (2013) National Environmental Protection (Assessment of Site Contamination) Measu
3 NEPC (2013) National Environmental Protection (Assessment of Site Contamination) Measu
4 NEPC (2013) National Environmental Protection (Assessment of Site Contamination) Measu
5 NEPC (2013) National Environmental Protection (Assessment of Site Contamination) Measu

Result	Stage 2 ESA 2007 (GEOTKARI02021AA-AI) Northern Lots
Result	Stage 2 ESA 2007 (GEOTKARI02021AA-AI) Southern Lots

Table LR2
QAQC Results
Stage 6-10 WTC Development
754-NTLGE216908

Colliers International Project Management,
111 Sparks Road Woongarrah

Field Duplicates (SOIL)
Filter: SDG in('09 Nov 2018','34419')

SDG			34419	34419		9-Nov-18	Interlab_D	
Field ID			E3	QC1	**RPD**	TP43 0.2-0.3M	QC2	**RPD**
Sampled Date/Time			10/4/2018	0.4-10-18		11/5/2018	11/5/2018	
Method_Type	**ChemName**	**Units**	**EQL**						
Organic	C6-C10 less BTEX (F1)	mg/kg	20 (Primary): 10 (Interlab)	<20.0	<20.0	0	<20.0	<10.0	0
Volatile	Benzene	mg/kg	0.1 (Primary): 0.2 (Interlab)	<0.1	<0.1	0	<0.1	<0.2	0
	Ethylbenzene	mg/kg	0.1 (Primary): 0.5 (Interlab)	<0.1	<0.1	0	<0.1	<0.5	0
	Toluene	mg/kg	0.1 (Primary): 0.5 (Interlab)	<0.1	<0.1	0	<0.1	<0.5	0
	Xylene (m & p)	mg/kg	0.2 (Primary): 0.5 (Interlab)	<0.2	<0.2	0	<0.2	<0.5	0
	Xylene (o)	mg/kg	0.1 (Primary): 0.5 (Interlab)	<0.1	<0.1	0	<0.1	<0.5	0
	Xylene Total	mg/kg	0.3 (Primary): 0.5 (Interlab)	<0.3	<0.3	0	<0.3	<0.5	0
Heavy Metal	Arsenic	mg/kg	2 (Primary): 5 (Interlab)	4.6	4.9	6	2.4	<5.0	0
	Cadmium	mg/kg	0.4 (Primary): 1 (Interlab)	<0.4	<0.4	0	<0.4	<1.0	0
	Chromium	mg/kg	5 (Primary): 2 (Interlab)	6.5	6.9	6	<5.0	2.0	0
	Copper	mg/kg	5	7.3	6.6	10	<5.0	<5.0	0
	Lead	mg/kg	5	9.5	9.2	3	8.8	9.0	2
	Mercury	mg/kg	0.1	0.1	<0.1	0	<0.1	<0.1	0
	Nickel	mg/kg	5 (Primary): 2 (Interlab)	5.7	<5.0		<5.0	<2.0	0
	Zinc	mg/kg	5	45.0	48.0	6	12.0	14.0	15
OCP	4,4-DDE	mg/kg	0.05	<0.05	<0.05	0	<0.05	<0.05	0
	a-BHC	mg/kg	0.05	<0.05	<0.05	0	<0.05	<0.05	0
	Aldrin	mg/kg	0.05	<0.05	<0.05	0	<0.05	<0.05	0
	Aldrin + Dieldrin	mg/kg	0.05	0.1	0.11	10	<0.05	<0.05	0
	b-BHC	mg/kg	0.05	<0.05	<0.05	0	<0.05	<0.05	0
	Chlordane	mg/kg	0.1 (Primary): 0.05 (Interlab)	<0.1	0.1	0	<0.1	<0.05	0
	d-BHC	mg/kg	0.05	<0.05	<0.05	0	<0.05	<0.05	0
	DDD	mg/kg	0.05	<0.05	<0.05	0	<0.05	<0.05	0
	DDT	mg/kg	0.05 (Primary): 0.2 (Interlab)	<0.05	<0.05	0	<0.05	<0.2	0
	DDT+DDE+DDD	mg/kg	0.05	<0.05	<0.05	0	<0.05	<0.05	0
	Dieldrin	mg/kg	0.05	0.1	0.11	10	<0.05	<0.05	0
	Endosulfan I	mg/kg	0.05	<0.05	<0.05	0	<0.05	<0.05	0
	Endosulfan II	mg/kg	0.05	<0.05	<0.05	0	<0.05	<0.05	0
	Endosulfan sulphate	mg/kg	0.05	<0.05	<0.05	0	<0.05	<0.05	0
	Endrin	mg/kg	0.05	<0.05	<0.05	0	<0.05	<0.05	0
	Endrin aldehyde	mg/kg	0.05	<0.05	<0.05	0	<0.05	<0.05	0
	Endrin ketone	mg/kg	0.05	<0.05	<0.05	0	<0.05	<0.05	0
	g-BHC (Lindane)	mg/kg	0.05	<0.05	<0.05	0	<0.05	<0.05	0
	Heptachlor	mg/kg	0.05	<0.05	<0.05	0	<0.05	<0.05	0
	Heptachlor epoxide	mg/kg	0.05	<0.05	<0.05	0	<0.05	<0.05	0
	Hexachlorobenzene	mg/kg	0.05	<0.05	<0.05	0	<0.05	<0.05	0
	Methoxychlor	mg/kg	0.05 (Primary): 0.2 (Interlab)	<0.05	<0.05	0	<0.05	<0.2	0
OPP	Azinophos methyl	mg/kg	0.2 (Primary): 0.05 (Interlab)	<0.2	<0.2	0	<0.2	<0.05	0
	Chlorfenvinphos	mg/kg	0.2 (Primary): 0.05 (Interlab)	<0.2	<0.2	0	<0.2	<0.05	0
	Chlorpyrifos	mg/kg	0.2 (Primary): 0.05 (Interlab)	<0.2	<0.2	0	<0.2	<0.05	0
	Chlorpyrifos-methyl	mg/kg	0.2 (Primary): 0.05 (Interlab)	<0.2	<0.2	0	<0.2	<0.05	0
	Diazinon	mg/kg	0.2 (Primary): 0.05 (Interlab)	<0.2	<0.2	0	<0.2	<0.05	0
	Dichlorvos	mg/kg	0.2 (Primary): 0.05 (Interlab)	<0.2	<0.2	0	<0.2	<0.05	0
	Dimethoate	mg/kg	0.2 (Primary): 0.05 (Interlab)	<0.2	<0.2	0	<0.2	<0.05	0
	Ethion	mg/kg	0.2 (Primary): 0.05 (Interlab)	<0.2	<0.2	0	<0.2	<0.05	0
	Fenthion	mg/kg	0.2 (Primary): 0.05 (Interlab)	<0.2	<0.2	0	<0.2	<0.05	0
	Malathion	mg/kg	0.2 (Primary): 0.05 (Interlab)	<0.2	<0.2	0	<0.2	<0.05	0
	Merphos	mg/kg	0.2	<0.2	<0.2	0	-	-	
	Methyl parathion	mg/kg	0.2	<0.2	<0.2	0	<0.2	<0.2	0
	Mevinphos (Phosdrin)	mg/kg	0.2	<0.2	<0.2	0	-	-	
	Monocrotophos	mg/kg	2 (Primary): 0.2 (Interlab)	<2.0	<2.0	0	<2.0	<0.2	0
Organic	Naphthalene	mg/kg	0.5 (Primary): 1 (Interlab)	<0.5	<0.5	0	<0.5	<0.5	0
PAH	Acenaphthene	mg/kg	0.5	<0.5	<0.5	0	<0.5	<0.5	0
	Acenaphthylene	mg/kg	0.5	<0.5	<0.5	0	<0.5	<0.5	0
	Anthracene	mg/kg	0.5	<0.5	<0.5	0	<0.5	<0.5	0
	Benzo(a)anthracene	mg/kg	0.5	<0.5	<0.5	0	<0.5	<0.5	0
	Benzo(a)pyrene	mg/kg	0.5	<0.5	<0.5	0	<0.5	<0.5	0
	Benzo(a)pyrene TEQ (lower bound) *	mg/kg	0.5	<0.5	<0.5	0	<0.5	<0.5	0
	Benzo(a)pyrene TEQ (medium bound)	mg/kg	0.5	0.6	0.6	0	0.6	0.6	0
	Benzo(a)pyrene TEQ (upper bound) *	mg/kg	0.5	1.2	1.2	0	1.2	1.2	0
	Benzo(g,h,i)perylene	mg/kg	0.5	<0.5	<0.5	0	<0.5	<0.5	0
	Benzo(k)fluoranthene	mg/kg	0.5	<0.5	<0.5	0	<0.5	<0.5	0
	Chrysene	mg/kg	0.5	<0.5	<0.5	0	<0.5	<0.5	0
	Benzo[b+j]fluoranthene	mg/kg	0.5	<0.5	<0.5	0	<0.5	<0.5	0
	Dibenz(a,h)anthracene	mg/kg	0.5	<0.5	<0.5	0	<0.5	<0.5	0
	Fluoranthene	mg/kg	0.5	<0.5	<0.5	0	<0.5	<0.5	0
	Fluorene	mg/kg	0.5	<0.5	<0.5	0	<0.5	<0.5	0
	Indeno(1,2,3-c,d)pyrene	mg/kg	0.5	<0.5	<0.5	0	<0.5	<0.5	0
	Naphthalene	mg/kg	0.5 (Primary): 1 (Interlab)	<0.5	<0.5	0	<0.5	<0.5	0
	Phenanthrene	mg/kg	0.5	<0.5	<0.5	0	<0.5	<0.5	0
	Pyrene	mg/kg	0.5	<0.5	<0.5	0	<0.5	<0.5	0
	Total PAHs	mg/kg	0.5	<0.5	<0.5	0	<0.5	<0.5	0
SVOC	2,4,5-trichlorophenol	mg/kg	1 (Primary): 0.5 (Interlab)	-	-	-	<1.0	<0.5	0
	2,4,6-trichlorophenol	mg/kg	1 (Primary): 0.5 (Interlab)	-	-	-	<1.0	<0.5	0
	2,4-dichlorophenol	mg/kg	0.5	-	-	-	<0.5	<0.5	0
	2,4-dimethylphenol	mg/kg	0.5	-	-	-	<0.5	<0.5	0
	2,6-dichlorophenol	mg/kg	0.5	-	-	-	<0.5	<0.5	0
	2-chlorophenol	mg/kg	0.5	-	-	-	<0.5	<0.5	0
	2-methylphenol	mg/kg	0.2 (Primary): 0.5 (Interlab)	-	-	-	<0.2	<0.5	0
	2-nitrophenol	mg/kg	1 (Primary): 0.5 (Interlab)	-	-	-	<1.0	<0.5	0
	3-&4-methylphenol	mg/kg	0.4 (Primary): 1 (Interlab)	-	-	-	<0.4	<1.0	0
	4-chloro-3-methylphenol	mg/kg	1 (Primary): 0.5 (Interlab)	-	-	-	<1.0	<0.5	0
	Pentachlorophenol	mg/kg	1 (Primary): 2 (Interlab)	-	-	-	<1.0	<2.0	0
	Phenol	mg/kg	0.5	-	-	-	<0.5	<0.5	0
Organic	F2-NAPHTHALENE	mg/kg	50	<50.0	<50.0	0	<50.0	<50.0	0
	C6 - C9	mg/kg	20 (Primary): 10 (Interlab)	<20.0	<20.0	0	<20.0	<10.0	0
	C10 - C40 (Sum of total)	mg/kg	100 (Primary): 50 (Interlab)	<100.0	<100.0	0	<100.0	<50.0	0
	C10-C16	mg/kg	50	<50.0	<50.0	0	<50.0	<50.0	0
	C16-C34	mg/kg	100	<100.0	<100.0	0	<100.0	<100.0	0
	C34-C40	mg/kg	100	<100.0	<100.0	0	<100.0	<100.0	0
	C6 - C10	mg/kg	20 (Primary): 10 (Interlab)	<20.0	<20.0	0	<20.0	<10.0	0
TPH	C10 - C14	mg/kg	20 (Primary): 50 (Interlab)	<20.0	<20.0	0	<20.0	<50.0	0
	C15 - C28	mg/kg	50 (Primary): 100 (Interlab)	<50.0	<50.0	0	<50.0	<100.0	0
	C29 - C36	mg/kg	50 (Primary): 100 (Interlab)	<50.0	<50.0	0	<50.0	<100.0	0
	C10 - C36 (Sum of total)	mg/kg	50	<50.0	<50.0	0	<50.0	<50.0	0

*RPDs have only been considered where a concentration is greater than 0 times the EQL.
**High RPDs are in bold (Acceptable RPDs for each EQL multiplier range are: 50 (0-10 x EQL); 30 (10-20 x EQL); 30 (> 20 x EQL))
***Interlab Duplicates are matched on a per compound basis as methods vary between laboratories. Any methods in the row header relate to those used in the primary laboratory

Appendix I – Laboratory Data

Certificate of Analysis

Coffey Environments Pty Ltd Newcastle
Lot 101, 19 Warabrook Boulevard
Warabrook
NSW 2304

Attention: **Nima Salimi**

Report **626822-S**
Project name 111 SPARKS ROAD STAGE 2-10
Project ID 754-NTLGE216908
Received Date Nov 08, 2018

Client Sample ID			**TP35 0.8-0.9M**	**TP39 0.8M**	**TP37 0.2M**	**TP38 0.5M**
Sample Matrix			**Soil**	**Soil**	**Soil**	**Soil**
Eurofins | mgt Sample No.			**M18-No10918**	**M18-No10919**	**M18-No10920**	**M18-No10921**
Date Sampled			**Nov 06, 2018**	**Nov 06, 2018**	**Nov 06, 2018**	**Nov 06, 2018**
Test/Reference	LOR	Unit				
Chloride	5	mg/kg	800	110	65	18
Conductivity (1:5 aqueous extract at 25°C as rec.)	10	uS/cm	800	87	57	69
pH (1:5 Aqueous extract at 25°C as rec.)	0.1	pH Units	5.3	4.6	4.8	5.8
Resistivity*	0.5	ohm.m	13	120	170	150
Sulphate (as SO4)	30	mg/kg	370	57	51	79
% Moisture	1	%	15	18	15	20

Client Sample ID			**TP38 1.7M**
Sample Matrix			**Soil**
Eurofins | mgt Sample No.			**M18-No10922**
Date Sampled			**Nov 06, 2018**
Test/Reference	LOR	Unit	
Chloride	5	mg/kg	96
Conductivity (1:5 aqueous extract at 25°C as rec.)	10	uS/cm	65
pH (1:5 Aqueous extract at 25°C as rec.)	0.1	pH Units	5.0
Resistivity*	0.5	ohm.m	160
Sulphate (as SO4)	30	mg/kg	< 30
% Moisture	1	%	19

Sample History

Where samples are submitted/analysed over several days, the last date of extraction and analysis is reported.
A recent review of our LIMS has resulted in the correction or clarification of some method identifications. Due to this, some of the method reference information on reports has changed. However, no substantive change has been made to our laboratory methods, and as such there is no change in the validity of current or previous results (regarding both quality and NATA accreditation).

If the date and time of sampling are not provided, the Laboratory will not be responsible for compromised results should testing be performed outside the recommended holding time.

Description	Testing Site	Extracted	Holding Time
Chloride	Melbourne	Nov 10, 2018	28 Day
- Method: LTM-INO-4090 Chloride by Discrete Analyser			
Conductivity (1:5 aqueous extract at 25°C as rec.)	Melbourne	Nov 10, 2018	7 Day
- Method: LTM-INO-4030 Conductivity			
pH (1:5 Aqueous extract at 25°C as rec.)	Melbourne	Nov 15, 2018	7 Day
- Method: LTM-GEN-7090 pH in soil by ISE			
Sulphate (as SO4)	Melbourne	Nov 10, 2018	28 Day
- Method: LTM-INO-4110 Sulfate by Discrete Analyser			
% Moisture	Melbourne	Nov 09, 2018	14 Day
- Method: LTM-GEN-7080 Moisture			

eurofins | mgt

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NATA # 1261 Site # 20794

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NATA # 1261
Site # 23736

Company Name: Coffey Environments P/L N'castle
Address: Lot 101, 19 Warabrook Boulevard
Warabrook
NSW 2304

Project Name: 111 SPARKS ROAD STAGE 2-10
Project ID: 754-NTLGE216908

Order No.:
Report #: 626822
Phone: 02 4016 2300
Fax: 02 4016 2380

Received: Nov 8, 2018 8:20 AM
Due: Nov 15, 2018
Priority: 5 Day
Contact Name: Nima Salimi

Eurofins | mgt Analytical Services Manager : Andrew Black

Sample Detail						Aggressivity Soil Set	Moisture Set
Melbourne Laboratory - NATA Site # 1254 & 14271						X	X
Sydney Laboratory - NATA Site # 18217							
Brisbane Laboratory - NATA Site # 20794							
Perth Laboratory - NATA Site # 23736							
External Laboratory							
No	**Sample ID**	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**		
1	TP35 0.8-0.9M	Nov 06, 2018		Soil	M18-No10918	X	X
2	TP39 0.8M	Nov 06, 2018		Soil	M18-No10919	X	X
3	TP37 0.2M	Nov 06, 2018		Soil	M18-No10920	X	X
4	TP38 0.5M	Nov 06, 2018		Soil	M18-No10921	X	X
5	TP38 1.7M	Nov 06, 2018		Soil	M18-No10922	X	X
Test Counts						5	5

Internal Quality Control Review and Glossary

General

1. Laboratory QC results for Method Blanks, Duplicates, Matrix Spikes, and Laboratory Control Samples are included in this QC report where applicable. Additional QC data may be available on request.
2. All soil results are reported on a dry basis, unless otherwise stated.
3. All biota/food results are reported on a wet weight basis on the edible portion, unless otherwise stated.
4. Actual LORs are matrix dependant. Quoted LORs may be raised where sample extracts are diluted due to interferences.
5. Results are uncorrected for matrix spikes or surrogate recoveries except for PFAS compounds.
6. SVOC analysis on waters are performed on homogenised, unfiltered samples, unless noted otherwise.
7. Samples were analysed on an 'as received' basis.
8. This report replaces any interim results previously issued.

