



NSW Site Auditor Scheme

Site Audit Statement

A site audit statement summarises the findings of a site audit. For full details of the site auditor's findings, evaluations and conclusions, refer to the associated site audit report.

This form was approved under the *Contaminated Land Management Act 1997* on 12 October 2017.

For information about completing this form, go to Part IV.

Part I: Site audit identification

Site audit statement no. KJL271-2

This site audit is a:

statutory audit

~~non-statutory audit~~

within the meaning of the *Contaminated Land Management Act 1997*.

Site auditor details

(As accredited under the *Contaminated Land Management Act 1997*)

Name Kylie Lloyd

Company Geosyntec Consultants Pty Ltd

Address Suite 1, Level 9, 189 Kent St SYDNEY NSW

Postcode 2000

Phone 02 9251 8070

Email kylie.lloyd@geosyntec.com

Site details

Address The Dragway Portion, Sydney Eastern Creek Motor Sports, Ferrers Road,
Eastern Creek, NSW

Postcode 2766

Property description

(Attach a separate list if several properties are included in the site audit.)

Part Lot 1 DP1077822

Part Lot 2 DP1062965

Part Lot 1 DP69882

Local government area	Blacktown City Council
Area of site (include units, e.g. hectares)	Area 1 – 3.31ha
	Area 2 – 2.48ha
	Area 3 – 1.60ha
	Area 7 – 1.18ha
	Northern Ticket Box/Dragway Ticket Booth – 0.12ha
	Link Road – 0.49ha
	As per attached survey
Current zoning	Unzoned (Part 2, Clause 9 of the Western Sydney Parklands SEPP notes that from the commencement of the policy, the land to which the policy applies is not zoned).

Regulation and notification

To the best of my knowledge:

~~the site is~~ the subject of a declaration, order, agreement, proposal or notice under the *Contaminated Land Management Act 1997* or the *Environmentally Hazardous Chemicals Act 1985*, as follows: (provide the no. if applicable)

~~Declaration no.~~

~~Order no.~~

~~Proposal no.~~

~~Notice no.~~

the site is not the subject of a declaration, order, proposal or notice under the *Contaminated Land Management Act 1997* or the *Environmentally Hazardous Chemicals Act 1985*.

To the best of my knowledge:

~~the site has~~ been notified to the EPA under section 60 of the *Contaminated Land Management Act 1997*

Site Audit Statement

E47 All waste must be classified in accordance with the EPA's *Waste Classification Guidelines*, with appropriate records and disposal dockets retained for audit purposes.

~~Requirements under other legislation (please specify, including date of issue)~~

Purpose of site audit

~~**A1** To determine land use suitability~~

~~Intended uses of the land:~~

OR

A2 To determine land use suitability subject to compliance with either an active or passive environmental management plan

Intended uses of the land: Commercial/industrial (part of a speedway infrastructure, comprising carpark, vehicle access and ticket booth)_____

OR

(Tick all that apply)

~~**B1** To determine the nature and extent of contamination~~

~~**B2** To determine the appropriateness of:~~

~~an investigation plan~~

~~a remediation plan~~

~~a management plan~~

~~**B3** To determine the appropriateness of a **site testing plan** to determine if groundwater is safe and suitable for its intended use as required by the *Temporary Water Restrictions Order for the Botany Sands Groundwater Resource 2017*~~

~~**B4** To determine the compliance with an approved:~~

~~**voluntary management proposal** or~~

~~**management order** under the *Contaminated Land Management Act 1997*~~

~~**B5** To determine if the land can be made suitable for a particular use (or uses) if the site is remediated or managed in accordance with a specified plan.~~

~~Intended uses of the land:~~

Information sources for site audit

Consultancies which conducted the site investigations and/or remediation:

Jacobs, Golder Douglas Partners, Alliance Geotechnical, Hibbs, and ADE

Titles of reports reviewed:

- Golder Douglas Partners (14 May 2020) Draft Factual Contamination Report, 00013/11180 Sydney Metro West, Sydney Dragway Investigation, Eastern Creek (Ref: 1791865-020-CAR-RevA).

-
- Jacobs (July 2020) Sydney International Speedway Preliminary Site Investigation (Ref: SIS_EIS_TP8_Contamination_FINAL).
-
- Hibbs (23 March 2021) Asbestos Management Plan, Sydney International Speedway, Ferrers Road, Eastern Creek NSW (Ref: S11546 AMP-A4).
-
- Alliance Geotechnical (AG) (17 March 2021) Waste Classification Assessment Sydney Dragway Carpark, Gate D, Ferrers Road, Eastern Creek NSW (Ref: 12581-ER-1-1).
-
- ADE (4 February 2021) Asbestos in Soil Characterisation, Sydney Speedway Project, Ferrers Road, Eastern Creek NSW (Ref: ABG-62-18835 INS1).
-
- ADE (12 July 2021) Review of Previous Environmental Investigations Sydney Speedway Project, Ferrers Road (Ref: ABG-62-19450.LTR1).
-
- ADE (8 September 2021) Sampling, Analysis and Quality Plan, Sydney Speedway Project, Ferrers Road, Eastern Creek NSW (Ref: ABG-62-19450 | SAQP.v1d).
-
- Hibbs (25 October 2021) Asbestos Management Plan Sydney International Speedway, Ferrers Road, Eastern Creek NSW (Ref: S11546 AMP-A6).
-
- ADE (10 December 2021) Sydney Speedway Landfill Gas Management - Site Inspection and Actions (Ref: A101021.0201-LTR2-V1F).
-
- ADE (16 December 2021) Landfill Gas Risk Mitigation Plan, Sydney Speedway, Ferrers Road, Eastern Creek NSW (Ref: 21.0201 v1d).
-
- ADE (23 December 2021) Sydney Speedway - Condition of Approval E39 - Site Audit Statement (Ref: 21.0201.L03D).
-
- ADE (7 January 2022) Interim Risk Management Plan - Public Events (14-15 January 21-22) Sydney International Speedway, Eastern Creek NSW (Ref: A101021.0201-LTR4-V1D) (not finalised).
-
- ADE (8 February 2022) Site Characterisation and Beneficial Re-use Suitability Assessment Report - Southern Stockpile, Sydney Speedway Project, Area 7, Ferrers Road, Eastern Creek NSW (Ref: 21.0201.W01 RSA1.v1f).
-
- ADE (17 February 2022) Detailed Site Investigation, Sydney Speedway Project, Ferrers Road, Eastern Creek NSW (Ref: 21.0201.DSI.v3d).
-
- ADE (1 March 2022a) Validation Report, Sydney Speedway, Ferrers Road, Eastern Creek NSW (Ref: 21.0201 | Val.2d).
-
- ADE (1 March 2022b) Landfill Gas Risk Evaluation and Controls Validation Assessment, Sydney Speedway, Ferrers Road, Eastern Creek NSW (Ref: 21.0201 | LFG-VAL | v2f).
-
- ADE (3 March 2022) Environmental Management Plan, Sydney Dragway, Opposite Ferrers Road, Eastern Creek NSW (Ref: 21.0201 | EMP2 | v4f).
-

Other information reviewed, including previous site audit reports and statements relating to the site:

Site audit report details

Title Site Audit Report, The Dragway Portion, Sydney Speedway Project, Ferrers Road,
Eastern Creek, NSW 2766

Report no. 21037 SAR KJL271-2

Date 11 March 2022

Part II: Auditor's findings

Please complete either Section A1, Section A2 or Section B, not more than one section. (Strike out the irrelevant sections.)

- Use **Section A1** where site investigation and/or remediation has been completed and a conclusion can be drawn on the suitability of land uses **without the implementation** of an environmental management plan.
- Use **Section A2** where site investigation and/or remediation has been completed and a conclusion can be drawn on the suitability of land uses **with the implementation** of an active or passive environmental management plan.
- Use **Section B** where the audit is to determine:
 - (B1) the nature and extent of contamination, and/or
 - (B2) the appropriateness of an investigation, remediation or management plan¹, and/or
 - (B3) the appropriateness of a site testing plan in accordance with the *Temporary Water Restrictions Order for the Botany Sands Groundwater Source 2017*, and/or
 - (B4) whether the terms of the approved voluntary management proposal or management order have been complied with, and/or
 - (B5) whether the site can be made suitable for a specified land use (or uses) if the site is remediated or managed in accordance with the implementation of a specified plan.

¹ For simplicity, this statement uses the term 'plan' to refer to both plans and reports.

Section A1

~~I certify that, in my opinion:~~

The ~~site is suitable~~ for the following uses:

~~(Tick all appropriate uses and strike out those not applicable.)~~

- ~~Residential, including substantial vegetable garden and poultry~~
 - ~~Residential, including substantial vegetable garden, excluding poultry~~
 - ~~Residential with accessible soil, including garden (minimal home-grown produce contributing less than 10% fruit and vegetable intake), excluding poultry~~
 - ~~Day care centre, preschool, primary school~~
 - ~~Residential with minimal opportunity for soil access, including units~~
 - ~~Secondary school~~
 - ~~Park, recreational open space, playing field~~
 - ~~Commercial/industrial~~
 - ~~Other (please specify):~~
-

OR

- ~~I certify that, in my opinion, the **site is not suitable** for any use due to the risk of harm from contamination.~~

Overall comments:

Section A2

I certify that, in my opinion:

Subject to compliance with the **attached** environmental management plan² (EMP), the site is suitable for the following uses:

(Tick all appropriate uses and strike out those not applicable.)

- ~~Residential, including substantial vegetable garden and poultry~~
- ~~Residential, including substantial vegetable garden, excluding poultry~~
- ~~Residential with accessible soil, including garden (minimal home grown produce contributing less than 10% fruit and vegetable intake), excluding poultry~~
- ~~Day care centre, preschool, primary school~~
- ~~Residential with minimal opportunity for soil access, including units~~
- ~~Secondary school~~
- ~~Park, recreational open space, playing field~~
- Commercial/industrial
- ~~Other (please specify):~~

EMP details

Title Environmental Management Plan, Sydney Dragway, Opposite Ferrers Road, Eastern Creek NSW

Author ADE

Date 3 March 2022

No. of pages 140

EMP summary

This EMP (attached) is required to be implemented to address residual contamination on the site.

The EMP: (Tick appropriate box and strike out the other option.)

- ~~requires operation and/or maintenance of **active** control systems³~~
- requires maintenance of **passive** control systems only³.

² Refer to Part IV for an explanation of an environmental management plan.

³ Refer to Part IV for definitions of active and passive control systems.

Purpose of the EMP:

The EMP states that the objective of the EMP to ensure the ongoing suitability of the site for the current mixed land use being public open space (HIL/HSL-C) and commercial/industrial (HIL/HSL-D), by implementing management measures that protect both human health and the environment for both present and future users of the site.

The Auditor notes that the EMP provides management of potential asbestos and hazardous ground gas at the site, noting the proposed landuse of the site is more consistent to commercial/industrial landuse, rather than public open space use.

Description of the nature of the residual contamination:

Section 3 states that the residual contamination includes:

- Site wide potential asbestos impact
 - Asbestos contaminated soil within asbestos containment cell in Carpark D (Area 1) beneath the hardstand
 - Hazardous ground gas
-

Summary of the actions required by the EMP:

Section 4 provides management activities and procedures for:

- General management of residual asbestos contamination
 - General management of hazardous ground gas
 - Environmental management systems
 - Waste management and importation requirements
 - Management structure and responsibilities
-

How the EMP can reasonably be made to be legally enforceable:

Section 7.3.2 states that the EMP will be recorded as a covenant to the current title of property.

How there will be appropriate public notification:

Section 7.3.1 states that the EMP is incorporated into Section 10.7 Planning Certificate.

Overall comments:

- A hazardous ground gas monitoring must be conducted within 3 months of completion of the Audit in accordance with the ADE (3 March 2022) environmental management plan

(EMP), followed by the frequency required in the EMP. The monitoring must include monitoring within the sub-floor vents, indoor air and underground pits

- As an asbestos investigation was not conducted in accordance with NEPM (2013) and WA DoH (2009) requirements, and asbestos validation documentation incomplete, the greater development area is considered to potentially contain asbestos impacted material, including the material used as the cap for the containment cell. The EMP provides management and maintenance procedures for works that may occur in areas of potential asbestos impact beneath the surface across the audit site.
 - Should Area 7 be proposed for beneficially reused for any other purpose than the currently proposed use as a carpark, the material must be reassessed to the complete depth.
-
- Potential waste non-compliances were identified and have been notified to NSW EPA. Notification letter is provided in Appendix B of the site audit report.
-

The Speedway Site audit is covered under a separate audit (KJL271-1).

Section B

Purpose of the plan⁴ which is the subject of this audit:

I certify that, in my opinion:

(B1)

- ~~The nature and extent of the contamination **has been** appropriately determined~~
- ~~The nature and extent of the contamination **has not** been appropriately determined~~

AND/OR (B2)

- ~~The investigation, remediation or management plan **is** appropriate for the purpose stated above~~
- ~~The investigation, remediation or management plan **is not** appropriate for the purpose stated above~~

AND/OR (B3)

- ~~The site testing plan:~~
 - ~~**is** appropriate to determine~~
 - ~~**is not** appropriate to determine~~

~~if groundwater is safe and suitable for its intended use as required by the *Temporary Water Restrictions Order for the Botany Sands Groundwater Resource 2017*~~

AND/OR (B4)

- ~~The terms of the approved voluntary management proposal* or management order** (strike out as appropriate):~~
 - ~~**have** been complied with~~
 - ~~**have not** been complied with.~~

~~*voluntary management proposal no.~~

~~**management order no.~~

AND/OR (B5)

- ~~The site **can be made suitable** for the following uses:~~
(Tick all appropriate uses and strike out those not applicable.)

⁴ For simplicity, this statement uses the term 'plan' to refer to both plans and reports.

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- Residential, including substantial vegetable garden and poultry
- Residential, including substantial vegetable garden, excluding poultry
- Residential with accessible soil, including garden (minimal home-grown produce contributing less than 10% fruit and vegetable intake), excluding poultry
- Day care centre, preschool, primary school
- Residential with minimal opportunity for soil access, including units
- Secondary school
- Park, recreational open space, playing field
- Commercial/industrial
- Other (please specify):

IF the site is remediated/managed* in accordance with the following plan (attached):

*Strike out as appropriate

Plan title _____

Plan author _____

Plan date _____	No. of pages _____
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SUBJECT to compliance with the following condition(s):

Overall comments:

Part III: Auditor's declaration

I am accredited as a site auditor by the NSW Environment Protection Authority (EPA) under the *Contaminated Land Management Act 1997*.

Accreditation no. 0302

I certify that:

- I have completed the site audit free of any conflicts of interest as defined in the *Contaminated Land Management Act 1997*, and
- with due regard to relevant laws and guidelines, I have examined and am familiar with the reports and information referred to in Part I of this site audit, and
- on the basis of inquiries I have made of those individuals immediately responsible for making those reports and obtaining the information referred to in this statement, those reports and that information are, to the best of my knowledge, true, accurate and complete, and
- this statement is, to the best of my knowledge, true, accurate and complete.

I am aware that there are penalties under the *Contaminated Land Management Act 1997* for wilfully making false or misleading statements.



Date

11 March 2022

Part IV: Explanatory notes

To be complete, a site audit statement form must be issued with all four parts.

How to complete this form

Part I

Part I identifies the auditor, the site, the purpose of the audit and the information used by the auditor in making the site audit findings.

Part II

Part II contains the auditor's opinion of the suitability of the site for specified uses or of the appropriateness of an investigation, or remediation plan or management plan which may enable a particular use. It sets out succinct and definitive information to assist decision-making about the use or uses of the site or a plan or proposal to manage or remediate the site.

The auditor is to complete either Section A1 or Section A2 or Section B of Part II, **not** more than one section.

Section A1

In Section A1 the auditor may conclude that the land is *suitable* for a specified use or uses OR *not suitable* for any beneficial use due to the risk of harm from contamination.

By certifying that the site is *suitable*, an auditor declares that, at the time of completion of the site audit, no further investigation or remediation or management of the site was needed to render the site fit for the specified use(s). **Conditions must not be** imposed on a Section A1 site audit statement. Auditors may include **comments** which are key observations in light of the audit which are not directly related to the suitability of the site for the use(s). These observations may cover aspects relating to the broader environmental context to aid decision-making in relation to the site.

Section A2

In Section A2 the auditor may conclude that the land is *suitable* for a specified use(s) subject to a condition for implementation of an environmental management plan (EMP).

Environmental management plan

Within the context of contaminated sites management, an EMP (sometimes also called a 'site management plan') means a plan which addresses the integration of environmental mitigation and monitoring measures for soil, groundwater and/or hazardous ground gases throughout an existing or proposed land use. An EMP succinctly describes the nature and location of contamination remaining on site and states what the objectives of the plan are, how contaminants will be managed, who will be responsible for the plan's implementation and over what time frame actions specified in the plan will take place.

By certifying that the site is suitable subject to implementation of an EMP, an auditor declares that, at the time of completion of the site audit, there was sufficient information satisfying guidelines made or approved under the *Contaminated Land Management Act 1997*

(CLM Act) to determine that implementation of the EMP was feasible and would enable the specified use(s) of the site and no further investigation or remediation of the site was needed to render the site fit for the specified use(s).

Implementation of an EMP is required to ensure the site remains suitable for the specified use(s). The plan should be legally enforceable: for example, a requirement of a notice under the CLM Act or a development consent condition issued by a planning authority. There should also be appropriate public notification of the plan, e.g. on a certificate issued under s.149 of the *Environmental Planning and Assessment Act 1979*.

Active or passive control systems

Auditors must specify whether the EMP requires operation and/or maintenance of active control systems or requires maintenance of passive control systems only. Active management systems usually incorporate mechanical components and/or require monitoring and, because of this, regular maintenance and inspection are necessary. Most active management systems are applied at sites where if the systems are not implemented an unacceptable risk may occur. Passive management systems usually require minimal management and maintenance and do not usually incorporate mechanical components.

Auditor's comments

Auditors may also include **comments** which are key observations in light of the audit which are not directly related to the suitability of the site for the use(s). These observations may cover aspects relating to the broader environmental context to aid decision-making in relation to the site.

Section B

In Section B the auditor draws conclusions on the nature and extent of contamination, and/or suitability of plans relating to the investigation, remediation or management of the land, and/or the appropriateness of a site testing plan in accordance with the *Temporary Water Restrictions Order for the Botany Sands Groundwater Source 2017*, and/or whether the terms of an approved voluntary management proposal or management order made under the CLM Act have been complied with, and/or whether the site can be made suitable for a specified land use or uses if the site is remediated or managed in accordance with the implementation of a specified plan.

By certifying that a site *can be made suitable* for a use or uses if remediated or managed in accordance with a specified plan, the auditor declares that, at the time the audit was completed, there was sufficient information satisfying guidelines made or approved under the CLM Act to determine that implementation of the plan was feasible and would enable the specified use(s) of the site in the future.

For a site that *can be made suitable*, any **conditions** specified by the auditor in Section B should be limited to minor modifications or additions to the specified plan. However, if the auditor considers that further audits of the site (e.g. to validate remediation) are required, the auditor must note this as a condition in the site audit statement. The condition must not specify an individual auditor, only that further audits are required.

Auditors may also include **comments** which are observations in light of the audit which provide a more complete understanding of the environmental context to aid decision-making in relation to the site.

Part III

In **Part III** the auditor certifies their standing as an accredited auditor under the CLM Act and makes other relevant declarations.

Where to send completed forms

In addition to furnishing a copy of the audit statement to the person(s) who commissioned the site audit, statutory site audit statements must be sent to

- the **NSW Environment Protection Authority**:
nswauditors@epa.nsw.gov.au or as specified by the EPA

AND

- the **local council** for the land which is the subject of the audit.

SETOUT SCHEDULE - SPEEDWAY BOUNDARY

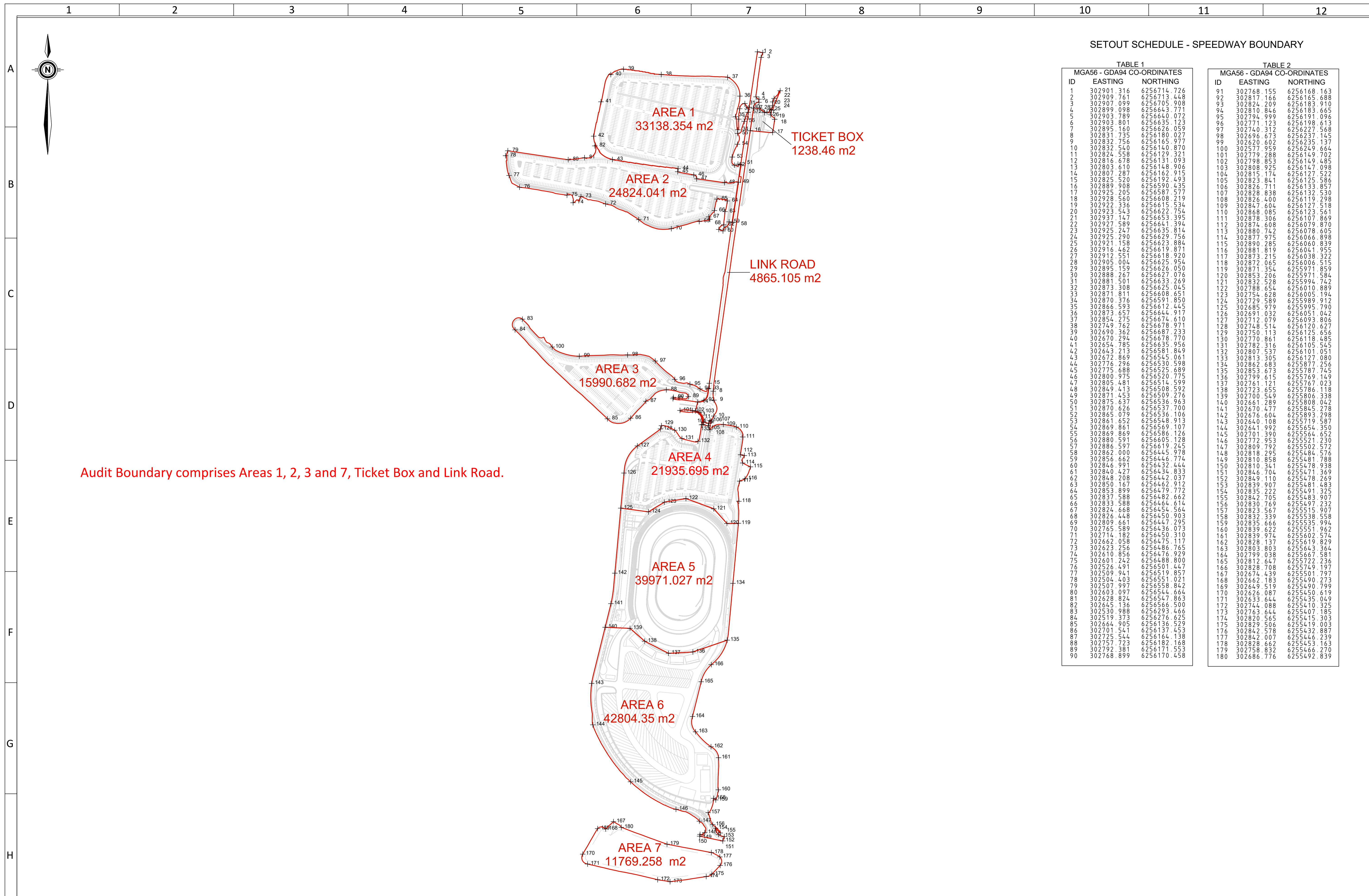


TABLE 1
MGA56 - GDA94 CO-ORDINATES

ID	EASTING	NORTHING
1	302901.316	6256714.726
2	302909.761	6256713.448
3	302917.099	6256705.908
4	302899.098	6256643.771
5	302903.789	6256640.072
6	302903.801	6256635.123
7	302895.160	6256626.059
8	302831.735	6256180.027
9	302832.753	6256165.977
10	302832.540	6256140.870
11	302824.558	6256129.321
12	302816.678	6256131.093
13	302803.610	6256148.906
14	302807.287	6256162.915
15	302825.520	6256192.493
16	302889.908	6256590.435
17	302925.205	6256587.577
18	302928.560	6256608.219
19	302922.336	6256615.534
20	302923.543	6256622.754
21	302937.147	6256653.395
22	302927.589	6256641.394
23	302925.247	6256635.814
24	302925.290	6256629.756
25	302921.158	6256623.884
26	302916.152	6256619.871
27	302912.551	6256618.920
28	302905.004	6256625.954
29	302895.159	6256626.050
30	302888.267	6256627.076
31	302881.501	6256632.269
32	302873.308	6256625.045
33	302871.811	6256608.651
34	302870.376	6256591.850
35	302866.593	6256612.445
36	302873.657	6256644.917
37	302854.275	6256674.610
38	302749.762	6256678.971
39	302690.362	6256687.233
40	302670.294	6256678.770
41	302654.785	6256635.956
42	302643.213	6256581.849
43	302672.868	6256654.061
44	302776.296	6256530.598
45	302775.688	6256525.689
46	302800.975	6256520.775
47	302805.481	6256514.599
48	302844.411	6256508.592
49	302871.453	6256509.166
50	302875.637	6256536.963
51	302870.626	6256537.700
52	302865.079	6256536.106
53	302861.652	6256548.913
54	302869.861	6256569.107
55	302869.869	6256586.126
56	302880.591	6256605.128
57	302886.597	6256619.245
58	302862.000	6256445.978
59	302856.662	6256446.774
60	302846.991	6256432.444
61	302840.427	6256434.833
62	302848.208	6256442.037
63	302850.167	6256462.912
64	302853.899	6256479.772
65	302837.588	6256482.662
66	302833.588	6256464.614
67	302824.668	6256454.564
68	302826.448	6256450.903
69	302809.661	6256447.295
70	302765.589	6256436.073
71	302714.182	6256450.310
72	302662.058	6256475.117
73	302623.256	6256486.765
74	302610.856	6256476.929
75	302601.242	6256488.800
76	302526.491	6256501.447
77	302509.941	6256519.857
78	302504.403	6256551.021
79	302507.997	6256558.842
80	302603.097	6256544.664
81	302628.824	6256547.863
82	302645.136	6256566.500
83	302530.988	6256293.466
84	302519.373	6256276.625
85	302664.905	6256136.529
86	302701.541	6256137.453
87	302725.544	6256164.138
88	302751.723	6256182.168
89	302792.381	6256171.553
90	302768.899	6256170.458

TABLE 2
MGA56 - GDA94 CO-ORDINATES

ID	EASTING	NORTHING
91	302768.155	6256168.163
92	302817.166	6256165.688
93	302824.209	6256183.910
94	302810.845	6256185.665
95	302794.999	6256191.096
96	302771.123	6256198.613
97	302740.312	6256227.568
98	302696.673	6256237.145
99	302620.602	6256235.137
100	302577.959	6256249.664
101	302779.288	6256149.702
102	302798.853	6256149.485
103	302808.925	6256147.098
104	302815.174	6256127.522
105	302823.841	6256125.586
106	302826.711	6256133.857
107	302828.838	6256132.530
108	302826.400	6256119.298
109	302847.604	6256127.518
110	302868.085	6256123.561
111	302878.306	6256107.869
112	302874.608	6256079.870
113	302880.742	6256078.605
114	302877.975	6256066.898
115	302890.285	6256060.839
116	302891.819	6256041.955
117	302871.215	6256038.322
118	302872.065	6256006.515
119	302871.354	6255971.859
120	302853.206	6255971.784
121	302832.528	6255994.742
122	302783.654	6256010.889
123	302754.628	6256005.194
124	302729.589	6255989.912
125	302685.979	6255995.790
126	302691.032	6256051.042
127	302712.079	6256093.806
128	302748.514	6256123.677
129	302750.113	6256125.656
130	302770.861	6256118.485
131	302782.316	6256105.545
132	302807.537	6256101.051
133	302813.305	6256123.060
134	302862.683	6255877.256
135	302853.673	6255787.745
136	302799.615	6255769.149
137	302761.121	6255767.023
138	302723.655	6255786.118
139	302700.936	6255660.652
140	302661.289	6255808.042
141	302670.477	6255845.278
142	302676.604	6255893.298
143	302640.108	6255719.587
144	302641.990	6255654.350
145	302701.350	6255560.652
146	302772.953	6255521.230
147	302809.792	6255502.572
148	302818.295	6255484.576
149	302810.858	6255481.788
150	302810.341	6255478.938
151	302846.704	6255471.369
152	302849.110	6255478.269
153	302839.907	6255481.483
154	302835.222	6255491.325
155	302842.705	6255483.907
156	302830.769	6255497.232
157	302823.567	6255515.907
158	302832.339	6255538.558
159	302835.666	6255535.994
160	302839.622	6255551.962
161	302839.974	6255602.574
162	302828.137	6255619.829
163	302803.803	6255643.364
164	302799.038	6255667.581
165	302812.647	6255722.236
166	302828.708	6255749.197
167	302674.439	6255501.797
168	302662.183	6255490.273
169	302649.519	6255490.799
170	302626.087	6255450.619
171	302633.644	6255435.049
172	302744.088	6255410.325
173	302763.644	6255407.185
174	302820.565	6255415.303
175	302829.506	6255419.003
176	302842.578	6255432.887
177	302842.007	6255446.239
178	302828.662	6255453.163
179	302758.832	6255486.270
180	302686.776	6255492.839

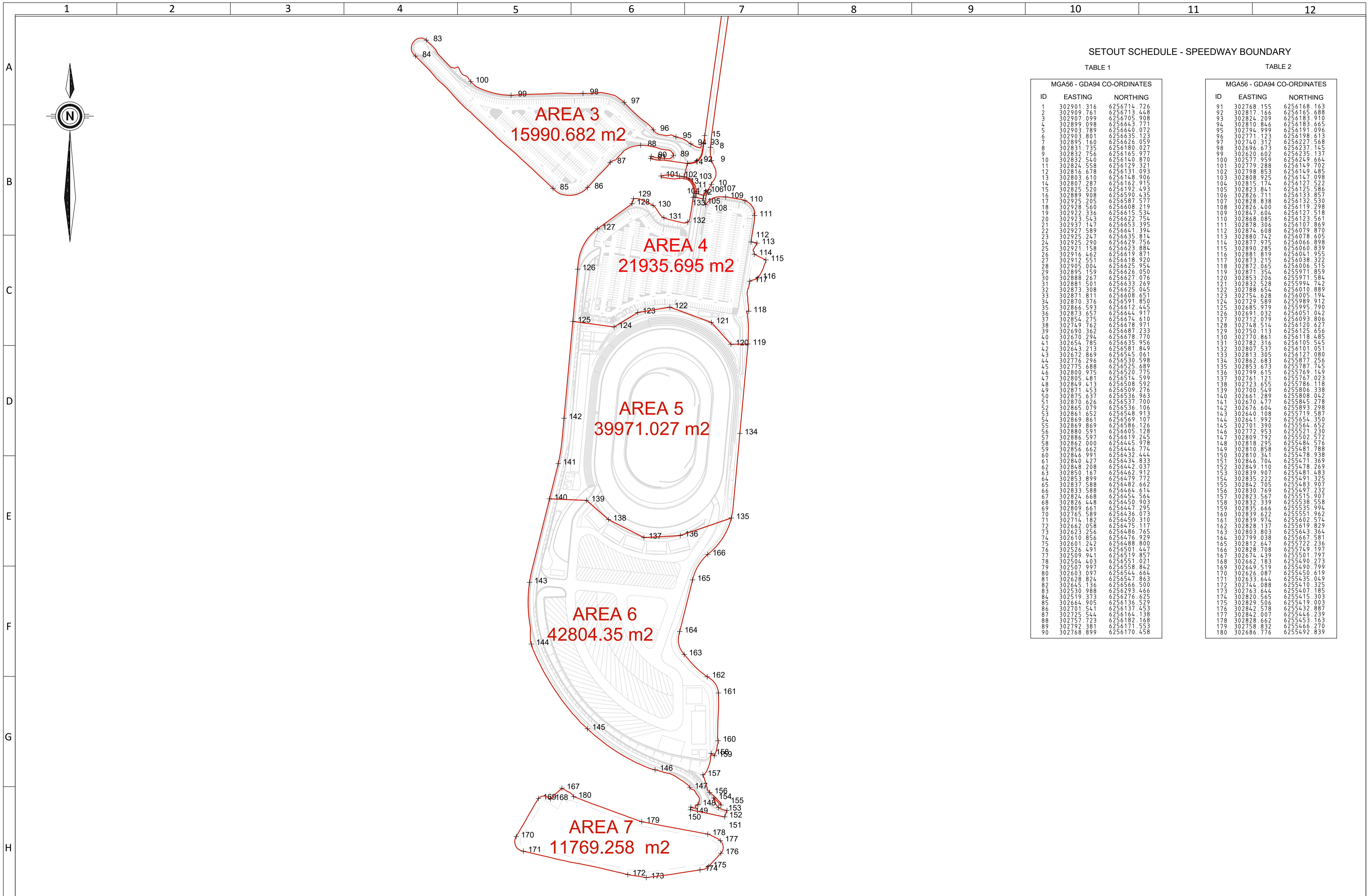
REV	AMENDMENTS	APP'D	DATE	GENERAL NOTES / REFERENCES
				LEVELS IN AHD
				COORDINATES IN MGA56 - GDA94



SURVEYED BY	LO
DRAWN BY	LO
CHECKED BY	LO
SCALE	H 1:2700 V 1:2700

Sydney International Speedway
Eastern Creek

SPEEDWAY
ENVIRONMENTAL AREA



SETOUT SCHEDULE - SPEEDWAY BOUNDARY

TABLE 1

MGA56 - GDA94 CO-ORDINATES		
ID	EASTING	NORTHING
1	302901.316	6256714.726
2	302909.761	6256713.448
3	302907.099	6256705.908
4	302899.098	6256643.771
5	302903.789	6256640.072
6	302903.801	6256635.123
7	302895.160	6256626.059
8	302831.735	6256180.027
9	302832.755	6256169.977
10	302832.540	6256140.870
11	302824.558	6256129.321
12	302816.678	6256131.093
13	302803.610	6256148.906
14	302807.287	6256162.915
15	302825.520	6256192.493
16	302889.908	6256590.435
17	302925.205	6256587.577
18	302928.560	6256608.219
19	302922.336	6256615.534
20	302923.543	6256622.754
21	302937.147	6256653.395
22	302927.589	6256641.394
23	302925.247	6256635.814
24	302925.290	6256629.756
25	302921.158	6256623.884
26	302916.442	6256619.871
27	302912.551	6256618.920
28	302905.004	6256625.954
29	302895.159	6256626.050
30	302888.267	6256627.076
31	302881.501	6256633.269
32	302873.308	6256625.045
33	302871.811	6256608.651
34	302870.376	6256591.850
35	302866.593	6256612.445
36	302873.657	6256644.917
37	302854.275	6256674.610
38	302749.762	6256678.971
39	302690.362	6256687.233
40	302670.294	6256678.770
41	302654.785	6256635.956
42	302643.213	6256581.849
43	302672.869	6256545.061
44	302776.294	6256530.998
45	302775.688	6256525.689
46	302800.975	6256520.775
47	302805.481	6256514.599
48	302849.413	6256508.592
49	302871.453	6256509.276
50	302875.637	6256536.963
51	302870.626	6256537.700
52	302865.079	6256536.106
53	302861.652	6256548.913
54	302869.861	6256569.107
55	302869.869	6256586.126
56	302880.591	6256605.128
57	302886.597	6256619.245
58	302862.000	6256445.978
59	302856.662	6256446.774
60	302846.991	6256432.444
61	302840.427	6256434.833
62	302848.208	6256442.037
63	302850.167	6256462.912
64	302853.899	6256479.772
65	302837.588	6256482.662
66	302833.588	6256464.614
67	302824.668	6256454.564
68	302826.448	6256450.903
69	302809.661	6256447.295
70	302765.589	6256436.073
71	302714.182	6256450.310
72	302662.058	6256475.117
73	302623.256	6256486.765
74	302610.856	6256476.929
75	302601.942	6256488.800
76	302526.491	6256501.447
77	302509.941	6256519.857
78	302504.403	6256551.021
79	302507.997	6256558.842
80	302603.097	6256544.664
81	302628.824	6256547.863
82	302645.136	6256566.500
83	302530.988	6256293.466
84	302519.373	6256276.625
85	302664.905	6256136.529
86	302701.541	6256137.453
87	302725.544	6256164.138
88	302757.723	6256182.168
89	302792.381	6256171.553
90	302768.899	6256170.458

TABLE 2

MGA56 - GDA94 CO-ORDINATES		
ID	EASTING	NORTHING
91	302768.155	6256168.163
92	302817.166	6256165.688
93	302824.209	6256183.910
94	302810.665	6256184.771
95	302794.999	6256191.096
96	302771.123	6256198.613
97	302740.312	6256227.568
98	302696.673	6256237.145
99	302620.602	6256235.057
100	302577.959	6256249.664
101	302779.288	6256149.702
102	302798.853	6256149.485
103	302808.925	6256147.098
104	302815.174	6256127.522
105	302823.841	6256125.586
106	302826.711	6256133.857
107	302828.838	6256132.530
108	302826.400	6256119.298
109	302847.604	6256127.518
110	302868.085	6256123.561
111	302878.306	6256107.869
112	302874.608	6256104.955
113	302880.742	6256078.605
114	302877.975	6256066.898
115	302890.285	6256060.839
116	302881.819	6256041.955
117	302873.215	6256038.322
118	302872.065	6256006.515
119	302871.354	6255971.859
120	302853.206	6255971.584
121	302853.269	6255994.742
122	302788.654	6256010.889
123	302754.628	6256005.194
124	302729.589	6255989.912
125	302685.979	6255995.790
126	302691.032	6256051.042
127	302712.079	6256093.806
128	302748.514	6256120.627
129	302750.113	6256125.656
130	302770.861	6256118.485
131	302782.316	6256105.545
132	302807.537	6256101.051
133	302813.305	6256121.080
134	302862.683	6255877.256
135	302853.673	6255787.745
136	302799.615	6255769.149
137	302761.121	6255767.023
138	302723.655	6255786.118
139	302700.549	6255806.338
140	302661.289	6255808.042
141	302670.477	6255845.278
142	302676.604	6255893.298
143	302640.108	6255719.587
144	302641.992	6255654.350
145	302701.390	6255564.652
146	302772.953	6255521.230
147	302809.792	6255502.572
148	302818.295	6255484.576
149	302810.858	6255481.788
150	302810.341	6255478.938
151	302846.704	6255471.369
152	302849.110	6255478.269
153	302839.907	6255481.483
154	302835.222	6255491.325
155	302842.705	6255483.907
156	302830.769	6255497.232
157	302823.567	6255515.907
158	302832.339	6255538.558
159	302835.666	6255535.994
160	302839.622	6255551.962
161	302839.974	6255602.574
162	302828.137	6255619.829
163	302803.803	6255643.364
164	302799.038	6255667.581
165	302812.647	6255722.236
166	302828.708	6255749.197
167	302674.439	6255501.797
168	302662.183	6255490.273
169	302649.519	6255490.799
170	302626.087	6255450.619
171	302633.644	6255435.049
172	302744.088	6255410.325
173	302763.644	6255407.185
174	302820.565	6255415.303
175	302829.506	6255419.003
176	302842.578	6255432.887
177	302842.007	6255446.239
178	302828.642	6255453.163
179	302758.832	6255466.270
180	302686.776	6255492.839

REV	AMENDMENTS	APP'D	DATE	GENERAL NOTES / REFERENCES	<p>Pacific Survey Sydney Pty Ltd ABN 87 130 908 222 148 Settlement Road PO Box 2006 Port Macquarie NSW 2444 Ph: (02) 6583 2366 Fax: (02) 6583 2199 www.pacificsurvey.com.au</p>	SURVEYED BY	LO	Sydney International Speedway Eastern Creek	SPEEDWAY ENVIRONMENTAL AREA	DRG No.	0
				LEVELS IN AHD		DRAWN BY	LO				
				COORDINATES IN MGA56 - GDA94		CHECKED BY	LO				
						SCALE	H 1:1800 V 1:1800				

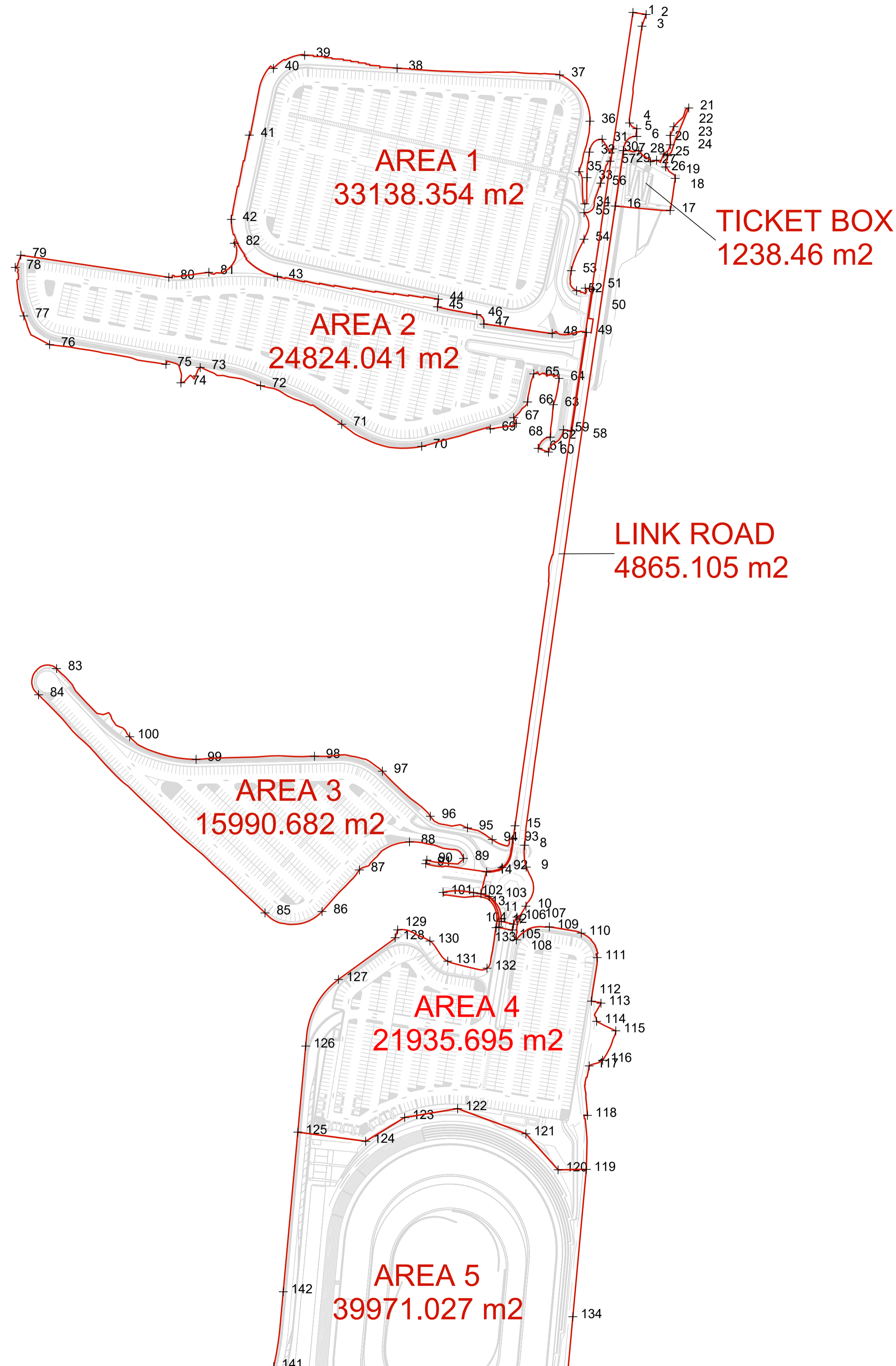
SETOUT SCHEDULE - SPEEDWAY BOUNDARY

TABLE 1

MGA56 - GDA94 CO-ORDINATES		
ID	EASTING	NORTHING
1	302901.316	6256714.726
2	302909.761	6256713.448
3	302907.099	6256705.908
4	302899.098	6256643.771
5	302903.789	6256640.072
6	302903.801	6256635.123
7	302895.160	6256626.059
8	302831.735	6256180.027
9	302832.756	6256165.977
10	302822.540	6256140.870
11	302824.558	6256129.321
12	302816.678	6256131.093
13	302803.610	6256148.906
14	302807.287	6256162.915
15	302825.320	6256192.493
16	302889.908	6256590.435
17	302925.205	6256587.577
18	302928.560	6256608.219
19	302922.336	6256615.534
20	302923.543	6256622.754
21	302937.147	6256653.395
22	302927.589	6256641.394
23	302935.247	6256635.014
24	302925.290	6256629.756
25	302921.158	6256623.884
26	302916.462	6256619.871
27	302912.651	6256618.920
28	302905.004	6256625.954
29	302895.159	6256626.050
30	302888.267	6256627.076
31	302881.501	6256632.269
32	302873.308	6256622.045
33	302871.811	6256608.651
34	302870.376	6256591.850
35	302866.593	6256612.445
36	302873.657	6256644.917
37	302854.775	6256674.610
38	302749.762	6256678.971
39	302690.362	6256687.233
40	302670.294	6256678.770
41	302654.785	6256635.956
42	302643.213	6256581.849
43	302672.869	6256545.061
44	302776.296	6256530.598
45	302775.688	6256525.689
46	302800.975	6256520.775
47	302805.481	6256514.599
48	302849.413	6256508.592
49	302871.453	6256509.276
50	302875.337	6256536.963
51	302870.626	6256537.700
52	302865.079	6256536.106
53	302861.652	6256548.913
54	302869.861	6256569.107
55	302869.869	6256586.126
56	302880.591	6256605.128
57	302886.597	6256619.245
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59	302856.662	6256446.774
60	302846.991	6256432.444
61	302840.427	6256434.833
62	302848.208	6256442.037
63	302850.167	6256462.912
64	302853.899	6256479.772
65	302837.588	6256482.662
66	302833.588	6256464.614
67	302824.668	6256454.564
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73	302623.256	6256486.765
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78	302504.403	6256551.021
79	302507.997	6256558.842
80	302603.097	6256544.664
81	302628.824	6256547.863
82	302645.136	6256566.500
83	302530.988	6256293.466
84	302519.373	6256276.625
85	302664.905	6256136.529
86	302701.541	6256137.453
87	302725.544	6256164.138
88	302757.723	6256182.168
89	302792.381	6256171.553
90	302768.899	6256170.458

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93	302824.209	6256183.910
94	302810.846	6256183.665
95	302794.999	6256191.096
96	302771.193	6256198.613
97	302740.312	6256227.568
98	302696.673	6256237.145
99	302620.602	6256235.137
100	302577.959	6256249.664
101	302779.288	6256149.702
102	302798.853	6256149.485
103	302808.925	6256147.098
104	302815.174	6256127.522
105	302823.841	6256125.586
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107	302828.838	6256132.530
108	302826.400	6256119.298
109	302847.604	6256127.518
110	302868.085	6256123.561
111	302878.306	6256107.869
112	302874.608	6256079.870
113	302880.742	6256078.605
114	302877.975	6256066.898
115	302890.285	6256060.839
116	302881.819	6256041.955
117	302873.215	6256038.742
118	302872.065	6256036.515
119	302871.354	6255971.859
120	302853.206	6255971.584
121	302832.528	6255994.742
122	302788.654	6256010.889
123	302754.628	6256005.194
124	302729.589	6255989.912
125	302685.979	6255995.790
126	302691.032	6256051.042
127	302712.079	6256093.806
128	302748.514	6256120.627
129	302750.113	6256125.656
130	302770.861	6256118.486
131	302782.316	6256105.565
132	302807.537	6256101.051
133	302813.305	6256127.080
134	302862.683	6255877.256
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138	302723.655	6255786.118
139	302700.549	6255806.338
140	302661.289	6255808.042
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142	302676.604	6255893.298
143	302640.108	6255719.587
144	302641.992	6255654.350
145	302701.390	6255564.652
146	302772.953	6255521.230
147	302809.792	6255502.572
148	302818.295	6255484.576
149	302810.858	6255481.788
150	302810.341	6255478.938
151	302846.704	6255471.369
152	302849.110	6255478.269
153	302839.907	6255481.483
154	302835.222	6255491.325
155	302842.705	6255483.907
156	302830.769	6255497.232
157	302823.567	6255515.907
158	302832.339	6255538.558
159	302835.666	6255535.994
160	302839.622	6255551.962
161	302839.974	6255602.574
162	302828.137	6255619.829
163	302803.803	6255643.364
164	302799.038	6255667.581
165	302812.647	6255722.236
166	302828.708	6255749.197
167	302674.439	6255501.797
168	302662.183	6255490.273
169	302649.519	6255490.799
170	302626.087	6255450.619
171	302633.644	6255435.049
172	302744.088	6255410.325
173	302763.644	6255407.185
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175	302829.506	6255419.003
176	302842.578	6255432.887
177	302842.007	6255446.239
178	302828.662	6255453.163
179	302758.832	6255466.270
180	302686.776	6255492.839



REV	AMENDMENTS	APP'D	DATE	GENERAL NOTES / REFERENCES	SURVEYED BY	LO	Sydney International Speedway Eastern Creek	SPEEDWAY ENVIRONMENTAL AREA
				LEVELS IN AHD	DRAWN BY	LO		
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Environmental Management Plan

Sydney Dragway, Opposite Ferrers Road, Eastern Creek NSW

Prepared for: Abergeldie Complex Infrastructure

21.0201 | EMP2 | v4f | Date: 3 March 2022



ADE
CONSULTING
GROUP

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v3f	01/03/2022	Andrew Hunt	Updated site boundaries	Syed Shah
V4f	03/03/2022	Andrew Hunt	Final for Issue	Syed Shah

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v1f	16/02/2022	PDF	1	Abergeldie Complex Infrastructure
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v3f	01/03/2022	PDF	1	Abergeldie Complex Infrastructure
v4f	03/03/2022	PDF	1	Abergeldie Complex Infrastructure

For and on behalf of
ADE Consulting Group Pty Ltd
 ABN 14 617 358 808

Prepared and Issued by:

Reviewed by:

Andrew Hunt
 Environmental Consultant

Santo Ragusa
 Principal Environmental Scientist
 CEnvP No - SC41129

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Abbreviations

Abbreviation	Definition
4WD	Four Wheel Drive
ACM	Asbestos Containing Material
ADE	ADE Consulting Group Pty Ltd
AF/FA	Asbestos Fines/Fibrous Asbestos
AHD	Australian Height Datum
ARCP	Asbestos Removal Control Plan
AMP	Asbestos Management Plan
BGL	Below Ground Level
COC	Chain of Custody
COPCS	Contaminants of Potential Concern
CH₄	Methane
CO₂	Carbon Dioxide
CO	Carbon Monoxide
DP	Deposited Plan
DSI	Detailed Site Investigation
EIL	Ecological Investigation Level
ESL	Ecological Screening Level
EPA	NSW Environment Protection Authority
EMP	Environmental Management Plan
EMS	Environmental Management System
PFAS	Per-and Poly Fluoroalkyl Substances
HIL	Health Investigation Level
H₂S	Hydrogen Sulphide
HSL	Health Screening Level
LAA	Licensed Asbestos Assessor
LFG	Landfill Gas
LGA	Local Government Area
M BGL	Meters Below Ground Level
MW	Monitoring Well
NATA	National Association of Testing Authorities
NEPC	National Environmental Protection Council
NEPM	National Environmental Protection Measure
NSW	New South Wales
O₂	Oxygen
OEMP	Operational Environmental Management Plan
PACM	Potential Asbestos Containing Materials
PAHs	Polycyclic Aromatic Hydrocarbons
POEO	Protection of the Environment Operations Act
PPE	Personal Protective Equipment
PPM	Parts Per Million
PSI	Preliminary Site Investigation
RAP	Remediation Action Plan
RL	Reduced Level
RPD	Relative Percent Difference
SAC	Site Assessment Criteria
SAS	Site Audit Statement
STEL	Short Term Exposure Limit
SWMS	Safe Work Method Statement
SWL	Standing Water Level
TRHs	Total Recoverable Hydrocarbons
TWA	Time-Weighted Average

Abbreviation	Definition
VAL	Validation
VENM	Virgin Excavated Natural Material
VOCs	Volatile Organic Compounds
WA DOH	Western Australia Department of Health
WESAC	Workplace Exposure Standards for Airborne Contaminants

Terms and Definitions

Term	Definition
Sydney Speedway Project	Entire footprint of the Sydney Speedway Project.
Site	Sydney Dragway Footprint (Area[s] 1, 2, 3, 7, Link Road and the Northern Ticket Box only).
Containment Cell	Asbestos containment cell positioned beneath Carpark D1.
Site Owner	Western Sydney Parklands Trust
Site Manager	TBA - Interim Manager: Peter Marshall (Marshall Project Management)
Competent Person	Considered to be someone who has acquired the relevant training and experience associated with the asbestos removal industry in the form of either a relevant tertiary qualification or appropriate certification.

Chemical Abbreviations

Chemical Formula	Chemical Name
CH₄	Methane
CO	Carbon Monoxide
CO₂	Carbon Dioxide
H₂S	Hydrogen Sulphide
O_x	Oxygen

Executive Summary

ADE Consulting Group Pty Ltd (ADE) was commissioned by Abergeldie Complex Infrastructure (the 'client') to prepare an Environmental Management Plan (EMP) for the long-term management of the Sydney Dragway, opposite Ferrers Road, Eastern Creek, New South Wales (NSW) ('site'). The EMP will incorporate short-term, active management of hazardous ground gas and long-term, passive management of potential residual contamination. The EMP applies to areas 1,2,3,7, the northern ticket box and Link Road, including the containment cell positioned beneath Carpark D1 (refer to *Appendix I – Figures*). The area covered by the EMP is shown in **Figure 1** and in *Appendix I – Figures*.

The purpose of this EMP is to outline and implement appropriate management measures to protect human health and the environment associated with the potential for hazardous ground gas, residual asbestos/chemical contamination and the presence of an asbestos containment cell under Carpark D1. The EMP addresses the following key objectives (refer to **Section 1.2**):

- Provide a detailed description of the location and contamination status of specified risks being;
 - The asbestos containment cell positioned beneath Carpark D1;
 - The possibility of encountering unknown residual contamination within the site;
 - The potential to encounter unexpected finds e.g., asbestos; and
 - The presence of hazardous ground gases across the site.
- Summarise the ongoing management practices necessary to ensure the ongoing protection of both human health and the environment;
- Provide management strategies associated with the responsibilities and implementation of the EMP;
- Outline a framework for the review and revision of the EMP;
- Establish an unexpected finds/incident management protocol; and
- Document environmental monitoring and reporting requirements.

Management of Residual Asbestos Contamination and Unexpected Finds

Due to the potential for residual asbestos contamination to exist and unexpected finds to occur across the site, a passive management style will be adopted for the managing of any associated risk with intrusive activities across the site. Before the commencement of any intrusive activities across the site, the general management protocols for managing both level one and level two residual asbestos contamination must be implemented (refer to **Section 4.1**).

Should an unexpected find or potential contamination be identified, the incident and response protocol outlined must be implemented as soon as practical upon discovery of the find (refer to **Section 4.7**). In conjunction with the incident and response protocol, all unexpected asbestos finds must be managed in accordance with the unexpected, contaminated land and asbestos finds procedure as required per the Operational Environmental Management Plan (OEMP) and any future environmental management systems e.g., an asbestos management plan (AMP).

Description, Location and Management of the Asbestos Containment Cell (Carpark D1)

A 'cap and contain' remediation strategy was adopted for the management of known asbestos contaminated materials which involved the installation of a 1,320m² containment cell within Area 1 (refer to *Appendix I – Figures*). Bonded asbestos contaminated materials sourced from excavation works which occurred within Carpark D1 were subsequently re-positioned within the contaminant cell. The materials were positioned between an approximate RL of 78.435 to 79.034 m AHD, separated with an orange geotextile marker layer and sealed beneath a capping layer which was followed by a permanent hardstand surface, achieving a final finish level at an RL of 81.685 m AHD to 83.469 m AHD (refer to *Appendix IV – Architectural Design and Survey Plans*).

To minimise the risk to human health and the environment, a series of passive general asbestos management protocols (refer to **Section 4.1**) must be implemented if the integrity of the containment cell is to be compromised or the hardstand capping layer breached. Once site works are complete the containment cell must be re-instated in its original condition (refer to **Section 4.1.3.3**) and inspected by a suitably qualified environmental consultant (refer to **Section 4.1.3.4**).

Surface monitoring inspections must be carried out once every year to ensure that the hardstand surface situated above the containment cell is in good condition and maintained to a suitable standard (refer to **Section 4.1.3.1**). Ongoing site inspections for hardstand surfaces outside the footprint of the containment cell is not required.

Management of Hazardous Ground Gases

Due to the presence of elevated hazardous ground gases being recorded across the site, a short-term post-construction monitoring program is to be implemented to evaluate the effectiveness of the installed controls and the associated protection score. The monitoring program will come into effect following the commencement of the defect liability period and continue for an initial 12-month period.

The sampling methodology, frequency and assessment criteria associated with the post-construction monitoring of hazardous ground gases are provided within **Section 4.2**. Following the 12-month period, it is the responsibility of the site manager to organise a formal review of the EMP by a qualified environmental consultant and NSW EPA accredited site auditor.

List of Responsible Parties and Relevant Contact Details

The persons/parties responsible for the implementation and enforcement of the EMP are outlined below and within **Section 4.6** and **Section 7.1**. A list of roles and responsibilities for each party is presented in **Table 11**.

- Site Owner (Western Sydney Parklands Trust);
- Site Manager (TBA). Interim Manager - (02) 9909 2418;
- Site workers/maintenance contractors;
- Qualified asbestos supervisor / removalists; and
- Environmental Consultants and/or competent personnel.

Other relevant contact details include:

- Emergency services (In an emergency contact - 000);
 - Fire and Rescue NSW (Headquarters and general enquiries - (02) 9265 2999;
 - NSW Ambulance Service (State Headquarters) - (02) 9320 7777; and
 - NSW Police (Non-Emergencies) - 131 444.
- NSW Environment Protection Authority - Environmental Hotline. Ph: 131 555
- General Advice - ADE Consulting Group. Ph: (02) 8541 7214.

Legal Obligations, Enforceability and Closure

The site owner has a legal obligation to notify Blacktown City Council upon completion of the project, to ensure the area in its entirety is included within the Section 10.7 planning certificate applicable to the property. This EMP must be provided to Blacktown City Council for registering on the sites Section 10.7 certificate (refer to **Section 7.3.1**).

The EMP is considered to apply for an indefinite period or until significant changes to the current layout are undertaken and will be enforced through a covenant to title (refer to **Section 7.3.2**). A suitability qualified person must be engaged to validate the success of the decommissioning phase and formally update the EMP. Following successful closure, the appropriate regulatory bodies/stakeholders must be informed of the successful decommissioning of the site (refer to **Section 8.1**).

1 Purpose

1.1 Reason for this plan

ADE was commissioned by Abergeldie Complex Infrastructure to prepare an Environmental Management Plan for the management of residual contamination and hazardous ground gases at the Sydney Dragway, opposite Ferrers Road, Eastern Creek, NSW. The EMP applies to areas 1,2,3,7, the northern ticket box and Link Road, including the containment cell positioned beneath Carpark D1. The area covered by the EMP is shown in **Figure 1** and in *Appendix I – Figures*.

The Sydney International Speedway Project is a state significant infrastructure project being delivered by the NSW Government and Sydney Metro to provide a world-class international speedway for the local and global community and racing supporters. The Sydney International Speedway will consist of a new clay-based racetrack, new competitor support and spectator infrastructure and updated communication and safety systems (NSW Government; Sydney Metro, 2020).

Following the identification of bonded asbestos in soil and hazardous ground gases during previous environmental investigations, a practical, cost-effective and sustainable solution was required to minimise potential future exposure pathways that may cause a risk to human health. Due to the nature of the contamination, a 'cap and contain' remediation approach was identified as the preferred remediation strategy for asbestos contaminated material (Hibbs, 2021). The risk presented by hazardous ground gas has been addressed through a combination of barrier, ventilation, monitoring and assessment as specified in Landfill Gas Risk Mitigation Plan (ADE, 2021c).

The scope of the detailed site investigation (ADE, 2021e) was limited due to site restrictions, accessibility and the adopted lateral and vertical investigation limits and it is likely that bonded asbestos contamination remains in parts of the site that were not subject to earthworks for the Sydney Dragway. This EMP also addresses this risk of potential unknown contamination and unexpected finds.

1.2 Objectives

The objective of the EMP is to ensure the ongoing suitability of the site for the current mixed land use being public open space and commercial/industrial, by implementing management measures that protect both human health and the environment for both present and future users of the site.

The EMP addresses the following:

- Provide a detailed description of the location and contamination status of specified risks being;
 - The asbestos containment cell positioned beneath Carpark D1;
 - The possibility of encountering unknown residual contamination within the site;
 - The potential to encounter unexpected finds e.g., asbestos; and
 - The presence of hazardous ground gases within the site.
- Summarise the ongoing management practices necessary to ensure the ongoing protection of both human health and the environment;
- Provide management strategies associated with the responsibilities and implementation of the EMP;
- Outline a framework for the review and revision of the EMP;
- Establish an unexpected finds/incident management protocol; and
- Document environmental monitoring and reporting requirements.