Holding Times

Please refer to 'Sample Preservation and Container Guide' for holding times (QS3001).

For samples received on the last day of holding time, notification of testing requirements should have been received at least 6 hours prior to sample receipt deadlines as stated on the SRA.

If the Laboratory did not receive the information in the required timeframe, and regardless of any other integrity issues, suitably qualified results may still be reported.

Holding times apply from the date of sampling, therefore compliance to these may be outside the laboratory's control.

For VOCs containing vinyl chloride, styrene and 2-chloroethyl vinyl ether the holding time is 7 days however for all other VOCs such as BTEX or C6-10 TRH then the holding time is 14 days.

****NOTE:** pH duplicates are reported as a range NOT as RPD

Units

mg/kg: milligrams per kilogram

mg/L: milligrams per litre

ug/L: micrograms per litre

ppm: Parts per million

ppb: Parts per billion

%: Percentage

org/100mL: Organisms per 100 millilitres

NTU: Nephelometric Turbidity Units

MPN/100mL: Most Probable Number of organisms per 100 millilitres

Terms

Dry	Where a moisture has been determined on a solid sample the result is expressed on a dry basis.
LOR	Limit of Reporting.
SPIKE	Addition of the analyte to the sample and reported as percentage recovery.
RPD	Relative Percent Difference between two Duplicate pieces of analysis.
LCS	Laboratory Control Sample - reported as percent recovery.
CRM	Certified Reference Material - reported as percent recovery.
Method Blank	In the case of solid samples these are performed on laboratory certified clean sands and in the case of water samples these are performed on de-ionised water.
Surr - Surrogate	The addition of a like compound to the analyte target and reported as percentage recovery.
Duplicate	A second piece of analysis from the same sample and reported in the same units as the result to show comparison.
USEPA	United States Environmental Protection Agency
APHA	American Public Health Association
TCLP	Toxicity Characteristic Leaching Procedure
COC	Chain of Custody
SRA	Sample Receipt Advice
QSM	Quality Systems Manual ver 5.1 US Department of Defense
CP	Client Parent - QC was performed on samples pertaining to this report
NCP	Non-Client Parent - QC performed on samples not pertaining to this report, QC is representative of the sequence or batch that client samples were analysed within.
TEQ	Toxic Equivalency Quotient

QC - Acceptance Criteria

RPD Duplicates: Global RPD Duplicates Acceptance Criteria is 30% however the following acceptance guidelines are equally applicable:

Results <10 times the LOR : No Limit

Results between 10-20 times the LOR : RPD must lie between 0-50%

Results >20 times the LOR : RPD must lie between 0-30%

Surrogate Recoveries: Recoveries must lie between 50-150%-Phenols & PFASs

PFAS field samples that contain surrogate recoveries in excess of the QC limit designated in QSM 5.1 where no positive PFAS results have been reported have been reviewed and no data was affected.

WA DWER (n=10): PFBA, PFPeA, PFHxA, PFHpA, PFOA, PFBS, PFHxS, PFOS, 6:2 FTSA, 8:2 FTSA

QC Data General Comments

1. Where a result is reported as a less than (<), higher than the nominated LOR, this is due to either matrix interference, extract dilution required due to interferences or contaminant levels within the sample, high moisture content or insufficient sample provided.
2. Duplicate data shown within this report that states the word "BATCH" is a Batch Duplicate from outside of your sample batch, but within the laboratory sample batch at a 1:10 ratio. The Parent and Duplicate data shown is not data from your samples.
3. Organochlorine Pesticide analysis - where reporting LCS data, Toxaphene & Chlordane are not added to the LCS.
4. Organochlorine Pesticide analysis - where reporting Spike data, Toxaphene is not added to the Spike.
5. Total Recoverable Hydrocarbons - where reporting Spike & LCS data, a single spike of commercial Hydrocarbon products in the range of C12-C30 is added and it's Total Recovery is reported in the C10-C14 cell of the Report.
6. pH and Free Chlorine analysed in the laboratory - Analysis on this test must begin within 30 minutes of sampling.Therefore laboratory analysis is unlikely to be completed within holding time. Analysis will begin as soon as possible after sample receipt.
7. Recovery Data (Spikes & Surrogates) - where chromatographic interference does not allow the determination of Recovery the term "INT" appears against that analyte.
8. Polychlorinated Biphenyls are spiked only using Aroclor 1260 in Matrix Spikes and LCS.
9. For Matrix Spikes and LCS results a dash " -" in the report means that the specific analyte was not added to the QC sample.
10. Duplicate RPDs are calculated from raw analytical data thus it is possible to have two sets of data.

Quality Control Results

Test			Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Method Blank									
Conductivity (1:5 aqueous extract at 25°C as rec.)			uS/cm	< 10			10	Pass	
Test	**Lab Sample ID**	**QA Source**	**Units**	**Result 1**			**Acceptance Limits**	**Pass Limits**	**Qualifying Code**
Duplicate									
				Result 1	Result 2	RPD			
Conductivity (1:5 aqueous extract at 25°C as rec.)	M18-No10652	NCP	uS/cm	77	83	8.1	30%	Pass	
pH (1:5 Aqueous extract at 25°C as rec.)	M18-No10652	NCP	pH Units	4.4	4.4	pass	30%	Pass	
Resistivity*	M18-No10652	NCP	ohm.m	130	120	8.1	30%	Pass	
Duplicate									
				Result 1	Result 2	RPD			
% Moisture	M18-No10920	CP	%	15	14	1.0	30%	Pass	

Comments

Sample Integrity

Custody Seals Intact (if used)	N/A
Attempt to Chill was evident	Yes
Sample correctly preserved	Yes
Appropriate sample containers have been used	Yes
Sample containers for volatile analysis received with minimal headspace	Yes
Samples received within HoldingTime	Yes
Some samples have been subcontracted	No

Authorised By

Andrew Black	Analytical Services Manager
Julie Kay	Senior Analyst-Inorganic (VIC)

Glenn Jackson
General Manager

Final report - this Report replaces any previously issued Report

- Indicates Not Requested

* Indicates NATA accreditation does not cover the performance of this service

Measurement uncertainty of test data is available on request or please click here.

Certificate of Analysis

Coffey Environments Pty Ltd Newcastle
Lot 101, 19 Warabrook Boulevard
Warabrook
NSW 2304

NATA Accredited
Accreditation Number 1261
Site Number 1254

Accredited for compliance with ISO/IEC 17025 – Testing
The results of the tests, calibrations and/or measurements included in this document are traceable to Australian/national standards.

Attention: **Nima Salimi**

Report **626825-S**
Project name 111 SPARKS ROAD
Project ID 754NTLGE216908
Received Date Nov 09, 2018

Client Sample ID			**TP28 0.1-0.2M**	**TP31 0.1-0.2M**	**TP31 0.6-0.7M**	**TP32 0.3-0.5M**
Sample Matrix			**Soil**	**Soil**	**Soil**	**Soil**
Eurofins | mgt Sample No.			**M18-No10936**	**M18-No10937**	**M18-No10938**	**M18-No10939**
Date Sampled			**Nov 05, 2018**	**Nov 05, 2018**	**Nov 05, 2018**	**Nov 06, 2018**
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons - 1999 NEPM Fractions						
TRH C6-C9	20	mg/kg	< 20	< 20	< 20	< 20
TRH C10-C14	20	mg/kg	< 20	< 20	< 20	< 20
TRH C15-C28	50	mg/kg	< 50	< 50	< 50	< 50
TRH C29-C36	50	mg/kg	89	< 50	< 50	< 50
TRH C10-36 (Total)	50	mg/kg	89	< 50	< 50	< 50
BTEX						
Benzene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Toluene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Ethylbenzene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
m&p-Xylenes	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
o-Xylene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Xylenes - Total	0.3	mg/kg	< 0.3	< 0.3	< 0.3	< 0.3
4-Bromofluorobenzene (surr.)	1	%	89	81	83	82
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
Naphthalene[N02]	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
TRH C6-C10	20	mg/kg	< 20	< 20	< 20	< 20
TRH C6-C10 less BTEX (F1)[N04]	20	mg/kg	< 20	< 20	< 20	< 20
TRH >C10-C16	50	mg/kg	< 50	< 50	< 50	< 50
TRH >C10-C16 less Naphthalene (F2)[N01]	50	mg/kg	< 50	< 50	< 50	< 50
TRH >C16-C34	100	mg/kg	< 100	< 100	< 100	< 100
TRH >C34-C40	100	mg/kg	< 100	< 100	< 100	< 100
TRH >C10-C40 (total)*	100	mg/kg	< 100	< 100	< 100	< 100
Polycyclic Aromatic Hydrocarbons						
Benzo(a)pyrene TEQ (lower bound) *	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(a)pyrene TEQ (medium bound) *	0.5	mg/kg	0.6	0.6	0.6	0.6
Benzo(a)pyrene TEQ (upper bound) *	0.5	mg/kg	1.2	1.2	1.2	1.2
Acenaphthene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Acenaphthylene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benz(a)anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(a)pyrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(b&j)fluoranthene[N07]	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(g.h.i)perylene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(k)fluoranthene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Chrysene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5

Client Sample ID			TP28 0.1-0.2M	TP31 0.1-0.2M	TP31 0.6-0.7M	TP32 0.3-0.5M
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins | mgt Sample No.			M18-No10936	M18-No10937	M18-No10938	M18-No10939
Date Sampled			Nov 05, 2018	Nov 05, 2018	Nov 05, 2018	Nov 06, 2018
Test/Reference	LOR	Unit				
Polycyclic Aromatic Hydrocarbons						
Dibenz(a.h)anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Fluoranthene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Fluorene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Indeno(1.2.3-cd)pyrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Naphthalene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Phenanthrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Pyrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Total PAH*	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
2-Fluorobiphenyl (surr.)	1	%	61	99	90	95
p-Terphenyl-d14 (surr.)	1	%	66	116	53	59
Organochlorine Pesticides						
Chlordanes - Total	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
4.4'-DDD	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
4.4'-DDE	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
4.4'-DDT	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
a-BHC	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Aldrin	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
b-BHC	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
d-BHC	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Dieldrin	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endosulfan I	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endosulfan II	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endosulfan sulphate	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endrin	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endrin aldehyde	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endrin ketone	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
g-BHC (Lindane)	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Heptachlor	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Heptachlor epoxide	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Hexachlorobenzene	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Methoxychlor	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Toxaphene	1	mg/kg	< 1	< 1	< 1	< 1
Aldrin and Dieldrin (Total)*	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
DDT + DDE + DDD (Total)*	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Vic EPA IWRG 621 OCP (Total)*	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Vic EPA IWRG 621 Other OCP (Total)*	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Dibutylchlorendate (surr.)	1	%	107	85	80	90
Tetrachloro-m-xylene (surr.)	1	%	61	86	74	76
Organophosphorus Pesticides						
Azinphos-methyl	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Bolstar	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Chlorfenvinphos	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Chlorpyrifos	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Chlorpyrifos-methyl	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Coumaphos	2	mg/kg	< 2	< 2	< 2	< 2
Demeton-S	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Demeton-O	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Diazinon	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Dichlorvos	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2

Client Sample ID Sample Matrix Eurofins | mgt Sample No. Date Sampled Test/Reference	LOR	Unit	TP28 0.1-0.2M Soil M18-No10936 Nov 05, 2018	TP31 0.1-0.2M Soil M18-No10937 Nov 05, 2018	TP31 0.6-0.7M Soil M18-No10938 Nov 05, 2018	TP32 0.3-0.5M Soil M18-No10939 Nov 06, 2018
Organophosphorus Pesticides						
Dimethoate	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Disulfoton	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
EPN	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Ethion	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Ethoprop	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Ethyl parathion	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Fenitrothion	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Fensulfothion	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Fenthion	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Malathion	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Merphos	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Methyl parathion	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Mevinphos	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Monocrotophos	2	mg/kg	< 2	< 2	< 2	< 2
Naled	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Omethoate	2	mg/kg	< 2	< 2	< 2	< 2
Phorate	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Pirimiphos-methyl	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Pyrazophos	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Ronnel	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Terbufos	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Tetrachlorvinphos	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Tokuthion	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Trichloronate	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Triphenylphosphate (surr.)	1	%	98	66	31	32
Phenols (Halogenated)						
2-Chlorophenol	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
2.4-Dichlorophenol	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
2.4.5-Trichlorophenol	1	mg/kg	< 1	< 1	< 1	< 1
2.4.6-Trichlorophenol	1	mg/kg	< 1	< 1	< 1	< 1
2.6-Dichlorophenol	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
4-Chloro-3-methylphenol	1	mg/kg	< 1	< 1	< 1	< 1
Pentachlorophenol	1	mg/kg	< 1	< 1	< 1	< 1
Tetrachlorophenols - Total	1	mg/kg	< 1	< 1	< 1	< 1
Total Halogenated Phenol*	1	mg/kg	< 1	< 1	< 1	< 1
Phenols (non-Halogenated)						
2-Cyclohexyl-4.6-dinitrophenol	20	mg/kg	< 20	< 20	< 20	< 20
2-Methyl-4.6-dinitrophenol	5	mg/kg	< 5	< 5	< 5	< 5
2-Methylphenol (o-Cresol)	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
2-Nitrophenol	1.0	mg/kg	< 1	< 1	< 1	< 1
2.4-Dimethylphenol	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
2.4-Dinitrophenol	5	mg/kg	< 5	< 5	< 5	< 5
3&4-Methylphenol (m&p-Cresol)	0.4	mg/kg	< 0.4	< 0.4	< 0.4	< 0.4
4-Nitrophenol	5	mg/kg	< 5	< 5	< 5	< 5
Dinoseb	20	mg/kg	< 20	< 20	< 20	< 20
Phenol	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Total Non-Halogenated Phenol*	20	mg/kg	< 20	< 20	< 20	< 20
Phenol-d6 (surr.)	1	%	55	96	43	45

Client Sample ID			TP28 0.1-0.2M	TP31 0.1-0.2M	TP31 0.6-0.7M	TP32 0.3-0.5M
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins | mgt Sample No.			M18-No10936	M18-No10937	M18-No10938	M18-No10939
Date Sampled			Nov 05, 2018	Nov 05, 2018	Nov 05, 2018	Nov 06, 2018
Test/Reference	LOR	Unit				
Heavy Metals						
Arsenic	2	mg/kg	3.9	< 2	8.9	4.9
Cadmium	0.4	mg/kg	< 0.4	< 0.4	< 0.4	< 0.4
Chromium	5	mg/kg	< 5	< 5	6.2	7.2
Copper	5	mg/kg	< 5	< 5	< 5	< 5
Lead	5	mg/kg	6.7	5.5	6.4	9.5
Mercury	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Nickel	5	mg/kg	< 5	< 5	< 5	< 5
Zinc	5	mg/kg	14	< 5	5.1	9.5
% Moisture	1	%	10	11	10	15

Client Sample ID			TP32 1.0-1.2M	TP33 0.1-0.2M	TP33 0.7-0.8M	TP41 0.1-0.2M
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins | mgt Sample No.			M18-No10940	M18-No10941	M18-No10942	M18-No10943
Date Sampled			Nov 06, 2018	Nov 06, 2018	Nov 05, 2018	Nov 05, 2018
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons - 1999 NEPM Fractions						
TRH C6-C9	20	mg/kg	< 20	< 20	< 20	< 20
TRH C10-C14	20	mg/kg	< 20	< 20	< 20	< 20
TRH C15-C28	50	mg/kg	< 50	< 50	< 50	< 50
TRH C29-C36	50	mg/kg	< 50	< 50	< 50	< 50
TRH C10-36 (Total)	50	mg/kg	< 50	< 50	< 50	< 50
BTEX						
Benzene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Toluene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Ethylbenzene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
m&p-Xylenes	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
o-Xylene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Xylenes - Total	0.3	mg/kg	< 0.3	< 0.3	< 0.3	< 0.3
4-Bromofluorobenzene (surr.)	1	%	80	89	87	86
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
Naphthalene[N02]	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
TRH C6-C10	20	mg/kg	< 20	< 20	< 20	< 20
TRH C6-C10 less BTEX (F1)[N04]	20	mg/kg	< 20	< 20	< 20	< 20
TRH >C10-C16	50	mg/kg	< 50	< 50	< 50	< 50
TRH >C10-C16 less Naphthalene (F2)[N01]	50	mg/kg	< 50	< 50	< 50	< 50
TRH >C16-C34	100	mg/kg	< 100	< 100	< 100	< 100
TRH >C34-C40	100	mg/kg	< 100	< 100	< 100	< 100
TRH >C10-C40 (total)*	100	mg/kg	< 100	< 100	< 100	< 100
Polycyclic Aromatic Hydrocarbons						
Benzo(a)pyrene TEQ (lower bound) *	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(a)pyrene TEQ (medium bound) *	0.5	mg/kg	0.6	0.6	0.6	0.6
Benzo(a)pyrene TEQ (upper bound) *	0.5	mg/kg	1.2	1.2	1.2	1.2
Acenaphthene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Acenaphthylene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benz(a)anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(a)pyrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5

Client Sample ID			TP32 1.0-1.2M	TP33 0.1-0.2M	TP33 0.7-0.8M	TP41 0.1-0.2M
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins | mgt Sample No.			M18-No10940	M18-No10941	M18-No10942	M18-No10943
Date Sampled			Nov 06, 2018	Nov 06, 2018	Nov 05, 2018	Nov 05, 2018
Test/Reference	LOR	Unit				
Polycyclic Aromatic Hydrocarbons						
Benzo(b&j)fluoranthene[N07]	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(g.h.i)perylene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(k)fluoranthene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Chrysene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Dibenz(a.h)anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Fluoranthene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Fluorene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Indeno(1.2.3-cd)pyrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Naphthalene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Phenanthrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Pyrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Total PAH*	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
2-Fluorobiphenyl (surr.)	1	%	92	81	94	87
p-Terphenyl-d14 (surr.)	1	%	114	107	119	106
Organochlorine Pesticides						
Chlordanes - Total	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
4.4'-DDD	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
4.4'-DDE	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
4.4'-DDT	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
a-BHC	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Aldrin	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
b-BHC	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
d-BHC	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Dieldrin	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endosulfan I	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endosulfan II	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endosulfan sulphate	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endrin	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endrin aldehyde	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endrin ketone	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
g-BHC (Lindane)	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Heptachlor	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Heptachlor epoxide	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Hexachlorobenzene	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Methoxychlor	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Toxaphene	1	mg/kg	< 1	< 1	< 1	< 1
Aldrin and Dieldrin (Total)*	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
DDT + DDE + DDD (Total)*	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Vic EPA IWRG 621 OCP (Total)*	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Vic EPA IWRG 621 Other OCP (Total)*	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Dibutylchlorendate (surr.)	1	%	86	110	91	87
Tetrachloro-m-xylene (surr.)	1	%	71	87	78	75
Organophosphorus Pesticides						
Azinphos-methyl	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Bolstar	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Chlorfenvinphos	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Chlorpyrifos	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Chlorpyrifos-methyl	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Coumaphos	2	mg/kg	< 2	< 2	< 2	< 2