Through the implementation of appropriate environmental management as outlined in this EMP, the exposure of identified contaminants of potential concern (CoPCs) to all users can be minimised.

1.3 Regulatory Framework

This report has been prepared in accordance with guidelines by the NSW EPA under the Contaminated Land Management Act (1997) (CLM Act) including:

- National Environmental Protection Measure (Assessment of Site Contamination), NEPM 2013;
- NSW EPA. (2015). Guidelines on the Duty to Report Contamination under the Contaminated Land Management Act 1997;
- NSW EPA. (2017). Guidelines for the NSW Site Auditor Scheme (3rd edition).
- NSW EPA. (2020a). Guidelines for Consultants Reporting on Contaminated Land.
- NSW EPA. (2020b). Preparing environmental management plans for contaminated land (Practice Note - Consultation Draft).
- NSW EPA. (2020c). Assessment and management of hazardous ground gases.

The investigation was carried out in accordance with the following principal acts and regulations, and national and international guidance.

- Environmental Planning and Assessment Act 1979;
- NSW Safework Code of Practice: How to Manage and Control Asbestos in the Workplace, 2019;
- NSW Safework Code of Practice: How to Safely Remove Asbestos, 2019;
- Protection of the Environment Operations Act 1997;
- Schedule 3 of the State Environmental Planning Policy (State and Regional Development) 2011;
- State of Environmental Planning Policy (SEPP) 55 Remediation of Land;
- The Conveyancing Act 1919;
- The Contaminated Land Management Act 1997;
- Waste Avoidance and Resource Recovery Act 2001;
- Western Australia Department of Health (WA DoH) Guidelines for the Assessment, Remediation and Management of Asbestos Contaminated Sites in Western Australia 2021 (WA DoH, 2021).
- Victoria Environmental Protection Agency (VIC EPA). 2018. Landfill gas fugitive emissions monitoring guideline. Publication 1684, February 2018.
- Work Health and Safety Act 2011; and
- Work Health and Safety Regulation 2017;
- Safework Australia - Workplace Exposure Standards for Airborne Contaminants, 2018.

1.4 Whole Report

No one section or part of a section of this report should be taken as giving an overall idea of this report. Each section must be read in conjunction with the whole of this report and the supporting documents.

2 Background

2.1 Site Identification

The Sydney International Speedway Project is located opposite Ferrers Road, Eastern Creek NSW and is situated within the local government area (LGA) of Blacktown City Council. As a part of the Sydney International Speedway Project, the Sydney Dragway (Areas 1, 2,3,7, the northern ticket box and Link Road) is legally defined as Part of Lot 1 of Deposited Plan (DP) 1077822, Part of Lot 2 of DP 1062965 and Part of Lot 1 DP69882 and is currently zoned as the Western Sydney Parklands as per the Blacktown Local Environmental Plan (LEP) 2015.

The site has an approximate combined area of 9.18 hectares (ha) and was formerly utilised as a recreational/professional speedway and 4WD training facility. The location of the Sydney International Speedway project footprint, the site boundaries and the asbestos containment cell applicable to the EMP is depicted in **Figure 1** and in *Appendix I – Figures*.



Figure 1 - Sydney International Speedway Project footprint outlined in black and the location of areas 1,2,3,7, Link Road, the Northern Ticket Box and the asbestos containment cell ('site') (photograph from Nearmap; accessed on 27.10.2021).

Table 1. Summary of site identification details and information.

Site Project Details									
Site Owner:	Western Sydney Parklands Trust								
Site Address:	Ferrers Road, Eastern Creek NSW								
Sydney International Speedway Project Footprint:	19.81 hectares (ha)								
Site Area:	<table border="1"> <tr> <td>Area 1 – 3.31 ha</td> <td>Area 7 - 1.18 ha</td> </tr> <tr> <td>Area 2 – 2.48 ha</td> <td>Northern Ticket Box – 0.12 ha</td> </tr> <tr> <td>Area 3 - 1.60 ha</td> <td>Link Road - 0.49 ha</td> </tr> <tr> <td>Total: 9.18 ha</td> <td></td> </tr> </table>	Area 1 – 3.31 ha	Area 7 - 1.18 ha	Area 2 – 2.48 ha	Northern Ticket Box – 0.12 ha	Area 3 - 1.60 ha	Link Road - 0.49 ha	Total: 9.18 ha	
Area 1 – 3.31 ha	Area 7 - 1.18 ha								
Area 2 – 2.48 ha	Northern Ticket Box – 0.12 ha								
Area 3 - 1.60 ha	Link Road - 0.49 ha								
Total: 9.18 ha									
Approximate Area of Containment Cell:	1,320 m ²								
Local Government Authority:	Blacktown City Council								
Title Identification:	Part of Lot 1 of DP1077822 Part of Lot 2 of DP 1062965 Part of Lot 1 DP69882								
Current Land Zoning:	Western Sydney Parklands								
Local Environmental Plan:	Blacktown Local Environmental Plan 2015								
Current Land Use:	Recreational/professional speedway and 4WD training facility (Commercial/Industrial)								
GPS Coordinates² of the four corners of the containment cell³:	North-eastern corner: -302749.000, -6256645.602 North-western corner: -302764.352, -6256631.790 South-eastern corner: -302723.433, -6256580.819 South-western corner: -302741.224, -6256576.643								

Notes to Table 1

1 - Applies to the site only.

2 - GPS Coordinates are displayed in MGA94, Zone 56H.

 3 - Refer to *Appendix IV – Architectural Design and Survey Plans* for survey plans.

2.1.1 Site Description

The Sydney International Speedway is located within the Western Sydney Parklands and is approximately 1.4 km south of the M4 Western Motorway and 1.2 km east of the M7 Motorway. The Sydney Dragway is further characterised into four distinct areas and two key locations based on their operational function. These areas comprise of:

- ‘Area 1’ or Carpark D1, which is designated as visitor/spectator carparking;
- ‘Area 2’ or Carpark D2, which is to be utilised as visitor/spectator carparking;
- ‘Area 3’ or Carpark C, which is designated as visitor/spectator carparking;
- ‘Area 7’ or Stockpile 4A, which is to be utilised as an open carpark for visitors and spectators;
- The Northern Ticket Box, which is to be used as a primary entrance point to the Sydney Dragway; and
- Link Road, which is the primary double-lane access road used to access the northern portion of the site.

A metal chain link fence was noted to occupy the periphery of the site to restrict pedestrian access to the main entry way located off Ferrers Road. The Sydney Motorsport Park adjoins the site to the north, which is accessible via Link Road. Scattered remnants of native vegetation were typically observed around the periphery of the Sydney Speedway Project.

2.1.2 Surrounding Land Use

Based on a desktop search and a review of previous reports, the identified land uses which currently surround the site are as follows:

- **North** - Sydney Motorsport Park is located immediately north of the site, which is followed by the M4 Western Highway and a commercial/industrial precinct;
- **East** - A nature reserve (Prospect Nature Reserve) is located immediately to the east, which is followed by Prospect Reservoir, a freshwater surface body;
- **West** - A former closed landfill and resource recovery parks (SUEZ and Global Renewables) are located to the west, which is followed by the M7 Motorway; and
- **South** - A waste management facility (Veolia) and brick manufacturing plant (Austral Bricks) is located to the south.

2.2 Summary of Site History

The earliest available records (1956) indicate that the site was predominantly agricultural/pastoral land with fragments of intermittent woodland. By 1961, minor vegetation clearing was noted and the construction of some small to medium-size buildings were observed within the site boundaries. Vegetation clearing within the site appeared to intensify around 1965, possibly for agricultural purposes such as market gardens.

Bulk excavation activities were noted during 1970, specifically within the south-western portion of the site. In addition, low-density residential buildings were observed within select locations across the site. The site remained relatively unchanged until 1991, in which most of the pre-existing structures appeared to have been demolished. In between 2004-2007, significant earthwork activities were noted which included the development of embankments around the periphery of the site, indicating the possibility of artificial in-filling to raise the ground levels.

The current Sydney Dragway was evident in between 2009 to 2019 in which the site was noted to have been completely developed. Intermittent, remnant stockpiles were evident in certain areas of the site. A review of the NSW EPA databases undertaken during the PSI (Jacobs, 2020), indicated that there were no records of both former and current notified sites within proximity to the site. However, 5 companies and 13 activities were noted as undertaking licenced activities under the POEO Act 1997.

These activities predominantly involved activities involving waste treatment, generation and disposal. Two of the five companies were noted to be adjacent to the site whilst the other three were operating within a 500-1000m radius. Due to the identified activities, Jacobs concluded that potential contamination issues resulting from the migration of leachate and landfill gas may have the potential to impact soil, groundwater and ground gas within the site.

For more information, a detailed review of the site history is provided within the PSI (Jacobs, 2020).

2.3 Current / Future Site-Use and Layout

The intended future land use of the site following project completion will primarily involve spectator parking (areas 1,2,3,7) and a spectator entry/exit gate and ticket booth (The Northern Ticket Box). Most of the site (90%) will be covered with a permanent hardstand surface which will consist of three primary designs which are dependent on their application and function.

Artificial landscaped areas including but not limited to open turf areas, TerraLink Wall embankments and deep soil planting will also be installed within select areas across the site. A summary of the final site design is presented within **Table 2**.

Table 2. Summary of Final Site Design.

Area	Summary of Final Design
Carpark D1 ('Area 1')	Carpark D1 ('area 1') features a permanent 335mm asphalt hardstand surface) and will be used as visitor/spectator carparking. The carpark will be accessed via a double lane access road positioned within the centre which adjoins Link Road. A pedestrian footpath is present on the eastern boundary which provides pedestrian access to Link Road. Artificial landscapes are typically limited to the northern, eastern and southern boundaries due to the presence of a Terralink wall on the western and north-eastern corner.
Carpark D2 ('Area 2')	Carpark D2 ('area 2') features a permanent 335mm asphalt hardstand surface and will be used as visitor/spectator carparking. The carpark will be access by a dual lane access road positioned in the north-eastern corner which adjoins Link Road. A pedestrian footpath is present along the western and southern boundaries which provides pedestrian access to Link Road. Artificial landscaped areas are primarily situated on both sides of the pedestrian footpath leading to Link Road and along the northern boundary.
Carpark C ('Area 3')	Carpark C ('area 3') is covered primarily with a permanent 335mm asphalt hardstand surface and is to be utilised as additional visitor/spectator carparking. A pedestrian footpath will be situated along the northern boundary of the carpark which provides pedestrian access from the carpark to the round-a-bout adjoining the Southern Internal Access Road and Link Road. Artificial landscapes are scattered around the periphery of the carpark and the primary access road to the carpark.
Stockpile 4A ('Area 7')	Current architectural design plans for area 7 indicate that the soil materials currently present within Area 7 will be levelled out and grass-sprayed to minimise dust generation. Upon completion, area 7 will likely be used as an additional open carpark for spectators and guests.
Northern Ticket Box	<p>The northern ticket box consists of a mixture of hardstand surfaces including pedestrian walkways and soft landscaping. A pedestrian pathway consisting of both stairs and a ramp will provide pedestrian access from Link Road to the ticket booth and gates.</p> <p>A single storey, demountable building is situated along the eastern boundary which will behave as an additional ticket booth for spectators. Steel turnstile gates are positioned directly opposite to the ticket booth thereby acting as a primary entry/exit point the Sydney Dragway. Artificial soft landscapes are primarily situated around the designated pedestrian pathways and along the existing pedestrian pathway opposite Link Road.</p>
North-South Link Road	Current architectural design plans for Link Road indicate that the current condition of Link Road will not change, and the area is intended to remain in its current state. Link Road is primarily utilised as the main double-lane access road which provides access to the northern section of the site including Carparks D1 and D2 and the northern ticket box. Link Road also facilitates access to the adjoining Sydney Motorsport Park.

ADE has not been informed of any proposed changes in the final site layout or land-use after the completion of the Sydney International Speedway Project. Minor changes may be undertaken as part of the ongoing maintenance of the site following the project completion, however, it is highly improbable that ongoing maintenance or minor upgrade works will affect the integrity of the containment cell.

Should a change in any of the above designs occur, it is the responsibility of the site manager to ensure the EMP undergoes a formal review to reflect the updated designs. Any changes must remain compliant with relevant construction standards and ensure a suitable finished surface level devoid of any deficiencies, cracks and/or slumps that may affect the integrity of the completed design. Once the surface levels have been finalised for each proposed design, the EMP must be updated to reflect the final design surface levels.

3 Description of Residual Contamination

The following sub-sections provide an overview of the residual contamination present across the site including the asbestos containment cell. For more information, refer to ADE, 2021a.

3.1 Summary of the Detailed Site Investigation (ADE, 2021a)

ADE was commissioned by the client to undertake a detailed site investigation (Reference No. 21.0201.DSI.v1d (yet to be finalised), within the entire footprint of the Sydney Speedway Project located opposite Ferrers Road, Eastern Creek NSW. The purpose of the investigation was to assess the current soil, groundwater and landfill gas (LFG) conditions across the site in response to the findings of the Stage I Preliminary Site Investigation (Jacobs, 2020).

The investigation involved the completion of test pits, boreholes and the installation of new groundwater and LFG monitoring wells within select locations across the site as per the SAQP (ADE, 2020d). A total of 184 primary soil samples were collected across the footprint of the Sydney International Speedway project and submitted for analysis of CoPCs as outlined within the SAQP (ADE, 2020d).

For the assessment of groundwater and LFG conditions across the site, a total of six groundwater wells and nine LFG monitoring wells were installed and subsequently sampled at prescribed locations across the site. Before sampling, each groundwater well was developed, and an integrity test undertaken for each LFG monitoring well to increase the reliability and validity of the samples obtained within the sampling rounds.

Based on the findings of the investigation, the following conclusions/recommendations were reached:

1 Soil Assessment

- All soil samples collected returned chemical concentrations below the human health and site-specific EIL/ESL criteria for both public open space (HIL/HSL-C) and commercial/industrial (HIL/HSL-D) land use;
- One chrysotile asbestos containing fragment was recorded within the sample collected from BH106 (1.9-2.0), however it was below the prescribed land-use criteria (HIL-D); and
- No fibrous asbestos or asbestos fibres were recorded within any of 500mL NEPM soil samples submitted for asbestos analysis.

2 Groundwater Assessment

- Groundwater SWLs were identified at 59.806 m AHD (MW3), 59.987 m AHD (MW5) and 56.360 m AHD (MW6). Taking consideration of the highly variable elevation profile, groundwater flow direction was inferred to proceed within a south-westerly direction;
- Groundwater samples collected from MW03, MW05 and MW06 demonstrated exceedances for heavy metals above the adopted groundwater assessment criteria and elevated cations, however, were attributed to the regional groundwater salinity and quality.

3 LFG Assessment

- All LFG sampling events recorded a consistent zero or low gas flow and borehole pressure, inferring a low potential for the transportation of hazardous ground gases;
- Methane ground gas was generally localised within LFG6, recording a maximum concentration of 1.4% v/v during the second monitoring round; and
- Carbon dioxide (CO₂) concentrations were reported above 5% v/v in 7 out of 9 LFG wells.
- In accordance with EPA guidelines, the site is Characteristic Situation 2 and warrants protective measures.

3.2 Site-Wide Asbestos Risks

Previous environmental investigations, site inspections and earthworks have identified asbestos containing materials in various areas across the Sydney Dragway. However, in all cases asbestos has been identified to be below the prescribed land-use criteria (HSL-C/HSL-D), with the exception of the material stored within the containment cell in Carpark D1. In the absence of a full-density asbestos quantification assessment as prescribed by the NEPM (NEPC, 2013) and WA DOH (WA DOH, 2009), there is a possibility that soils across the site maybe impacted by asbestos.

Owing to the historical presence and random distribution of asbestos encountered throughout the site and the fact that the site has undergone significant ‘cut and fill’ practices, a site-specific risk assessment was considered appropriate to assess the potential risk to human health with regards to asbestos (refer to **Table 3**).

Table 3. Risk Assessment Matrix

		Consequence			
		Severe	Medium	Mild	Minor
Probability	Highly Likely	Very High Risk	High Risk	Moderate Risk	Moderate/low risk
	Likely	High Risk	Moderate Risk	Moderate / Low Risk	Low Risk
	Low Likelihood	Moderate Risk	Moderate / low risk	Low Risk	Very Low Risk
	Unlikely	Moderate / Low Risk	Low Risk	Very Low Risk	Very Low Risk

Two different levels of asbestos risk are considered to apply to the Sydney Dragway, which are depicted below:

- Carpark D1 and D2 (excluding the embankments and containment cell) are considered to be of **‘moderate / low risk’** with regards to the presence of asbestos, due the following reasons:
 - The centre of Carpark D1 and D2 has been exposed extensive earthworks, resulting in the removal of the upper lying fill materials and subject to the importation of material under an NSW EPA approved RRO;
 - Carpark D1 and Carpark D2 primarily consists of a permanent hardstand surface, thus eliminating the primary exposure pathway for asbestos.

- The embankments of Carpark D1 and D2, The Northern Ticket Box, Area 3 and the stockpiled materials within Area 7 are considered to be **‘moderate risk’**, with regards to the presence of asbestos, due to the following reasons:
 - Carpark D1 and Carpark D2
 - a Carpark D1 has been historically impacted by surficial bonded asbestos contamination, particularly along the northern embankment. Due to the uncertainty surrounding the current contamination status of the embankments, they are considered to be potentially impacted by asbestos for conservative purposes.
 - The Northern Ticket Box
 - a Has been subject to extensive cut and fill practices, resulting in the importation of soil materials from Carpark D1.
 - b Historical surficial bonded asbestos contamination has been identified in the previous investigations; and
 - c The area will be primarily covered in a permanent hardstand surface, thereby minimising the potential exposure pathway for asbestos.
 - Area 3
 - a The current contamination status of the underlying soils remains limited. As the required sampling density for asbestos outlined within the NEPM (NEPC, 2013) has not been achieved, therefore additional sampling is required to validate the area; and

- b The area will be primarily covered in a permanent hardstand surface, thereby minimising the potential exposure pathway for asbestos.
 - o Area 7
 - a The stockpiled soil materials are known to have been impacted by bonded asbestos above the prescribed land-use criteria for public open space (HSL-C), but remaining below the commercial/industrial land-use (HSL-D); and
 - b An asbestos clearance inspection of the soil surface was undertaken, and the soil surface was visually validated as being free of asbestos in accordance with the NEPM (NEPC, 2013).

3.3 Asbestos Containment Cell (Carpark D1)

Asbestos contaminated soil materials sourced from the bulk earthwork activities occurring within Carpark D1 were relocated into the containment cell at Carpark D1. The asbestos containment cell below Carpark D1 is considered to be a **'high risk'**, with regards to the presence of asbestos, due to the following reasons:

- The capped asbestos impacted material contains concentrations of asbestos above the prescribed land-use criteria;
- The status of the re-worked site material positioned above the orange geotextile marker layer is not fully known and is therefore considered to be 'potentially asbestos containing', due to the possibility of encountering asbestos (refer to **Section 3.5**).

The capping design has been updated to reflect the installed hardstand design only.

3.4 Hazardous Ground Gas

As identified during previous environmental investigations (ADE, 2020c), hazardous ground gases have been detected across the site above that of the actionable criteria presented within Table 7 of the NSW EPA Ground Gas Guidelines (2020), resulting in a characteristic situation (CS) value of '2' and a risk classification of 'low'. Carbon dioxide concentrations were reported above 5% v/v in 7 out of the 9 installed LFG wells across the footprint of the Sydney Speedway project.

Methane concentrations were recorded to be generally localised within LFG6, recording a maximum concentration of 1.4 % v/v during the second round of monitoring. All LFG monitoring rounds recorded a consistent zero or low gas flow and borehole pressure inferring that there is low potential for the mobilisation and transportation of hazardous ground gases. The concentrations of methane and carbon dioxide require management in accordance with the provisions for CS2 in the EPA ground gas guidelines.

3.5 'Cap and Contain' Remediation Methodology

The 'cap and contain' remediation methodology prescribed for the construction of the containment cell involved placing asbestos-contaminated soils within a designated excavated area to prevent future exposure. Bonded asbestos-contaminated soils materials removed as part of the topsoil removal work within Carpark D1 were relocated within a containment cell positioned beneath the hardstand of Carpark D1. The design of the containment cell was developed as per Section 8.1 of the AMP (Hibbs, 2021). Airborne asbestos monitoring was ongoing throughout the installation process.

Construction of the containment cell involved excavating an approximate area of 1,320 m² to a depth between an RL of 78.435 m and 79.427 m AHD (refer to *Appendix IV – Architectural Design and Survey Plans*). Assuming a conservative asbestos fill thickness of 0.7 m, approximately 924 m³ of asbestos-contaminated soils were relocated into the containment cell.

The asbestos contaminated soils were positioned between the base of the containment cell (lowest RL 78.435 m AHD) and the bottom of the capping layer (lowest RL 79.034 m AHD) (refer to *Appendix I – Figures and Appendix IV – Architectural Design and Survey Plans*).

An orange geotextile marker layer was positioned at the interface of the known asbestos contaminated soil materials and the bottom of the site sourced material for future identification (refer to *Appendix II – Photographs*). The area above marker layer was then raised using existing site materials sourced from the Carpark A, Carpark D1 and the Circuit Area.

To achieve the surface levels for the design sub-grade (RL 82.0 m AHD), the imported existing site material was raised in select areas, recording a maximum material thickness of 3.529 m or positioned between an RL of 79.034 m AHD to 79.844 m AHD (refer to *Appendix IV – Architectural Design and Survey Plans*). The subsequent sub-grade level was recorded in between a RL of 81.340 m AHD to 83.115 m AHD. The elevation of the asphalted finished level was recorded at an RL of 81.685 m AHD to 83.469 m AHD (refer to *Appendix IV – Architectural Design and Survey Plans*).

Due to the high probability of encountering asbestos and the limited characterisation of the material utilised for the capping layer and overlying site sourced material, all materials below the pavement design within the footprint of the containment cell are considered to be ‘*potentially asbestos containing*’. Therefore, the definition of the capping design has been updated to reflect the hardstand design only.

3.6 Topography and Geology

The site generally slopes from east to west towards Ferrers Road and Eastern Creek and contains a mixture of flat terrain and gentle crests ranging between 64-88 m AHD. The site contains unknown landfill materials or has been subject to artificial landscaping used to raise the topographic gradient of the site (Jacobs, 2020).

The site is underlain by the Bringelly Shale of the Wianamatta Group and a narrow strip of Quaternary Alluvium which is located along the western section of the site, alongside Eastern Creek. Bringelly shale consists of a mixture of highly ceramic shale, which features claystone, siltstone, laminate, sandstone, coal, tuff with the occasional sandstone outcrop. Quaternary alluvium consists of fine-grained sand, clay and silt formed from fluvial deposition (Jacobs, 2020). **Table 4** provides a summary of the typical encountered sub-surface lithology across the site.

Table 4. Typical encountered sub-surface lithology.

Layer	Depth Range (m BGL)	Material Description	General Observations
Topsoil / Engineered Fill	0.0 - 1.5 m	Silty SAND / CLAY / Silty CLAY / Sandy GRAVEL / Gravelly SILT	Topsoil was typically encountered within un-disturbed areas of the site and was typically limited to the top 0.5 lithological strata. Engineered fill i.e., sandstone was typically used in varying thickness and typically utilised as road base materials.
Fill / Reworked Natural Materials	0.0 - 15.0	Clayey SAND / Gravelly CLAY / Sandy CLAY /	Was observed to occur directly beneath the topsoil, engineered fill and/or soil surface until natural soils were encountered (if applicable). This lithological profile was typically consistent with the material which had been placed since the commencement of bulk earthwork activities.
Residual Clays / Quaternary Alluvium	0.0 - 14.4	Sandy CLAY / CLAY	Typically occurred below the upper lying topsoil, engineered fill or general fill materials and above the Bringelly Shale formation. Observed to occur at the soil surface within areas which were subject to extensive earthworks and cut and fill practices.
Bringelly Shale Formation	1.1 - 12.0	Dark grey / Light brown / Light Grey	Occurred beneath residual clays/quaternary alluvium lithology strata which continued until the vertical limit of the investigation was encountered. Occasional isolated pockets of natural clays were encountered within the formation.

Notes to Table 4

1- Refer to *ADE, 2021c* for test pit/borehole logs containing detailed lithological descriptions.

3.7 Hydrology and Hydrogeology

Surface water run-off and drainage is expected to flow towards Eastern Creek. Surface water is presumed to either infiltrate into the sub-soil profile or be captured by onsite drainage retention systems scattered across the site.

Groundwater was observed to recharge at a slow rate which was noted to be consistent with the local hydrogeology of the site consisting of a low yielding clayey water bearing zone (WBZ). Groundwater is inferred to flow within a south westerly direction towards Eastern Creek. Groundwater SWLs were identified at 66.396 m AHD (MW2), 59.806 m AHD (MW3), 58.987 m AHD (MW5) and 56.360 m AHD (MW6), which can be attributed to the varying topographical profiles encountered across the site. Several large commercial landfills are present in the general area of the site, due in part to the low permeability natural clays. Groundwater in the shallow aquifer at the site has limited value for beneficial use.

Groundwater ingress was typically reported within the Bringelly Shale lithological formation. Any perched groundwater (if present) would be typically localised within residual clay materials (Jacobs, 2020). Due to a low hydraulic gradient, groundwater was observed to proceed relatively slowly within a southerly direction towards Eastern Creek.

4 Management Activities and Procedures

The following sub-sections provide specific details on management activities and inspection and sampling requirements that are to be implemented for the long-term management of residual contamination and the asbestos containment cell. Due to the confirmed presence of bonded asbestos and uncertainty surrounding the current contamination status, all personnel must also review and adhere to the health and safety management protocols outlined within **Section 5** of the EMP before undertaking any intrusive/disturbance works within the site. Refer to *Appendix VII - Monitoring Checklist* for a monitoring checklist.

4.1 General Management of Residual Asbestos Contamination

The following management practices are considered to be '**passive**', requiring minimal long-term management, invoking varying levels of asbestos controls based on the probability of encountering asbestos within the site. The following levels of controls are to be implemented across the Sydney Dragway:

- Level One - Will comprise areas considered to be of a '**moderate/low risk**' with regards to the potential of encountering asbestos and will include areas including the centre of Carparks D1 and D2 (excluding the containment cell); and
- Level Two - Will comprise of areas considered to be of both '**moderate risk and high risk**', with regards to the potential of encountering asbestos and will include areas including the containment cell, the embankments of Area 1 and Area 2, Link Road set back area, The Northern Ticket Box, Area 3 and Area 7.

Before undertaking any intrusive activities, all workers must be briefed on the potential risks and develop an appropriate plan for managing the risk to human health and any waste generated by the proposed works. The following management protocols must be implemented in conjunction with the requirements outlined within the OEMP (refer to **Section 4.3**).

All intrusive works across the site must be accompanied with an asbestos management plan (AMP) which outlines necessary management protocols to minimise the human and environmental risks associated with asbestos. The AMP must be prepared by a suitability qualified environmental consultant or occupational hygienist. The AMP shall also include the management protocols surrounding the excavation and segregation of clean and potentially impacted asbestos materials.

4.1.1 Residual Asbestos Contamination Management - Level One

Level One asbestos controls shall be implemented within areas considered to be of ‘moderate/low risk areas’ with regards to the potential of encountering potential asbestos containing material. Moderate/low risk areas are considered to possess the key characteristics which minimise the associated risk of encountering asbestos. Generally, level one controls are considered to apply to the following areas (refer to *Appendix I – Figures* for the applicable areas):

- Carpark D1 - Centre Only (Excluding the containment cell and embankments).
- Carpark D2 - Centre Only (Excluding the embankments);
- Link Road - Road footprint only.

The following sub-sections outline the asbestos-related management practices which must be implemented within a ‘moderate/low risk area’ or level one management scenario.

4.1.1.1 Preliminaries and Site Establishment

All intrusive activities must be undertaken within a fenced off or isolated area accompanied by appropriate signage as to prevent any pedestrians or other personnel from accessing the affected area. Before the commencement of any intrusive activities, all workers must attend a suitable toolbox talk or pre-start which addresses the following items:

- Outlines the minimum PPE requirements (refer to **Section 4.1.1.2**);
- Ensure all workers have had asbestos awareness training (refer to **Section 5.3**);
- Establishes the contingency/incident response protocol (refer to **Section 4.7**); and
- Outlines the emergency contacts and response list (refer to **Section 4.6**).

4.1.1.2 Personal Protective Equipment (PPE) Requirements

As per the minimum requirements outlined by NSW Safework, all workers must wear the minimum PPE requirements outlined within **Table 5**. All PPE used for the removal of asbestos shall be inspected before the commencement of the asbestos removal work to check for any PPE related defects. Upon completion of the intrusive activities, all used PPE must be stored within heavy-duty 200µm thick asbestos bags and disposed of at a suitably licenced receiving facility.

Table 5. Level One Minimum PPE Requirements.

Requirement	PPE
Site requirement (general)	High visibility vest
	Long sleeve shirts and pants
	Hard hat
	Steel cap boots
	Eye protection (safety glasses)
Level One - Moderate/low Risk Areas	P2 or P3 respirator mask (Fit tested)
	Disposable gloves

Notes to Table 5

- 1- All workers must be cleanly shaven or have no facial hair to achieve an appropriate facial seal before any works.
- 2- A fit-tested P3 respirator mask must be worn when working in friable asbestos conditions.
- 3- All workers must be fit-tested to ensure the respirator produces an adequate facial seal.
- 4- Refer to *Appendix I – Figures* for a figure of applicable areas.

4.1.1.3 Contingency/Incident Protocol and Review Process

Should asbestos be encountered within a level one risk area, all intrusive activities must cease, and the contingency/incident protocol implemented immediately. Whilst activities are pending for further assessment, all management protocols outlined for level two asbestos management must be implemented as soon as practical.

Upon further review and following approval by a NSW EPA accredited site auditor, areas within the site may be subject to a higher or lower tier asbestos controls based on future assessments or the identification of asbestos.

4.1.2 Residual Asbestos Contamination Management - Level Two

Level Two asbestos management will be implemented within areas considered to be of either a 'moderate risk or high-risk area' with regards to the potential of encountering potential asbestos containing material. Both risk areas are considered to possess characteristics which may have a higher probability to encounter residual asbestos contamination. Generally, level two asbestos controls are considered to apply to the following areas (refer to *Appendix I – Figures*, for the applicable areas):

- Carpark D1 Containment Cell;
- Carpark D1 and Carpark D2 - Embankments only;
- The Northern Ticket Box;
- Link Road setbacks;
- Area 3; and
- Area 7.

Should any intrusive activities be undertaken within a level two area, the following sub-sections outline the asbestos-related management practices which must be implemented within a 'moderate risk area to high-risk area' or require level two asbestos management practices.

4.1.2.1 Site Establishment and Supervision

Any disturbance activities which occur within a '*moderate or high-risk area*' must be supervised by a competent person or NSW Safework Licenced Assessor (LAA) and at least one class B asbestos removalist. Before any works, all appropriate documentation including this EMP, a task-specific SWMS and the asbestos removal control plan (ARCP) must be reviewed and acknowledged by all workers involved.

A safety toolbox must be undertaken to ensure that all workers are briefed about all risks associated with the proposed work. Following the toolbox talk and preliminaries, a suitably fenced exclusion zone lined with 200µm heavy-duty polyethylene plastic or equivalent must be established to limit access to the work area. The exclusion zone must be designed to prevent any potential exposure to personnel or members of the public present within the site.

The exclusion zone must carry appropriate signage, including details of the hazard and the main site contact details (i.e., site supervisor). Personal protective equipment will be readily available during works, with a decontamination unit/area placed in a designated and readily accessible location. All asbestos-contaminated waste must be stored within heavy-duty 200µm thick asbestos bags and disposed of at a licenced receiving facility.

4.1.2.2 Personal Protective Equipment (PPE) Requirements

PPE must be always worn when undertaking work in the asbestos removal area or handling potential asbestos products and until such a time as it is deemed safe by the LAA / Hygienist (refer to **Table 6**). All PPE used for the removal of asbestos shall be inspected before the commencement of the asbestos removal work for any PPE related defects.

Table 6. Level Two Minimum PPE Requirements.

Requirement	PPE
Site requirement (general)	High visibility vest
	Long sleeve shirts and pants
	Hard hat
	Steel cap boots
	Eye protection (safety glasses)
Level Two - Moderate Risk Areas	P2 or P3 respirator mask (Fit tested)
	Disposable gloves
	Tyvek® disposable coveralls or equivalent
	Disposable gloves
	Disposable boot covers

Note to Table 6

- 1- All workers must be cleanly shaven or have no facial hair to achieve an appropriate facial seal before any works.
- 2- A fit-tested P3 respirator mask must be worn when working in friable asbestos conditions.
- 3- All workers must be fit-tested to ensure the respirator produces an adequate facial seal.
- 4- Refer to *Appendix I – Figures* for a figure of applicable areas.

4.1.2.3 Asbestos Air Monitoring

Asbestos air monitoring needs to be carried out for the duration of the works to confirm the control measures have been adequately put in place.). It is the responsibility of the site manager to ensure that all airborne asbestos monitoring results are made publicly available to all workers and personnel.

Air monitoring locations will be selected at the discretion of the LAA or by a competent person, however, it is recommended that the air monitors are positioned along the boundary of the exclusion zone, within high traffic areas such as the decontamination area and any cabin of utilised heavy plant equipment. **Table 7** provides the airborne asbestos monitoring action trigger criteria as specified within NSW Safework, 2019b.

Table 7. Airborne Asbestos Monitoring Action Trigger Criteria.

Action Level	Control	Action
Less than 0.01 fibres/mL	<ul style="list-style-type: none"> • No new control measures are necessary 	<ul style="list-style-type: none"> • Continue with control measures
Between 0.01 and 0.02 fibres/mL	<ul style="list-style-type: none"> • Review • Investigate • Implement 	<ul style="list-style-type: none"> • Review control measures, • Investigate the cause, and • Implement controls to eliminate or minimise exposure and prevent further release.
More than 0.02 fibres/mL	<ul style="list-style-type: none"> • Stop removal works • Notify Regulator • Investigate the cause • Implement controls to eliminate or minimise exposure and prevent further release • Do not recommence removal work until further air monitoring is conducted 	<ul style="list-style-type: none"> • Stop removal works; • Notify the relevant regulator (SafeWork NSW) by phone followed by a written statement that work has ceased and the results of the air monitoring, • Investigate the cause, conduct a thorough visual inspection of the enclosure (if used) and associated equipment in consultation with all workers involved with the removal work, • Extend the isolation area and implement controls to minimise further exposure, and • Do not recommence work until fibre levels are at or below 0.01 fibres/ml.

4.1.2.4 Dust and Sediment Control

Dust emissions must be minimised during all excavation works. Water suppression techniques are required to be utilised throughout any intrusive excavation activities. All stockpiled contaminated material resulting from the excavation works must be wet down and placed on a hardstand surface or have the base lined with black plastic or geotextile. All stockpiles must be covered with 200 µm black plastic or geotextile with an appropriate exclusion zone and signage established if left over a 24-hour period.

Stockpiles must be kept away from stormwater flow paths, including drainage lines and gutters, stormwater pits and inlets to prevent contamination from migrating. Sediment and erosion controls must be put in place during any intrusive works, such as placing sandbags along preferential paths for stormwater (i.e., down gradient slopes) or near stormwater drains.

4.1.2.5 Decontamination Procedures

After completion of removal works personnel must undertake the following decontamination procedures if they have been involved in removal of asbestos:

- Remove and dispose of all disposable PPE appropriately.
- Wash hands, face and exposed skin areas.

All machines involved in the removal process including plant such as excavators and trucks, tools, equipment and cables are to be decontaminated. All cleaning wipes, materials or water must be disposed as asbestos waste. Contaminated items, tools, equipment, and clothing must not be removed from the removal work area unless they have been decontaminated or contained.

Decontamination of Trucks and Plant

Where possible, trucks and plant are to not enter the designated asbestos work area. Excavator and truck windows are to be closed and air conditioning systems set to recycle (not fresh air intake) during all activities inside and adjacent to the asbestos work area if possible.

Trucks and Plant are to be appropriately decontaminated at the edge of the asbestos removal area prior to leaving this area. Vehicles, excavators, etc. are to be decontaminated by brushing off dirt or hosing down and all mud removed, with particular attention given to tyres, tracks, underside of the vehicle's body and other areas which would have contaminated with the asbestos impacted soils.

A wash station must be set up after exiting the asbestos affect area so that plant and trucks can be decontaminated properly. This can be achieved by placing geo-fabric / 200µm plastic lining down on the ground and using a hose to decontaminate the equipment.

If the volume of water used causes surface migration, then the area is to be bunded to an appropriate height to prevent water migrating outside. The water will infiltrate via geo-fabric into the surface within the wash station.

Decontamination of Tools and Equipment

All tools used during asbestos removal work should be fully dismantled (where appropriate), cleaned under controlled conditions and decontaminated using either the wet or dry decontamination procedures described above before they are removed from the removal work area. The method chosen will depend on its practicality, the level of contamination and the presence of any electrical hazards. If tools cannot be decontaminated in the asbestos removal work area, or are to be reused at another asbestos removal work area, they should be:

- Tagged to indicate asbestos contamination; and
- Double bagged in asbestos labelled bags before removing from the asbestos removal work area.

The bags containing the tools must remain sealed until decontamination or the commencement of the next asbestos maintenance or service task where the equipment can be taken into the removal work area and reused under full control conditions.

PPE should be worn when opening the bag to clean or reuse the equipment or tools, and decontamination should only be performed in a controlled environment. In some circumstances it may be better to dispose of contaminated tools and equipment, depending on the level of contamination and the ease of replacement.

Personal Decontamination

Personal decontamination involves the removal of all visible asbestos dust/residue from PPE and Respiratory Protective Equipment (RPE). Personal decontamination must be undertaken each time a worker leaves the asbestos removal work area and at the completion of the asbestos maintenance or service work. Personal decontamination should be done within the asbestos removal work area to avoid recontamination.

Asbestos-contaminated PPE must not be transported outside the asbestos removal work area except for disposal purposes. Before work clothes and footwear worn during asbestos removal work are removed from the asbestos removal work area for any reason, they should be thoroughly vacuumed with an asbestos vacuum cleaner to remove any asbestos fibres and the footwear should also be wet wiped.

RPE should be used until all contaminated disposable coveralls and clothing has been vacuum cleaned with an HEPA filtered H-Class and/or removed and bagged for disposal and personal washing has been completed. Any PPE used while carrying out asbestos removal work must not be taken home by a worker. Personal hygiene and careful washing are essential. Particular attention should be paid to the hands, fingernails, face and head.

4.1.3 General Management of the Asbestos Containment Cell (Carpark D1)

The following management practices are considered to be **'passive'**, requiring minimal long-term management provided that the integrity of the asbestos containment cell and the overlying hardstand capping design is maintained to a suitable standard. Level Two asbestos management protocols must apply when undertaking any intrusive activities within the footprint of the containment cell (refer to **Section 4.1.2**).

4.1.3.1 Surface Inspections and Maintenance Program

Surface monitoring inspections must be carried out periodically once every year to ensure that the hardstand surface or capping layer situated within the footprint of the containment cell is in good condition and maintained to an appropriate standard.

The inspection details must be included in a site register, and include the time/date, the condition of the hardstand surface (including any deterioration if observed), reasons as to why deterioration has occurred (if applicable), and the details of any maintenance works (if carried out). The register must be readily accessible and made available upon request.

If the hardstand surface shows signs of deterioration which has the potential to affect the integrity of the containment cell design i.e., cracks in the surface, maintenance work must occur, ensuring the hardstand condition is returned to its original state as soon as reasonably practicable or within two weeks following identification. If any signs of disturbance or evidence of signs of deterioration are noted within the immediate vicinity (e.g., vegetation distress, significant erosion, unauthorised excavations), the site manager be notified immediately.

If any personnel are unsure as to whether the containment cell has been breached or whether contamination is present, an environmental consultant must be engaged to inspect the area of concern and make an assessment. Ongoing site inspections for hardstand surfaces outside the footprint of the containment cell is not required.

4.1.3.2 Disturbance Activities within the Asbestos Containment Cell

If any intrusive works are scheduled to occur beneath the hardstand surface all appropriate controls and measures assigned for level two asbestos management must be in place to eliminate the potential for exposure to workers and the surrounding environment (refer to **Section 4.1.2**). All personnel who undertake the intrusive activities must be made aware of the existence of this EMP and the containment cell, should any breaches occur.

A diesel spill has been historically identified to have occurred within the footprint of the D1 asbestos containment cell, which due to the proximity of the capping layer was unable to be completely validated. Should potential hydrocarbon staining, or odour be identified during the intrusive works, all works must cease, a suitable exclusion zone established, and the contingency/incident protocol implemented. Delineation and validation activities (as required) must be undertaken by a suitably qualified environmental consultant. Upon completion, this EMP must be updated to reflect the updated status of the site. A site inspection checklist is provided within *Appendix VIII – Site Inspection Checklists*.

4.1.3.3 Reinstatement

Once the works are complete, the site conditions must be reinstated in its original state. If there are any changes to the design of the site, it is the responsibility of the site manager to undertake a formal review of this EMP.

When re-instating the asbestos containment cell, a new marker layer must be installed at the interface of the base of the final hardstand design and the presumed asbestos containing materials. The overlying hardstand design or capping layer must be re-instated as per the original design (refer to *Appendix IV – Architectural Design and Survey Plans*). All soils positioned below the marker layer must be re-instated in their original state. The materials below the geotextile marker layer will be reinstated in accordance with Transport for New South Wales (TfNSW) Specification R44, ensuring a minimum earth fill compaction ratio of 98% and a SMZ/DGB compaction ratio of 102%.

If excavation works occur at or over the edges of the containment cell, a new marker layer must be placed on the walls of the excavation to behave as a lateral delineation marker. Any changes to the containment cell or overlying capping design must be surveyed by an appropriately licenced surveyor. All updated survey plans will be made available and the attached to the EMP. Any excess spoil generated as part of the reinstatement works must be disposed of off-site at a licenced facility in accordance with **Section 4.4**. It is the site manager's responsibility to ensure that the EMP is updated to reflect any changes to the layout of the site.

4.1.3.4 Final Inspection

Following the reinstatement of the hardstand surface or capping layer, a suitably qualified environmental consultant must be engaged to inspect the area and confirm the contaminated soils have been adequately capped, and the site is considered to be 'safe' with regards to the prescribed land use.

4.1.3.5 Decommissioning of the Containment Cell

Should the containment cell require decommissioning, all management practices outlined within **Section 4.1.3** must be implemented. Following the relocation and/or disposal of the encapsulated/presumed asbestos-contaminated materials, the walls and the base of the containment cell must be visually inspected for signs of asbestos by a competent person or Safework LAA.

As outlined in the WA DoH (2009), a gravimetric asbestos assessment must be undertaken for all asbestos associated validation activities. At a minimum, samples must be collected from each wall and base of the excavated footprint. A fresh 500mL soil sample must then be collected from each sampling location and analysed for AF/FA at a NATA accredited laboratory. Following the initial visual inspection, a visual clearance must be obtained, which certifies that the footprint of the containment cell is visually free of asbestos.

An asbestos clearance report must then be prepared by a suitability qualified environmental consultant to demonstrate that the containment cell has been decommissioned to a satisfactory standard. Upon completion of the decommissioning phase, a suitably qualified person must be engaged to update the EMP and attach all relevant supporting documentation.

4.1.4 General Management of Area 7

All intrusive activities must conform with level two asbestos contamination management practices (refer to **Section 4.1.2**). Due to the limited characterisation assessment undertaken within Area 7, the current condition i.e., final form and vegetative state, must be maintained to a suitable standard. An asbestos clearance inspection and subsequent validation must be undertaken by a suitably qualified person at the completion of any intrusive activities within Area 7 (refer to **Section 4.1.6**).

Should the proposed land-use change, more than two metres of soil is removed from the current surface or soil materials are intended to be beneficially re-used within the project boundaries, an assessment in accordance with the NEPM (NEPC, 2013) and the WA DOH, 2009 must be undertaken. The assessment must conclude that the material assessed is suitable for the intended land-use. Before a change in the proposed land use, representative samples of the entire sub-surface profile must be collected, ensuring that samples are collected at the base of the Area 7 stockpile.

Before the installation of any service-related infrastructure within the stockpiled materials situated within Area 7, approval must first be obtained by an NSW EPA accredited site auditor. All assessments must be reviewed and assessed by an NSW EPA accredited site auditor to ensure that Area 7 remains suitable for the current/future land use. A site inspection checklist is provided within *Appendix VIII – Site Inspection Checklists*.

4.1.5 General Management of Link Road (Setbacks Only)

All intrusive activities within the Link Road must conform with level two asbestos contamination management practices (refer to **Section 4.1.2**). The setbacks or vegetation corridor on the western side of Link Road must be maintained to a 'suitable standard' and formerly inspected on an annual basis. A minimum of 100m landscaped 'cap' must be positioned and maintained across the setback area which typically consists of a landscaping material or site-subsoil mixture e.g., mulch or topsoil.

Should any material within the setbacks be intended for beneficial re-use within the site boundaries, the material must be deemed suitable for the prescribed land-use in accordance with the NEPM (NEPC, 2013) and the WA DOH, 2009. Before application or commencement of maintenance activities, due care must be considered to avoid any detrimental harm to existing vegetation by erecting appropriate exclusion zones and signage e.g., establishing 'Tree Protection Zones'.

4.1.6 Asbestos Clearance Inspections and Validation Requirements

Upon the completion of any asbestos removal works or disturbance activities, an asbestos clearance must be supplied by an independent, suitably qualified person i.e., LAA or occupational hygienist before re-occupation. The inspection must conclude that the removal area/work area is visually free of suspected/confirmed ACM and that the area is considered 'safe' with regards to the former asbestos hazard. A visual clearance certificate must be provided to the site manager, ensuring all relevant documentation are recorded within a suitable register.

To validate that the site is suitable for the prescribed land-use and remove the requirement for asbestos management under the EMP, the entire site must be assessed for asbestos in accordance with WA DoH Guidelines (2009) and the NEPM (NEPC, 2013). The assessment must be designed and undertaken by a suitably qualified environmental consultant and reviewed by an NSW EPA accredited site auditor.

Upon validation, the EMP must be revised to reflect the results and conclusions of the investigation upon completion. If the site is successful validated for its prescribed land-use, the site manager must inform all relevant parties and stakeholders of the updated status of the site as outlined within **Section 7.2**.

4.2 General Management of Hazardous Ground Gas

The following monitoring activities and procedures are required upon commencement of the defect liability period and must continue on a quarterly basis for a period of 12-months to collect sufficient data to enable a review of the controls. The first monitoring period must commence within the first three months following the commencement of the defect liability period.

Following the 12-month period, the site manager must organise a formal review of the EMP to evaluate the success of the implemented controls and assess the need for further controls and/or monitoring (refer to **Section 6.2**). Upon approval by a NSW EPA accredited site auditor, a reduced monitoring frequency or termination of the program may be considered.

4.2.1 Post-Construction Monitoring

Post-construction monitoring is required to evaluate the effectiveness of the implemented controls and ensure that there is a minimal risk to human health and the environment. The results of the monitoring may also serve as a trigger for a further review should the implemented controls fail to provide an adequate level of protection.

Due to the potential for hazardous ground gas formation, all personnel must wear a calibrated 4 in 1 gas detector or equivalent for the duration of each monitoring event. The gas detector must be capable of measuring hazardous ground gases including methane, hydrogen sulphide and carbon monoxide at concentrations within parts per million (ppm).

4.2.1.1 Type 1 - Sub-Floor Monitoring

To assess the effectiveness of the installed sub-floor ventilation systems installed within the Northern Ticket Box, the sub-floor gas concentrations and air flow rate must be monitored from each surface vent pipe every quarter over a 12-month period, depending on accessibility. All landfill gas vents are located on the roof of the building and due to poor accessibility have yet to be validated. Should sampling occur, each vent must be designated a unique identifier which is consistently used across the entire post-construction monitoring phase (refer to *Appendix II – Photographs* for vent locations). Before undertaking each sampling event, a thin Teflon tubing is recommended to be inserted (if practical) into each vent to obtain representative readings.

All monitoring events will aim to encompass a range of weather/barometric pressure conditions and be undertaken during a period of low or declining atmospheric pressure. Firstly, the sub-floor air flow rate and windspeed is to be measured using a hand-held hot-wire anemometer e.g., VelociCalc®, through a suitable access/sampling port.

Sampling is only to be undertaken when the recorded windspeed is 0.3m/s or lower. Once the windspeed has been recording, ground gas monitoring is to be completed using a suitable portable landfill gas analyser e.g., GA5000 or similar with a telescopic probe attachment. The probe is to be inserted within the orifice of the vent via a suitable access port which limits the ingress of atmospheric air. Before the collection of ground gas readings, a minimum of three tube volumes must first be purged. One tube volume is to be calculated using the following equation:

$$\text{One tube volume} = \pi \times \text{radius of the tube}^2 \times \text{length of tube}$$

Upon removal of at least three tube volumes, readings are to be collected across a minimum period of three to ten minutes or upon stabilisation (three consecutive readings within the stabilisation criteria).

Before moving to the next sampling location, the landfill gas analyser must be purged with clean air between each sampling location as per the manufacturer’s instructions. Environmental conditions such as prevailing weather conditions, the time and day of the sampling event and the conditions of each sub-floor vent must be recorded.

Should a defect, blockage or other deficiency be identified during the post-construction monitoring, the site manager must be notified immediately and fixed as soon as practical. A summary of the post-construction sub-floor monitoring program and the relevant trigger criteria is presented within **Table 9**.

4.2.1.2 Type 2 - Indoor Monitoring and Surface Inspections of Enclosed Buildings and Structures

For the purposes of assessing the risk to human health in relation to hazardous bulk ground gases such as CH₄, CO₂, CO and H₂S within indoor environments, the Safework Australia Workplace Exposure Standards for Airborne Contaminants (WESAC, 2018) have been adopted as prescribed in NSW EPA, 2020. Due to the ‘medium to high’ volume of pedestrian traffic estimated to occur within enclosed buildings and within the site, both the time-weighted average (TWA) and short-term exposure limits (STEL) were considered appropriate depending on the daily use of each structure. The TWA and STEL criterion are illustrated within **Table 8**.

Table 8. Indoor Hazardous Ground Gas Assessment Criteria (Adopted from Appendix A - WESAC, 2018 & NSW EPA, 2020).

Ground Gas	Human Health Assessment Criteria				Actionable Trigger Criteria for further investigation (ppm v/v)
	TWA ² (ppm)	TWA ² (mg/m ³)	STEL ¹ (ppm)	STEL ¹ (mg/m ³)	
Methane (CH₄)	-	-	-	-	500ppm or 0.05% v/v
Carbon Dioxide (CO₂)	5,000	9,000	30,000	54,000	-
Carbon Monoxide (CO)	30	34	-	-	-
Hydrogen Sulfide (H₂S)	10	14	15	21	-

Notes to Table 8

- 1 - STEL calculations refer to the time-weighted average maximum airborne concentration of the designated substance calculated over a 15-minute exposure period. Exposures must not extend beyond 15 minutes. A minimum of 60 minutes is required between successive exposure events.
- 2 - TWA calculations refer to the time-weighted average maximum airborne concentration of the designated substance calculated over an eight-hour working day, for a five-day working week.
- 3- The 500-ppm v/v surface emission rate of methane has been adopted as per Section 3.6.2 of the NSW EPA Assessment and Management of Hazardous Ground Gases (NSW EPA, 2020), as a conservative trigger value for methane concentrations.

Routine indoor air quality monitoring must be carried out to assess the potential risk to human health as a result of hazardous ground gas formation within all enclosed structures. A suitability qualified environmental consultant must be engaged to undertake a site inspection of each enclosed structure/room. All inspections must include a register, which should consist of the time/date, the condition of the building including its foundation, any deterioration if observed, reasons as to why deterioration has occurred, and details on the reinstatement (if carried out).

Indoor air quality monitoring must be undertaken using a low-concentration methane detector e.g., Spectra laser and a calibrated landfill gas analyser positioned within the top 50 mm of air above the hardstand surface. Specific attention should be considered for potential point sources such as surface cracks, depressions, around service ingress points and within electricity fuse boxes, cabinets and wall cavities. A photo-ionisation detector (PID) or similar device will be used to screen for volatile organic compounds (VOCs). Extra care will be taken to avoid areas which may be exposed to potential sources of VOCs such as areas containing diesel fumes or fuel storage areas.

Before the collection of bulk gas readings, all room external orifices e.g., windows, doors must be closed, and a minimum of 24 hours must be allowed before the commencement of any indoor sampling. Bulk ground gas readings must be collected across a minimum period of three minutes and up to ten minutes or upon stabilisation of readings. A transect-approach must be adopted for the portable low-concentration methane detector ensuring that the building footprint has been adequately assessed.

Transects must not adopt intervals greater than 25m. Depending on the size of the indoor environment, a minimum of three passes is recommended to adequately cover all potential gas migration pathways. The routine monitoring program for the assessment of indoor air quality within enclosed structures is presented within **Table 9**.

4.2.1.3 Type 3 - Monitoring of Subsurface Services and Confined Spaces

Routine post-construction monitoring of all accessible sub-surface services and confined spaces must be undertaken to assess for the potential of landfill gas migration to occur. The monitoring must involve a detailed visual inspection and gas monitoring using a low-concentration methane detector with an extended probe e.g., Spectra laser. The detailed visual inspection must be recorded on an appropriate register and in the event that a defect is identified, the site manager notified immediately.

Readings should be obtained by inserting the probe directly into the sub-surface service ensuring minimal ingress of air into the structure. Monitoring must be undertaken across both the lateral and vertical profile of the service to account for the varying composition and densities of individual gases. Potential point sources such as surface cracks, junctions within services or depressions within the underlying service must be investigated. Following completion of the monitoring, the calibrated equipment must be purged with clean air before proceeding to the next sampling location. LFG monitoring of vented sub-surface services such as stormwater drains or confined spaces with an active ventilation system e.g., irrigation tank is not required.

Table 9 details the monitoring program and relevant trigger criteria for the assessment of subsurface services and confined spaces.

4.2.1.4 Type 4 - Environmental Hazardous Ground Gas Monitoring

Landfill gas monitoring must be undertaken of all existing landfill gas monitoring wells within the footprint of the Sydney Dragway. Landfill gas monitoring is to be collected using a portable landfill gas analyser e.g., GA5000, which is purged with clean air at each sampling location. Readings must be collected for a minimum of five minutes or until recorded readings stabilise. Field ground gas parameters including the atmospheric pressure, borehole pressure, relative pressure/flow and the concentrations of CH₄, CO₂, O₂, CO and H₂S must be collected (in order) and recorded within each LFG monitoring well. Other environmental factors must also be recorded which include but are not limited to the prevailing wind conditions, the time and day of the sampling event, the current ground conditions.

Table 9 details the monitoring program and relevant trigger criteria for the hazardous ground gas conditions within pre-existing landfill gas monitoring wells.

Table 9. Summary of Prescribed Post-Construction Hazardous Ground Gas Monitoring Program.

Structure / Location	Type of Monitoring	Monitoring Location	Target Parameters	Frequency	Threshold for Action	Additional Actionable Criteria / Factors
Type 1 - Sub-floor Monitoring (refer to Appendix II – Photographs, Photograph 13 / Appendix I – Figures, Figure 11)						
Dragway Ticket Booth (Office)	<ul style="list-style-type: none"> • Portable Landfill Gas Analyser • 4 in 1 Gas Detector • Hot-Wire Anemometer 	Northern Ticket Box, Dragway Ticket Booth, roof, retrofitted vents	<ul style="list-style-type: none"> • Methane • Carbon dioxide • Oxygen • Carbon monoxide • Hydrogen sulphide • Balance gas; • Flow rate; • Differential pressure; • Wind Speed; • LEL/UEL³ 	Every quarter over a 12-month period (minimum 4 events).	If methane in its steady state is detected above 1.0% v/v at a wind speed of 0.3 m/s , the site manager must be notified immediately.	<p>The contingency/incident response protocol for hazardous ground gases (refer to Section 4.7) must be implemented should bulk gas concentrations exceed the following:</p> <p>i) Methane concentrations exceed the threshold for action. ii) Any bulk ground gases exceed their respective TWA concentrations as outlined within Table 8.</p> <p>If any of the above criteria is met, actively monitoring gas concentrations every 24 hours over a 72-hour period. Fans can be turned off if methane levels return below 1% v/v over three consecutive readings obtained across the 72-hour period. Following the fans being turned off, three consecutive readings of methane readings must be recorded below 1% v/v over a 72-hr period. Should methane levels exceed 1% v/v the affected structure must not be used until additional measures are in place</p>
Type 2 - Indoor Monitoring and Surface Inspections of Enclosed Buildings and Structures (refer to Appendix I – Figures, Figure 6)						
Dragway Ticket Booth (Office)	<ul style="list-style-type: none"> • Portable Landfill Gas Analyser • Portable low-concentration methane detector • PID • 4 in 1 Gas Detector 	Northern Ticket Box, Dragway Ticket Booth, entire enclosed structure	<ul style="list-style-type: none"> • Methane • Carbon dioxide • Oxygen • Carbon monoxide • Hydrogen sulphide • Balance gas; • Flow rate; • Differential pressure; • VOCs; • LEL/UEL³. 	Every quarter over a 12-month period (minimum 4 events).	<p>The site manager must be notified immediately if any of the following criteria is met:</p> <ul style="list-style-type: none"> • Hazardous ground gas concentrations exceed the STEL or TWA prescribed within Table 8; • Methane concentrations are recorded above 500 ppm or 0.05% v/v; • VOC concentrations at any point in time exceed 10 ppm⁷. 	<p>The contingency/incident response protocol for hazardous ground gases (refer to Section 4.7) must be implemented should concentrations exceed the threshold for action. Increase ventilation within affected buildings by opening external orifices e.g., windows, doors (if applicable) / turning on reverse cycling air conditioning (if retro-fitted).</p> <p>Isolate and restrict access to affected buildings until further assessment. Actively monitor affected gas concentrations over a 72-hour period. Should concentrations remain above the threshold for action over a 72-hour period, conduct a further assessment.</p> <p>Temporary mitigation measure must be employed e.g., increase in ventilation, until a permanent mitigation measure is employed and validated. Should a temporary mitigation measures be utilised e.g., increase in ventilation, three consecutive readings below the threshold for action must be recorded over a 72hr period until a further assessment is completed. If ground gas levels exceed the threshold for action within the 72hr period, the affected structure must not be used until additional mitigation measures are in place as determined by an environmental consultant and NSW EPA accredited site auditor.</p>
Type 3 - Monitoring of Sub-surface and Confined Spaces (refer to Appendix I – Figures, Figure 10)¹¹						
Electrical and Communication Subsurface Services and all Confined Spaces	<ul style="list-style-type: none"> • Portable Landfill Gas Analyser • Portable low-concentration methane detector • 4 in 1 Gas Detector 	All areas, all accessible electrical or communication sub-surface services and all confined spaces	<ul style="list-style-type: none"> • Methane • Carbon dioxide • Oxygen • Carbon monoxide • Hydrogen sulphide • Balance gas; • Flow rate; • Differential pressure. • LEL/UEL³ 	Every quarter over a 12-month period (minimum 4 events).	The site manager must be notified immediately if methane concentrations are recorded above 500ppm or 0.05% v/v.	<p>The contingency/incident response protocol for hazardous ground gas (refer to Section 4.7) must be implemented should bulk gas concentrations exceed the following:</p> <p>i) Methane concentrations exceed the threshold for action. ii) Any bulk ground gases exceed their respective STEL concentrations as outlined within Table 8.</p> <p>Temporary mitigation measure e.g., increase ventilation must be employed until a permanent mitigation measure is installed and validated. Three consecutive readings below the threshold for action must be obtained over a 72-hr period until a further assessment is completed. If ground gas levels exceed the threshold for action within the 72hr period, the affected location must be isolated until a further assessment is undertaken by an environmental consultant and approved by an NSW EPA site auditor.</p>

Structure / Location	Type of Monitoring	Monitoring Location	Target Parameters	Frequency	Threshold for Action	Additional Actionable Criteria / Factors
Type 4 - Environmental Hazardous Ground Gas Monitoring (refer to Appendix I – Figures, Figure 13)						
All accessible existing landfill gas monitoring wells	<ul style="list-style-type: none"> Portable Landfill Gas Analyser 	LFG1, LFG2 ¹⁰ , LFG3, LFG4, LFG5 and LFG9	<ul style="list-style-type: none"> Methane Carbon dioxide Oxygen Carbon monoxide Hydrogen sulphide Balance gas; Flow rate; Differential pressure; and Borehole pressure. 	Every quarter over a 12-month period (minimum 4 events).	The site manager must be notified immediately if any of the below criteria are met: <ul style="list-style-type: none"> Methane concentrations are recorded above 1% v/v OR CO₂ concentrations above 5% v/v OR Borehole flow above 70L per minute. 	Gas screening value (GSV) must be <0.7 L/hr. The site manager must be notified, and the contingency/incident protocol for hazardous ground gases must be implemented should any exceedances above this criteria be recorded. The resulting exceedance will characterise the site as CS 3 (moderate risk), elevating the current risk level from low to moderate. Three consecutive readings below the threshold for action must be obtained across a 72-hr period until a further assessment is completed. If ground gas levels exceed the threshold for action within the 72hr period, the affected location must be isolated until a further assessment is undertaken by an environmental consultant and approved by an NSW EPA site auditor.