Client Sample ID Sample Matrix Eurofins | mgt Sample No. Date Sampled Test/Reference	LOR	Unit	TP32 1.0-1.2M Soil M18-No10940 Nov 06, 2018	TP33 0.1-0.2M Soil M18-No10941 Nov 06, 2018	TP33 0.7-0.8M Soil M18-No10942 Nov 05, 2018	TP41 0.1-0.2M Soil M18-No10943 Nov 05, 2018
Organophosphorus Pesticides						
Demeton-S	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Demeton-O	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Diazinon	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Dichlorvos	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Dimethoate	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Disulfoton	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
EPN	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Ethion	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Ethoprop	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Ethyl parathion	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Fenitrothion	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Fensulfothion	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Fenthion	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Malathion	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Merphos	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Methyl parathion	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Mevinphos	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Monocrotophos	2	mg/kg	< 2	< 2	< 2	< 2
Naled	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Omethoate	2	mg/kg	< 2	< 2	< 2	< 2
Phorate	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Pirimiphos-methyl	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Pyrazophos	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Ronnel	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Terbufos	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Tetrachlorvinphos	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Tokuthion	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Trichloronate	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Triphenylphosphate (surr.)	1	%	66	58	66	67
Phenols (Halogenated)						
2-Chlorophenol	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
2.4-Dichlorophenol	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
2.4.5-Trichlorophenol	1	mg/kg	< 1	< 1	< 1	< 1
2.4.6-Trichlorophenol	1	mg/kg	< 1	< 1	< 1	< 1
2.6-Dichlorophenol	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
4-Chloro-3-methylphenol	1	mg/kg	< 1	< 1	< 1	< 1
Pentachlorophenol	1	mg/kg	< 1	< 1	< 1	< 1
Tetrachlorophenols - Total	1	mg/kg	< 1	< 1	< 1	< 1
Total Halogenated Phenol*	1	mg/kg	< 1	< 1	< 1	< 1
Phenols (non-Halogenated)						
2-Cyclohexyl-4.6-dinitrophenol	20	mg/kg	< 20	< 20	< 20	< 20
2-Methyl-4.6-dinitrophenol	5	mg/kg	< 5	< 5	< 5	< 5
2-Methylphenol (o-Cresol)	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
2-Nitrophenol	1.0	mg/kg	< 1	< 1	< 1	< 1
2.4-Dimethylphenol	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
2.4-Dinitrophenol	5	mg/kg	< 5	< 5	< 5	< 5
3&4-Methylphenol (m&p-Cresol)	0.4	mg/kg	< 0.4	< 0.4	< 0.4	< 0.4
4-Nitrophenol	5	mg/kg	< 5	< 5	< 5	< 5
Dinoseb	20	mg/kg	< 20	< 20	< 20	< 20

Client Sample ID			TP32 1.0-1.2M	TP33 0.1-0.2M	TP33 0.7-0.8M	TP41 0.1-0.2M
Sample Matrix			**Soil**	**Soil**	**Soil**	**Soil**
Eurofins | mgt Sample No.			**M18-No10940**	**M18-No10941**	**M18-No10942**	**M18-No10943**
Date Sampled			**Nov 06, 2018**	**Nov 06, 2018**	**Nov 05, 2018**	**Nov 05, 2018**
Test/Reference	LOR	Unit				
Phenols (non-Halogenated)						
Phenol	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Total Non-Halogenated Phenol*	20	mg/kg	< 20	< 20	< 20	< 20
Phenol-d6 (surr.)	1	%	98	79	92	82
Heavy Metals						
Arsenic	2	mg/kg	10	11	10.0	6.3
Cadmium	0.4	mg/kg	< 0.4	< 0.4	< 0.4	< 0.4
Chromium	5	mg/kg	11	7.3	< 5	< 5
Copper	5	mg/kg	8.0	< 5	< 5	< 5
Lead	5	mg/kg	9.7	22	6.9	9.3
Mercury	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Nickel	5	mg/kg	< 5	< 5	< 5	< 5
Zinc	5	mg/kg	19	10	9.4	8.7
% Moisture	1	%	19	18	10	15

Client Sample ID			TP42 0.3-0.5M	TP43 0.2-0.3M	TP44 0.3-0.5M
Sample Matrix			**Soil**	**Soil**	**Soil**
Eurofins | mgt Sample No.			**M18-No10944**	**M18-No10945**	**M18-No10946**
Date Sampled			**Nov 05, 2018**	**Nov 05, 2018**	**Nov 05, 2018**
Test/Reference	LOR	Unit			
Total Recoverable Hydrocarbons - 1999 NEPM Fractions					
TRH C6-C9	20	mg/kg	< 20	< 20	< 20
TRH C10-C14	20	mg/kg	< 20	< 20	< 20
TRH C15-C28	50	mg/kg	< 50	< 50	< 50
TRH C29-C36	50	mg/kg	< 50	< 50	< 50
TRH C10-36 (Total)	50	mg/kg	< 50	< 50	< 50
BTEX					
Benzene	0.1	mg/kg	< 0.1	< 0.1	< 0.1
Toluene	0.1	mg/kg	< 0.1	< 0.1	< 0.1
Ethylbenzene	0.1	mg/kg	< 0.1	< 0.1	< 0.1
m&p-Xylenes	0.2	mg/kg	< 0.2	< 0.2	< 0.2
o-Xylene	0.1	mg/kg	< 0.1	< 0.1	< 0.1
Xylenes - Total	0.3	mg/kg	< 0.3	< 0.3	< 0.3
4-Bromofluorobenzene (surr.)	1	%	88	90	85
Total Recoverable Hydrocarbons - 2013 NEPM Fractions					
Naphthalene[N02]	0.5	mg/kg	< 0.5	< 0.5	< 0.5
TRH C6-C10	20	mg/kg	< 20	< 20	< 20
TRH C6-C10 less BTEX (F1)[N04]	20	mg/kg	< 20	< 20	< 20
TRH >C10-C16	50	mg/kg	< 50	< 50	< 50
TRH >C10-C16 less Naphthalene (F2)[N01]	50	mg/kg	< 50	< 50	< 50
TRH >C16-C34	100	mg/kg	< 100	< 100	< 100
TRH >C34-C40	100	mg/kg	< 100	< 100	< 100
TRH >C10-C40 (total)*	100	mg/kg	< 100	< 100	< 100

Client Sample ID			TP42 0.3-0.5M	TP43 0.2-0.3M	TP44 0.3-0.5M
Sample Matrix			**Soil**	**Soil**	**Soil**
Eurofins | mgt Sample No.			**M18-No10944**	**M18-No10945**	**M18-No10946**
Date Sampled			**Nov 05, 2018**	**Nov 05, 2018**	**Nov 05, 2018**
Test/Reference	LOR	Unit			
Polycyclic Aromatic Hydrocarbons					
Benzo(a)pyrene TEQ (lower bound) *	0.5	mg/kg	< 0.5	< 0.5	< 0.5
Benzo(a)pyrene TEQ (medium bound) *	0.5	mg/kg	0.6	0.6	0.6
Benzo(a)pyrene TEQ (upper bound) *	0.5	mg/kg	1.2	1.2	1.2
Acenaphthene	0.5	mg/kg	< 0.5	< 0.5	< 0.5
Acenaphthylene	0.5	mg/kg	< 0.5	< 0.5	< 0.5
Anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5
Benz(a)anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5
Benzo(a)pyrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5
Benzo(b&j)fluoranthene[N07]	0.5	mg/kg	< 0.5	< 0.5	< 0.5
Benzo(g.h.i)perylene	0.5	mg/kg	< 0.5	< 0.5	< 0.5
Benzo(k)fluoranthene	0.5	mg/kg	< 0.5	< 0.5	< 0.5
Chrysene	0.5	mg/kg	< 0.5	< 0.5	< 0.5
Dibenz(a.h)anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5
Fluoranthene	0.5	mg/kg	< 0.5	< 0.5	< 0.5
Fluorene	0.5	mg/kg	< 0.5	< 0.5	< 0.5
Indeno(1.2.3-cd)pyrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5
Naphthalene	0.5	mg/kg	< 0.5	< 0.5	< 0.5
Phenanthrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5
Pyrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5
Total PAH*	0.5	mg/kg	< 0.5	< 0.5	< 0.5
2-Fluorobiphenyl (surr.)	1	%	97	104	102
p-Terphenyl-d14 (surr.)	1	%	120	118	125
Organochlorine Pesticides					
Chlordanes - Total	0.1	mg/kg	< 0.1	< 0.1	< 0.1
4.4'-DDD	0.05	mg/kg	< 0.05	< 0.05	< 0.05
4.4'-DDE	0.05	mg/kg	< 0.05	< 0.05	< 0.05
4.4'-DDT	0.05	mg/kg	< 0.05	< 0.05	< 0.05
a-BHC	0.05	mg/kg	< 0.05	< 0.05	< 0.05
Aldrin	0.05	mg/kg	< 0.05	< 0.05	< 0.05
b-BHC	0.05	mg/kg	< 0.05	< 0.05	< 0.05
d-BHC	0.05	mg/kg	< 0.05	< 0.05	< 0.05
Dieldrin	0.05	mg/kg	< 0.05	< 0.05	< 0.05
Endosulfan I	0.05	mg/kg	< 0.05	< 0.05	< 0.05
Endosulfan II	0.05	mg/kg	< 0.05	< 0.05	< 0.05
Endosulfan sulphate	0.05	mg/kg	< 0.05	< 0.05	< 0.05
Endrin	0.05	mg/kg	< 0.05	< 0.05	< 0.05
Endrin aldehyde	0.05	mg/kg	< 0.05	< 0.05	< 0.05
Endrin ketone	0.05	mg/kg	< 0.05	< 0.05	< 0.05
g-BHC (Lindane)	0.05	mg/kg	< 0.05	< 0.05	< 0.05
Heptachlor	0.05	mg/kg	< 0.05	< 0.05	< 0.05
Heptachlor epoxide	0.05	mg/kg	< 0.05	< 0.05	< 0.05
Hexachlorobenzene	0.05	mg/kg	< 0.05	< 0.05	< 0.05
Methoxychlor	0.05	mg/kg	< 0.05	< 0.05	< 0.05
Toxaphene	1	mg/kg	< 1	< 1	< 1
Aldrin and Dieldrin (Total)*	0.05	mg/kg	< 0.05	< 0.05	< 0.05
DDT + DDE + DDD (Total)*	0.05	mg/kg	< 0.05	< 0.05	< 0.05
Vic EPA IWRG 621 OCP (Total)*	0.1	mg/kg	< 0.1	< 0.1	< 0.1
Vic EPA IWRG 621 Other OCP (Total)*	0.1	mg/kg	< 0.1	< 0.1	< 0.1
Dibutylchlorendate (surr.)	1	%	79	101	77
Tetrachloro-m-xylene (surr.)	1	%	70	124	81

Client Sample ID			TP42 0.3-0.5M	TP43 0.2-0.3M	TP44 0.3-0.5M
Sample Matrix			Soil	Soil	Soil
Eurofins | mgt Sample No.			M18-No10944	M18-No10945	M18-No10946
Date Sampled			Nov 05, 2018	Nov 05, 2018	Nov 05, 2018
Test/Reference	LOR	Unit			
Organophosphorus Pesticides					
Azinphos-methyl	0.2	mg/kg	< 0.2	< 0.2	< 0.2
Bolstar	0.2	mg/kg	< 0.2	< 0.2	< 0.2
Chlorfenvinphos	0.2	mg/kg	< 0.2	< 0.2	< 0.2
Chlorpyrifos	0.2	mg/kg	< 0.2	< 0.2	< 0.2
Chlorpyrifos-methyl	0.2	mg/kg	< 0.2	< 0.2	< 0.2
Coumaphos	2	mg/kg	< 2	< 2	< 2
Demeton-S	0.2	mg/kg	< 0.2	< 0.2	< 0.2
Demeton-O	0.2	mg/kg	< 0.2	< 0.2	< 0.2
Diazinon	0.2	mg/kg	< 0.2	< 0.2	< 0.2
Dichlorvos	0.2	mg/kg	< 0.2	< 0.2	< 0.2
Dimethoate	0.2	mg/kg	< 0.2	< 0.2	< 0.2
Disulfoton	0.2	mg/kg	< 0.2	< 0.2	< 0.2
EPN	0.2	mg/kg	< 0.2	< 0.2	< 0.2
Ethion	0.2	mg/kg	< 0.2	< 0.2	< 0.2
Ethoprop	0.2	mg/kg	< 0.2	< 0.2	< 0.2
Ethyl parathion	0.2	mg/kg	< 0.2	< 0.2	< 0.2
Fenitrothion	0.2	mg/kg	< 0.2	< 0.2	< 0.2
Fensulfothion	0.2	mg/kg	< 0.2	< 0.2	< 0.2
Fenthion	0.2	mg/kg	< 0.2	< 0.2	< 0.2
Malathion	0.2	mg/kg	< 0.2	< 0.2	< 0.2
Merphos	0.2	mg/kg	< 0.2	< 0.2	< 0.2
Methyl parathion	0.2	mg/kg	< 0.2	< 0.2	< 0.2
Mevinphos	0.2	mg/kg	< 0.2	< 0.2	< 0.2
Monocrotophos	2	mg/kg	< 2	< 2	< 2
Naled	0.2	mg/kg	< 0.2	< 0.2	< 0.2
Omethoate	2	mg/kg	< 2	< 2	< 2
Phorate	0.2	mg/kg	< 0.2	< 0.2	< 0.2
Pirimiphos-methyl	0.2	mg/kg	< 0.2	< 0.2	< 0.2
Pyrazophos	0.2	mg/kg	< 0.2	< 0.2	< 0.2
Ronnel	0.2	mg/kg	< 0.2	< 0.2	< 0.2
Terbufos	0.2	mg/kg	< 0.2	< 0.2	< 0.2
Tetrachlorvinphos	0.2	mg/kg	< 0.2	< 0.2	< 0.2
Tokuthion	0.2	mg/kg	< 0.2	< 0.2	< 0.2
Trichloronate	0.2	mg/kg	< 0.2	< 0.2	< 0.2
Triphenylphosphate (surr.)	1	%	73	94	85
Phenols (Halogenated)					
2-Chlorophenol	0.5	mg/kg	< 0.5	< 0.5	< 0.5
2.4-Dichlorophenol	0.5	mg/kg	< 0.5	< 0.5	< 0.5
2.4.5-Trichlorophenol	1	mg/kg	< 1	< 1	< 1
2.4.6-Trichlorophenol	1	mg/kg	< 1	< 1	< 1
2.6-Dichlorophenol	0.5	mg/kg	< 0.5	< 0.5	< 0.5
4-Chloro-3-methylphenol	1	mg/kg	< 1	< 1	< 1
Pentachlorophenol	1	mg/kg	< 1	< 1	< 1
Tetrachlorophenols - Total	1	mg/kg	< 1	< 1	< 1
Total Halogenated Phenol*	1	mg/kg	< 1	< 1	< 1

Client Sample ID Sample Matrix Eurofins | mgt Sample No. Date Sampled Test/Reference	LOR	Unit	TP42 0.3-0.5M Soil M18-No10944 Nov 05, 2018	TP43 0.2-0.3M Soil M18-No10945 Nov 05, 2018	TP44 0.3-0.5M Soil M18-No10946 Nov 05, 2018
Phenols (non-Halogenated)					
2-Cyclohexyl-4.6-dinitrophenol	20	mg/kg	< 20	< 20	< 20
2-Methyl-4.6-dinitrophenol	5	mg/kg	< 5	< 5	< 5
2-Methylphenol (o-Cresol)	0.2	mg/kg	< 0.2	< 0.2	< 0.2
2-Nitrophenol	1.0	mg/kg	< 1	< 1	< 1
2.4-Dimethylphenol	0.5	mg/kg	< 0.5	< 0.5	< 0.5
2.4-Dinitrophenol	5	mg/kg	< 5	< 5	< 5
3&4-Methylphenol (m&p-Cresol)	0.4	mg/kg	< 0.4	< 0.4	< 0.4
4-Nitrophenol	5	mg/kg	< 5	< 5	< 5
Dinoseb	20	mg/kg	< 20	< 20	< 20
Phenol	0.5	mg/kg	< 0.5	< 0.5	< 0.5
Total Non-Halogenated Phenol*	20	mg/kg	< 20	< 20	< 20
Phenol-d6 (surr.)	1	%	102	107	96
Heavy Metals					
Arsenic	2	mg/kg	< 2	2.4	< 2
Cadmium	0.4	mg/kg	< 0.4	< 0.4	< 0.4
Chromium	5	mg/kg	< 5	< 5	< 5
Copper	5	mg/kg	< 5	< 5	< 5
Lead	5	mg/kg	< 5	8.8	< 5
Mercury	0.1	mg/kg	< 0.1	< 0.1	< 0.1
Nickel	5	mg/kg	< 5	< 5	< 5
Zinc	5	mg/kg	< 5	12	14
% Moisture	1	%	12	16	8.7

Sample History

Where samples are submitted/analysed over several days, the last date of extraction and analysis is reported.
A recent review of our LIMS has resulted in the correction or clarification of some method identifications. Due to this, some of the method reference information on reports has changed. However, no substantive change has been made to our laboratory methods, and as such there is no change in the validity of current or previous results (regarding both quality and NATA accreditation).

If the date and time of sampling are not provided, the Laboratory will not be responsible for compromised results should testing be performed outside the recommended holding time.