Notes to Table 9

- 1 - The 1.0 % v/v methane criteria have been adopted as a conservative trigger based on Table 9 of the NSW EPA 2020 guidelines as equivalent to very good performance of a passive sub-floor ventilation system at a wind speed of 0.3 m/s.
 - 2- The 500-ppm v/v surface emission rate of methane has been adopted as per Section 3.6.2 of the NSW EPA Assessment and Management of Hazardous Ground Gases (NSW EPA, 2020).
 - 3- All works must cease, and the surrounding area evacuated if methane gas concentration reaches its respective LEL (5% volume/volume) or the UEL (17% volume/volume).
 - 4 - Following the completion of the 12-month period, it is the responsibility of the site manager to organise a formal review of the EMP by a qualified environmental consultant and NSW EPA accredited site auditor.
 - 5 - Refer to Appendix I – Figures and Appendix II – Photographs for photographs which depict the individual vent locations on the roof of the northern ticket box.
 - 6 - Refer to Appendix I – Figures and Appendix IV – Architectural Design and Survey Plans for architectural design plans and individual structure locations.
 - 7 - A conservative VOC threshold criteria has been adopted. Readings must be collected of the ambient air ensuring the collected reading is not impacted by potential cross-contaminating activities e.g., diesel fumes.
 - 8 - Following the 12-month period, the site manager must organise a formal review of the EMP to evaluate the success of the implemented controls and assess the need for further controls and/or monitoring. All changes must be approved by an accredited NSW EPA site auditor.
 - 9 - The vents within the Dragway ticket booth are located on the roof of the building thereby limiting access. All sampling personnel must be appropriately trained for working at heights.
 - 10 - LFG2 was noted to be non-functional during the final site inspection.
 - 11- Should any additional service pits/confined spaces which have the potential to act as a potential gas migration pathway be identified during the post-construction monitoring phase, the pits must be assigned a unique identifier and sampled in accordance with Section 4.2.1.3.
- *LEL - Lower Explosive Limit
 *UEL - Upper Explosive Limit

4.2.2 Entry Requirements for Entering Sub-Surface Service Pits and Confined Spaces

Entry to any confined spaces is regulated under the Work Health and Safety Regulation (2017). Before entry to any confined space, all personnel must have the appropriate training e.g., confined space docket and be issued an entry permit written by a competent person. The entry permit must include:

- Which space it relates to;
- The name of the person permitted to enter;
- The time the work will be done;
- Control Measures for the associated risk for entry and while working;
- A section for the competent person to acknowledge that everyone has left the space.

Due to the potential for ground gas accumulation within confined spaces across the site, it is mandatory that all workers entering a confined space must wear a portable 4 in 1 gas detector which displays key ground gas concentrations including: oxygen, carbon dioxide, methane, hydrogen sulphide and carbon monoxide. Immediate evacuation of the affected area must occur should concentrations exceed the respective upper explosive limit (UEL), lower explosive limit (LEL) or TWA values as presented in **Table 8**.

Due to the hazards associated with the assessment of accessing potentially live sub-surface pits and confined spaces, all accessible pits observed during the post-construction monitoring survey must be inspected within a safe manner. All service pits are to be treated as 'live' unless informed otherwise by a licenced technician. Access and opening of sub-surface service pits are limited to trained technicians only. A unique identifier must be allocated to each accessible, un-allocated sub-service pit or confined space to ensure consistency across all monitoring rounds.

4.2.3 Working at Heights

Due to the positioning of the vents on the roof of the Dragway ticket booth, sub-floor vent access is considered to be working at heights as work is undertaken at a height of at least two metres. Should sub-floor monitoring of the Dragway ticket booth be undertaken, the personnel must have appropriate training i.e., working at heights accreditation and the appropriate controls in place e.g., fall arrest systems. Due to the positioning of the vents, a small mobile elevated work platform (MEWP) can be considered to access the vents safely.

4.2.4 Hazardous Gas Field Equipment Calibration and Minimum Performance Specification Requirements

The two types of hazardous gas field instruments which are required to complete the prescribed monitoring include:

- Portable landfill gas analysers e.g., GA5000 or similar, which measure volumetric concentrations of various landfill gases including methane, carbon dioxide, carbon monoxide, oxygen and hydrogen sulfide; and
- Low concentration methane detectors e.g., Inspectra Laser, which measure methane concentrations in parts per million (ppm).

Both types of equipment must be selected for the appropriate task, be calibrated by an external technician or field calibrated i.e., bump-tested and operated as per manufactures instructions. All calibration certificates including field calibrations must be recorded within an appropriate register and made available upon request. The minimum performance specification requirements for both portable landfill gas analysers and low concentrations methane detectors are outlined within **Table 10**.

Table 10. Hazardous Gas Field Equipment minimum performance specification requirements.

Type of Instrument and Measurements		Minimum Specification Requirements
Portable landfill gas analyser e.g., GA5000	Target Parameters	Methane, carbon dioxide, carbon monoxide, oxygen, hydrogen sulfide, balance gas.
	Accuracy	<u>Methane:</u> ± 0.5% v/v across 0.0 to 5.0% v/v range, ±1.0% v/v, across 5.0 to 15.0% v/v range and ± 3.0% v/v across 15.0% v/v to full scale of instrument. <u>Oxygen:</u> ± 1.0% v/v across full scale of instrument.
	Range	<u>Methane:</u> 0-70% v/v <u>Carbon Dioxide:</u> 0 -40% v/v <u>Oxygen:</u> 0-25% v/v
	Pump Flow Rate	300-600 mL/min in free air
	Relative Pressure	Accuracy: ± 4mb and up to ± 15 mb (max)
	Bore flow measurement	Flow Range: - 10L/Hr to +15 L/hr (± 0.3 L/Hr preferred, ± 0.5 L/hr acceptable)
Low Concentration Methane Detector e.g., Spectra Laser	Accuracy	<u>Preferred:</u> ± 10% of reading or ± 1ppm, whichever is greater <u>Acceptable:</u> ± 25% of reading or ± 2.5 ppm, whichever is greater. Listed accuracies achieved using methane in range of 100 to 500 ppm.
	Repeatability	± 5% across 1 to 10,000 ppm methane range
	Pump Flow Rate	1 L/min in free air
	Response Time	Less than 6.5 seconds for 90% of full response
	Detection Limit	1 ppm methane

Notes to Table 10

1- Table adopted from Table 1 and Table 2 outlined within VIC EPA (2018).

4.2.5 Ongoing Maintenance Requirements

All installed hazardous ground gas ventilation systems and associated infrastructure must be maintained to a suitable standard or applicable construction quality assurance (CQA) plan. Regular maintenance inspections of all installed sub-slab ventilation systems including the vent pipes and allocated service penetrations must be undertaken by a suitability qualified person on an annual basis.

Each inspection must assess the integrity of the infrastructure e.g., sub-floor ventilation systems, installed seals etc, as to identify whether any cracks, slumps, blockages or other deficiency which may have formed that may affect the effectiveness of the installed system. If any damage is suspected or identified, it is the responsibility of the site manager to engage a suitably qualified technician to inspect and complete repairs (if required) to any damaged infrastructure. All completed inspections and repairs must be recorded within an appropriate register.

Should a service which penetrates the ground require repair, or a new service is installed which has the potential to behave as a ground gas migration pathway i.e., electrical or communications, each penetration must be sealed to prevent the ingress of ground gas. The process must be undertaken by a suitably qualified person and must include a combine of a construction grade insulating foam and Sikaflex®, or an equivalent bonding product which is demonstrated to be gas proof. Both products must be demonstrated to prevent the ingress of gas and offer an appropriate seal on the affected service penetration. The installation process must be undertaken as per the manufactures instructions and be well documented, ensuring photographic evidence is obtained throughout the installation process.

4.3 Integration with Environmental Management Systems

This EMP is considered to be a supplemental document to the operational environmental management plan (OEMP) and any relevant sub-plans (Dust Subplan, Traffic and Transport Subplan and Noise and Vibration Sub-Plan) which are to be implemented during the operational phase of the Sydney Dragway. All environmental management practices and conditions must be considered when implementing the management practices and protocols outlined within the EMP.

If a contradiction or conflict of interest is identified between the proposed OEMP and this EMP, a suitable alternative can be considered. Proposed changes will only be considered if the systems have been prepared by a suitability qualified person and in accordance with relevant legislation and/or codes of best practice at the time of lodgement.

Before enforcement, all changes to this EMP must be made by a suitability qualified person (i.e., environmental consultant) and approved by an NSW EPA accredited site auditor. All changes must minimise the risk to human health and the environment as far as reasonably practical.

4.4 Waste Management and Importation Requirements

If the site is disturbed and soil materials are subsequently generated or material is intended to be imported and re-used within the site boundaries, the following waste management and importation requirements will apply.

4.4.1 Minimum Sampling Requirements and Sample Regime

To adequately assess and characterise any excavated materials, samples for stockpiled material must be collected at a rate of one primary sample per 25m³, ensuring a minimum of three samples are collected per stockpile. For volumes ≤2500m³, a minimum of 10 samples must be collected in which a 95% UCL_{average} calculation can be considered. For volumes >2500m³, samples shall be collected at a rate of 1 sample per 250m³ (VIC EPA, 2010)). For asbestos sampling from a stockpile, sampling must be conducted at a rate of 1 per 70m³ in accordance with the WA DOH, 2009, or unless otherwise suitably justified when dealing with large quantities of material.

For materials to be classified *in-situ*, all sampling must be taken in accordance with the NSW EPA Sampling Design Guidelines 1995 (NSW EPA, 1995) and Table 5 outlined within the WA DOH, 2009. A minimum of five sample locations must be completed within an area less than 500m², assuming an approximate 9.5 m grid size. For *in-situ* sampling, each sample must be collected at the soil surface, followed by every-metre thereafter or upon encountering a new lithology, until the excavation depth is reached.

All soil samples must be analysed at a NATA accredited laboratory under chain of custody conditions for the following contaminants of potential concern (CoPCs):

- Heavy metals (arsenic, cadmium, copper, chromium, lead, mercury, nickel and zinc);
- Total recoverable hydrocarbons (TRHs);
- Benzene, toluene, ethyl-benzene, xylenes and naphthalene (BTEXN);
- Polycyclic aromatic hydrocarbons (PAHs);
- Organochlorine pesticides (OCPs) / organophosphate pesticides (OPPs);
- Polychlorinated biphenyls (PCBs); and
- Asbestos (as per the NEPM [NEPC, 2013]).

4.4.2 Requirements for Importation of Soil/ Landscaping Materials

All soil/landscaping materials which are imported to site for application within the site boundaries must be either classified as Virgin Excavated Material (VENM) or meet an NSW approved resource recovery order. To prevent cross-contamination of potential contaminants, recycled aggregate is not to be applied within the site boundaries.

4.4.3 Waste Tracking and Record Keeping

As required by law, all generated/imported waste and materials must be tracked. It is the responsibility of the site manager to ensure all records are collected, maintained and well documented across the lifetime of the EMP.

These records must include the following;

- Details of the primary source location (e.g., address, lot number or GPS coordinates);
- Date of dispatch or collection of the waste;
- Classification of the resource and analysis results;
- Details surrounding the transport of the waste (e.g., truck type and licence plate);
- Business name, ABN and address of the person/organisation receiving the waste;
- Final destination of the waste; and
- Quantity of the waste supplied or received (in tonnes).

Where practical, the site manager will make a reasonable effort to minimise any potential impact on the surrounding environment, including but not limited to mud-tracking and dust/odour suppression. Any waste intended to be sent out of state must comply with the corresponding receiving states waste regulations and guidelines.

4.4.4 Excavation, Material Handling and Stockpile Management

Potentially contaminated stockpiles i.e., materials sourced from within a high-risk asbestos area and 'clean' stockpile i.e., imported landscaping materials, must be stockpiled in a separate, designated area to avoid potential cross-contamination. All stockpiles must be managed as follows:

- Each stockpile area must be clearly identified via signage, ensuring the areas are appropriately isolated and ensuring no cross-contamination occurs between 'clean' and 'contaminated' soil materials;
- A unique identifier is generated for each generated stockpile to assist in material reconciliation and waste tracking;
- All stockpiles must be covered with geotextile or black plastic at the conclusion of each working day or if left over a 24-hour period. If uncovered, all stockpiles must be kept damp to minimise potential dust generation; and
- All stockpile areas must have appropriate erosion and sedimentation controls around the designated area to prevent surface run-off from the area.

All soil movements on-site must be suitably tracked in an appropriate register which provides key details include; date/time, type of material, classification or suitability of material, truck registration details, source location and final destination and amount of material transported.

All excavations must be undertaken as far as reasonably practical as to minimise potential cross-contamination between potentially 'clean' i.e., built-up areas containing imported sandstone and suspected contaminated materials i.e., asbestos impacted materials within the containment cells. All excavations and material handling must adhere to any relevant sub-plans i.e., the OEMP.

4.5 Management Structure and Responsibilities

Table 11 outlines the main parties involved and responsible for the application and implementation of this EMP.

Table 11. Key Roles and Responsibilities.

Role	Responsibility
Site Owner	The site owner must ensure that the EMP is attached to all appropriate property documentation and is transferred to any third party upon sale of the land.
Site Manager	<p>The site manager must implement all administrative and physical controls to ensure that any works being carried out in the site are as per the EMP. The site owner must provide a copy of this EMP to any worker or contractor who may have reason to disturb the current conditions within the site.</p> <p>The site manager must ensure that all workers/contractors operating within the site are aware of this EMP and are inducted to an appropriate level of environmental and emergency procedures. The site manager must demonstrate that any workers/contractors working within the site are fully trained in the management of the risks and hazards associated with asbestos.</p> <p>The site manager is responsible for ensuring that the site remains undisturbed and, should any disturbance be identified, the contingency/ incident response protocol outlined within Section 4.7 is implemented immediately.</p>
Site Workers/Contractors	Site workers/contractors who undertake intrusive works at the site must review this EMP and implement the procedures provided within Section 4 of this report. It is the responsibility of all workers/contractors to raise any safety concerns or report any unexpected finds/unauthorised disturbance of the hardstand surface and/or asbestos containment cell immediately to the site manager upon identification.
Qualified Asbestos Supervisor / Removalist	<p>The qualified asbestos supervisor/removalist must ensure that all appropriate controls outlined within Section 4 are adhered to. A suitable asbestos removal control plan (ARCP) must be developed and be specific to the removal process to appropriately manage any potential human health related risk associated with asbestos.</p> <p>The asbestos supervisor/removalist shall ensure that adequate asbestos controls are in place, e.g., exclusion zone, before the commencement of any disturbance works. The asbestos supervisor/removalist will act as a site controller, ensuring that all personnel entering the exclusion zone have signed onto the appropriate documentation, wear the required PPE and where practical, abide by all asbestos management protocols.</p>
Environmental Consultant	<p>It is the responsibility of the environmental consultant to ensure that any supervision and/or remediation works are undertaken as per the EMP. The environmental consultant must ensure that all supervision, sampling and/or investigative methodologies are completed in accordance with relevant legislation and codes of practice.</p> <p>The environmental consultant is responsible for reviewing and updating the EMP under certain circumstances as deemed necessary by the site manager. Reviewing and updating the EMP will be required during changes in land use or excavation/development works proposed at the site. Finally, all amendments and/or any environmental reports shall be issued to the site manager in a timely manner.</p>

4.6 Emergency Contacts and Response

In the unlikely event of an emergency, the contacts presented in **Table 12** are available.

Table 12. Emergency Contacts and Response.

Name	Role	Contact
Emergency Response - 000		
Fire and Rescue NSW	Headquarters and General Enquiries	(02) 9265 2999
NSW Ambulance Service	State Headquarters	(02) 9320 7777
NSW Police Service	Non-emergencies	131 444
Safe Work NSW	Incident Reporting	13 10 50
NSW Environment Protection Authority	Environmental Hotline	131 555
Sydney Western Parklands		
Peter Marshall	Interim Site Owner/Manager	(02) 9909 2418
General Advice		
ADE Consulting Group	Advice and Consultation	(02) 8541 7214

4.7 Contingency / Incident Response Protocol

If the site has been disturbed without the appropriate prior preparation or any suspected contamination is identified, it is the responsibility of the site manager to organise the immediate implementation of all the necessary controls to eliminate the risk of exposure to workers and prevent the spreading of contamination. Any visual and olfactory signs of potential contamination such as hydrocarbons sheens or odours, chemical staining or offensive odours must be reported immediately to the site manager upon identification. Upon identification, the incident and response protocol must be implemented as soon as practical upon discovery of the find.

In conjunction with the incident and response protocol, all unexpected asbestos finds must be managed in accordance with the unexpected, contaminated land and asbestos finds procedure as outlined within the OEMP. If the procedure is completed by a competent person i.e., environmental consultant, all outlined controls and management practices will be considered directly enforceable under the EMP.

Figure 2 outlines the contingency/incident response protocol and the responsibilities of each stakeholder associated with managing potential risks associated with unknown contamination within the site. **Figure 3** outlines the contingency/incident response protocol for hazardous ground gas.

4.7.1 Contingency Related to installed LFG Mitigation Measures

Due to design and structural restrictions, the Dragway ticket booth did not meet the minimum ventilation requirements as per NSW EPA assessment and management of hazardous ground gases (NSW EPA, 2020). All were retro-fitted on the roof of the Dragway ticket box and due to accessibility issues were unable to be validated. Should monitoring be undertaken in the future, additional mitigation measures may be required such as installing additional sub-floor vents or the installation of a passive ventilation system e.g., whirly birds.

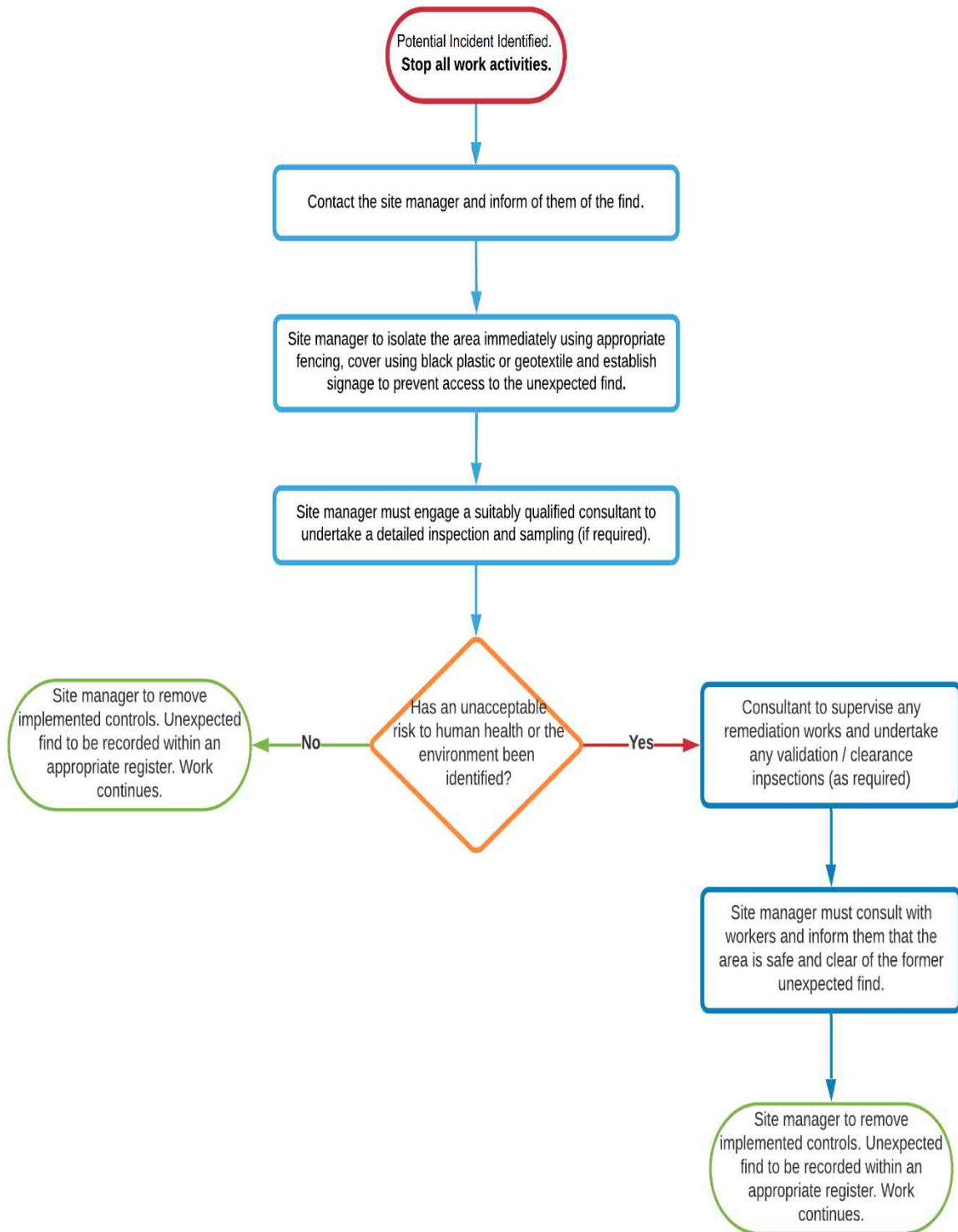


Figure 2 - Contingency / Incident Response Protocol.

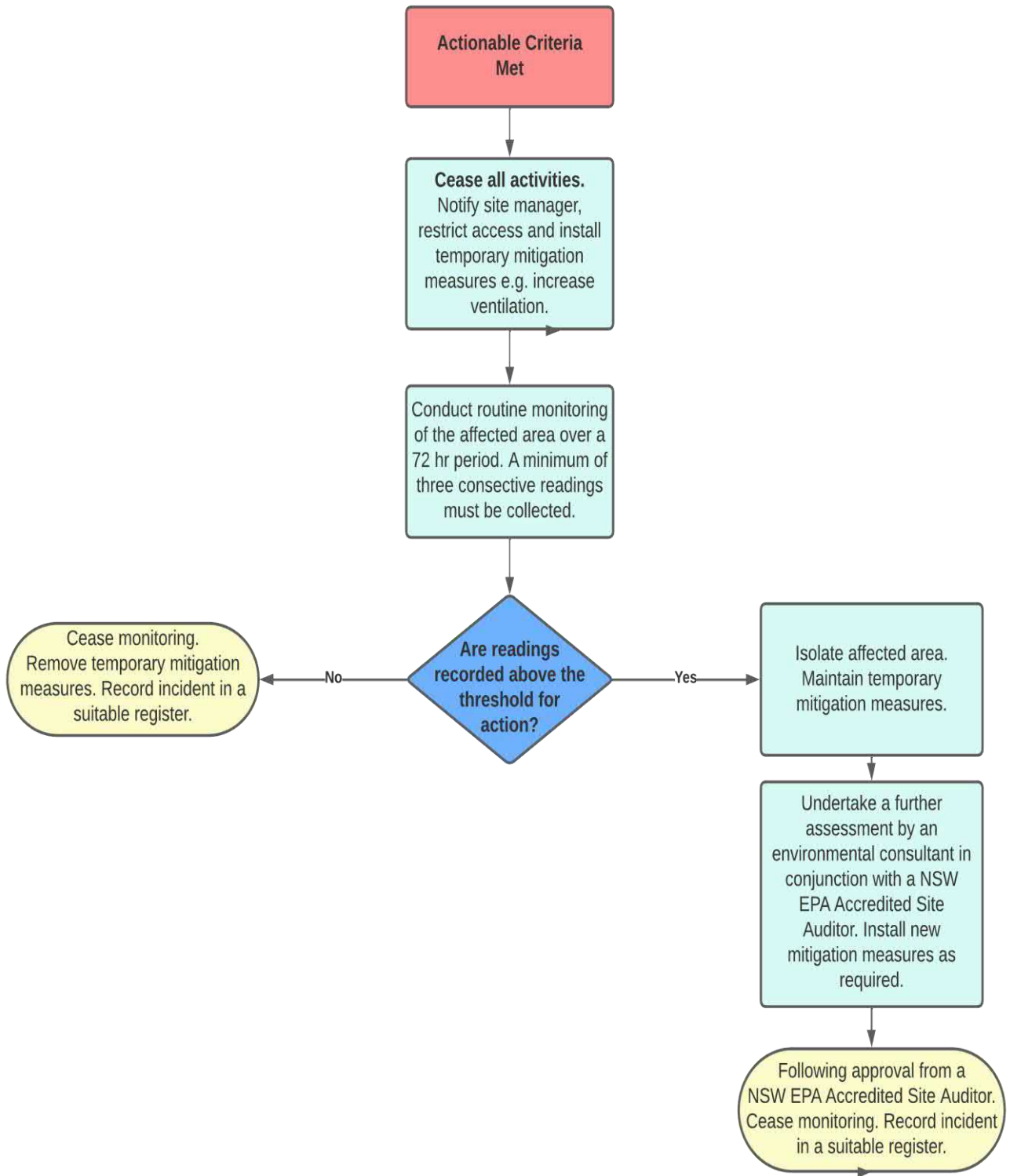


Figure 3 - Contingency / Incident Response Protocol for Hazardous Ground Gas.

5 Health and Safety Management

5.1 Potential Health and Safety Risks Associated with Residual Contamination

Human health and environmental risks that can arise from unknown contamination or residual contamination whilst performing intrusive activities across the site can include:

- Exposure via inhalation of airborne asbestos fibres;
- Exposure via direct contact of potentially contaminated soils through human or mechanical disturbance; and
- Migration of asbestos contamination into the environment via human or mechanical disturbance.

Before undertaking any intrusive activities within the site, all personnel must be informed of the various health risks associated with the proposed works. In addition, all personnel must have suitable training, e.g., asbestos awareness training, site contamination training, and be aware of site-specific risks associated with the proposed work.

5.2 Regulatory Requirements

A SWMS must be prepared before undertaking any high-risk construction work such as activities which 'involves or is likely to involve disturbing asbestos' as outlined within the Work Health and Safety Regulation 2017. The SWMS must include:

- Description of the works to be undertaken;
- Identify the safety risks;
- Describe the control measures implemented as part of the works;
- Describe the equipment and machinery to be used during the works;
- Describe the appropriate PPE required for the works;
- Describe the relevant codes of practice and standards applicable to the works; and
- Provide details on the training and qualifications of the personnel undertaking the works.

Due to the possibility of encountering contaminated asbestos materials during intrusive activities, a SWMS must be prepared for any proposed work involving the disturbance of soil materials across the site.

5.3 Worker and Contractor Training

All site workers and contractors performing intrusive activities within the site require the relevant training about their responsibilities under the EMP. The training must be comprehensive enough to ensure all workers are aware of their environmental responsibilities and are clear on the associated risks when working with potentially contaminated soils including working with asbestos. All workers are required to undergo the following:

- Site induction;
- The role and purpose of the EMP i.e., PPE requirements, associated risks etc;
- Environmental emergency response training; and
- Targeted environmental training for specific personnel i.e., plant operators, may require specific training in dust minimisation.

Records on all training carried out must be adequately maintained. The need for additional or revised training must be identified and implemented at all times by the site manager. All workers must be briefed on the minimum PPE requirements when working under Level One Management Protocols (refer to **Section 4.1.1.2**) and Level Two Management Protocols (refer to **Section 4.1.2.2**).

6 Monitoring and Review Process

A regular monitoring and review process must be implemented to ensure the EMP remains relevant, practical and applicable to legislative requirements. The following sub-sections outline the conditions associated with the monitoring and review of the EMP.

6.1 Reporting Requirements

All environmental reporting must be written in accordance with the *NSW EPA Guidelines for Consultants reporting on contaminated land* (NSW EPA, 2020) and any relevant environmental legislation or codes of practice. All environmental reports and amendments to the EMP must be undertaken by a qualified person (i.e., environmental consultant) and reviewed by a certified environmental practitioner. Upon completion, any additional reports, amendments or cessation of this EMP must be submitted to an NSW EPA accredited site auditor for review and approval.

6.2 Audit and Review Process

The EMP is a working document that will require review and amendments as changes to the site and current legislative requirements occur. Making appropriate amendments will improve the effectiveness of the document. The EMP will apply indefinitely and is to be implemented as long the potential for contamination within the site and the asbestos containment cell remains present.

A review of the EMP must be undertaken by the site manager and a suitability qualified person (i.e., environmental consultant) at a minimum once every five years or if any of the following should occur:

- If the integrity of the capping layer is compromised;
- Changes in the land use of the site;
- Following the identification of a significant environmental or health & safety issue;
- Upon the discovery of an unexpected find/incident;
- Following the completion of the post-construction hazardous ground gas monitoring;
- If any changes are made to the installed hazardous ground gas mitigation measures; and
- Completion of an environmental audit.

Refer to *Appendix IX – Environmental Management Plan (EMP) Review Checklist* for more information.

6.3 Record Keeping

The EMP and all associated records shall be kept for the duration of which the potential for contamination within the soil materials below the hardstand remain present and/or the asbestos containment cell remains present. Upon successful closure of the EMP, all documents, including the EMP itself must be maintained for a minimum period of five years. All records, certificates and documents concerning the site shall be compiled within the EMP and must be made available upon request.

7 Communications and Notifications

7.1 Key Stakeholders

The following lists the key stakeholders which this EMP may impact:

- Blacktown City Council;
- Western Sydney Parklands Trust;
- Nearby business, e.g., Speedway Australia and Sydney Dragway and Sydney Motorsport Park;
- Current/future site owners and users;
- Members of the public;
- Construction workers; and
- Local and state government bodies i.e., NSW EPA and NSW Safe work.

7.2 Stakeholder Communication

All regular employees and/or maintenance contractors must be informed about the site to ensure that no unauthorised intrusive works are completed which may affect the integrity of the containment cell. All personal must also be informed of the contingency/incident response protocol should unknown contamination be identified during any intrusive/maintenance activities being undertaken across the site (refer to **Section 4.7**).

The site owner/site manager will communicate the existence of this EMP and/or any future changes that may occur to any affected stakeholder or potential purchaser to ensure transparency regarding the contamination status of the site.

7.3 Legal Obligations

7.3.1 Public Notification

The site owner has a legal obligation to report the existence of the site to the Blacktown City Council to ensure the areas outlined within the EMP are included within the Section 10.7 planning certificate applicable to the property (WA DOH, 2009; NSW EPA, 2020b). Details of the site, containment cell and the EMP must remain within the site's 10.7 planning certificate indefinitely unless the site is validated for the relevant land-use and the asbestos containment cell has been removed and validated as per **Section 8.1**. This EMP must be provided to Blacktown City Council for registering on the sites Section 10.7 certificate.

7.3.2 Enforceability

It is the responsibility of the site owner/ site manager to ensure the presence of the site and the EMP are recorded as a covenant to the current title of property. The covenant to title must stipulate that the EMP is considered to be legally binding document. Upon property transference, the purchaser must pledge or agree to abide by the management practices outlined within the EMP for the duration of the ownership or until the successful closure of the site (refer to **Section 8**).

7.3.3 Safework NSW

The site manager/qualified asbestos supervisor or removalist have a legal obligation to notify Safework NSW a minimum of five calendar days before undertaking any of the following activities:

- Undertaking licenced asbestos removal work;
- Removing friable asbestos; and
- Removing more than 10m² of non-friable (bonded) asbestos;

An Safework NSW notification must be obtained before the commencement of any of the activities listed above or when implementing level two asbestos management protocols. All Safework NSW notifications must be in-date, relevant to the work area and have a field-based hardcopy accessible at all times during the course of the works. As outlined within **Section 4.1.2.3**, NSW Safework must also be notified should airborne asbestos fibres exceed 0.02 fibres/mL.

7.3.4 Duty to Report Contamination

There is currently no duty to report contamination to the EPA as per the CLM Act, 1997. However, notification will be required if any conditions change (i.e., the site is disturbed resulting in contamination of soil or groundwater above the assessment criteria), or personnel have foreseeably been exposed to elevated levels of asbestos fibres above that of the actionable criteria (refer to Hibbs, 2021).

8 Closure Requirements and Recommendations

8.1 Closure Requirements

The EMP is considered to apply for an indefinite period or until the following conditions are met:

- Significant changes to the current layout resulting in the complete change existing site conditions;
- A change in the prescribed land use; and
- All soil materials within the site have been assessed as per relevant legislation/codes of best practice and validated for the prescribed land-use;
- The hazardous ground gas is not considered to present an unacceptable risk to human health without the implementation of any protection measures; and
- All asbestos impacted soils within the containment cell have been adequately removed and validated.

If any of the above conditions are met, it is the site manager's responsibility to communicate with all relevant stakeholders to ensure transparency in relation to the updated status of the site. The site manager must engage a suitability qualified person (i.e., an environmental consultant) to validate the success of the decommissioned state and confirm that the EMP is no longer required. A secondary, external review must then be conducted by an NSW EPA accredited site auditor to validate the level of appropriateness to remove the EMP. Following closure, the site manager must notify the relevant regulatory bodies e.g., the Blacktown City Council and inform them of the successful removal of the EMP.

8.2 Recommendations

The site manager may consider the implementation of appropriate signage such as 'Do Not Dig' around the footprint of the site. It is recommended that the contamination status of the site be included in future training/induction programs to raise awareness and ensure conformity with the EMP. It is recommended that designated smoking areas are established within well-ventilated areas and in conjunction with relevant legislative requirements.

9 Limitations

This report has been prepared for the exclusive use of the client and is limited to the scope of the work agreed in the terms and conditions of contract (including assumptions, limitations and qualifications, circumstances, and constraints). ADE has relied upon the accuracy of information and data provided to it by the client and others.

In the absence of a complete contamination assessment and an appropriate remedial action plan (RAP), the EMP has been prepared with the information available and must be updated in conjunction with any results, conclusions or recommendations addressed in future reports. No site inspections were undertaken during the installation of the containment cell, all provided photos, construction details and survey plans have been directly supplied by the client. ADE accepts no liability relating to the current and future contamination status of the encapsulated materials.

ADE has used a degree of care and skill ordinarily exercised in similar investigations by reputable members of the environmental industry in Australia. No other warranty, expressed or implied, is made or intended. No one section or part of a section, of this report should be taken as giving an overall idea of this report. Each section must be read in conjunction with the whole of this report, including its appendixes and attachments. The report is an integral document and must be read in its entirety.

To the fullest extent permitted by law, ADE does not accept or assume responsibility to any third party (other than the client) for the investigative work, the report or the opinions are given.

The scope of work conducted, and report herein may not meet the specific needs (of which ADE is not aware) of third parties. ADE cannot be held liable for third party reliance on this document. Any third party who relies upon this report does so at its own risk.

The subsurface environment can present substantial uncertainty due to its complex heterogeneity. The conclusions presented in this report are based on a limited investigation of conditions at specific sampling locations chosen to be as representative as possible under the given circumstances. However, it is possible that this investigation may not have encountered all areas of contamination within the site due to the limited sampling and testing program undertaken.

ADE does not verify the accuracy or completeness of or adopt as its own, the information or data supplied by others and excludes all liability with respect to such information and data. To the extent that conditions differ from assumptions set out in the report, and to the extent that information provided to ADE is inaccurate or incomplete or has changed since it was provided to ADE, the opinions expressed in this report may not be valid and should be reviewed.

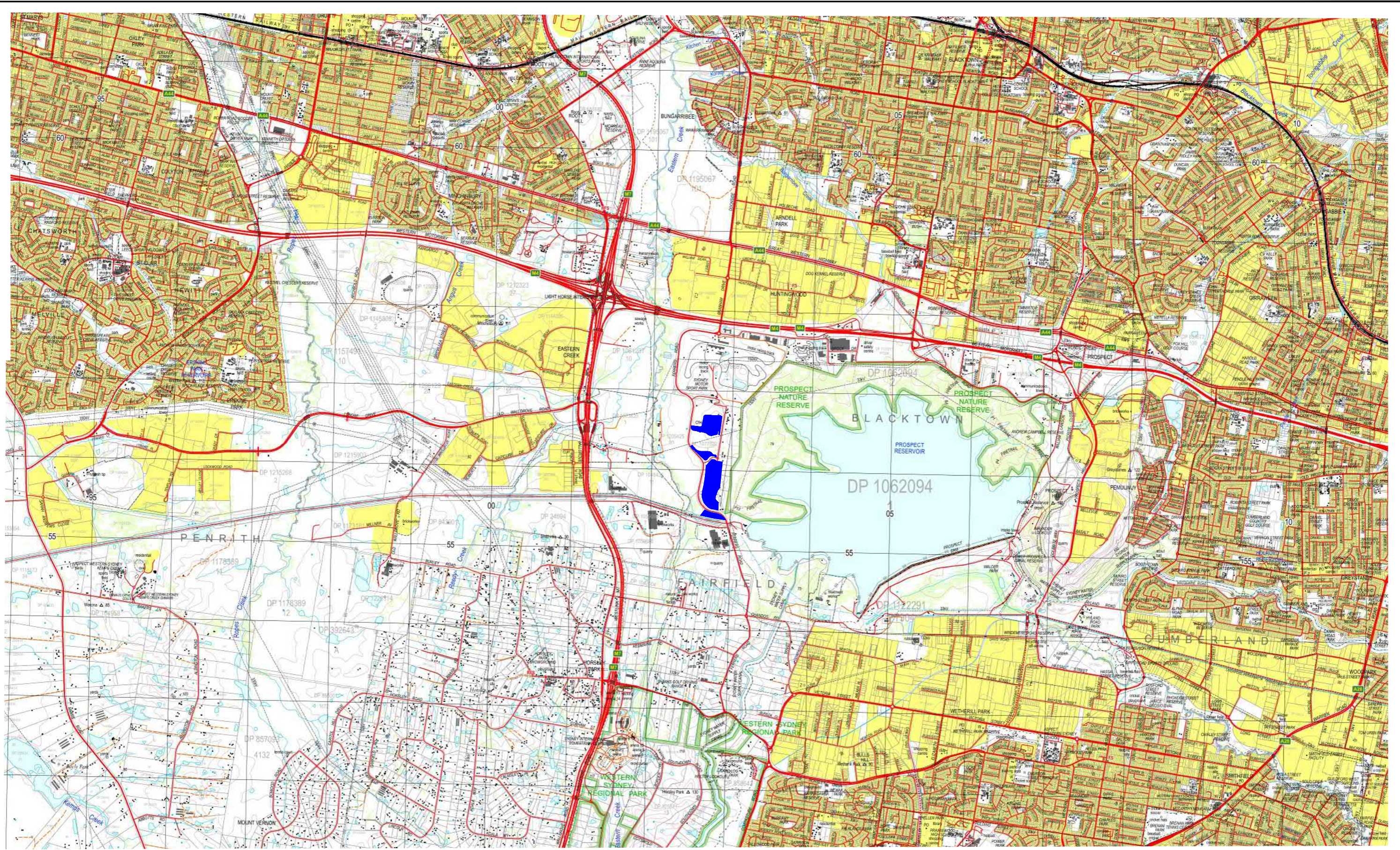
ADE's professional opinions are based upon its professional judgement, experience, training, and results from analytical data. In some cases, further testing and analysis may be required, thus producing different results and/or opinions. ADE has limited its investigation to the scope agreed upon with its client.

This Limitation and Disclaimer must accompany every copy of this report.

10 References

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11 Appendix I – Figures



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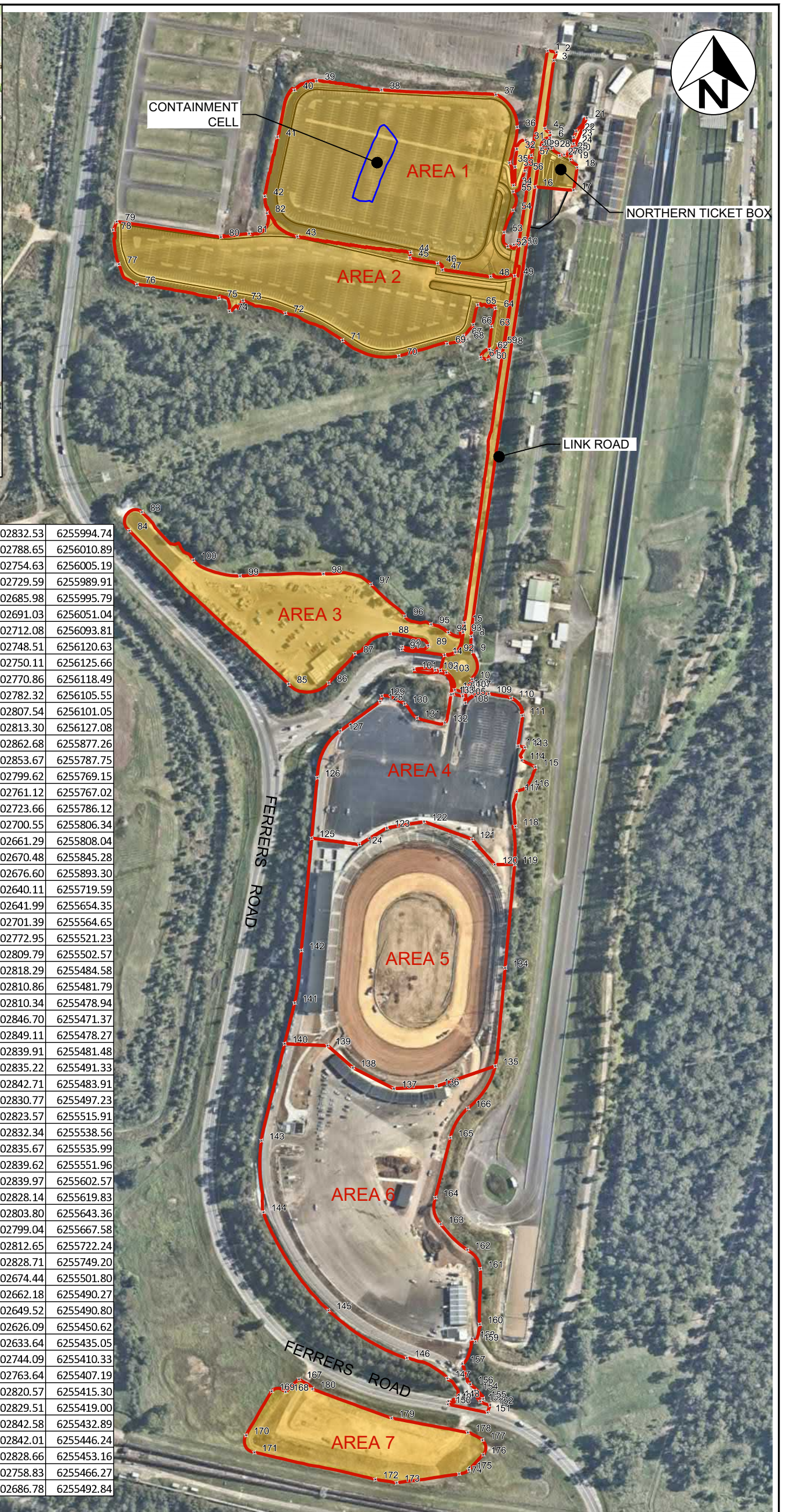


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AERIAL IMAGE SOURCE: MAPS.AU.NEARMAP.COM, 05 JUN 2021.

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date	17/11/2021	title:	TOPOGRAPHIC MAP / LOCALITY MAP		
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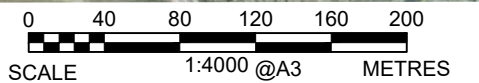
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- SYDNEY DRAGWAY (AREAS 1, 2, 3, LINK ROAD, NORTHERN TICKET BOX AND AREA 7)



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						scale	AS SHOWN	project no:	21.0201_EMP2_V3D	figure no:	FIGURE 5	rev:	A
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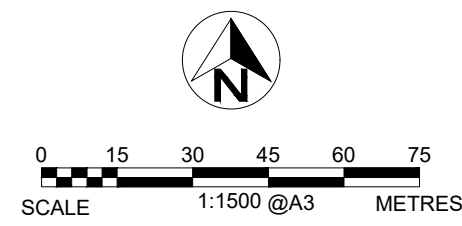
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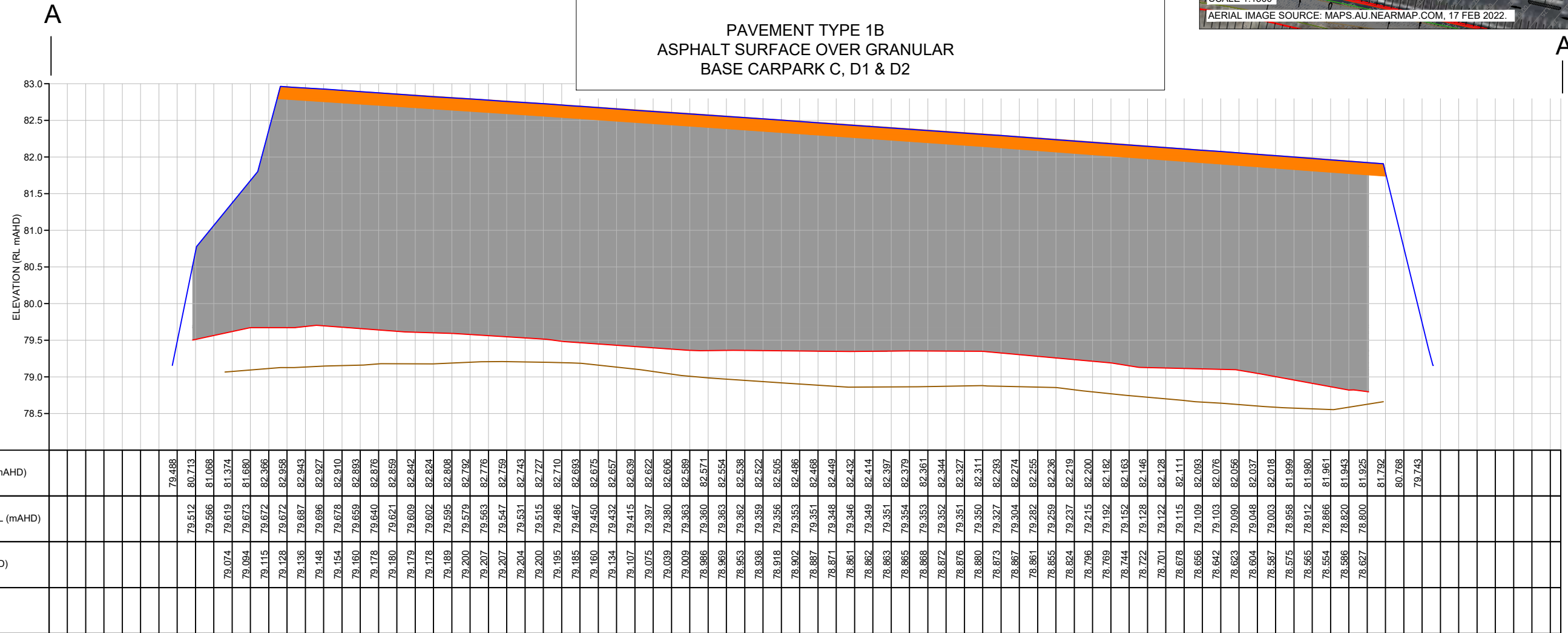
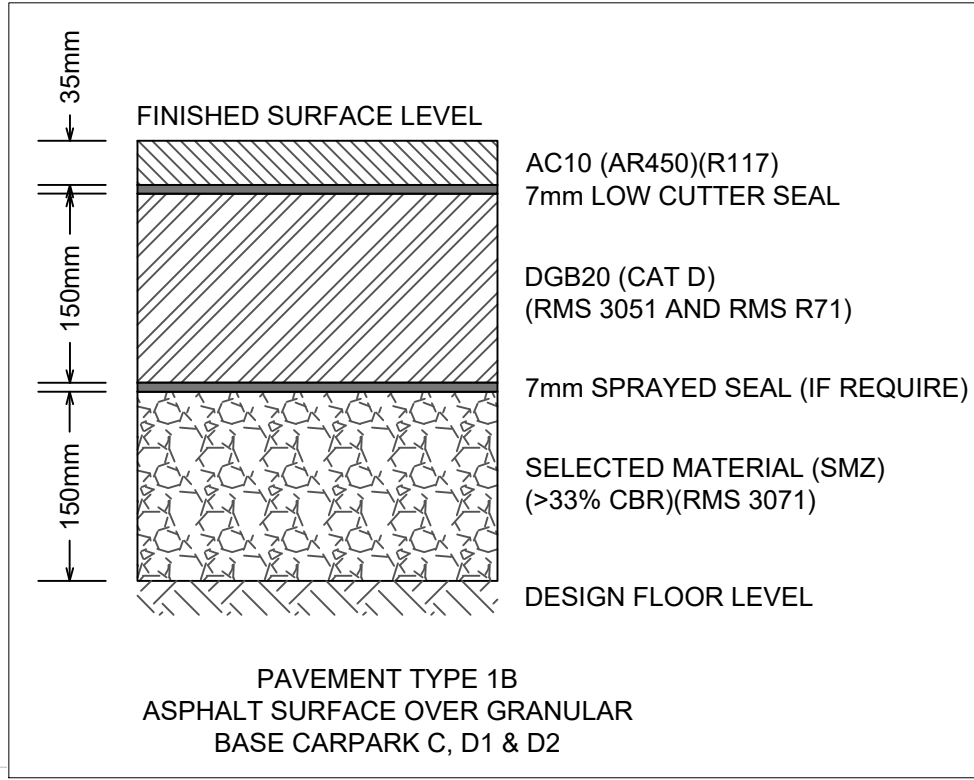
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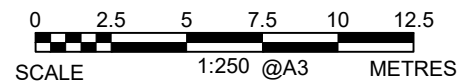
LEGEND

- FINAL CELL SURFACE
- FINAL PAVEMENT THICKNESS / CAPPING LAYER (335mm)
- RE-WORKED SITE MATERIAL (PRESUMED ASBESTOS CONTAINING)
- TOP OF CONFIRMED ASBESTOS LAYER / GEOFABRIC MARKER INTERFACE
- BOTTOM OF CONTAINMENT CELL



SECTION A-A'
VERTICAL EXAGGERATION 4.0






no.	description	drawn	approved	date
A	FIRST ISSUE	MC	SS	18/02/22

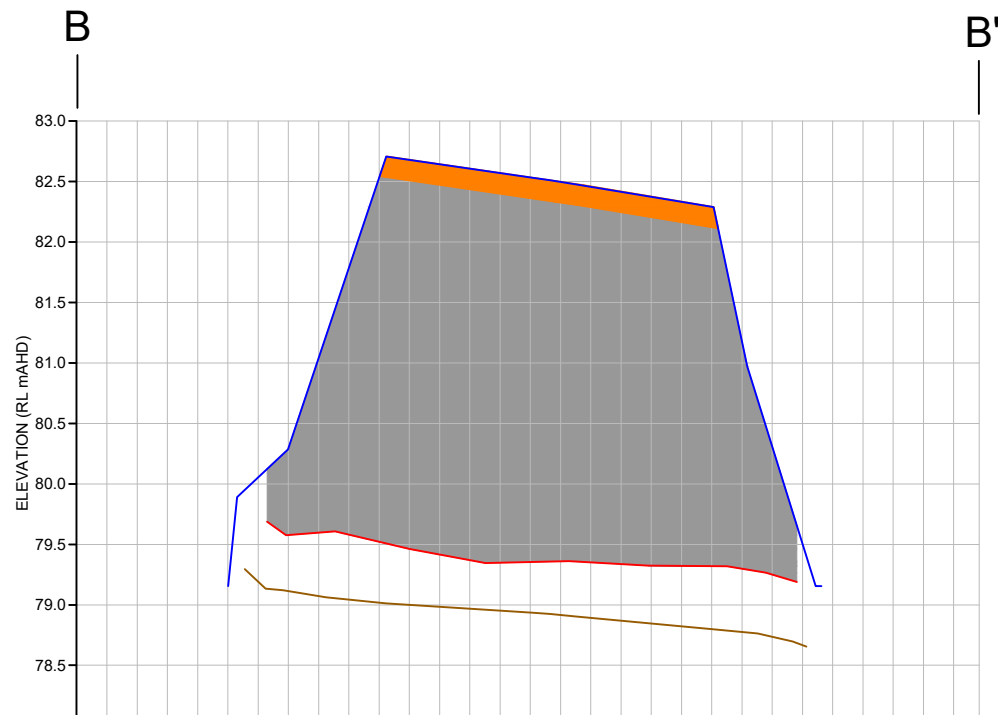


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approved	SS	project:	ENVIRONMENTAL MANAGEMENT PLAN SYDNEY DRAGWAY, FERRERS ROAD, EASTERN CREEK, NSW	
date	18/02/2022	title:	CROSS SECTION A-A' - FINAL CELL SURFACE (CAR PARK D1)	
scale	AS SHOWN	project no:	21.0201_EMP2	figure no: FIGURE 7
original size	A3	rev:	A	

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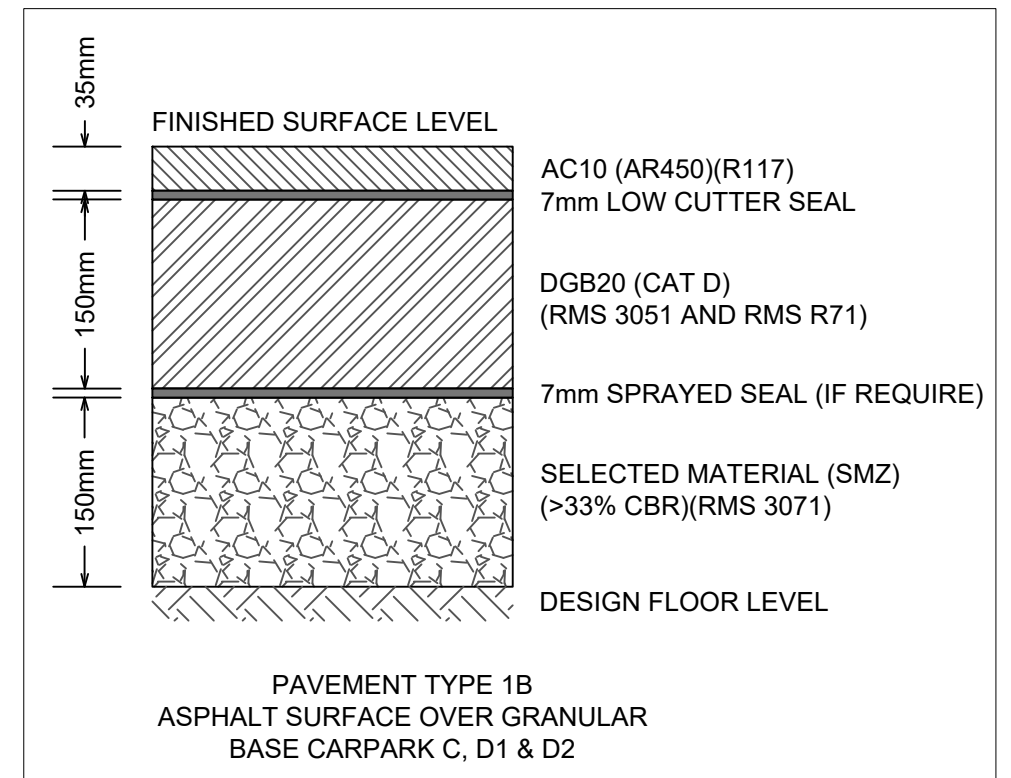
LEGEND

-  FINAL CELL SURFACE
-  FINAL PAVEMENT THICKNESS / CAPPING LAYER (335mm)
-  RE-WORKED SITE MATERIAL (PRESUMED ASBESTOS CONTAINING)
-  TOP OF CONFIRMED ASBESTOS LAYER / GEOFABRIC MARKER INTERFACE
-  BOTTOM OF CONTAINMENT CELL



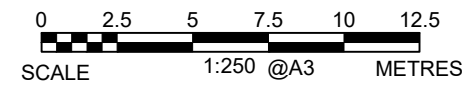
FINAL CELL SURFACE (mAHD)	ASBESTOS BURIAL CELL (mAHD)	BOTTOM OF CELL (mAHD)	CHAINAGE (m)
80.054	79.192	79.192	0
80.294	79.114	79.114	1
81.038	79.073	79.073	2
81.782	79.044	79.044	3
82.526	79.018	79.018	4
82.678	79.000	79.000	5
82.642	78.984	78.984	6
82.606	78.968	78.968	7
82.569	78.951	78.951	8
82.533	78.935	78.935	9
82.496	78.916	78.916	10
82.454	78.892	78.892	11
82.413	78.869	78.869	12
82.372	78.846	78.846	13
82.330	78.822	78.822	14
82.289	78.799	78.799	15
81.174	78.775	78.775	16
80.308	78.736	78.736	17
79.508	78.668	78.668	18

SECTION B-B'
VERTICAL EXAGGERATION 4.0



PLOT DATE: 28/02/2022 13:12:06 DWG FILE: W:\NEW DELTEK PROJECTS ENV\21.0201 SPREEDWAY (EASTERN CREEK) SS4-WORKING DOCUMENTS\4-CAD (MC)\21.0201_EMP2_V03_XSEC_FSL.DWG

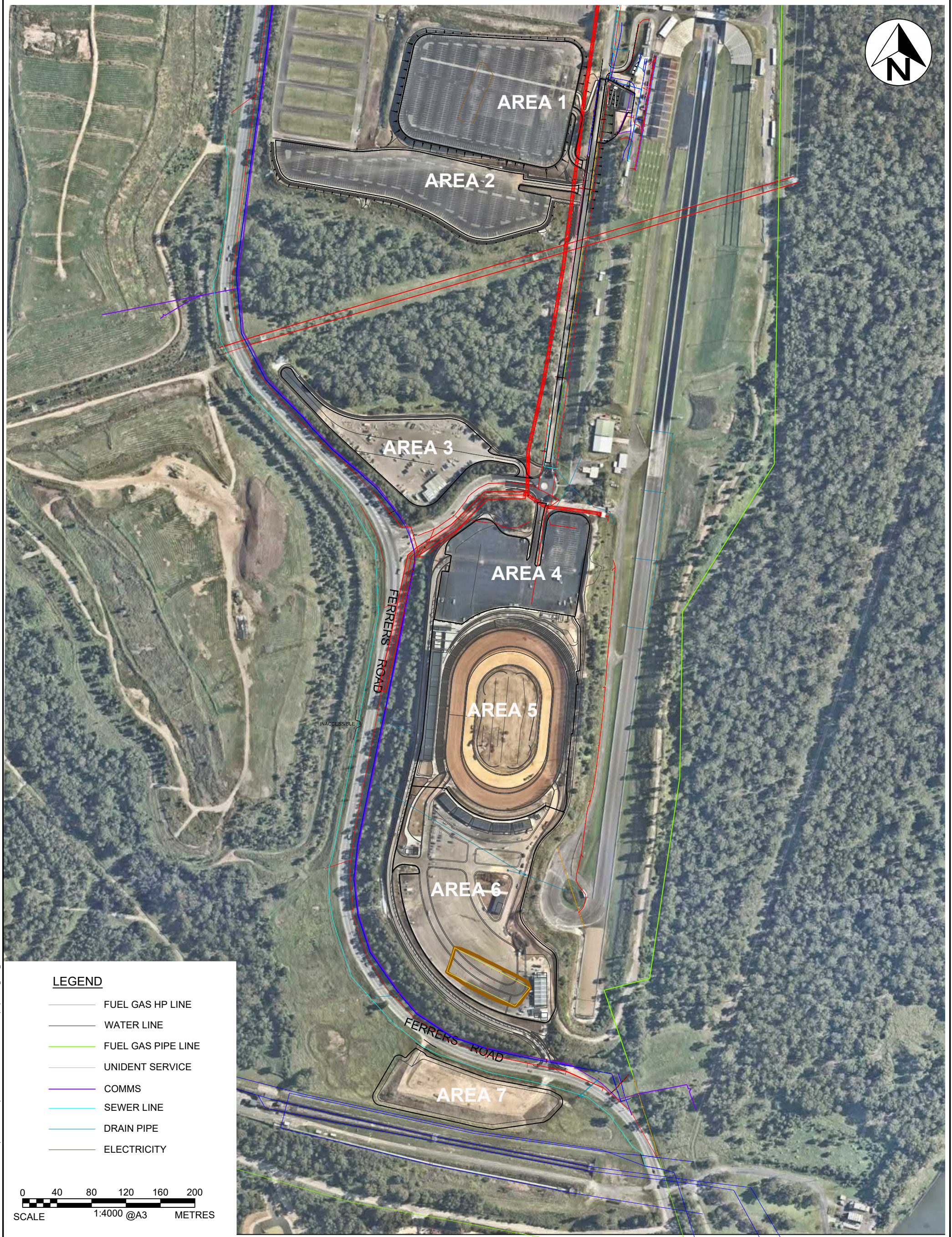
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A	FIRST ISSUE	MC	SS	18/02/22



drawn	MC	client:	ABERGIELDIE COMPLEX INFRASTRUCTURE	
approved	SS	project:	ENVIRONMENTAL MANAGEMENT PLAN SYDNEY DRAGWAY, FERRERS ROAD, EASTERN CREEK, NSW	
date	18/02/2022	title:	CROSS SECTION B-B' - FINAL CELL SURFACE (CAR PARK D1)	
scale	AS SHOWN	project no:	21.0201_EMP2	figure no: FIGURE 8
original size	A3	rev:	A	



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LEGEND

- FUEL GAS HP LINE
- WATER LINE
- FUEL GAS PIPE LINE
- UNIDENT SERVICE
- COMMS
- SEWER LINE
- DRAIN PIPE
- ELECTRICITY

0 40 80 120 160 200
 SCALE 1:4000 @A3 METRES

AERIAL IMAGE SOURCE: MAPS.AU.NEARMAP.COM 17 FEB 2022.