Description	Testing Site	Extracted	Holding Time
Eurofins | mgt Suite B7A			
Total Recoverable Hydrocarbons - 1999 NEPM Fractions	Melbourne	Nov 10, 2018	14 Day
- Method: LTM-ORG-2010 TRH C6-C40			
BTEX	Melbourne	Nov 10, 2018	14 Day
- Method: LTM-ORG-2150 VOCs in Soils Liquid and other Aqueous Matrices			
Total Recoverable Hydrocarbons - 2013 NEPM Fractions	Melbourne	Nov 10, 2018	14 Day
- Method: LTM-ORG-2010 TRH C6-C40			
Total Recoverable Hydrocarbons - 2013 NEPM Fractions	Melbourne	Nov 10, 2018	14 Day
- Method: LTM-ORG-2010 TRH C6-C40			
Polycyclic Aromatic Hydrocarbons	Melbourne	Nov 10, 2018	14 Day
- Method: LTM-ORG-2130 PAH and Phenols in Soil and Water			
Phenols (Halogenated)	Melbourne	Nov 10, 2018	14 Days
- Method: LTM-ORG-2130 PAH and Phenols in Soil and Water			
Phenols (non-Halogenated)	Melbourne	Nov 10, 2018	14 Day
- Method: LTM-ORG-2130 PAH and Phenols in Soil and Water			
Metals M8	Melbourne	Nov 10, 2018	28 Days
- Method: LTM-MET-3040 Metals in Waters, Soils & Sediments by ICP-MS			
Eurofins | mgt Suite B14			
Organochlorine Pesticides	Melbourne	Nov 10, 2018	14 Day
- Method: LTM-ORG-2220 OCP & PCB in Soil and Water			
Organophosphorus Pesticides	Melbourne	Nov 10, 2018	14 Day
- Method: LTM-ORG-2200 Organophosphorus Pesticides by GC-MS			
% Moisture	Melbourne	Nov 09, 2018	14 Day
- Method: LTM-GEN-7080 Moisture			

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Site # 23736

Company Name: Coffey Environments P/L N'castle
Address: Lot 101, 19 Warabrook Boulevard
Warabrook
NSW 2304

Project Name: 111 SPARKS ROAD
Project ID: 754NTLGE216908

Order No.:
Report #: 626825
Phone: 02 4016 2300
Fax: 02 4016 2380

Received: Nov 9, 2018 8:20 AM
Due: Nov 15, 2018
Priority: 5 Day
Contact Name: Nima Salimi

Eurofins | mgt Analytical Services Manager : Andrew Black

Sample Detail						Eurofins | mgt Suite B14	Moisture Set	Eurofins | mgt Suite B7A
Melbourne Laboratory - NATA Site # 1254 & 14271						X	X	X
Sydney Laboratory - NATA Site # 18217								
Brisbane Laboratory - NATA Site # 20794								
Perth Laboratory - NATA Site # 23736								
External Laboratory								
No	**Sample ID**	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**			
1	TP28 0.1-0.2M	Nov 05, 2018		Soil	M18-No10936	X	X	X
2	TP31 0.1-0.2M	Nov 05, 2018		Soil	M18-No10937	X	X	X
3	TP31 0.6-0.7M	Nov 05, 2018		Soil	M18-No10938	X	X	X
4	TP32 0.3-0.5M	Nov 06, 2018		Soil	M18-No10939	X	X	X
5	TP32 1.0-1.2M	Nov 06, 2018		Soil	M18-No10940	X	X	X
6	TP33 0.1-0.2M	Nov 06, 2018		Soil	M18-No10941	X	X	X
7	TP33 0.7-0.8M	Nov 05, 2018		Soil	M18-No10942	X	X	X
8	TP41 0.1-0.2M	Nov 05, 2018		Soil	M18-No10943	X	X	X
9	TP42 0.3-0.5M	Nov 05, 2018		Soil	M18-No10944	X	X	X

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NATA # 1261
Site # 23736

Company Name:	Coffey Environments P/L N'castle	**Order No.:**		**Received:**	Nov 9, 2018 8:20 AM
Address:	Lot 101, 19 Warabrook Boulevard Warabrook NSW 2304	**Report #:**	626825	**Due:**	Nov 15, 2018
		Phone:	02 4016 2300	**Priority:**	5 Day
		Fax:	02 4016 2380	**Contact Name:**	Nima Salimi
Project Name:	111 SPARKS ROAD				
Project ID:	754NTLGE216908				

Eurofins | mgt Analytical Services Manager : Andrew Black

Sample Detail						Eurofins | mgt Suite B14	Moisture Set	Eurofins | mgt Suite B7A
Melbourne Laboratory - NATA Site # 1254 & 14271						X	X	X
Sydney Laboratory - NATA Site # 18217								
Brisbane Laboratory - NATA Site # 20794								
Perth Laboratory - NATA Site # 23736								
10	TP43 0.2-0.3M	Nov 05, 2018		Soil	M18-No10945	X	X	X
11	TP44 0.3-0.5M	Nov 05, 2018		Soil	M18-No10946	X	X	X
Test Counts						11	11	11

Internal Quality Control Review and Glossary

General

1. Laboratory QC results for Method Blanks, Duplicates, Matrix Spikes, and Laboratory Control Samples are included in this QC report where applicable. Additional QC data may be available on request.
2. All soil results are reported on a dry basis, unless otherwise stated.
3. All biota/food results are reported on a wet weight basis on the edible portion, unless otherwise stated.
4. Actual LORs are matrix dependant. Quoted LORs may be raised where sample extracts are diluted due to interferences.
5. Results are uncorrected for matrix spikes or surrogate recoveries except for PFAS compounds.
6. SVOC analysis on waters are performed on homogenised, unfiltered samples, unless noted otherwise.
7. Samples were analysed on an 'as received' basis.
8. This report replaces any interim results previously issued.

Holding Times

Please refer to 'Sample Preservation and Container Guide' for holding times (QS3001).

For samples received on the last day of holding time, notification of testing requirements should have been received at least 6 hours prior to sample receipt deadlines as stated on the SRA.

If the Laboratory did not receive the information in the required timeframe, and regardless of any other integrity issues, suitably qualified results may still be reported.

Holding times apply from the date of sampling, therefore compliance to these may be outside the laboratory's control.

For VOCs containing vinyl chloride, styrene and 2-chloroethyl vinyl ether the holding time is 7 days however for all other VOCs such as BTEX or C6-10 TRH then the holding time is 14 days.

****NOTE:** pH duplicates are reported as a range NOT as RPD

Units

mg/kg: milligrams per kilogram

mg/L: milligrams per litre

ug/L: micrograms per litre

ppm: Parts per million

ppb: Parts per billion

%: Percentage

org/100mL: Organisms per 100 millilitres

NTU: Nephelometric Turbidity Units

MPN/100mL: Most Probable Number of organisms per 100 millilitres

Terms

Dry	Where a moisture has been determined on a solid sample the result is expressed on a dry basis.
LOR	Limit of Reporting.
SPIKE	Addition of the analyte to the sample and reported as percentage recovery.
RPD	Relative Percent Difference between two Duplicate pieces of analysis.
LCS	Laboratory Control Sample - reported as percent recovery.
CRM	Certified Reference Material - reported as percent recovery.
Method Blank	In the case of solid samples these are performed on laboratory certified clean sands and in the case of water samples these are performed on de-ionised water.
Surr - Surrogate	The addition of a like compound to the analyte target and reported as percentage recovery.
Duplicate	A second piece of analysis from the same sample and reported in the same units as the result to show comparison.
USEPA	United States Environmental Protection Agency
APHA	American Public Health Association
TCLP	Toxicity Characteristic Leaching Procedure
COC	Chain of Custody
SRA	Sample Receipt Advice
QSM	Quality Systems Manual ver 5.1 US Department of Defense
CP	Client Parent - QC was performed on samples pertaining to this report
NCP	Non-Client Parent - QC performed on samples not pertaining to this report, QC is representative of the sequence or batch that client samples were analysed within.
TEQ	Toxic Equivalency Quotient

QC - Acceptance Criteria

RPD Duplicates: Global RPD Duplicates Acceptance Criteria is 30% however the following acceptance guidelines are equally applicable:

Results <10 times the LOR : No Limit

Results between 10-20 times the LOR : RPD must lie between 0-50%

Results >20 times the LOR : RPD must lie between 0-30%

Surrogate Recoveries: Recoveries must lie between 50-150%-Phenols & PFASs

PFAS field samples that contain surrogate recoveries in excess of the QC limit designated in QSM 5.1 where no positive PFAS results have been reported have been reviewed and no data was affected.

WA DWER (n=10): PFBA, PFPeA, PFHxA, PFHpA, PFOA, PFBS, PFHxS, PFOS, 6:2 FTSA, 8:2 FTSA

QC Data General Comments

1. Where a result is reported as a less than (<), higher than the nominated LOR, this is due to either matrix interference, extract dilution required due to interferences or contaminant levels within the sample, high moisture content or insufficient sample provided.
2. Duplicate data shown within this report that states the word "BATCH" is a Batch Duplicate from outside of your sample batch, but within the laboratory sample batch at a 1:10 ratio. The Parent and Duplicate data shown is not data from your samples.
3. Organochlorine Pesticide analysis - where reporting LCS data, Toxaphene & Chlordane are not added to the LCS.
4. Organochlorine Pesticide analysis - where reporting Spike data, Toxaphene is not added to the Spike.
5. Total Recoverable Hydrocarbons - where reporting Spike & LCS data, a single spike of commercial Hydrocarbon products in the range of C12-C30 is added and it's Total Recovery is reported in the C10-C14 cell of the Report.
6. pH and Free Chlorine analysed in the laboratory - Analysis on this test must begin within 30 minutes of sampling.Therefore laboratory analysis is unlikely to be completed within holding time. Analysis will begin as soon as possible after sample receipt.
7. Recovery Data (Spikes & Surrogates) - where chromatographic interference does not allow the determination of Recovery the term "INT" appears against that analyte.
8. Polychlorinated Biphenyls are spiked only using Aroclor 1260 in Matrix Spikes and LCS.
9. For Matrix Spikes and LCS results a dash " -" in the report means that the specific analyte was not added to the QC sample.
10. Duplicate RPDs are calculated from raw analytical data thus it is possible to have two sets of data.

Quality Control Results

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Method Blank							
Total Recoverable Hydrocarbons - 1999 NEPM Fractions							
TRH C6-C9	mg/kg	< 20			20	Pass	
TRH C10-C14	mg/kg	< 20			20	Pass	
TRH C15-C28	mg/kg	< 50			50	Pass	
TRH C29-C36	mg/kg	< 50			50	Pass	
Method Blank							
BTEX							
Benzene	mg/kg	< 0.1			0.1	Pass	
Toluene	mg/kg	< 0.1			0.1	Pass	
Ethylbenzene	mg/kg	< 0.1			0.1	Pass	
m&p-Xylenes	mg/kg	< 0.2			0.2	Pass	
o-Xylene	mg/kg	< 0.1			0.1	Pass	
Xylenes - Total	mg/kg	< 0.3			0.3	Pass	
Method Blank							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
Naphthalene	mg/kg	< 0.5			0.5	Pass	
TRH C6-C10	mg/kg	< 20			20	Pass	
TRH >C10-C16	mg/kg	< 50			50	Pass	
TRH >C16-C34	mg/kg	< 100			100	Pass	
TRH >C34-C40	mg/kg	< 100			100	Pass	
Method Blank							
Polycyclic Aromatic Hydrocarbons							
Acenaphthene	mg/kg	< 0.5			0.5	Pass	
Acenaphthylene	mg/kg	< 0.5			0.5	Pass	
Anthracene	mg/kg	< 0.5			0.5	Pass	
Benz(a)anthracene	mg/kg	< 0.5			0.5	Pass	
Benzo(a)pyrene	mg/kg	< 0.5			0.5	Pass	
Benzo(b&j)fluoranthene	mg/kg	< 0.5			0.5	Pass	
Benzo(g.h.i)perylene	mg/kg	< 0.5			0.5	Pass	
Benzo(k)fluoranthene	mg/kg	< 0.5			0.5	Pass	
Chrysene	mg/kg	< 0.5			0.5	Pass	
Dibenz(a.h)anthracene	mg/kg	< 0.5			0.5	Pass	
Fluoranthene	mg/kg	< 0.5			0.5	Pass	
Fluorene	mg/kg	< 0.5			0.5	Pass	
Indeno(1.2.3-cd)pyrene	mg/kg	< 0.5			0.5	Pass	
Naphthalene	mg/kg	< 0.5			0.5	Pass	
Phenanthrene	mg/kg	< 0.5			0.5	Pass	
Pyrene	mg/kg	< 0.5			0.5	Pass	
Method Blank							
Organochlorine Pesticides							
Chlordanes - Total	mg/kg	< 0.1			0.1	Pass	
4.4'-DDD	mg/kg	< 0.05			0.05	Pass	
4.4'-DDE	mg/kg	< 0.05			0.05	Pass	
4.4'-DDT	mg/kg	< 0.05			0.05	Pass	
a-BHC	mg/kg	< 0.05			0.05	Pass	
Aldrin	mg/kg	< 0.05			0.05	Pass	
b-BHC	mg/kg	< 0.05			0.05	Pass	
d-BHC	mg/kg	< 0.05			0.05	Pass	
Dieldrin	mg/kg	< 0.05			0.05	Pass	
Endosulfan I	mg/kg	< 0.05			0.05	Pass	
Endosulfan II	mg/kg	< 0.05			0.05	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Endosulfan sulphate	mg/kg	< 0.05			0.05	Pass	
Endrin	mg/kg	< 0.05			0.05	Pass	
Endrin aldehyde	mg/kg	< 0.05			0.05	Pass	
Endrin ketone	mg/kg	< 0.05			0.05	Pass	
g-BHC (Lindane)	mg/kg	< 0.05			0.05	Pass	
Heptachlor	mg/kg	< 0.05			0.05	Pass	
Heptachlor epoxide	mg/kg	< 0.05			0.05	Pass	
Hexachlorobenzene	mg/kg	< 0.05			0.05	Pass	
Methoxychlor	mg/kg	< 0.05			0.05	Pass	
Toxaphene	mg/kg	< 1			1	Pass	
Method Blank							
Organophosphorus Pesticides							
Azinphos-methyl	mg/kg	< 0.2			0.2	Pass	
Bolstar	mg/kg	< 0.2			0.2	Pass	
Chlorfenvinphos	mg/kg	< 0.2			0.2	Pass	
Chlorpyrifos	mg/kg	< 0.2			0.2	Pass	
Chlorpyrifos-methyl	mg/kg	< 0.2			0.2	Pass	
Coumaphos	mg/kg	< 2			2	Pass	
Demeton-S	mg/kg	< 0.2			0.2	Pass	
Demeton-O	mg/kg	< 0.2			0.2	Pass	
Diazinon	mg/kg	< 0.2			0.2	Pass	
Dichlorvos	mg/kg	< 0.2			0.2	Pass	
Dimethoate	mg/kg	< 0.2			0.2	Pass	
Disulfoton	mg/kg	< 0.2			0.2	Pass	
EPN	mg/kg	< 0.2			0.2	Pass	
Ethion	mg/kg	< 0.2			0.2	Pass	
Ethoprop	mg/kg	< 0.2			0.2	Pass	
Ethyl parathion	mg/kg	< 0.2			0.2	Pass	
Fenitrothion	mg/kg	< 0.2			0.2	Pass	
Fensulfothion	mg/kg	< 0.2			0.2	Pass	
Fenthion	mg/kg	< 0.2			0.2	Pass	
Malathion	mg/kg	< 0.2			0.2	Pass	
Merphos	mg/kg	< 0.2			0.2	Pass	
Methyl parathion	mg/kg	< 0.2			0.2	Pass	
Mevinphos	mg/kg	< 0.2			0.2	Pass	
Monocrotophos	mg/kg	< 2			2	Pass	
Naled	mg/kg	< 0.2			0.2	Pass	
Omethoate	mg/kg	< 2			2	Pass	
Phorate	mg/kg	< 0.2			0.2	Pass	
Pirimiphos-methyl	mg/kg	< 0.2			0.2	Pass	
Pyrazophos	mg/kg	< 0.2			0.2	Pass	
Ronnel	mg/kg	< 0.2			0.2	Pass	
Terbufos	mg/kg	< 0.2			0.2	Pass	
Tetrachlorvinphos	mg/kg	< 0.2			0.2	Pass	
Tokuthion	mg/kg	< 0.2			0.2	Pass	
Trichloronate	mg/kg	< 0.2			0.2	Pass	
Method Blank							
Phenols (Halogenated)							
2-Chlorophenol	mg/kg	< 0.5			0.5	Pass	
2.4-Dichlorophenol	mg/kg	< 0.5			0.5	Pass	
2.4.5-Trichlorophenol	mg/kg	< 1			1	Pass	
2.4.6-Trichlorophenol	mg/kg	< 1			1	Pass	
2.6-Dichlorophenol	mg/kg	< 0.5			0.5	Pass	
4-Chloro-3-methylphenol	mg/kg	< 1			1	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Pentachlorophenol	mg/kg	< 1			1	Pass	
Tetrachlorophenols - Total	mg/kg	< 1			1	Pass	
Method Blank							
Phenols (non-Halogenated)							
2-Cyclohexyl-4.6-dinitrophenol	mg/kg	< 20			20	Pass	
2-Methyl-4.6-dinitrophenol	mg/kg	< 5			5	Pass	
2-Methylphenol (o-Cresol)	mg/kg	< 0.2			0.2	Pass	
2-Nitrophenol	mg/kg	< 1			1.0	Pass	
2.4-Dimethylphenol	mg/kg	< 0.5			0.5	Pass	
2.4-Dinitrophenol	mg/kg	< 5			5	Pass	
3&4-Methylphenol (m&p-Cresol)	mg/kg	< 0.4			0.4	Pass	
4-Nitrophenol	mg/kg	< 5			5	Pass	
Dinoseb	mg/kg	< 20			20	Pass	
Phenol	mg/kg	< 0.5			0.5	Pass	
Method Blank							
Heavy Metals							
Arsenic	mg/kg	< 2			2	Pass	
Cadmium	mg/kg	< 0.4			0.4	Pass	
Chromium	mg/kg	< 5			5	Pass	
Copper	mg/kg	< 5			5	Pass	
Lead	mg/kg	< 5			5	Pass	
Mercury	mg/kg	< 0.1			0.1	Pass	
Nickel	mg/kg	< 5			5	Pass	
Zinc	mg/kg	< 5			5	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons - 1999 NEPM Fractions							
TRH C6-C9	%	111			70-130	Pass	
TRH C10-C14	%	85			70-130	Pass	
LCS - % Recovery							
BTEX							
Benzene	%	103			70-130	Pass	
Toluene	%	106			70-130	Pass	
Ethylbenzene	%	106			70-130	Pass	
m&p-Xylenes	%	103			70-130	Pass	
Xylenes - Total	%	106			70-130	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
Naphthalene	%	113			70-130	Pass	
TRH C6-C10	%	104			70-130	Pass	
TRH >C10-C16	%	92			70-130	Pass	
LCS - % Recovery							
Polycyclic Aromatic Hydrocarbons							
Acenaphthene	%	87			70-130	Pass	
Acenaphthylene	%	92			70-130	Pass	
Anthracene	%	86			70-130	Pass	
Benz(a)anthracene	%	87			70-130	Pass	
Benzo(a)pyrene	%	91			70-130	Pass	
Benzo(b&j)fluoranthene	%	90			70-130	Pass	
Benzo(g.h.i)perylene	%	111			70-130	Pass	
Benzo(k)fluoranthene	%	96			70-130	Pass	
Chrysene	%	103			70-130	Pass	
Dibenz(a.h)anthracene	%	92			70-130	Pass	
Fluoranthene	%	112			70-130	Pass	
Fluorene	%	86			70-130	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Indeno(1.2.3-cd)pyrene	%	84			70-130	Pass	
Naphthalene	%	88			70-130	Pass	
Phenanthrene	%	82			70-130	Pass	
Pyrene	%	110			70-130	Pass	
LCS - % Recovery							
Organochlorine Pesticides							
4.4'-DDD	%	119			70-130	Pass	
4.4'-DDE	%	121			70-130	Pass	
4.4'-DDT	%	82			70-130	Pass	
a-BHC	%	91			70-130	Pass	
Aldrin	%	105			70-130	Pass	
b-BHC	%	96			70-130	Pass	
d-BHC	%	101			70-130	Pass	
Dieldrin	%	110			70-130	Pass	
Endosulfan I	%	105			70-130	Pass	
Endosulfan II	%	101			70-130	Pass	
Endosulfan sulphate	%	105			70-130	Pass	
Endrin	%	110			70-130	Pass	
Endrin aldehyde	%	110			70-130	Pass	
Endrin ketone	%	116			70-130	Pass	
g-BHC (Lindane)	%	94			70-130	Pass	
Heptachlor	%	104			70-130	Pass	
Heptachlor epoxide	%	108			70-130	Pass	
Hexachlorobenzene	%	89			70-130	Pass	
Methoxychlor	%	93			70-130	Pass	
LCS - % Recovery							
Organophosphorus Pesticides							
Diazinon	%	93			70-130	Pass	
Dimethoate	%	81			70-130	Pass	
Ethion	%	121			70-130	Pass	
Fenitrothion	%	81			70-130	Pass	
Methyl parathion	%	81			70-130	Pass	
Mevinphos	%	96			70-130	Pass	
LCS - % Recovery							
Phenols (Halogenated)							
2-Chlorophenol	%	82			30-130	Pass	
2.4-Dichlorophenol	%	69			30-130	Pass	
2.4.5-Trichlorophenol	%	68			30-130	Pass	
2.4.6-Trichlorophenol	%	62			30-130	Pass	
2.6-Dichlorophenol	%	75			30-130	Pass	
4-Chloro-3-methylphenol	%	84			30-130	Pass	
Pentachlorophenol	%	52			30-130	Pass	
Tetrachlorophenols - Total	%	73			30-130	Pass	
LCS - % Recovery							
Phenols (non-Halogenated)							
2-Cyclohexyl-4.6-dinitrophenol	%	51			30-130	Pass	
2-Methyl-4.6-dinitrophenol	%	51			30-130	Pass	
2-Methylphenol (o-Cresol)	%	82			30-130	Pass	
2-Nitrophenol	%	84			30-130	Pass	
2.4-Dimethylphenol	%	84			30-130	Pass	
2.4-Dinitrophenol	%	52			30-130	Pass	
3&4-Methylphenol (m&p-Cresol)	%	85			30-130	Pass	
4-Nitrophenol	%	41			30-130	Pass	
Dinoseb	%	54			30-130	Pass	

Test			Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Phenol			%	86			30-130	Pass	
LCS - % Recovery									
Heavy Metals									
Arsenic			%	105			80-120	Pass	
Cadmium			%	106			80-120	Pass	
Chromium			%	112			80-120	Pass	
Copper			%	109			80-120	Pass	
Lead			%	112			80-120	Pass	
Mercury			%	106			75-125	Pass	
Nickel			%	112			80-120	Pass	
Zinc			%	118			80-120	Pass	
Test	**Lab Sample ID**	**QA Source**	**Units**	**Result 1**			**Acceptance Limits**	**Pass Limits**	**Qualifying Code**
Spike - % Recovery									
Organophosphorus Pesticides				Result 1					
Diazinon	M18-No11856	NCP	%	76			70-130	Pass	
Dimethoate	M18-No11856	NCP	%	91			70-130	Pass	
Ethion	M18-No11856	NCP	%	87			70-130	Pass	
Fenitrothion	M18-No11856	NCP	%	91			70-130	Pass	
Methyl parathion	M18-No11856	NCP	%	90			70-130	Pass	
Mevinphos	M18-No11856	NCP	%	102			70-130	Pass	
Spike - % Recovery									
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1					
TRH C6-C9	M18-No10938	CP	%	99			70-130	Pass	
Spike - % Recovery									
BTEX				Result 1					
Benzene	M18-No10938	CP	%	91			70-130	Pass	
Toluene	M18-No10938	CP	%	98			70-130	Pass	
Ethylbenzene	M18-No10938	CP	%	104			70-130	Pass	
m&p-Xylenes	M18-No10938	CP	%	99			70-130	Pass	
o-Xylene	M18-No10938	CP	%	106			70-130	Pass	
Xylenes - Total	M18-No10938	CP	%	102			70-130	Pass	
Spike - % Recovery									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1					
Naphthalene	M18-No10938	CP	%	125			70-130	Pass	
TRH C6-C10	M18-No10938	CP	%	94			70-130	Pass	
Spike - % Recovery									
Polycyclic Aromatic Hydrocarbons				Result 1					
Acenaphthene	M18-No10938	CP	%	80			70-130	Pass	
Acenaphthylene	M18-No10938	CP	%	83			70-130	Pass	
Anthracene	M18-No10938	CP	%	79			70-130	Pass	
Benz(a)anthracene	M18-No10938	CP	%	85			70-130	Pass	
Benzo(a)pyrene	M18-No10938	CP	%	106			70-130	Pass	
Benzo(b&j)fluoranthene	M18-No10938	CP	%	82			70-130	Pass	
Benzo(g.h.i)perylene	M18-No10938	CP	%	87			70-130	Pass	
Benzo(k)fluoranthene	M18-No10938	CP	%	93			70-130	Pass	
Chrysene	M18-No10938	CP	%	96			70-130	Pass	
Dibenz(a.h)anthracene	M18-No10938	CP	%	83			70-130	Pass	
Fluoranthene	M18-No10938	CP	%	106			70-130	Pass	
Fluorene	M18-No10938	CP	%	80			70-130	Pass	
Indeno(1.2.3-cd)pyrene	M18-No10938	CP	%	92			70-130	Pass	
Naphthalene	M18-No10938	CP	%	81			70-130	Pass	
Phenanthrene	M18-No10938	CP	%	77			70-130	Pass	
Pyrene	M18-No10938	CP	%	107			70-130	Pass	
Spike - % Recovery									

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Organochlorine Pesticides				Result 1					
4.4'-DDD	M18-No10938	CP	%	93			70-130	Pass	
4.4'-DDE	M18-No10938	CP	%	98			70-130	Pass	
4.4'-DDT	M18-No10938	CP	%	119			70-130	Pass	
a-BHC	M18-No10938	CP	%	80			70-130	Pass	
Aldrin	M18-No10938	CP	%	92			70-130	Pass	
b-BHC	M18-No10938	CP	%	84			70-130	Pass	
d-BHC	M18-No10938	CP	%	88			70-130	Pass	
Dieldrin	M18-No10938	CP	%	93			70-130	Pass	
Endosulfan I	M18-No10938	CP	%	94			70-130	Pass	
Endosulfan II	M18-No10938	CP	%	89			70-130	Pass	
Endosulfan sulphate	M18-No10938	CP	%	95			70-130	Pass	
Endrin	M18-No10938	CP	%	112			70-130	Pass	
Endrin aldehyde	M18-No10938	CP	%	88			70-130	Pass	
Endrin ketone	M18-No10938	CP	%	91			70-130	Pass	
g-BHC (Lindane)	M18-No10938	CP	%	85			70-130	Pass	
Heptachlor	M18-No10938	CP	%	105			70-130	Pass	
Heptachlor epoxide	M18-No10938	CP	%	89			70-130	Pass	
Hexachlorobenzene	M18-No10938	CP	%	78			70-130	Pass	
Methoxychlor	M18-No10938	CP	%	102			70-130	Pass	
Spike - % Recovery									
Phenols (Halogenated)				Result 1					
2-Chlorophenol	M18-No10938	CP	%	87			30-130	Pass	
2.4-Dichlorophenol	M18-No10938	CP	%	80			30-130	Pass	
2.4.5-Trichlorophenol	M18-No10938	CP	%	71			30-130	Pass	
2.4.6-Trichlorophenol	M18-No10938	CP	%	67			30-130	Pass	
2.6-Dichlorophenol	M18-No10938	CP	%	80			30-130	Pass	
4-Chloro-3-methylphenol	M18-No10938	CP	%	88			30-130	Pass	
Pentachlorophenol	M18-No10938	CP	%	90			30-130	Pass	
Tetrachlorophenols - Total	M18-No10938	CP	%	89			30-130	Pass	
Spike - % Recovery									
Phenols (non-Halogenated)				Result 1					
2-Cyclohexyl-4.6-dinitrophenol	M18-No10938	CP	%	56			30-130	Pass	
2-Methyl-4.6-dinitrophenol	M18-No10938	CP	%	69			30-130	Pass	
2-Methylphenol (o-Cresol)	M18-No10938	CP	%	76			30-130	Pass	
2-Nitrophenol	M18-No10938	CP	%	91			30-130	Pass	
2.4-Dimethylphenol	M18-No10938	CP	%	86			30-130	Pass	
2.4-Dinitrophenol	M18-No10938	CP	%	110			30-130	Pass	
3&4-Methylphenol (m&p-Cresol)	M18-No10938	CP	%	91			30-130	Pass	
4-Nitrophenol	M18-No10938	CP	%	57			30-130	Pass	
Dinoseb	M18-No10938	CP	%	72			30-130	Pass	
Phenol	M18-No10938	CP	%	99			30-130	Pass	
Spike - % Recovery									
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1					
TRH C10-C14	M18-No10941	CP	%	76			70-130	Pass	
Spike - % Recovery									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1					
TRH >C10-C16	M18-No10941	CP	%	75			70-130	Pass	
Spike - % Recovery									
Heavy Metals				Result 1					
Arsenic	M18-No10943	CP	%	106			75-125	Pass	
Cadmium	M18-No10943	CP	%	95			75-125	Pass	
Chromium	M18-No10943	CP	%	100			75-125	Pass	
Copper	M18-No10943	CP	%	102			75-125	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Lead	M18-No10943	CP	%	88			75-125	Pass	
Mercury	M18-No10943	CP	%	105			70-130	Pass	
Nickel	M18-No10943	CP	%	96			75-125	Pass	
Zinc	M18-No10943	CP	%	92			75-125	Pass	
Test	**Lab Sample ID**	**QA Source**	**Units**	**Result 1**			**Acceptance Limits**	**Pass Limits**	**Qualifying Code**
Duplicate									
Polycyclic Aromatic Hydrocarbons				Result 1	Result 2	RPD			
Acenaphthene	M18-No15238	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Acenaphthylene	M18-No15238	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Anthracene	M18-No15238	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benz(a)anthracene	M18-No15238	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(a)pyrene	M18-No15238	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(b&j)fluoranthene	M18-No15238	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(g.h.i)perylene	M18-No15238	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(k)fluoranthene	M18-No15238	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Chrysene	M18-No15238	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Dibenz(a.h)anthracene	M18-No15238	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Fluoranthene	M18-No15238	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Fluorene	M18-No15238	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Indeno(1.2.3-cd)pyrene	M18-No15238	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Naphthalene	M18-No15238	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Phenanthrene	M18-No15238	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Pyrene	M18-No15238	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Duplicate									
Organophosphorus Pesticides				Result 1	Result 2	RPD			
Azinphos-methyl	M18-No10675	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Bolstar	M18-No10675	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Chlorfenvinphos	M18-No10675	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Chlorpyrifos	M18-No10675	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Chlorpyrifos-methyl	M18-No10675	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Coumaphos	M18-No10675	NCP	mg/kg	< 2	< 2	<1	30%	Pass	
Demeton-S	M18-No10675	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Demeton-O	M18-No10675	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Diazinon	M18-No10675	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Dichlorvos	M18-No10675	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Dimethoate	M18-No10675	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Disulfoton	M18-No10675	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
EPN	M18-No10675	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Ethion	M18-No10675	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Ethoprop	M18-No10675	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Ethyl parathion	M18-No10675	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Fenitrothion	M18-No10675	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Fensulfothion	M18-No10675	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Fenthion	M18-No10675	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Malathion	M18-No10675	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Merphos	M18-No10675	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Methyl parathion	M18-No10675	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Mevinphos	M18-No10675	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Monocrotophos	M18-No10675	NCP	mg/kg	< 2	< 2	<1	30%	Pass	
Naled	M18-No10675	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Omethoate	M18-No10675	NCP	mg/kg	< 2	< 2	<1	30%	Pass	
Phorate	M18-No10675	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Pirimiphos-methyl	M18-No10675	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Pyrazophos	M18-No10675	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	

Duplicate									
Organophosphorus Pesticides				Result 1	Result 2	RPD			
Ronnel	M18-No10675	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Terbufos	M18-No10675	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Tetrachlorvinphos	M18-No10675	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Tokuthion	M18-No10675	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Trichloronate	M18-No10675	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Duplicate									
Phenols (Halogenated)				Result 1	Result 2	RPD			
2-Chlorophenol	M18-No15238	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
2.4-Dichlorophenol	M18-No15238	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
2.4.5-Trichlorophenol	M18-No15238	NCP	mg/kg	< 1	< 1	<1	30%	Pass	
2.4.6-Trichlorophenol	M18-No15238	NCP	mg/kg	< 1	< 1	<1	30%	Pass	
2.6-Dichlorophenol	M18-No15238	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
4-Chloro-3-methylphenol	M18-No15238	NCP	mg/kg	< 1	< 1	<1	30%	Pass	
Pentachlorophenol	M18-No15238	NCP	mg/kg	< 1	< 1	<1	30%	Pass	
Tetrachlorophenols - Total	M18-No15238	NCP	mg/kg	< 1	< 1	<1	30%	Pass	
Duplicate									
Phenols (non-Halogenated)				Result 1	Result 2	RPD			
2-Cyclohexyl-4.6-dinitrophenol	M18-No15238	NCP	mg/kg	< 20	< 20	<1	30%	Pass	
2-Methyl-4.6-dinitrophenol	M18-No15238	NCP	mg/kg	< 5	< 5	<1	30%	Pass	
2-Methylphenol (o-Cresol)	M18-No15238	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
2-Nitrophenol	M18-No15238	NCP	mg/kg	< 1	< 1	<1	30%	Pass	
2.4-Dimethylphenol	M18-No15238	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
2.4-Dinitrophenol	M18-No15238	NCP	mg/kg	< 5	< 5	<1	30%	Pass	
3&4-Methylphenol (m&p-Cresol)	M18-No15238	NCP	mg/kg	< 0.4	< 0.4	<1	30%	Pass	
4-Nitrophenol	M18-No15238	NCP	mg/kg	< 5	< 5	<1	30%	Pass	
Dinoseb	M18-No15238	NCP	mg/kg	< 20	< 20	<1	30%	Pass	
Phenol	M18-No15238	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Duplicate									
				Result 1	Result 2	RPD			
% Moisture	M18-No10936	CP	%	10	12	12	30%	Pass	
Duplicate									
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1	Result 2	RPD			
TRH C6-C9	M18-No10937	CP	mg/kg	< 20	< 20	<1	30%	Pass	
Duplicate									
BTEX				Result 1	Result 2	RPD			
Benzene	M18-No10937	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Toluene	M18-No10937	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Ethylbenzene	M18-No10937	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
m&p-Xylenes	M18-No10937	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
o-Xylene	M18-No10937	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Xylenes - Total	M18-No10937	CP	mg/kg	< 0.3	< 0.3	<1	30%	Pass	
Duplicate									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1	Result 2	RPD			
Naphthalene	M18-No10937	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
TRH C6-C10	M18-No10937	CP	mg/kg	< 20	< 20	<1	30%	Pass	
Duplicate									
Organochlorine Pesticides				Result 1	Result 2	RPD			
Chlordanes - Total	M18-No10937	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
4.4'-DDD	M18-No10937	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
4.4'-DDE	M18-No10937	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
4.4'-DDT	M18-No10937	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
a-BHC	M18-No10937	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Aldrin	M18-No10937	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
b-BHC	M18-No10937	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	