PLOT DATE: 28/02/2022 11:44:16 DWG FILE: W:\NEW DELTEK PROJECTS ENV021 0201 SPEEDWAY (EASTERN CREEK) S54-WORKING DOCUMENTS\4-CAD (MC)\21.0201_EMP2_V03.DWG

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					date	15/02/2022	project: ENVIRONMENTAL MANAGEMENT PLAN SYDNEY DRAGWAY, FERRERS ROAD, EASTERN CREEK, NSW
					scale	AS SHOWN	title: SERVICE LOCATION PLAN
					original size	A3	project no: 21.0201_EMP2 figure no: FIGURE 9 rev: A



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PLOT DATE: 03/03/2022 14:48:11 DWG FILE: W:\NEW DELTEK PROJECTS ENV\21.0201 SPEDWAY (EASTERN CREEK) SS\4-WORKING DOCUMENTS\4-CAD (MC)\21.0201_EMP2_V03.DWG



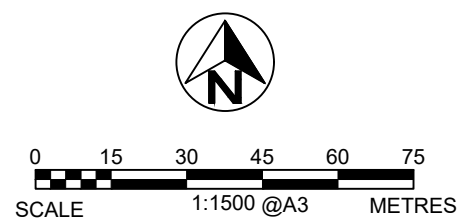
LEGEND

- + SERVICE PIT SAMPLE LOCATION
- FUEL GAS HP LINE
- WATER LINE
- FUEL GAS PIPE LINE
- UNIDENT SERVICE
- COMMS TEL
- SEWER LINE
- DRAIN PIPE
- ELECTRICITY

NOTE:
ALL LOCATIONS ARE APPROXIMATE
DIMENSIONS IN METRES.

AERIAL IMAGE SOURCE: MAPS.AU.NEARMAP.COM, 17 FEB 2022.

no.	description	drawn	approved	date
A	FIRST ISSUE	MC	SS	15/02/22



drawn	MC	client:	ABERGIELDIE COMPLEX INFRASTRUCTURE	
approved	SS	project:	ENVIRONMENTAL MANAGEMENT PLAN SYDNEY DRAGWAY, FERRERS ROAD, EASTERN CREEK, NSW	
date	15/02/2022	title:	SERVICE PIT SAMPLING PLAN	
scale	AS SHOWN	project no:	21.0201_EMP2	figure:
original size	A3			FIGURE 10
				rev: A

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PLOT DATE: 08/03/2022 15:20:48 DWG FILE: W:\NEW DELTEK PROJECTS EN\21.0201 SPREEDWAY (EASTERN CREEK) SS\4-WORKING DOCUMENTS\4-CAD (MC)\21.0201_EMP2_V03.DWG

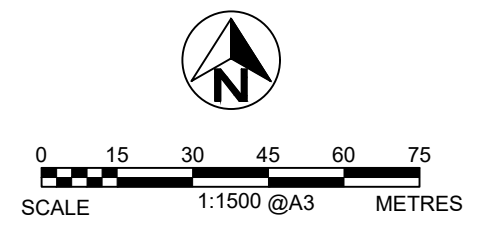


LEGEND
■ NTB VENT LOCATION

NOTE:
 ALL LOCATIONS ARE APPROXIMATE
 DIMENSIONS IN METRES.

AERIAL IMAGE SOURCE: MAPS.AU.NEARMAP.COM, 17 FEB 2022.

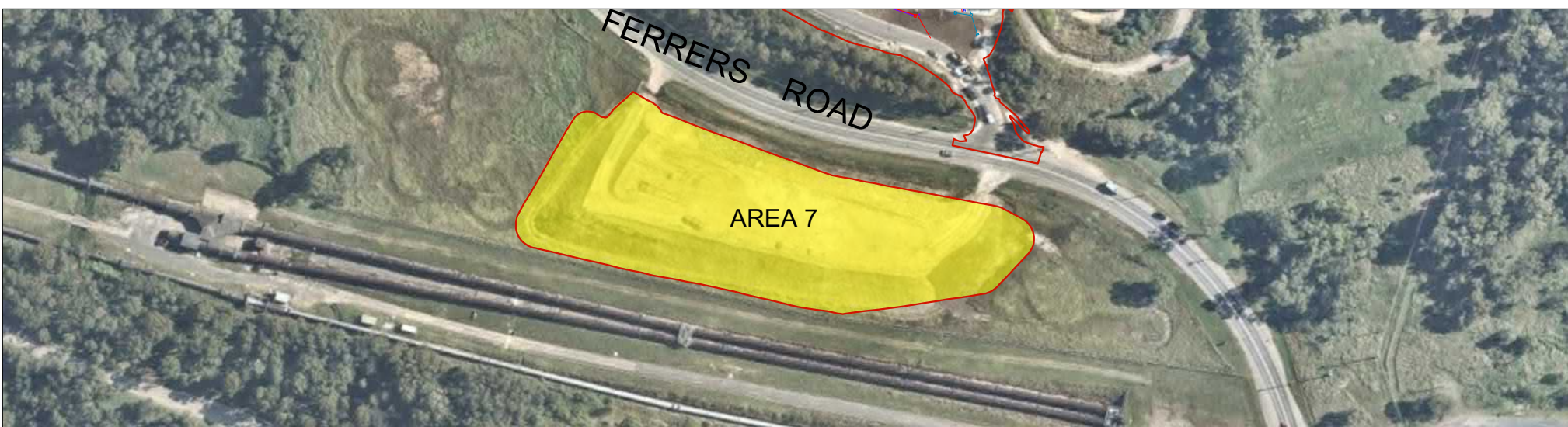
no.	description	drawn	approved	date
A	FIRST ISSUE	MC	SS	15/02/22



drawn	MC
approved	SS
date	15/02/2022
scale	AS SHOWN
original size	A3

client:	ABERGILDIE COMPLEX INFRASTRUCTURE		
project:	ENVIRONMENTAL MANAGEMENT PLAN SYDNEY DRAGWAY, FERRERS ROAD, EASTERN CREEK, NSW		
title:	LFG VENT SAMPLING LOCATION PLAN (NORTHERN TICKET BOX)		
project no:	21.0201_EMP2	figure:	FIGURE 11
rev:	A		

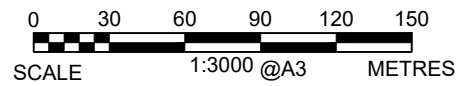
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LEGEND

- PROJECT FOOTPRINT
 - HIGH RISK AREA
 - MODERATE RISK
 - MODERATE / LOW-RISK AREA
-

		Consequence			
		Severe	Medium	Mild	Minor
Probability of Occurrence	Highly Likely	Very High Risk	High Risk	Moderate Risk	Moderate/low risk
	Likely	High Risk	Moderate Risk	Moderate / Low Risk	Low Risk
	Low Likelihood	Moderate Risk	Moderate / low risk	Low Risk	Very Low Risk
	Unlikely	Moderate / Low Risk	Low Risk	Very Low Risk	Very Low Risk



AERIAL IMAGE SOURCE: MAPS.AU.NEARMAP.COM 17 FEB 2022.

revision	no.	description	drawn	approved	date	drawn	MC	client:	ABERGILDIE COMPLEX INFRASTRUCTURE			
	A	FIRST ISSUE	MC	SS	15/02/22	approved	SS	project:	ENVIRONMENTAL MANAGEMENT PLAN SYDNEY DRAGWAY, FERRERS ROAD, EASTERN CREEK, NSW			
						date	15/02/2022	title:	LEVEL ONE AND LEVEL TWO ASBESTOS RISK MANAGEMENT AREAS			
						scale	AS SHOWN	project no:	21.0201_EMP2	figure no:	FIGURE 12	rev: A
						original size	A3					

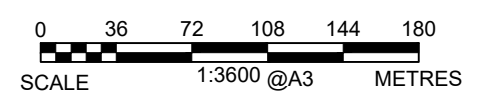


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LEGEND

- PROJECT BOUNDARY
- LFG EXISTING LFG WELL LOCATIONS



AERIAL IMAGE SOURCE: MAPS.AU.NEARMAP.COM 06 OCT 2021.

revision	no.	description	drawn	approved	date	drawn	MC	client:	ABERGELDIE COMPLEX INFRASTRUCTURE			
	A	FIRST ISSUE	MC	JR	19/10/21	approved	JR	project:	ENVIRONMENTAL MANAGEMENT PLAN - SYDNEY DRAGWAY, FERRERS ROAD, EASTERN CREEK, NSW			
						date	19/10/2021	title:	EXISTING LFG MONITORING WELL LOCATION PLAN			
						scale	AS SHOWN	project no:	21.0201.EMP2	figure no:	FIGURE 13	rev: A
						original size	A3					



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PLOT DATE: 17/11/2021 17:01:21 DWG FILE: W:\NEW DELTEK PROJECTS\21.0201 SPEEDWAY (EASTERN CREEK) SS\4-WORKING DOCUMENTS\4-CAD (MC)\21.0201_DSI.DWG

12 Appendix II – Photographs



Photograph 1. Asbestos containment cell following the application of the geotextile marker layer (as supplied by the client).



Photograph 2. Asbestos containment cell during the application of the existing site material situated above the marker layer (as supplied by the client).



Photograph 3. Carpark D1 - facing west. Date: 14/02/2022.



Photograph 4. Carpark D2 - facing east. Date: 02/12/2021.



Photograph 5. Embankments of Carpark D1 - facing north-west. Date: 14/02/2021.



Photograph 6. Area 3 - facing south. Date: 21/12/2021.



Photograph 7. Area 3 - facing north. Date: 02/12/2021.



Photograph 8. Link Road during the clearance inspection - facing north. Date: 14/02/2022.



Photograph 9. Link Road during the clearance inspection - facing north. Date: 14/02/2022.



Photograph 10. Top of Area 7 Stockpile during the clearance inspection - facing east. Date: 14/02/2022.



Photograph 11. Side of Area 7 Stockpile during the clearance inspection - facing east. Date: 14/02/2022.



Photograph 12. Side of Area 7 Stockpile during the clearance inspection - facing north. Date: 14/02/2022.



Photograph 13. The Northern Ticket Box retrofitted sub-floor vents. Date: 14/02/2022.

13 Appendix III - Data Quality Objectives

All environmental investigations must be designed using the data quality objectives (DQO) as defined by the US EPA and the NSW EPA in the “Guidelines for the NSW DEC Site Auditor Scheme” (3rd Edition), (NSW EPA, 2017) and Australian Standard AS 4482.1 2005 (AS, 2005).

The DQO process consists of a seven-step planning approach to facilitate the development of qualitative and quantitative statements that specify the quality of the data required to support decision making within the scope of the investigation. This process utilises systematic planning and statistical hypothesis testing to differentiate between two or more clearly defined alternatives.

Step 1 – State the Problem

The project involves building a new international speedway. Previous environmental investigations have identified a potential risk associated with hazardous ground gases and residual contamination across the site including asbestos. Therefore, an EMP was recommended to appropriately manage and monitor any potential risk to human health and the environment.

Step 2 – Identify the Decision

The principal study questions can be identified as:

- Do potential sources of residual contamination pose an unacceptable risk to human health or the environment?
- Are concentrations of hazardous ground gases above that of the adopted assessment criteria?
- Is the site considered for the proposed mixed land uses as public open space (HIL/HSL-C) and commercial/industrial (HIL/HSL-D)?

Step 3 – Identify Inputs to the Decision

The decisions to be made on the data required a review of previous environmental investigations, architectural design plans, survey data and desktop information. Key considerations regarding the information inputs are:

- Previous environmental data for soil, groundwater and hazardous ground gas and the adequacy of previous assessments;
- Placement, design and quality of the completed capping design;
- Current architectural design plans;
- Recent site survey data and underground service mapping;
- Proposed hazardous ground gas mitigation strategies e.g., sub-slab ventilation designs;
- Quality of implemented gas mitigation strategies e.g., all measures are devoid of blockages and appropriately sealed; and
- Determination of potential gas exposure levels and potential risk to current and future sensitive receptors e.g., site owners, visitors, staff and maintenance contractors.

The primary inputs to assessing the above include:

- Information available from previous contamination investigations carried out on-site as summarised in **Section 3.1**;
- Architectural design plans, site survey data and anecdotal information provided by the client.
- Observations made by ADE during a final site inspection.
- New, available data which provides a further assessment on the site’s contamination status.
- Relevant regulatory guidelines.

Step 4 – Define the Boundaries of the Study

This step provides a detailed description of the spatial and temporal boundaries of the site. These characteristics define the population of interest and any practical considerations for the site (refer to **Table 13**).

Table 13. Summary of the Study Boundaries.

Spatial Boundaries	Previous environmental investigations were restricted to the physical site boundaries, as shown in Figure 1 and <i>Appendix I – Figures</i> . The vertical boundaries adopted during previous environmental investigations were limited to a maximum depth of approximately 10.0 m BGL.
Temporal Boundaries	All monitoring events are expected to be between 2021-2022.
Investigation Limit	The limit of the investigation has been undertaken to provide information as to the level and type of contamination identified within the site.
Constraints	Time, cost, redesign, remediation and inaccessible areas across the site were considered constraints to the investigation.
Receptors of Concern	The potential receptors of concern include: neighbouring sites, ecological receptors e.g., local surface water bodies, present and future site users e.g., site visitors, spectators, site operators and employees and construction and maintenance workers.

Step 5 – Develop a Decision Rule

Soil and hazardous ground gas concentrations recorded during future assessments are recorded below that of their respective assessment criteria, as determined by the following decision rules being applied to the data:

- All equipment is appropriately calibrated;
- The equipment being utilised is appropriate for the level of assessment required i.e., the sensitivity of the analyser;
- Before closure of the EMP, all soil analytical results demonstrated to be below that of the prescribed land-use criteria (either HIL/HSL-C or HIL/HSL-D) as outlined within the NEPM (NEPC, 2013); and
- Hazardous ground gas concentrations have been demonstrated to remain below that of the prescribed criteria as outlined within the NSW EPA Assessment and Management of Hazardous Ground Gases (NSW EPA, 2020), without the need for the installed mitigation measures.

Should hazardous ground gases be recorded above their respective assessment criteria or trigger values, further investigation and assessments will be required to minimise any associated risk to human health or the environment.

Step 6 – Specify Acceptable Limits on Decision Errors

There are two sources of error for input to decisions:

- Sampling errors, which occur when the samples collected are not representative of the conditions of the site at the time of sampling; and
- Measurement errors, which occur during the sample collection, analysis and interpretation of collected data.

These sources of error may lead to the following decision errors:

- Type I - Deciding that the implemented hazardous ground gas mitigation strategy is inadequate and, therefore, the site poses an unacceptable risk to human health and the environment when the reverse is true; and

- Type II - Deciding that the implemented hazardous ground gas mitigation strategy is adequate and, therefore, the site poses an acceptable risk to human health and the environment when the reverse is true.

To assess the suitability of the field data obtained during the investigation, the data has been assessed against pre-determined DQIs to assess precision, accuracy, representativeness, comparability and completeness (PARCC parameters). Acceptable limit on decision error was 95% compliance with the DQIs. The pre-determined DQIs specified for the investigative works concerning the PARCC parameters are summarised in **Table 14**.

Table 14. Summary of Acceptable Limits on Decision Errors.

<p>Precision</p>	<ul style="list-style-type: none"> • The precision of the data will be determined by a review of the relevant field documentation and appropriate records to identify errors in the collection process or field personnel. • When required, laboratory duplicate analysis to be undertaken by the testing laboratory at a minimum rate of 1 per 20 samples; and • When soil sampling is undertaken, Australian Standard 4482.1 (2005) specifies the typical RPD for blind replicate samples to be 30% - 50%. The following control limits are proposed to be used in the investigation for analysis of blind replicate and split replicate samples. <ul style="list-style-type: none"> ○ A control limit of 50% for the field and laboratory RPD values greater than or equal to 5x the Practical Quantitation Limit (PQL); ○ A control limit of \pm the PQL if either sample value is less than 5x the PQL; and ○ If both samples' values are less than the PQL, the RPD is not calculated.
<p>Accuracy</p>	<ul style="list-style-type: none"> • Field personnel are appropriately experienced and trained to ensure conformance with the SAQP; and • Hazardous ground gas monitoring is completed with the appropriate instruments which are calibrated and operated as per the manufacturer's instructions. • When required, laboratory surrogate spike recoveries were to be within 50 – 150% for organics (if applicable); • When required, laboratory control sample (LCS) recoveries to be assessed at a rate of 1 sample per laboratory batch. LCS recoveries were to be within 70 – 130% for inorganics/metals and 60 – 140% for organics (if applicable); and • When required, matrix spike (MS) recoveries to be assessed at a rate of one sample per laboratory batch. MS recoveries were to be within 70 – 130% for inorganics/metals and 60 – 140% for organics (if applicable).
<p>Representativeness</p>	<ul style="list-style-type: none"> • Appropriately calibrated field equipment and levels of accuracy were considered suitable for the required assessment; • All sampled LFG wells have been installed as per the SAQP and are fit for the prescribed purpose; and • All prescribed monitoring parameters are collected in accordance with the SAQP. • Appropriate sampling methods need to be undertaken for all soil samples; • All soil samples need to be extracted and analysed within holding times; • One laboratory blank should be analysed per laboratory batch. All laboratory blank analytical results should be below the laboratory PQL; • One trip spike should be submitted with each sampling batch which is accompanied by a volatile organic assessment. Trip spike recoveries should be within 70 – 130% (if applicable); • One trip blank needs to be submitted with each sampling batch which is accompanied by a volatile organic assessment. Trip blank analytical results should be below the laboratory PQL; and

	<ul style="list-style-type: none"> • One rinsate blank should be submitted with each soil sampling batch where non-disposable equipment has been used to directly collect the sample. All target analytes within the rinsate blank should be below the laboratory PQL.
Comparability	<ul style="list-style-type: none"> • Hazardous ground gas monitoring and soil sampling is completed as per the recommended methods outlined within NEPM (NEPC, 2013) and ADE’s standard operating procedures (SOPs); • All monitoring wells will be subject to an integrity assessment (leak test) prior to the commencement of any monitoring as required by the SAQP; • Standard analytical methodologies must be used by laboratories which are National Association of Testing Authorities (NATA) accredited for the requested analyses for each soil sample; and • Laboratory PQLs should be appropriate and consistent for the objectives of the validation assessment. • All sampling is conducted by a suitability qualified environmental consultant.
Completeness	<ul style="list-style-type: none"> • Site conditions including limitations upon sampling to be properly described; • Sampling locations were properly described and located; • All sampling locations were assessed ensuring an appropriate level of coverage across the site; and • Completion of field records, chain of custody (COC) documentation, calibration certificates and laboratory test certificates from NATA accredited laboratories; • Soil samples must be analysed for the appropriate CoPCs; and • The sampling frequency and findings for soil QA/QC samples should be valid for a minimum of 95% of samples.

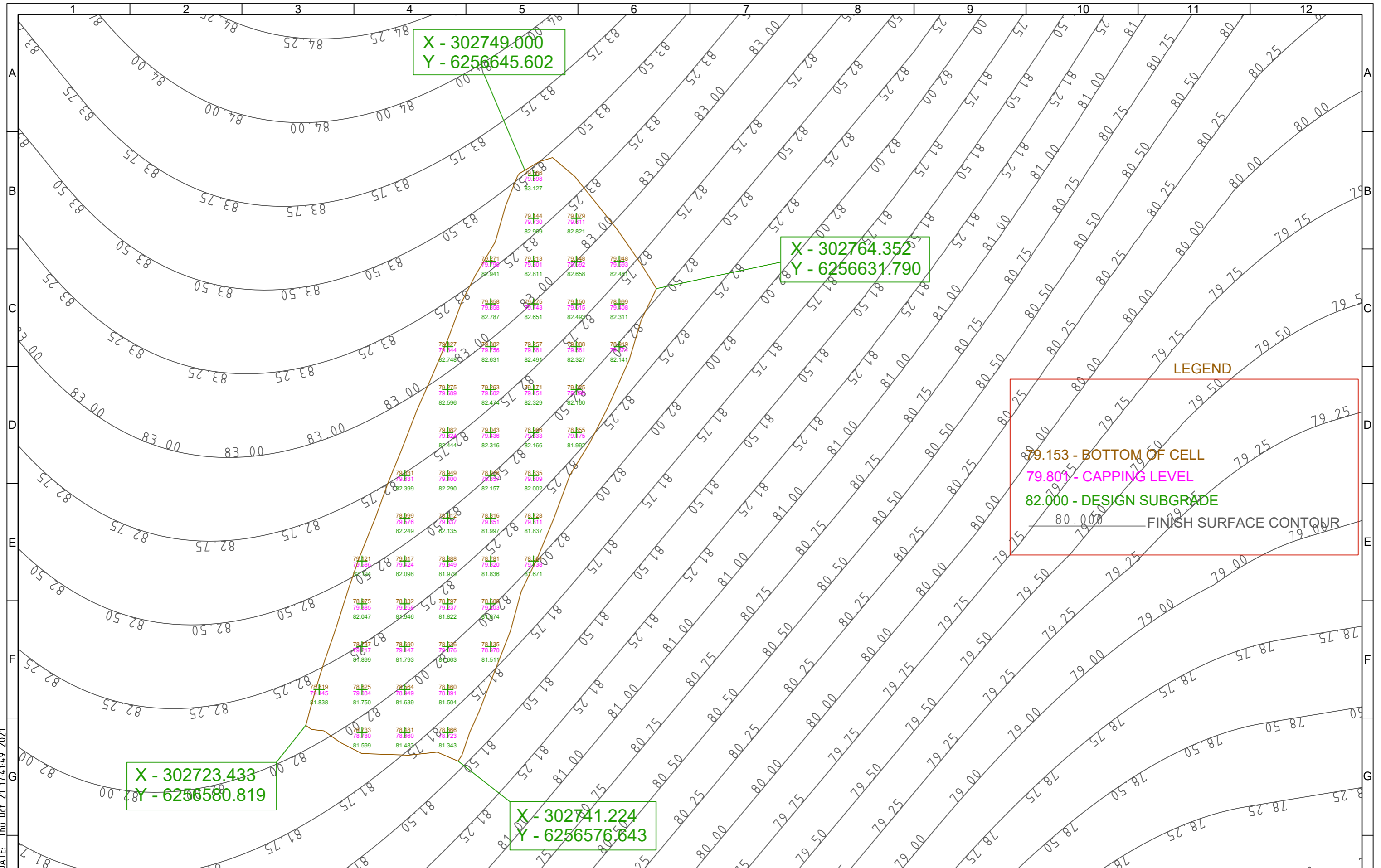
Step 7 – Optimise the Design for Obtaining Data

The organisation of the data collection and analysis design for optimising the generation of data to satisfy the DQOs and the objective of the investigation has been achieved via the following procedures outlined in **Table 15**.

Table 15. Summary of Procedures to be Undertaken to Optimise the Design for Obtaining Data.

Pre-approved Work Plan	The sampling plan outlined within the EMP has been developed to manage the long-term risk associated with hazardous ground gases and potential residual contamination within the site. All monitoring events will be undertaken by an experienced environmental consultant.
Compliance with EPA Guidelines	<ul style="list-style-type: none"> • Use of specialised equipment which has been calibrated by an external technician and field calibrated (if applicable).

14 Appendix IV – Architectural Design and Survey Plans



LEGEND

- 89.153 - BOTTOM OF CELL
- 79.801 - CAPPING LEVEL
- 82.000 - DESIGN SUBGRADE
- 80.000 - FINISH SURFACE CONTOUR

PLOT DATE: Thu Oct 21 17:41:49 2021

REV	AMENDMENTS	APP'D	DATE	GENERAL NOTES / REFERENCES
				Coordinates in MGA94 RL in AHD71

ABERGELDIE
COMPLEX INFRASTRUCTURE

PACIFIC SURVEY

Pacific Survey Sydney Pty Ltd
146 Settlement Road
PO Box 2606
Port Macquarie NSW 2444
Ph: (02) 6583 2366 Fax (02) 6583 2199
www.pacificsurvey.com.au

Sydney International Speedway
Abergeldie

SURVEYED / DRAWN BY
Leo

CHECKED
v84

SCALES AT A3
Horiz 1:400
Vert 1:400

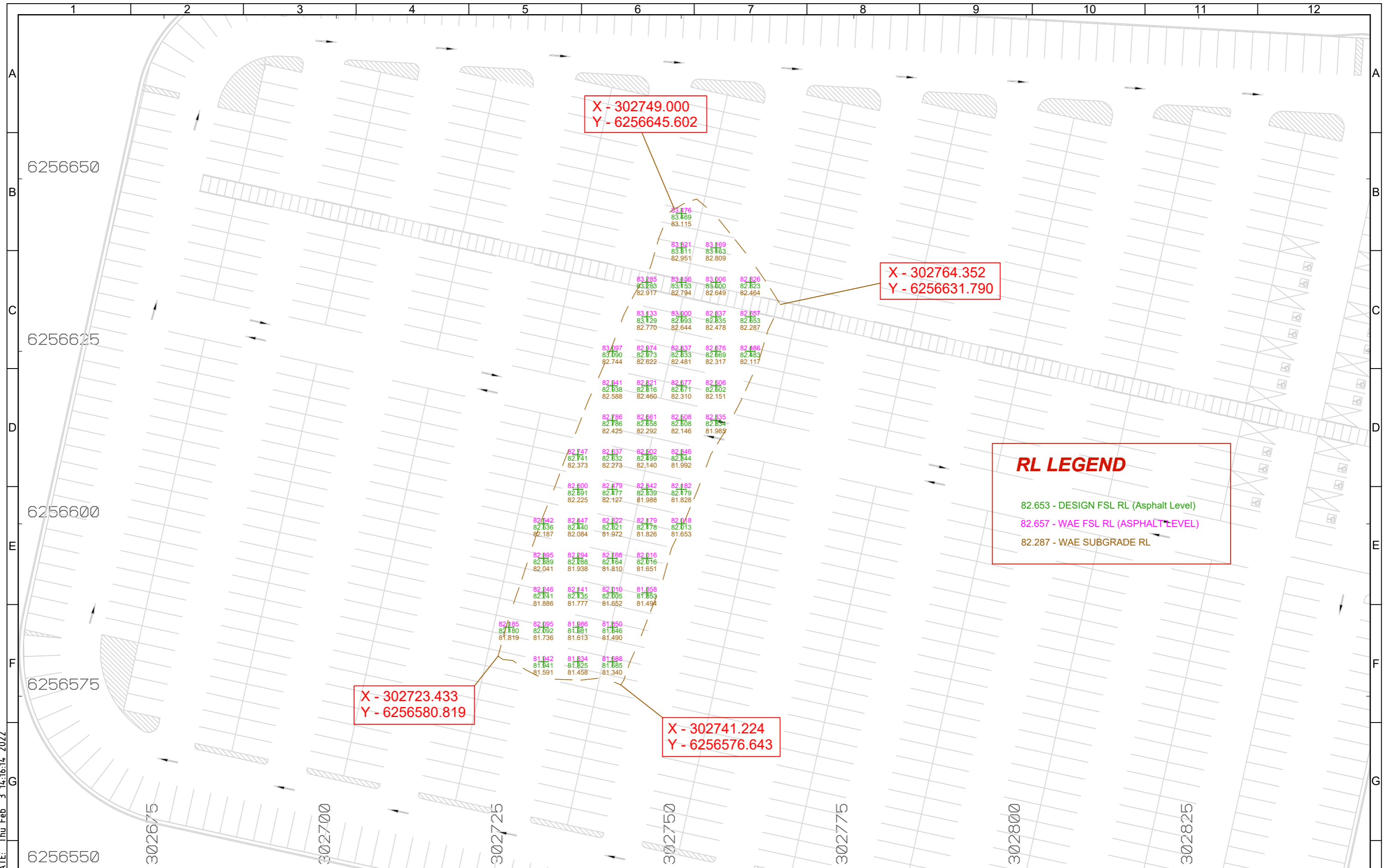
210914 FD1 84 progress filling burial cell ASBESTOS

Asbestos-CP D1 - RL's

DRAWING STATUS
For Information Only

DRAWING No.

REV.



RL LEGEND

- 82.653 - DESIGN FSL RL (Asphalt Level)
- 82.657 - WAE FSL RL (ASPHALT LEVEL)
- 82.287 - WAE SUBGRADE RL

PLOT DATE: Thu Feb 3 14:16:14 2022

REV	AMENDMENTS	APP'D	DATE	GENERAL NOTES / REFERENCES

Coordinates in MGA94
RL in AHD71

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www.pacificsurvey.com.au

Sydney International Speedway
Abergeldie

SURVEYED / DRAWN BY
Leo

CHECKED
ABERGELDIE

SCALES AT A3
Horiz 1:500
Vert 1:500

Final Asphalt & Subgrade Level
Car Park D1 -Burial Cell

DRAWING STATUS
WORK AS EXECUTED

DRAWING No. REV.



03/02/2022

ADE CONSULTING GROUP
6/7 Millennium Court.
Silverwater NSE 2128

Dear Sir,

**Re: SYDNEY INTERNATIONAL SPEEDWAY
CERTIFICATE OF CONFORMITY – SURVEY OF WORK AS EXECUTED -FINAL ASPHALT
LEVELS**

SUBJECT PREMISES Gate D, Ferrers Road, Eastern Creek

Pacific Survey Pty Ltd has undertaken a **WORK AS EXECUTED SURVEY** of the asphalt surface for both containment cells within Carpark D1 and Carpark B.

We have also recorded the survey of the bottom of the hardstand (Subgrade) on both containment cells.

We certify that this works has been completed as per original design specifications.