Duplicate									
Organochlorine Pesticides				Result 1	Result 2	RPD			
d-BHC	M18-No10937	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Dieldrin	M18-No10937	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endosulfan I	M18-No10937	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endosulfan II	M18-No10937	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endosulfan sulphate	M18-No10937	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endrin	M18-No10937	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endrin aldehyde	M18-No10937	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endrin ketone	M18-No10937	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
g-BHC (Lindane)	M18-No10937	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Heptachlor	M18-No10937	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Heptachlor epoxide	M18-No10937	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Hexachlorobenzene	M18-No10937	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Methoxychlor	M18-No10937	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Toxaphene	M18-No10937	CP	mg/kg	< 1	< 1	<1	30%	Pass	
Duplicate									
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1	Result 2	RPD			
TRH C10-C14	M18-No10940	CP	mg/kg	< 20	< 20	<1	30%	Pass	
TRH C15-C28	M18-No10940	CP	mg/kg	< 50	< 50	<1	30%	Pass	
TRH C29-C36	M18-No10940	CP	mg/kg	< 50	< 50	<1	30%	Pass	
Duplicate									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1	Result 2	RPD			
TRH >C10-C16	M18-No10940	CP	mg/kg	< 50	< 50	<1	30%	Pass	
TRH >C16-C34	M18-No10940	CP	mg/kg	< 100	< 100	<1	30%	Pass	
TRH >C34-C40	M18-No10940	CP	mg/kg	< 100	< 100	<1	30%	Pass	
Duplicate									
Heavy Metals				Result 1	Result 2	RPD			
Arsenic	M18-No10942	CP	mg/kg	10.0	17	51	30%	Fail	Q15
Cadmium	M18-No10942	CP	mg/kg	< 0.4	< 0.4	<1	30%	Pass	
Chromium	M18-No10942	CP	mg/kg	< 5	7.8	46	30%	Fail	Q15
Copper	M18-No10942	CP	mg/kg	< 5	< 5	<1	30%	Pass	
Lead	M18-No10942	CP	mg/kg	6.9	9.9	35	30%	Fail	Q15
Mercury	M18-No10942	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Nickel	M18-No10942	CP	mg/kg	< 5	< 5	<1	30%	Pass	
Zinc	M18-No10942	CP	mg/kg	9.4	7.8	18	30%	Pass	
Duplicate									
Heavy Metals				Result 1	Result 2	RPD			
Arsenic	M18-No10943	CP	mg/kg	6.3	6.0	6.0	30%	Pass	
Cadmium	M18-No10943	CP	mg/kg	< 0.4	< 0.4	<1	30%	Pass	
Chromium	M18-No10943	CP	mg/kg	< 5	< 5	<1	30%	Pass	
Copper	M18-No10943	CP	mg/kg	< 5	< 5	<1	30%	Pass	
Lead	M18-No10943	CP	mg/kg	9.3	9.2	1.0	30%	Pass	
Mercury	M18-No10943	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Nickel	M18-No10943	CP	mg/kg	< 5	< 5	<1	30%	Pass	
Zinc	M18-No10943	CP	mg/kg	8.7	7.0	22	30%	Pass	
Duplicate									
				Result 1	Result 2	RPD			
% Moisture	M18-No10946	CP	%	8.7	8.4	3.0	30%	Pass	

Comments

Sample Integrity

Custody Seals Intact (if used)	N/A
Attempt to Chill was evident	Yes
Sample correctly preserved	Yes
Appropriate sample containers have been used	Yes
Sample containers for volatile analysis received with minimal headspace	Yes
Samples received within HoldingTime	Yes
Some samples have been subcontracted	No

Qualifier Codes/Comments

Code	Description
N01	F2 is determined by arithmetically subtracting the "naphthalene" value from the ">C10-C16" value. The naphthalene value used in this calculation is obtained from volatiles (Purge & Trap analysis).
N02	Where we have reported both volatile (P&T GCMS) and semivolatile (GCMS) naphthalene data, results may not be identical. Provided correct sample handling protocols have been followed, any observed differences in results are likely to be due to procedural differences within each methodology. Results determined by both techniques have passed all QAQC acceptance criteria, and are entirely technically valid.
N04	F1 is determined by arithmetically subtracting the "Total BTEX" value from the "C6-C10" value. The "Total BTEX" value is obtained by summing the concentrations of BTEX analytes. The "C6-C10" value is obtained by quantitating against a standard of mixed aromatic/aliphatic analytes.
N07	Please note:- These two PAH isomers closely co-elute using the most contemporary analytical methods and both the reported concentration (and the TEQ) apply specifically to the total of the two co-eluting PAHs
Q15	The RPD reported passes Eurofins | mgt's QC - Acceptance Criteria as defined in the Internal Quality Control Review and Glossary page of this report.

Authorised By

Andrew Black	Analytical Services Manager
Chris Bennett	Senior Analyst-Metal (VIC)
Harry Bacalis	Senior Analyst-Volatile (VIC)
Joseph Edouard	Senior Analyst-Organic (VIC)

Glenn Jackson

General Manager

Final report - this Report replaces any previously issued Report

- Indicates Not Requested

* Indicates NATA accreditation does not cover the performance of this service

Measurement uncertainty of test data is available on request or please click here.

Certificate of Analysis

NATA Accredited
Accreditation Number 1261
Site Number 1254

Accredited for compliance with ISO/IEC 17025–Testing
The results of the tests, calibrations and/or measurements included in this document are traceable to Australian/national standards.

Coffey Environments Pty Ltd Newcastle
Lot 101, 19 Warabrook Boulevard
Warabrook
NSW 2304

Attention:	Sean Blackford
Report	631681-AID
Project Name	111 SPARKS ROAD STAGE 2-10
Project ID	754-NTLGE216908
Received Date	Dec 04, 2018
Date Reported	Dec 11, 2018

Methodology:

Asbestos Fibre Identification	Conducted in accordance with the Australian Standard AS 4964 – 2004: Method for the Qualitative Identification of Asbestos in Bulk Samples and in-house Method LTM-ASB-8020 by polarised light microscopy (PLM) and dispersion staining (DS) techniques. *NOTE: Positive Trace Analysis results indicate the sample contains detectable respirable fibres.*
Unknown Mineral Fibres	Mineral fibres of unknown type, as determined by PLM with DS, may require another analytical technique, such as Electron Microscopy, to confirm unequivocal identity. *NOTE: While Actinolite, Anthophyllite and Tremolite asbestos may be detected by PLM with DS, due to variability in the optical properties of these materials, AS4964 requires that these are reported as UMF unless confirmed by an independent technique.*
Subsampling Soil Samples	The whole sample submitted is first dried and then passed through a 10mm sieve followed by a 2mm sieve. All fibrous matter greater than 10mm, greater than 2mm as well as the material passing through the 2mm sieve are retained and analysed for the presence of asbestos. If the sub 2mm fraction is greater than approximately 30 to 60g then a sub-sampling routine based on ISO 3082:2009(E) is employed. *NOTE: Depending on the nature and size of the soil sample, the sub-2 mm residue material may need to be sub-sampled for trace analysis, in accordance with AS 4964-2004.*
Bonded asbestos-containing material (ACM)	The material is first examined and any fibres isolated for identification by PLM and DS. Where required, interfering matrices may be removed by disintegration using a range of heat, chemical or physical treatments, possibly in combination.The resultant material is then further examined in accordance with AS 4964 - 2004. *NOTE: Even after disintegration it may be difficult to detect the presence of asbestos in some asbestos-containing bulk materials using PLM and DS. This is due to the low grade or small length or diameter of the asbestos fibres present in the material, or to the fact that very fine fibres have been distributed intimately throughout the materials. Vinyl/asbestos floor tiles, some asbestos-containing sealants and mastics, asbestos-containing epoxy resins and some ore samples are examples of these types of material, which are difficult to analyse.*
Limit of Reporting	The performance limitation of the AS 4964 (2004) method for non-homogeneous samples is around 0.1 g/kg (equivalent to 0.01% (w/w)). Where no asbestos is found by PLM and DS, including Trace Analysis, this is considered to be at the nominal reporting limit of 0.01% (w/w). The NEPM screening level of 0.001% (w/w) is intended as an on-site determination, not a laboratory Limit of Reporting (LOR), per se. Examination of a large sample size (e.g. 500 mL) may improve the likelihood of detecting asbestos, particularly AF, to aid assessment against the NEPM criteria. Gravimetric determinations to this level of accuracy are outside of AS 4964 and hence NATA Accreditation does not cover the performance of this service (non-NATA results shown with an asterisk). *NOTE: NATA News March 2014, p.7, states in relation to AS 4964: "This is a qualitative method with a nominal reporting limit of 0.01 % " and that currently in Australia "there is no validated method available for the quantification of asbestos".This report is consistent with the analytical procedures and reporting recommendations in the NEPM and the WA DoH.*

Project Name 111 SPARKS ROAD STAGE 2-10
Project ID 754-NTLGE216908
Date Sampled Nov 06, 2018
Report 631681-AID

Client Sample ID	Eurofins | mgt Sample No.	Date Sampled	Sample Description	Result
TP28 0.1-0.2M	18-De06935	Nov 06, 2018	Approximate Sample 62g Sample consisted of: Brown coarse-grained soil and rocks	No asbestos detected at the reporting limit of 0.01% w/w. Organic fibre detected. No respirable fibres detected.
TP31 0.1-0.2M	18-De06936	Nov 06, 2018	Approximate Sample 71g Sample consisted of: Brown coarse-grained soil and rocks	No asbestos detected at the reporting limit of 0.01% w/w. Organic fibre detected. No respirable fibres detected.
TP31 0.6-0.7M	18-De06937	Nov 06, 2018	Approximate Sample 66g Sample consisted of: Brown coarse-grained soil and rocks	No asbestos detected at the reporting limit of 0.01% w/w. Organic fibre detected. No respirable fibres detected.
TP32 0.3-0.5M	18-De06938	Nov 06, 2018	Approximate Sample 85g Sample consisted of: Brown coarse-grained soil and rocks	No asbestos detected at the reporting limit of 0.01% w/w. Organic fibre detected. No respirable fibres detected.
TP32 1.0-1.2M	18-De06939	Nov 06, 2018	Approximate Sample 64g Sample consisted of: Brown coarse-grained soil and rocks	No asbestos detected at the reporting limit of 0.01% w/w. Organic fibre detected. No respirable fibres detected.
TP33 0.1-0.2M	18-De06940	Nov 06, 2018	Approximate Sample 54g Sample consisted of: Brown coarse-grained soil and rocks	No asbestos detected at the reporting limit of 0.01% w/w. Organic fibre detected. No respirable fibres detected.
TP33 0.7-0.8M	18-De06941	Nov 06, 2018	Approximate Sample 75g Sample consisted of: Brown coarse-grained soil and rocks	No asbestos detected at the reporting limit of 0.01% w/w. Organic fibre detected. No respirable fibres detected.
TP41 0.1-0.2M	18-De06942	Nov 06, 2018	Approximate Sample 82g Sample consisted of: Brown coarse-grained soil and rocks	No asbestos detected at the reporting limit of 0.01% w/w. Organic fibre detected. No respirable fibres detected.

Client Sample ID	Eurofins | mgt Sample No.	Date Sampled	Sample Description	Result
TP42 0.3-0.5M	18-De06943	Nov 06, 2018	Approximate Sample 80g Sample consisted of: Brown coarse-grained soil and rocks	No asbestos detected at the reporting limit of 0.01% w/w. Organic fibre detected. No respirable fibres detected.
TP43 0.2-0.3M	18-De06944	Nov 06, 2018	Approximate Sample 66g Sample consisted of: Brown coarse-grained soil and rocks	No asbestos detected at the reporting limit of 0.01% w/w. Organic fibre detected. No respirable fibres detected.
TP44 0.3-0.5M	18-De06945	Nov 06, 2018	Approximate Sample 81g Sample consisted of: Brown coarse-grained soil and rocks	No asbestos detected at the reporting limit of 0.01% w/w. Organic fibre detected. No respirable fibres detected.
TP35 0.8-0.9M	18-De06946	Nov 06, 2018	Approximate Sample 81g Sample consisted of: Light-brown coarse-grained soil and rocks	No asbestos detected at the reporting limit of 0.01% w/w. Organic fibre detected. No respirable fibres detected.
TP39 0.8M	18-De06947	Nov 06, 2018	Approximate Sample 79g Sample consisted of: Light-brown coarse-grained soil and rocks	No asbestos detected at the reporting limit of 0.01% w/w. Organic fibre detected. No respirable fibres detected.
TP37 0.2M	18-De06948	Nov 06, 2018	Approximate Sample 80g Sample consisted of: Light-brown coarse-grained soil and rocks	No asbestos detected at the reporting limit of 0.01% w/w. Organic fibre detected. No respirable fibres detected.
TP38 0.5M	18-De06949	Nov 06, 2018	Approximate Sample 66g Sample consisted of: Light-brown coarse-grained soil and rocks	No asbestos detected at the reporting limit of 0.01% w/w. Organic fibre detected. No respirable fibres detected.
TP38 1.7M	18-De06950	Nov 06, 2018	Approximate Sample 80g Sample consisted of: Light-brown coarse-grained soil and rocks	No asbestos detected at the reporting limit of 0.01% w/w. Organic fibre detected. No respirable fibres detected.

Sample History

Where samples are submitted/analysed over several days, the last date of extraction and analysis is reported.
A recent review of our LIMS has resulted in the correction or clarification of some method identifications. Due to this, some of the method reference information on reports has changed. However, no substantive change has been made to our laboratory methods, and as such there is no change in the validity of current or previous results (regarding both quality and NATA accreditation).

If the date and time of sampling are not provided, the Laboratory will not be responsible for compromised results should testing be performed outside the recommended holding time.

Description	Testing Site	Extracted	Holding Time
Asbestos - LTM-ASB-8020	Sydney	Dec 06, 2018	Indefinite

ABN – 50 005 085 521
e.mail : EnviroSales@eurofins.com
web : www.eurofins.com.au

Melbourne
3-5 Kingston Town Close
Oakleigh VIC 3166
Phone : +61 3 8564 5000
NATA # 1261
Site # 1254 & 14271

Sydney
Unit F3, Building F
16 Mars Road
Lane Cove West NSW 2066
Phone : +61 2 9900 8400
NATA # 1261 Site # 18217

Brisbane
1/21 Smallwood Place
Murarrie QLD 4172
Phone : +61 7 3902 4600
NATA # 1261 Site # 20794

Perth
2/91 Leach Highway
Kewdale WA 6105
Phone : +61 8 9251 9600
NATA # 1261
Site # 23736

Company Name: Coffey Environments P/L N'castle
Address: Lot 101, 19 Warabrook Boulevard
Warabrook
NSW 2304

Project Name: 111 SPARKS ROAD STAGE 2-10
Project ID: 754-NTLGE216908

Order No.:
Report #: 631681
Phone: 02 4016 2300
Fax: 02 4016 2380

Received: Dec 4, 2018 11:03 AM
Due: Dec 11, 2018
Priority: 5 Day
Contact Name: Sean Blackford

Eurofins | mgt Analytical Services Manager : Andrew Black

Sample Detail						Asbestos - AS4964
Melbourne Laboratory - NATA Site # 1254 & 14271						
Sydney Laboratory - NATA Site # 18217						X
Brisbane Laboratory - NATA Site # 20794						
Perth Laboratory - NATA Site # 23736						
External Laboratory						
No	**Sample ID**	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**	
1	TP28 0.1-0.2M	Nov 06, 2018		Soil	M18-De06935	X
2	TP31 0.1-0.2M	Nov 06, 2018		Soil	M18-De06936	X
3	TP31 0.6-0.7M	Nov 06, 2018		Soil	M18-De06937	X
4	TP32 0.3-0.5M	Nov 06, 2018		Soil	M18-De06938	X
5	TP32 1.0-1.2M	Nov 06, 2018		Soil	M18-De06939	X
6	TP33 0.1-0.2M	Nov 06, 2018		Soil	M18-De06940	X
7	TP33 0.7-0.8M	Nov 06, 2018		Soil	M18-De06941	X
8	TP41 0.1-0.2M	Nov 06, 2018		Soil	M18-De06942	X
9	TP42 0.3-0.5M	Nov 06, 2018		Soil	M18-De06943	X

ABN – 50 005 085 521
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Sample Detail						Asbestos - AS4964
Melbourne Laboratory - NATA Site # 1254 & 14271						
Sydney Laboratory - NATA Site # 18217						X
Brisbane Laboratory - NATA Site # 20794						
Perth Laboratory - NATA Site # 23736						
10	TP43 0.2-0.3M	Nov 06, 2018		Soil	M18-De06944	X
11	TP44 0.3-0.5M	Nov 06, 2018		Soil	M18-De06945	X
12	TP35 0.8-0.9M	Nov 06, 2018		Soil	M18-De06946	X
13	TP39 0.8M	Nov 06, 2018		Soil	M18-De06947	X
14	TP37 0.2M	Nov 06, 2018		Soil	M18-De06948	X
15	TP38 0.5M	Nov 06, 2018		Soil	M18-De06949	X
16	TP38 1.7M	Nov 06, 2018		Soil	M18-De06950	X
Test Counts						16

Internal Quality Control Review and Glossary

General

1. QC data may be available on request.
2. All soil results are reported on a dry basis, unless otherwise stated.
3. Samples were analysed on an 'as received' basis.
4. This report replaces any interim results previously issued.

Holding Times

Please refer to 'Sample Preservation and Container Guide' for holding times (QS3001).

For samples received on the last day of holding time, notification of testing requirements should have been received at least 6 hours prior to sample receipt deadlines as stated on the Sample Receipt Advice.

If the Laboratory did not receive the information in the required timeframe, and regardless of any other integrity issues, suitably qualified results may still be reported.

Holding times apply from the date of sampling, therefore compliance to these may be outside the laboratory's control.

Units

% w/w: weight for weight basis	grams per kilogram
Filter loading:	fibres/100 graticule areas
Reported Concentration:	fibres/mL
Flowrate:	L/min

Terms

Dry	Sample is dried by heating prior to analysis
LOR	Limit of Reporting
COC	Chain of Custody
SRA	Sample Receipt Advice
ISO	International Standards Organisation
AS	Australian Standards
WA DOH	Reference document for the NEPM. Government of Western Australia, Guidelines for the Assessment, Remediation and Management of Asbestos-Contaminated Sites in Western Australia (2009), including supporting document Recommended Procedures for Laboratory Analysis of Asbestos in Soil (2011)
NEPM	National Environment Protection (Assessment of Site Contamination) Measure, 2013 (as amended)
ACM	Asbestos Containing Materials. Asbestos contained within a non-asbestos matrix, typically presented in bonded and/or sound condition. For the purposes of the NEPM, ACM is generally restricted to those materials that do not pass a 7mm x 7mm sieve.
AF	Asbestos Fines. Asbestos containing materials, including friable, weathered and bonded materials, able to pass a 7mm x 7mm sieve. Considered under the NEPM as equivalent to “non-bonded / friable”.
FA	Fibrous Asbestos. Asbestos containing materials in a friable and/or severely weathered condition. For the purposes of the NEPM, FA is generally restricted to those materials that do not pass a 7mm x 7mm sieve.
Friable	Asbestos-containing materials of any size that may be broken or crumbled by hand pressure. For the purposes of the NEPM, this includes both AF and FA. It is outside of the laboratory’s remit to assess degree of friability.
Trace Analysis	Analytical procedure used to detect the presence of respirable fibres in the matrix.

Comments

The samples received were not collected in an approved asbestos bag and was therefore sub-sampled from the 250mL glass jar. Valid sub-sampling procedures were applied so as to ensure that the sub-samples to be analysed accurately represented the samples received.

Eurofins | mgt accreditation number 1261, corporate site 1254 and 14271 is currently in progress of a controlled transition to a new custom built location at 6 Monterey Road, Dandenong South, Victoria 3175. All results on this report denoted as being performed by Eurofins | mgt 2-5 Kingston Town Close, Oakleigh Victoria 3166 corporate site 1254, will have been performed on either Oakleigh or new Dandenong South site.

Sample Integrity

Custody Seals Intact (if used)	N/A
Attempt to Chill was evident	Yes
Sample correctly preserved	Yes
Appropriate sample containers have been used	Yes
Sample containers for volatile analysis received with minimal headspace	Yes
Samples received within HoldingTime	Yes
Some samples have been subcontracted	No

Qualifier Codes/Comments

Code	Description
N/A	Not applicable

Asbestos Counter/Identifier:

Authorised by:

Sayeed Abu — Senior Analyst-Asbestos (NSW)

Glenn Jackson
General Manager

Final Report – this report replaces any previously issued Report

- Indicates Not Requested

* Indicates NATA accreditation does not cover the performance of this service

Measurement uncertainty of test data is available on request or please click here.

ALS Environmental

CERTIFICATE OF ANALYSIS

Work Order	: **EM1816250**	Page	: 1 of 7
Client	: **COFFEY ENVIRONMENTS PTY LTD**	Laboratory	: Environmental Division Melbourne
Contact	: NIMA SALIMI	Contact	: Graeme Jablonskas
Address	: LEVEL 1, 436 JOHNSTON STREET ABBOTSFORD VIC, AUSTRALIA 3067	Address	: 4 Westall Rd Springvale VIC Australia 3171
Telephone	: ----	Telephone	: +61-3-8549 9609
Project	: 754-NTLGE216908-AG	Date Samples Received	: 10-Oct-2018 09:50
Order number	:	Date Analysis Commenced	: 11-Oct-2018
C-O-C number	: 34419	Issue Date	: 16-Oct-2018 16:56
Sampler	: KF		
Site	:		
Quote number	: EN/222		
No. of samples received	: 1		
No. of samples analysed	: 1		

ilac-MRA NATA
Accreditation No. 825
Accredited for compliance with ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. 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.

Signatories	*Position*	*Accreditation Category*
Dilani Fernando	Senior Inorganic Chemist	Melbourne Inorganics, Springvale, VIC
Nancy Wang	2IC Organic Chemist	Melbourne Inorganics, Springvale, VIC
Nancy Wang	2IC Organic Chemist	Melbourne Organics, Springvale, VIC
Xing Lin	Senior Organic Chemist	Melbourne Organics, Springvale, VIC

General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by 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) 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.

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	QC2	----	----	----	----
				Client sampling date / time	05-Oct-2018 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit		EM1816250-001	--------	--------	--------	--------
					Result	----	----	----	----
EA055: Moisture Content (Dried @ 105-110°C)									
Moisture Content	----	1.0	%		**17.3**	----	----	----	----
EG005T: Total Metals by ICP-AES									
Arsenic	7440-38-2	5	mg/kg		<5	----	----	----	----
Cadmium	7440-43-9	1	mg/kg		<1	----	----	----	----
Chromium	7440-47-3	2	mg/kg		**6**	----	----	----	----
Copper	7440-50-8	5	mg/kg		**6**	----	----	----	----
Lead	7439-92-1	5	mg/kg		**9**	----	----	----	----
Nickel	7440-02-0	2	mg/kg		**6**	----	----	----	----
Zinc	7440-66-6	5	mg/kg		**54**	----	----	----	----
EG035T: Total Recoverable Mercury by FIMS									
Mercury	7439-97-6	0.1	mg/kg		<0.1	----	----	----	----
EP068A: Organochlorine Pesticides (OC)									
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		**0.15**	----	----	----	----
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	----	----	----	----
4.4`-DDT	50-29-3	0.2	mg/kg		<0.2	----	----	----	----
Endrin ketone	53494-70-5	0.05	mg/kg		<0.05	----	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	QC2	----	----	----	----
				Client sampling date / time	05-Oct-2018 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit		EM1816250-001	--------	--------	--------	--------
					Result	----	----	----	----
EP068A: Organochlorine Pesticides (OC) - Continued									
Methoxychlor	72-43-5	0.2	mg/kg		<0.2	----	----	----	----
^ **Sum of Aldrin + Dieldrin**	309-00-2/60-57-1	0.05	mg/kg		**0.15**	----	----	----	----
^ **Sum of DDD + DDE + DDT**	72-54-8/72-55-9/50-2	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		<0.5	----	----	----	----
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		<0.5	----	----	----	----
Anthracene	120-12-7	0.5	mg/kg		<0.5	----	----	----	----
Fluoranthene	206-44-0	0.5	mg/kg		<0.5	----	----	----	----
Pyrene	129-00-0	0.5	mg/kg		<0.5	----	----	----	----
Benz(a)anthracene	56-55-3	0.5	mg/kg		<0.5	----	----	----	----
Chrysene	218-01-9	0.5	mg/kg		<0.5	----	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	QC2	----	----	----	----
				Client sampling date / time	05-Oct-2018 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit		EM1816250-001	--------	--------	--------	--------
					Result	----	----	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued									
Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg		<0.5	----	----	----	----
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg		<0.5	----	----	----	----
Benzo(a)pyrene	50-32-8	0.5	mg/kg		<0.5	----	----	----	----
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg		<0.5	----	----	----	----
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg		<0.5	----	----	----	----
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg		<0.5	----	----	----	----
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg		<0.5	----	----	----	----
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg		<0.5	----	----	----	----
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg		**0.6**	----	----	----	----
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg		**1.2**	----	----	----	----
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	10	mg/kg		<10	----	----	----	----
C10 - C14 Fraction	----	50	mg/kg		<50	----	----	----	----
C15 - C28 Fraction	----	100	mg/kg		<100	----	----	----	----
C29 - C36 Fraction	----	100	mg/kg		<100	----	----	----	----
^ C10 - C36 Fraction (sum)	----	50	mg/kg		<50	----	----	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
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		<100	----	----	----	----
>C34 - C40 Fraction	----	100	mg/kg		<100	----	----	----	----
^ >C10 - C40 Fraction (sum)	----	50	mg/kg		<50	----	----	----	----
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg		<50	----	----	----	----
EP080: BTEXN									
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	----	----	----	----
^ Sum of BTEX	----	0.2	mg/kg		<0.2	----	----	----	----
^ Total Xylenes	----	0.5	mg/kg		<0.5	----	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	QC2	----	----	----	----
				Client sampling date / time	05-Oct-2018 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit		EM1816250-001	--------	--------	--------	--------
					Result	----	----	----	----
EP080: BTEXN - Continued									
Naphthalene	91-20-3	1	mg/kg		<1	----	----	----	----
EP068S: Organochlorine Pesticide Surrogate									
Dibromo-DDE	21655-73-2	0.05	%		**92.1**	----	----	----	----
EP068T: Organophosphorus Pesticide Surrogate									
DEF	78-48-8	0.05	%		**91.9**	----	----	----	----
EP075(SIM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	0.5	%		**99.6**	----	----	----	----
2-Chlorophenol-D4	93951-73-6	0.5	%		**100**	----	----	----	----
2.4.6-Tribromophenol	118-79-6	0.5	%		**93.8**	----	----	----	----
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	0.5	%		**104**	----	----	----	----
Anthracene-d10	1719-06-8	0.5	%		**113**	----	----	----	----
4-Terphenyl-d14	1718-51-0	0.5	%		**106**	----	----	----	----
EP080S: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	0.2	%		**76.3**	----	----	----	----
Toluene-D8	2037-26-5	0.2	%		**71.3**	----	----	----	----
4-Bromofluorobenzene	460-00-4	0.2	%		**74.5**	----	----	----	----

Surrogate Control Limits

Sub-Matrix: **SOIL**

Compound	CAS Number	Recovery Limits (%) Low	High
EP068S: Organochlorine Pesticide Surrogate			
Dibromo-DDE	21655-73-2	38	128
EP068T: Organophosphorus Pesticide Surrogate			
DEF	78-48-8	33	139
EP075(SIM)S: Phenolic Compound Surrogates			
Phenol-d6	13127-88-3	54	125
2-Chlorophenol-D4	93951-73-6	65	123
2.4.6-Tribromophenol	118-79-6	34	122
EP075(SIM)T: PAH Surrogates			
2-Fluorobiphenyl	321-60-8	61	125
Anthracene-d10	1719-06-8	62	130
4-Terphenyl-d14	1718-51-0	67	133
EP080S: TPH(V)/BTEX Surrogates			
1.2-Dichloroethane-D4	17060-07-0	51	125
Toluene-D8	2037-26-5	55	125
4-Bromofluorobenzene	460-00-4	56	124

QUALITY CONTROL REPORT

Work Order	: **EM1816250**	Page	: 1 of 9
Client	: **COFFEY ENVIRONMENTS PTY LTD**	Laboratory	: Environmental Division Melbourne
Contact	: NIMA SALIMI	Contact	: Graeme Jablonskas
Address	: LEVEL 1, 436 JOHNSTON STREET ABBOTSFORD VIC, AUSTRALIA 3067	Address	: 4 Westall Rd Springvale VIC Australia 3171
Telephone	: ----	Telephone	: +61-3-8549 9609
Project	: 754-NTLGE216908-AG	Date Samples Received	: 10-Oct-2018
Order number	:	Date Analysis Commenced	: 11-Oct-2018
C-O-C number	: 34419	Issue Date	: 16-Oct-2018
Sampler	: KF		
Site	:		
Quote number	: EN/222		
No. of samples received	: 1		
No. of samples analysed	: 1		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. 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.

Signatories	*Position*	*Accreditation Category*
Dilani Fernando	Senior Inorganic Chemist	Melbourne Inorganics, Springvale, VIC
Nancy Wang	2IC Organic Chemist	Melbourne Inorganics, Springvale, VIC
Nancy Wang	2IC Organic Chemist	Melbourne Organics, Springvale, VIC
Xing Lin	Senior Organic Chemist	Melbourne Organics, Springvale, VIC

General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by 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**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EA055: Moisture Content (Dried @ 105-110°C) (QC Lot: 1976945)									
EM1816246-004	Anonymous	EA055: Moisture Content	----	0.1	%	2.8	2.8	0.00	0% - 20%
EM1816311-005	Anonymous	EA055: Moisture Content	----	0.1	%	2.0	2.0	0.00	No Limit
EG005T: Total Metals by ICP-AES (QC Lot: 1978369)									
EM1816218-013	Anonymous	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.00	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	13	11	18.8	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	62	62	0.00	0% - 50%
		EG005T: Lead	7439-92-1	5	mg/kg	7	<5	37.3	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	77	78	0.00	0% - 50%
EM1816245-001	Anonymous	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.00	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	11	12	9.51	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	6	5	19.6	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	6	8	29.4	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	12	8	44.9	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	14	12	17.4	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	21	16	24.8	No Limit
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 1978367)									
EM1816126-001	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	0.2	0.2	0.00	No Limit
EM1816245-001	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.00	No Limit
EP068A: Organochlorine Pesticides (OC) (QC Lot: 1978314)									
EM1816245-001	Anonymous	EP068: alpha-BHC	319-84-6	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: beta-BHC	319-85-7	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: gamma-BHC	58-89-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: delta-BHC	319-86-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EP068A: Organochlorine Pesticides (OC) (QC Lot: 1978314) - continued									
EM1816245-001	Anonymous	EP068: Heptachlor	76-44-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Aldrin	309-00-2	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Dieldrin	60-57-1	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: 4.4`-DDE	72-55-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Endrin	72-20-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: 4.4`-DDD	72-54-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: 4.4`-DDT	50-29-3	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
		EP068: Methoxychlor	72-43-5	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
EP068B: Organophosphorus Pesticides (OP) (QC Lot: 1978314)									
EM1816245-001	Anonymous	EP068: Dichlorvos	62-73-7	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Demeton-S-methyl	919-86-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Dimethoate	60-51-5	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Diazinon	333-41-5	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Malathion	121-75-5	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Fenthion	55-38-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Chlorpyrifos	2921-88-2	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Pirimphos-ethyl	23505-41-1	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Chlorfenvinphos	470-90-6	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Bromophos-ethyl	4824-78-6	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Fenamiphos	22224-92-6	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Prothiofos	34643-46-4	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Ethion	563-12-2	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Carbophenothion	786-19-6	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Azinphos Methyl	86-50-0	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Monocrotophos	6923-22-4	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
		EP068: Parathion-methyl	298-00-0	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
		EP068: Parathion	56-38-2	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 1978312)									
EM1816318-005	Anonymous	EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 1978312) - continued									
EM1816318-005	Anonymous	EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	0.6	0.6	0.00	No Limit
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	0.7	0.6	0.00	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
EM1816245-001	Anonymous	EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 1975774)									
EM1816245-001	Anonymous	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.00	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 1978313)									
EM1816318-005	Anonymous	EP071: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.00	No Limit
		EP071: C10 - C36 Fraction (sum)	----	50	mg/kg	<50	<50	0.00	No Limit
EM1816245-001	Anonymous	EP071: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 1978313) - continued									
EM1816245-001	Anonymous	EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.00	No Limit
		EP071: C10 - C36 Fraction (sum)	----	50	mg/kg	<50	<50	0.00	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 1975774)									
EM1816245-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.00	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 1978313)									
EM1816318-005	Anonymous	EP071: >C16 - C34 Fraction	----	100	mg/kg	110	<100	11.4	No Limit
		EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	<50	0.00	No Limit
		EP071: >C10 - C40 Fraction (sum)	----	50	mg/kg	110	<50	75.0	No Limit
EM1816245-001	Anonymous	EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	<50	0.00	No Limit
		EP071: >C10 - C40 Fraction (sum)	----	50	mg/kg	<50	<50	0.00	No Limit
EP080: BTEXN (QC Lot: 1975774)									
EM1816245-001	Anonymous	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.00	No Limit

Method Blank (MB) and Laboratory Control Spike (LCS) Report

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 Spike (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.

Sub-Matrix: **SOIL**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EG005T: Total Metals by ICP-AES (QCLot: 1978369)								
EG005T: Arsenic	7440-38-2	5	mg/kg	<5	21.7 mg/kg	92.7	78	107
EG005T: Cadmium	7440-43-9	1	mg/kg	<1	4.64 mg/kg	89.7	76	108
EG005T: Chromium	7440-47-3	2	mg/kg	<2	43.9 mg/kg	99.9	78	110
EG005T: Copper	7440-50-8	5	mg/kg	<5	32 mg/kg	91.4	78	108
EG005T: Lead	7439-92-1	5	mg/kg	<5	40 mg/kg	93.0	78	106
EG005T: Nickel	7440-02-0	2	mg/kg	<2	55 mg/kg	99.8	80	109
EG005T: Zinc	7440-66-6	5	mg/kg	<5	60.8 mg/kg	100	79	110
EG035T: Total Recoverable Mercury by FIMS (QCLot: 1978367)								
EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	2.57 mg/kg	90.9	77	104
EP068A: Organochlorine Pesticides (OC) (QCLot: 1978314)								
EP068: alpha-BHC	319-84-6	0.05	mg/kg	<0.05	0.5 mg/kg	112	65	120
EP068: Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	0.5 mg/kg	112	68	121
EP068: beta-BHC	319-85-7	0.05	mg/kg	<0.05	0.5 mg/kg	98.4	70	121
EP068: gamma-BHC	58-89-9	0.05	mg/kg	<0.05	0.5 mg/kg	108	64	119
EP068: delta-BHC	319-86-8	0.05	mg/kg	<0.05	0.5 mg/kg	89.9	56	121
EP068: Heptachlor	76-44-8	0.05	mg/kg	<0.05	0.5 mg/kg	81.7	63	114
EP068: Aldrin	309-00-2	0.05	mg/kg	<0.05	0.5 mg/kg	119	64	121
EP068: Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	0.5 mg/kg	117	68	120
EP068: trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	0.5 mg/kg	117	72	124
EP068: alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	0.5 mg/kg	97.4	69	125
EP068: cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	0.5 mg/kg	120	71	123
EP068: Dieldrin	60-57-1	0.05	mg/kg	<0.05	0.5 mg/kg	113	59	123
EP068: 4.4`-DDE	72-55-9	0.05	mg/kg	<0.05	0.5 mg/kg	119	70	123
EP068: Endrin	72-20-8	0.05	mg/kg	<0.05	0.5 mg/kg	113	64	119
EP068: beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	0.5 mg/kg	111	69	124
EP068: 4.4`-DDD	72-54-8	0.05	mg/kg	<0.05	0.5 mg/kg	121	66	128
EP068: Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	0.5 mg/kg	95.7	62	121
EP068: Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	0.5 mg/kg	85.2	57	124
EP068: 4.4`-DDT	50-29-3	0.2	mg/kg	<0.2	0.5 mg/kg	85.9	60	124
EP068: Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	0.5 mg/kg	88.7	73	120
EP068: Methoxychlor	72-43-5	0.2	mg/kg	<0.2	0.5 mg/kg	91.3	61	121
EP068B: Organophosphorus Pesticides (OP) (QCLot: 1978314)								
EP068: Dichlorvos	62-73-7	0.05	mg/kg	<0.05	0.5 mg/kg	87.9	63	127
EP068: Demeton-S-methyl	919-86-8	0.05	mg/kg	<0.05	0.5 mg/kg	89.2	53	137

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Recovery Limits (%): Low	Recovery Limits (%): High
EP068B: Organophosphorus Pesticides (OP) (QCLot: 1978314) - continued								
EP068: Monocrotophos	6923-22-4	0.2	mg/kg	<0.2	0.5 mg/kg	78.3	10	136
EP068: Dimethoate	60-51-5	0.05	mg/kg	<0.05	0.5 mg/kg	103	56	127
EP068: Diazinon	333-41-5	0.05	mg/kg	<0.05	0.5 mg/kg	106	70	120
EP068: Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg	<0.05	0.5 mg/kg	89.3	70	120
EP068: Parathion-methyl	298-00-0	0.2	mg/kg	<0.2	0.5 mg/kg	84.8	50	132
EP068: Malathion	121-75-5	0.05	mg/kg	<0.05	0.5 mg/kg	120	63	122
EP068: Fenthion	55-38-9	0.05	mg/kg	<0.05	0.5 mg/kg	104	70	122
EP068: Chlorpyrifos	2921-88-2	0.05	mg/kg	<0.05	0.5 mg/kg	105	58	123
EP068: Parathion	56-38-2	0.2	mg/kg	<0.2	0.5 mg/kg	104	56	119
EP068: Pirimphos-ethyl	23505-41-1	0.05	mg/kg	<0.05	0.5 mg/kg	119	68	119
EP068: Chlorfenvinphos	470-90-6	0.05	mg/kg	<0.05	0.5 mg/kg	117	45	122
EP068: Bromophos-ethyl	4824-78-6	0.05	mg/kg	<0.05	0.5 mg/kg	116	67	116
EP068: Fenamiphos	22224-92-6	0.05	mg/kg	<0.05	0.5 mg/kg	117	50	127
EP068: Prothiofos	34643-46-4	0.05	mg/kg	<0.05	0.5 mg/kg	117	68	121
EP068: Ethion	563-12-2	0.05	mg/kg	<0.05	0.5 mg/kg	120	60	123
EP068: Carbophenothion	786-19-6	0.05	mg/kg	<0.05	0.5 mg/kg	88.2	68	122
EP068: Azinphos Methyl	86-50-0	0.05	mg/kg	<0.05	0.5 mg/kg	86.3	24	113
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 1978312)								
EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	3 mg/kg	93.1	75	131
EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	3 mg/kg	92.1	70	132
EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	3 mg/kg	94.1	80	128
EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	3 mg/kg	92.4	70	128
EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	3 mg/kg	96.1	80	128
EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	3 mg/kg	97.8	72	126
EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	3 mg/kg	98.6	70	128
EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	3 mg/kg	100	80	125
EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	3 mg/kg	93.0	70	130
EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	3 mg/kg	95.5	80	126
EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	3 mg/kg	82.4	71	124
EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	3 mg/kg	94.3	75	125
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	3 mg/kg	80.5	70	125
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	3 mg/kg	85.3	71	128
EP075(SIM): Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	3 mg/kg	87.8	72	126
EP075(SIM): Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	3 mg/kg	85.2	68	127
EP080/071: Total Petroleum Hydrocarbons (QCLot: 1975774)								
EP080: C6 - C9 Fraction	----	10	mg/kg	<10	36 mg/kg	91.6	70	127
EP080/071: Total Petroleum Hydrocarbons (QCLot: 1978313)								

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Recovery Limits (%): Low	Recovery Limits (%): High
EP080/071: Total Petroleum Hydrocarbons (QCLot: 1978313) - continued								
EP071: C10 - C14 Fraction	----	50	mg/kg	<50	806 mg/kg	80.6	80	120
EP071: C15 - C28 Fraction	----	100	mg/kg	<100	3006 mg/kg	102	84	115
EP071: C29 - C36 Fraction	----	100	mg/kg	<100	1584 mg/kg	92.8	80	112
EP071: C10 - C36 Fraction (sum)	----	50	mg/kg	<50	----	----	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 1975774)								
EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	45 mg/kg	89.7	68	125
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 1978313)								
EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	1160 mg/kg	86.7	83	117
EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	3978 mg/kg	99.6	82	114
EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	313 mg/kg	78.8	73	115
EP071: >C10 - C40 Fraction (sum)	----	50	mg/kg	<50	----	----	----	----
EP080: BTEXN (QCLot: 1975774)								
EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	2 mg/kg	94.8	74	124
EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	2 mg/kg	101	77	125
EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	2 mg/kg	93.9	73	125
EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	4 mg/kg	93.0	77	128
EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	2 mg/kg	102	81	128
EP080: Naphthalene	91-20-3	1	mg/kg	<1	0.5 mg/kg	113	66	130

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**

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report: Spike Concentration	SpikeRecovery(%): MS	Recovery Limits (%): Low	Recovery Limits (%): High
EG005T: Total Metals by ICP-AES (QCLot: 1978369)							
EM1816218-014	Anonymous	EG005T: Arsenic	7440-38-2	50 mg/kg	93.7	78	124
		EG005T: Cadmium	7440-43-9	50 mg/kg	98.1	84	116
		EG005T: Chromium	7440-47-3	50 mg/kg	81.5	79	121
		EG005T: Copper	7440-50-8	50 mg/kg	103	82	124
		EG005T: Lead	7439-92-1	50 mg/kg	78.6	76	124
		EG005T: Nickel	7440-02-0	50 mg/kg	101	78	120
		EG005T: Zinc	7440-66-6	50 mg/kg	76.7	74	128
EG035T: Total Recoverable Mercury by FIMS (QCLot: 1978367)							
EM1816126-013	Anonymous	EG035T: Mercury	7439-97-6	5 mg/kg	76.6	76	116
EP068A: Organochlorine Pesticides (OC) (QCLot: 1978314)							

Sub-Matrix: **SOIL**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*Concentration*	*MS*	*Low*	*High*
EP068A: Organochlorine Pesticides (OC) (QCLot: 1978314) - continued							
EM1816250-001	QC2	EP068: gamma-BHC	58-89-9	0.5 mg/kg	95.8	22	139
		EP068: Heptachlor	76-44-8	0.5 mg/kg	66.0	18	130
		EP068: Aldrin	309-00-2	0.5 mg/kg	82.9	23	136
		EP068: Dieldrin	60-57-1	0.5 mg/kg	82.1	42	136
		EP068: Endrin	72-20-8	0.5 mg/kg	77.4	23	146
		EP068: 4.4`-DDT	50-29-3	0.5 mg/kg	64.9	20	133
EP068B: Organophosphorus Pesticides (OP) (QCLot: 1978314)							
EM1816250-001	QC2	EP068: Diazinon	333-41-5	0.5 mg/kg	91.4	49	135
		EP068: Chlorpyrifos-methyl	5598-13-0	0.5 mg/kg	68.1	41	127
		EP068: Pirimphos-ethyl	23505-41-1	0.5 mg/kg	69.0	47	133
		EP068: Bromophos-ethyl	4824-78-6	0.5 mg/kg	73.6	45	133
		EP068: Prothiofos	34643-46-4	0.5 mg/kg	66.7	40	128
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 1978312)							
EM1816250-001	QC2	EP075(SIM): Acenaphthene	83-32-9	3 mg/kg	88.5	67	117
		EP075(SIM): Pyrene	129-00-0	3 mg/kg	97.0	52	148
EP080/071: Total Petroleum Hydrocarbons (QCLot: 1975774)							
EM1816245-001	Anonymous	EP080: C6 - C9 Fraction	----	28 mg/kg	63.7	42	131
EP080/071: Total Petroleum Hydrocarbons (QCLot: 1978313)							
EM1816245-001	Anonymous	EP071: C10 - C14 Fraction	----	806 mg/kg	78.9	53	123
		EP071: C15 - C28 Fraction	----	3006 mg/kg	99.5	70	124
		EP071: C29 - C36 Fraction	----	1584 mg/kg	89.2	64	118
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 1975774)							
EM1816245-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	33 mg/kg	62.0	39	129
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 1978313)							
EM1816245-001	Anonymous	EP071: >C10 - C16 Fraction	----	1160 mg/kg	84.5	65	123
		EP071: >C16 - C34 Fraction	----	3978 mg/kg	96.4	67	121
		EP071: >C34 - C40 Fraction	----	313 mg/kg	74.9	44	126
EP080: BTEXN (QCLot: 1975774)							
EM1816245-001	Anonymous	EP080: Benzene	71-43-2	2 mg/kg	76.3	50	136
		EP080: Toluene	108-88-3	2 mg/kg	79.2	56	139

ALS Environmental

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **EM1816250**	Page	: 1 of 4
Client	: **COFFEY ENVIRONMENTS PTY LTD**	Laboratory	: Environmental Division Melbourne
Contact	: NIMA SALIMI	Telephone	: +61-3-8549 9609
Project	: 754-NTLGE216908-AG	Date Samples Received	: 10-Oct-2018
Site	:	Issue Date	: 16-Oct-2018
Sampler	: KF	No. of samples received	: 1
Order number	:	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 / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EA055: Moisture Content (Dried @ 105-110°C)							
Soil Glass Jar - Unpreserved (EA055)							
QC2	**05-Oct-2018**	**----**	----	----	**11-Oct-2018**	19-Oct-2018	✓
EG005T: Total Metals by ICP-AES							
Soil Glass Jar - Unpreserved (EG005T)							
QC2	**05-Oct-2018**	**12-Oct-2018**	03-Apr-2019	✓	**12-Oct-2018**	03-Apr-2019	✓
EG035T: Total Recoverable Mercury by FIMS							
Soil Glass Jar - Unpreserved (EG035T)							
QC2	**05-Oct-2018**	**12-Oct-2018**	02-Nov-2018	✓	**15-Oct-2018**	02-Nov-2018	✓
EP068A: Organochlorine Pesticides (OC)							
Soil Glass Jar - Unpreserved (EP068)							
QC2	**05-Oct-2018**	**12-Oct-2018**	19-Oct-2018	✓	**12-Oct-2018**	21-Nov-2018	✓
EP068B: Organophosphorus Pesticides (OP)							
Soil Glass Jar - Unpreserved (EP068)							
QC2	**05-Oct-2018**	**12-Oct-2018**	19-Oct-2018	✓	**12-Oct-2018**	21-Nov-2018	✓
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons							
Soil Glass Jar - Unpreserved (EP075(SIM))							
QC2	**05-Oct-2018**	**12-Oct-2018**	19-Oct-2018	✓	**12-Oct-2018**	21-Nov-2018	✓
EP080/071: Total Petroleum Hydrocarbons							
Soil Glass Jar - Unpreserved (EP080)							
QC2	**05-Oct-2018**	**11-Oct-2018**	19-Oct-2018	✓	**12-Oct-2018**	19-Oct-2018	✓
Soil Glass Jar - Unpreserved (EP071)							
QC2	**05-Oct-2018**	**12-Oct-2018**	19-Oct-2018	✓	**12-Oct-2018**	21-Nov-2018	✓
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions							
Soil Glass Jar - Unpreserved (EP080)							
QC2	**05-Oct-2018**	**11-Oct-2018**	19-Oct-2018	✓	**12-Oct-2018**	19-Oct-2018	✓
Soil Glass Jar - Unpreserved (EP071)							
QC2	**05-Oct-2018**	**12-Oct-2018**	19-Oct-2018	✓	**12-Oct-2018**	21-Nov-2018	✓
EP080: BTEXN							
Soil Glass Jar - Unpreserved (EP080)							
QC2	**05-Oct-2018**	**11-Oct-2018**	19-Oct-2018	✓	**12-Oct-2018**	19-Oct-2018	✓

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)	2	14	**14.29**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	1	2	**50.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	2	13	**15.38**	**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	15	**13.33**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	8	**12.50**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
PAH/Phenols (SIM)	EP075(SIM)	1	14	**7.14**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	1	2	**50.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	13	**7.69**	**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	15	**6.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	8	**12.50**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
PAH/Phenols (SIM)	EP075(SIM)	1	14	**7.14**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	1	2	**50.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	13	**7.69**	**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	15	**6.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	8	**12.50**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
PAH/Phenols (SIM)	EP075(SIM)	1	14	**7.14**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	1	2	**50.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	13	**7.69**	**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	15	**6.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	8	**12.50**	**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 (2013) Schedule B(3) Section 7.1 and Table 1 (14 day holding time).
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 (2013) Schedule B(3)
Total Mercury by FIMS	EG035T	SOIL	In house: Referenced to AS 3550, APHA 3112 Hg - B (Flow-injection (SnCl2) (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 SnCl2 which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
Pesticides by GCMS	EP068	SOIL	In house: Referenced to USEPA SW 846 - 8270D 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 (2013) Schedule B(3) (Method 504,505)
TRH - Semivolatile Fraction	EP071	SOIL	In house: Referenced to USEPA SW 846 - 8015A Sample extracts are analysed by Capillary GC/FID and quantified against alkane standards over the range C10 - C40. Compliant with NEPM amended 2013.
PAH/Phenols (SIM)	EP075(SIM)	SOIL	In house: Referenced to USEPA SW 846 - 8270D. 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 (2013) Schedule B(3) (Method 502 and 507)
TRH Volatiles/BTEX	EP080	SOIL	In house: Referenced to USEPA SW 846 - 8260B. Extracts are analysed by Purge and Trap, Capillary GC/MS. Quantification is by comparison against an established 5 point calibration curve. Compliant with NEPM amended 2013.

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 (2013) Schedule B(3) (Method 202)
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, Na2SO4 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.

coffey

Chain of Custody

No: 344[illegible]

Laboratory Quotation / Order No:

754-NTLGE
Job No: 216908-AG

Sheet 1 of 1

(2)

EUROFINS MGT

ANDREW BLACK

Sampled by: Kieren Fennell

Project Manager: NIMA SALIMI
(report results to) nima.salimi@coffey.com

Consigning Office:

Date Dispatched:

Courier Service:

Consignment Note No:

Relinquished by: Kieran Fennell — Date: 8/10/2018 — Time: — Received by:

D JONES - EUROFINS — Date: 10/10/18

Comments	Sample Matrix	Container Type and Preservative	Sample No.	Date Sampled	PAHs	TPH	MAHs + BTEX	Metals	BIO	Asbestos P/A	Aggressivity
Primary Sample	Soil	Jar + Bag	E1						✓	✓	
"	Soil	Jar + Bag	E2						✓	✓	
"	Soil	Jar + Bag	E3						✓	✓	
"	Soil	Jar + Bag	E4						✓	✓	
"	Soil	Jar + Bag	E5						✓	✓	
Duplicate (MGT)	Soil	Jar	QC1	BM 10/10					✓		
Please forward to ALS	Soil	Jar (1)	QC2	5/10/18					✓		
	Soil	bag	TP04 0.4-0.6	4/10							✓
	Soil	bag	TP06 0.2-0.5	4/10							✓
	Soil	bag	TP08 0.2-0.3	4/10							✓
	Soil	bag	TP11 0.3-0.5	4/10							✓
	Soil	bag	TP21 0.25-0.4	5/10							✓

Environmental Division
Melbourne
Work Order Reference
EM1816250

Telephone : +61-3-8549 9600

Sample Receipt: SUE 8/10/18 2-30PM

Aina (ALS) 10/10/18 9:50

Turnaround Required:

WHITE: ... YELLOW: if forwarded to interstate Lab, Lab to sign on receipt and fax back to Coffey. BLUE: to be returned with results.

Melbourne
3-5 Kingston Town Close
Oakleigh Vic 3166
Phone : +61 3 8564 5000
NATA # 1261
Site # 1254 & 14271

Sydney
Unit F3, Building F
16 Mars Road
Lane Cove West NSW 2066
Phone : +61 2 9900 8400
NATA # 1261 Site # 18217

Brisbane
1/21 Smallwood Place
Murarrie QLD 4172
Phone : +61 7 3902 4600
NATA # 1261 Site # 20794

Perth
2/91 Leach Highway
Kewdale WA 6105
Phone : +61 8 9251 9600
NATA # 1261 Site # 23736

ABN – 50 005 085 521 e.mail : EnviroSales@eurofins.com web : www.eurofins.com.au

Sample Receipt Advice

Company name:	**Coffey Environments P/L N'castle**
Contact name:	Nima Salimi
Project name:	111 SPARKS ROAD STAGE 2-10
Project ID:	754-NTLGE216908
COC number:	Not provided
Turn around time:	5 Day
Date/Time received:	Nov 8, 2018 8:20 AM
Eurofins | mgt reference:	**626822**

Sample information

☑ A detailed list of analytes logged into our LIMS, is included in the attached summary table.

☑ Sample Temperature of a random sample selected from the batch as recorded by Eurofins | mgt Sample Receipt : 8.6 degrees Celsius.

☑ All samples have been received as described on the above COC.

☑ COC has been completed correctly.

☑ Attempt to chill was evident.

☑ Appropriately preserved sample containers have been used.

☑ All samples were received in good condition.

☑ Samples have been provided with adequate time to commence analysis in accordance with the relevant holding times.

☑ Appropriate sample containers have been used.

☒ Split sample sent to requested external lab.

☒ Some samples have been subcontracted.

N/A Custody Seals intact (if used).

Contact notes

If you have any questions with respect to these samples please contact:

Andrew Black on Phone : (+61) 2 9900 8490 or by e.mail: AndrewBlack@eurofins.com

Results will be delivered electronically via e.mail to Nima Salimi - Nima.Salimi-Eshkevari@coffey.com.

Melbourne
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NATA # 1261 Site # 23736

ABN – 50 005 085 521 e.mail : EnviroSales@eurofins.com web : www.eurofins.com.au

Sample Receipt Advice

Company name:	**Coffey Environments P/L N'castle**
Contact name:	Nima Salimi
Project name:	111 SPARKS ROAD
Project ID:	754NTLGE216908
COC number:	Not provided
Turn around time:	5 Day
Date/Time received:	Nov 9, 2018 8:20 AM
Eurofins | mgt reference:	**626825**

Sample information

☑ A detailed list of analytes logged into our LIMS, is included in the attached summary table.

☑ Sample Temperature of a random sample selected from the batch as recorded by Eurofins | mgt Sample Receipt : 8.6 degrees Celsius.

☑ All samples have been received as described on the above COC.

☑ COC has been completed correctly.

☑ Attempt to chill was evident.

☑ Appropriately preserved sample containers have been used.

☑ All samples were received in good condition.

☑ Samples have been provided with adequate time to commence analysis in accordance with the relevant holding times.

☑ Appropriate sample containers have been used.

☑ Split sample sent to requested external lab.

☒ Some samples have been subcontracted.

N/A Custody Seals intact (if used).

Contact notes

If you have any questions with respect to these samples please contact:

Andrew Black on Phone : (+61) 2 9900 8490 or by e.mail: AndrewBlack@eurofins.com

Results will be delivered electronically via e.mail to Nima Salimi - Nima.Salimi-Eshkevari@coffey.com.

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