Asphalt Level Tolerance (+ 10mm/ -0mm)

Subgrade Level Tolerance (+ 0mm / - 40mm)

Yours sincerely,

Leo de Ocampo
Survey Manager

Pacific Survey Sydney Pty Ltd. 146 Settlement Point Road, Port Macquarie NSW 2444
ABN: 87 130 906 222

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Fax: (02) 6583 2199

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Post: PO Box 2606 Port Macquarie NSW 2444



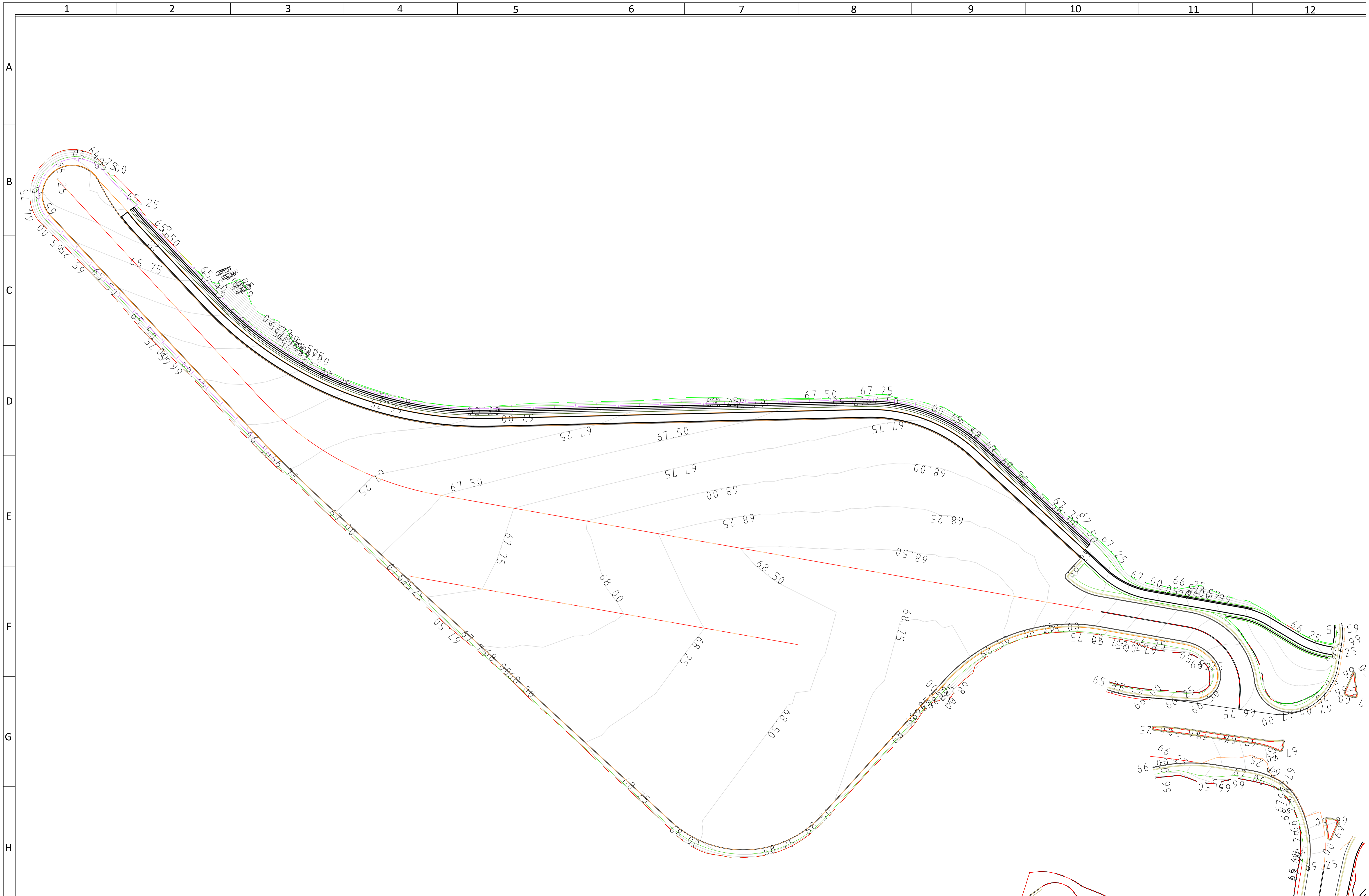
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				LEVELS IN AHD COORDINATES IN MGA1994

PACIFIC SURVEY
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 www.pacificsurvey.com.au

SURVEYED BY	LO
DRAWN BY	LO
CHECKED BY	ABERGELDIE
SCALE	H 1:500 V 1:500

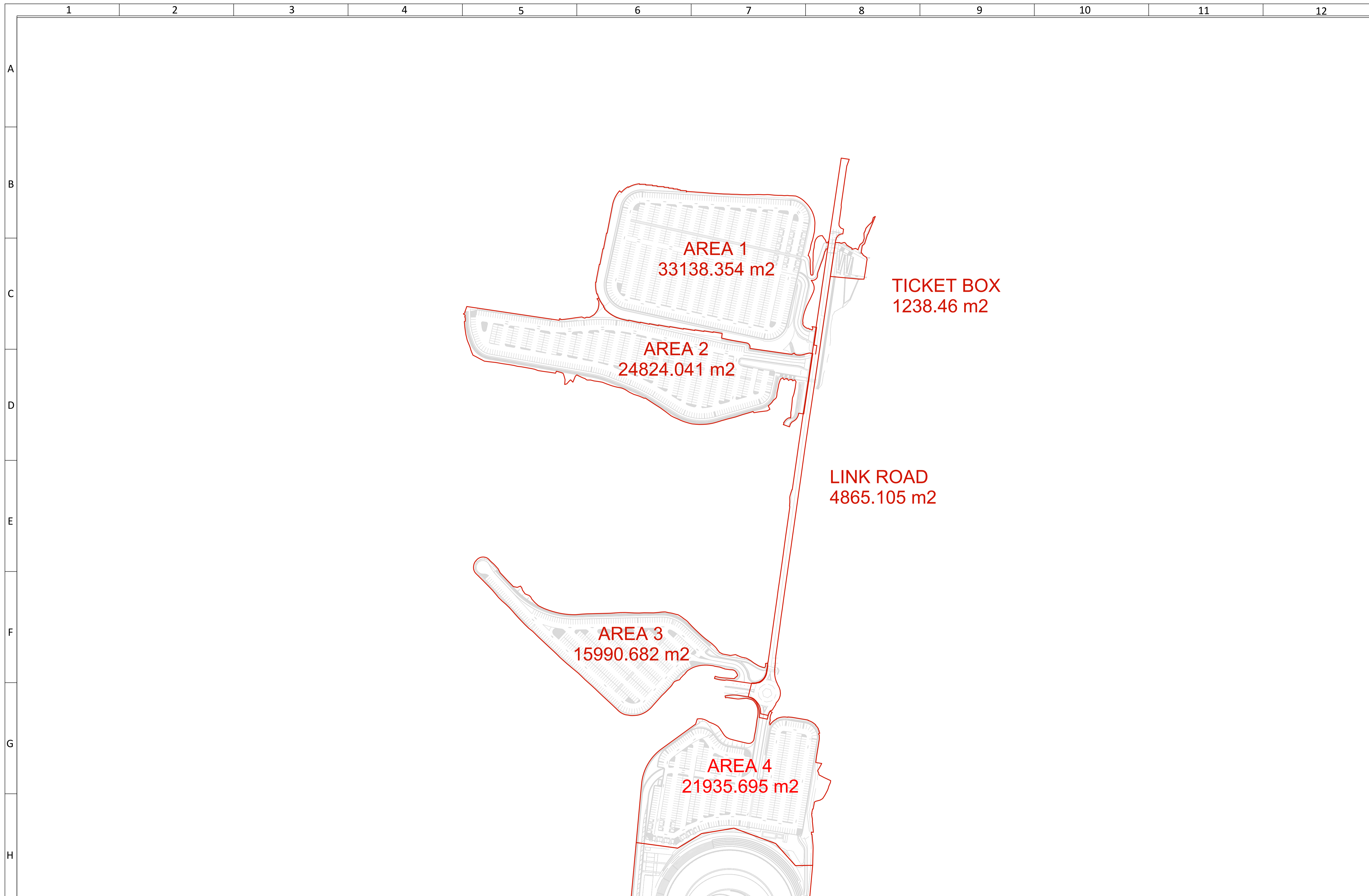
Sydney International Speedway
 Eastern Creek

FINISH SURFACE LEVEL DESIGN	
DRG No.	0



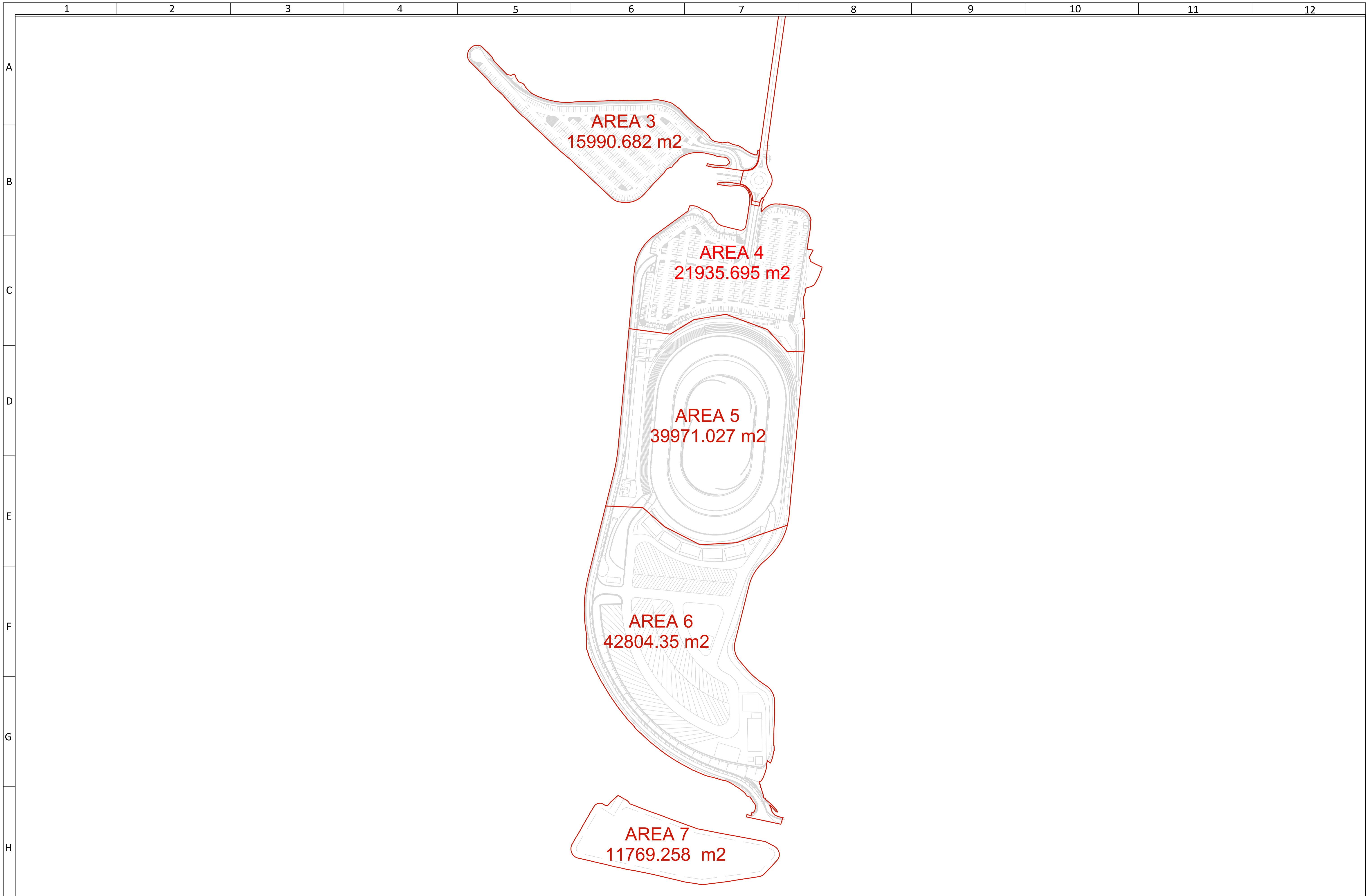
REV	AMENDMENTS	APP'D	DATE	GENERAL NOTES / REFERENCES	SURVEYED BY	LO	Sydney International Speedway Eastern Creek	FINISH SURFACE LEVEL DESIGN	
				LEVELS IN AHD COORDINATES IN MGA1994	DRAWN BY	LO		DRG No.	0
					CHECKED BY	ABERGELDIE			
					SCALE	H 1:400 V 1:400			





REV	AMENDMENTS	APP'D	DATE	GENERAL NOTES / REFERENCES	SURVEYED BY	LO	Sydney International Speedway Eastern Creek	SPEEDWAY ENVIRONMENTAL AREA	
				LEVELS IN AHD COORDINATES IN MGA1994	DRAWN BY	LO		DRG No.	0
					CHECKED BY	LO			
					SCALE	H 1:1800 V 1:1800			





AREA 3
15990.682 m2

AREA 4
21935.695 m2

AREA 5
39971.027 m2

AREA 6
42804.35 m2

AREA 7
11769.258 m2

REV	AMENDMENTS	APP'D	DATE	GENERAL NOTES / REFERENCES	PACIFIC SURVEY	SURVEYED BY	LO	Sydney International Speedway Eastern Creek	SPEEDWAY ENVIRONMENTAL AREA	
				LEVELS IN AHD COORDINATES IN MGA1994	<small>Pacific Survey Sydney Pty Ltd ABRN 87 130 908 222 148 Settlement Road PO Box 2006 Port Macquarie NSW 2444 Ph: (02) 6583 2366 Fax: (02) 6583 2199 www.pacificsurvey.com.au</small>	DRAWN BY	LO		DRG No.	0
						CHECKED BY	LO			
						SCALE	H 1:1800 V 1:1800			

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G	03.08.2020	DRAFT IFC WIP	DB	SI
H	13.08.2020	DRAFT IFC	DB	SI
I	03.09.2020	DRAFT IFC	DB	JN

Rev	Date	Description	Drawn	Checked
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Client
NSW Government | **Transport for NSW**

Project
SYDNEY SPEEDWAY

Drawing Title
General Arrangement - Sheet 1

Drawing Status
IFC

Scale: 1:400 @A1 Plot Date

Project No.	Drawing No.	Revision
2016	L-201	1



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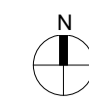
Project
SYDNEY SPEEDWAY

Drawing Title
General Arrangement - Sheet 2

Drawing Status
 IFC

Scale:	1:400 @A1	Plot Date	
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Project No.	Drawing No.	Revision
2016	L-202	1



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C	28.06.2020	100% DD - TENDER ADDENDUM			DB	SI
D	29.06.2020	100% DD - TENDER ADDENDUM			DB	SI
G	03.08.2020	DRAFT IFC WIP			DB	SI
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Rev	Date	Description	Drawn	Checked



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Project

SYDNEY SPEEDWAY

Drawing Title

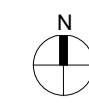
General Arrangement - Sheet 3

Drawing Status

IFC

Scale	1 : 400 @A1	Plot Date

Project No.	Drawing No.	Revision
2016	L-203	1



GENERAL NOTES

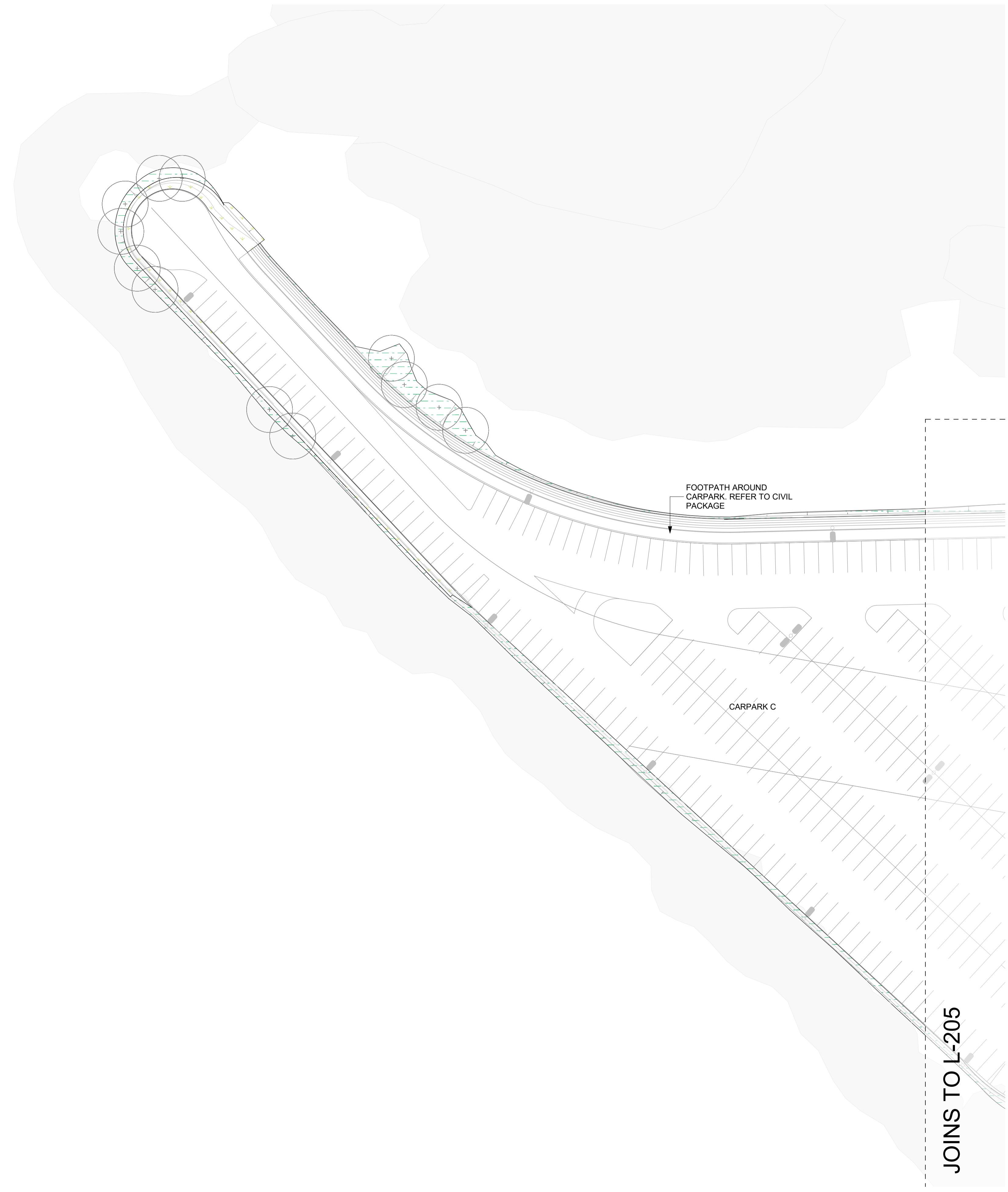
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Project

SYDNEY SPEEDWAY

Drawing Title

General Arrangement - Sheet 4

Drawing Status

IFC

Scale:	1 : 400 @A1	Plot Date	
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Project No.	Drawing No.	Revision
2016	L-204	1

JOINS TO L-205

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Rev	Date	Description	Drawn	Checked
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Project
SYDNEY SPEEDWAY

Drawing Title
General Arrangement - Sheet 5

Drawing Status

IFC

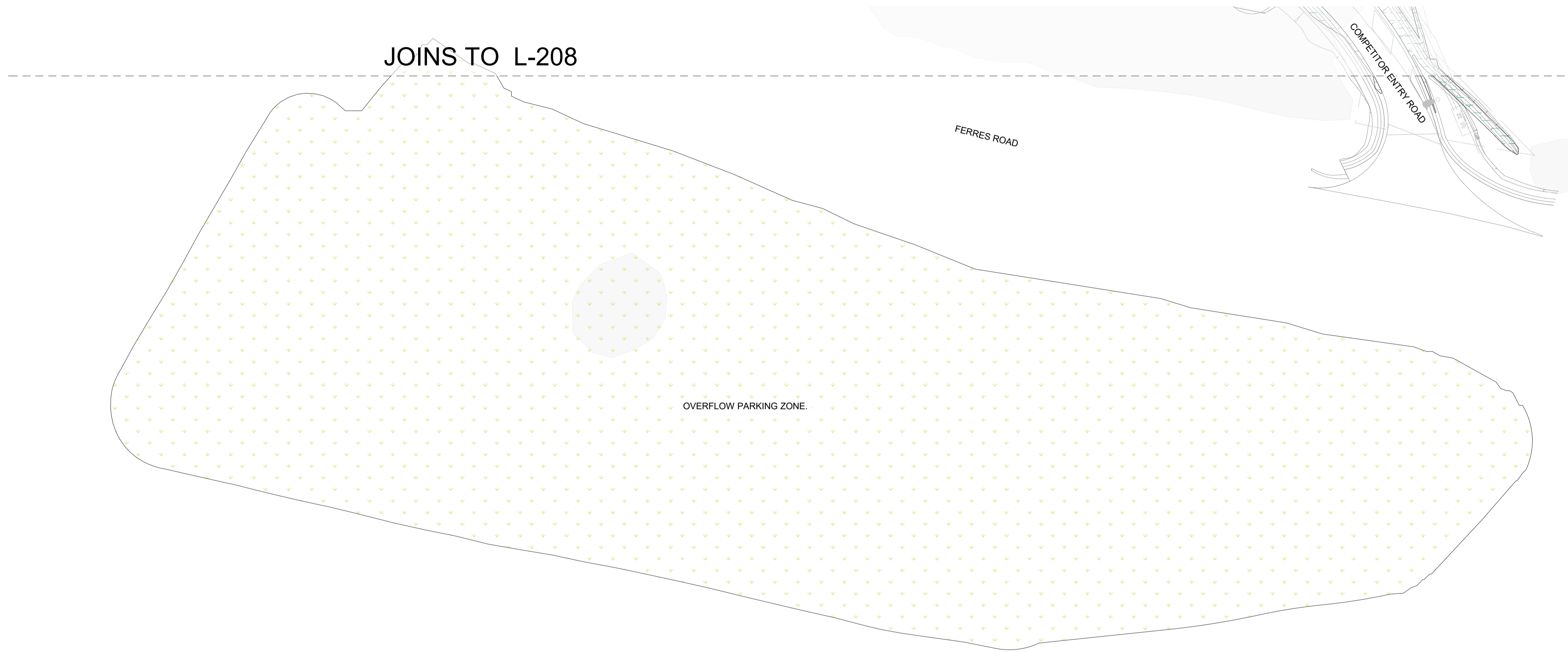
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Project No.	Drawing No.	Revision
2016	L-205	1

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D	29.06.2020	100% DD - TENDER ADDENDUM	DB	SI
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Rev	Date	Description	Drawn	Checked
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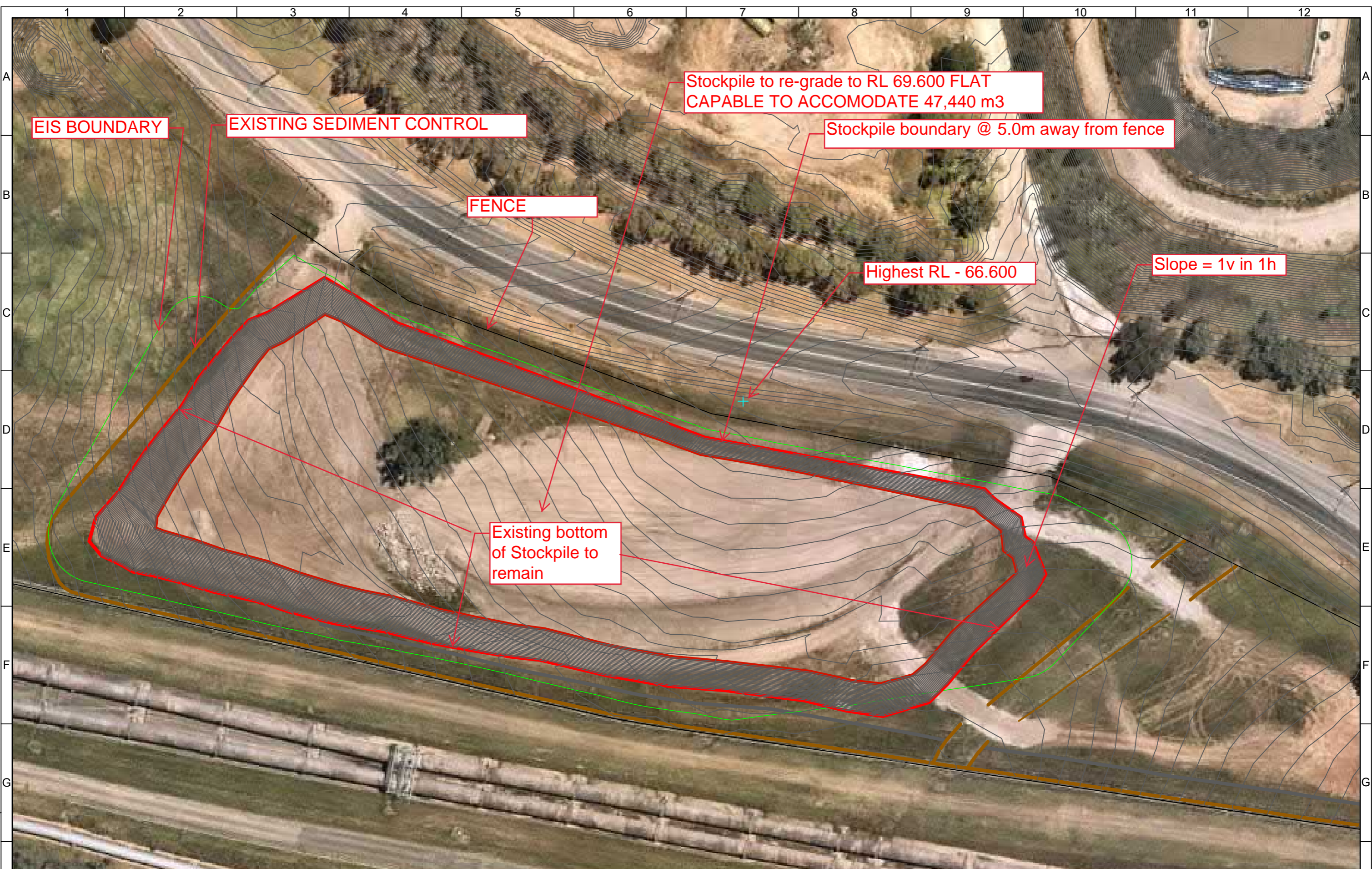
Client
 Project
SYDNEY SPEEDWAY

Drawing Title
General Arrangement - Sheet 9

Drawing Status
IFC

Scale: 1:400 @A1 Plot Date

Project No.	Drawing No.	Revision
2016	L-209	1



PLOT DATE: Sun Sep 26 12:31:55 2021

REV	AMENDMENTS	APP'D	DATE	GENERAL NOTES / REFERENCES

Coordinates in MGA94
RL in AHD71

PACIFIC SURVEY

Pacific Survey Sydney Pty Ltd
146 Settlement Road
PO Box 2606
Port Macquarie NSW 2444
Ph: (02) 6583 2366 Fax (02) 6583 2199
www.pacificsurvey.com.au

Sydney International Speedway
Abergeldie

SURVEYED / DRAWN BY Leo		Proposed grading plan Ferrers Road Stockpile Volume	REV.
CHECKED			
SCALES AT A3 Horiz 1:700 Vert 1:700		DRAWING STATUS For Information Only	DRAWING No.

15 Appendix V - Previous Landfill Gas Monitoring Results

LFG Well ID	Location	CH ₄ (%V/V)					CO ₂ (%V/V)					O ₂ (%V/V)					CO (ppm)					H ₂ S (ppm)					Gas flow (L/Hr)					Borehole Pressure(mb)					Atmospheric Pressure (MBa)					LFG well drilling depth (m BGL)	GSV	CS Value
		Round 1	Round 2	Round 3	Round 4	Round 5	Round 1	Round 2	Round 3	Round 4	Round 5	Round 1	Round 2	Round 3	Round 4	Round 5	Round 1	Round 2	Round 3	Round 4	Round 5	Round 1	Round 2	Round 3	Round 4	Round 5	Round 1	Round 2	Round 3	Round 4	Round 5	Round 1	Round 2	Round 3	Round 4	Round 5	Round 1	Round 2	Round 3	Round 4	Round 5			
LFG 1	North Ticket Box	0	0	0	0	0	5.2	6.8	10.8	11.7	13.1	11.3	13.8	15	8.4	2.8	1	1	0	4	2	1	1	0	2	3	0	0	0	0	0.3	0.1	0.02	0.05	0.19	0.26	1011	1009	999	1007	1005	12	0	2
LFG 2	D2 – Area 2	0	0	0	0.1	0	6.7	12.7	15.3	15.3	14.9	1.2	5.8	17.5	19.5	13.7	1	0	0	13	5	1	1	1	2	3	0.1	0	0	0	-0.1	0.19	0.05	0.02	0.44	0	1008	1011	1001	1009	1008	9	0.01	2
LFG 3	D1 – Area 1	0	0	0	0	0	9.4	6.6	7.1	7.5	7.6	6.1	3.2	7.4	0.7	0.5	0	1	0	0	3	1	1	0	2	4	0	0	0	0	0	0	0	0.11	0.12	0.03	1010	1009	999	1006	1006	11	0	2
LFG 4	Carpark C – Area 3 North	0.1	0	0	0.1	0	16.9	17	16.4	17.2	16.7	1.3	1.3	4.2	17.1	4.4	1	0	1	23	1	1	1	0	0	0	0	0.3	-0.1	0	0	0.52	0.05	-0.07	-0.53	0.14	1009	1011	1000	1006	1011	10	0.03	2
LFG 5	Carpark C – Area 3 South	0	0	0	0.1	0	6.4	5.1	4	6.1	20.5	16.3	17.7	17.2	14.7	20.5	0	0	0	3	0	1	1	0	2	0	0	0	0	0	0	0.17	0.22	0.07	0	0	1010	1011	999	1008	1010	11	0	2
LFG 9	Area 7	0	0	0	0.1	0	2.9	2.8	1.7	11.1	3.4	16.2	17.6	20.5	14.5	19.3	2	0	0	4	3	1	1	0	6	2	0	0	0.1	0	0	0.02	0	-0.02	0.02	0.02	1007	1007	1000	1008	1009	6	0.01	2

Notes to Table

- 1-LFG Monitoring Round 1 - Monday 18 Oct 2021, Temperature conditions Sunny and 27 C°, Atmospheric pressure (1006 -1011 MBa).
- 2-LFG Monitoring Round 2 - Friday, 22 Oct 2021, Temperature conditions sunny and later cloudy, 18 to 24 C°, Atmospheric pressure (1009 -1011 MBa)
- 3-LFG Monitoring Round 3 - Wednesday, 10 Nov 2021, Temperature conditions raining, 20 C°, Atmospheric pressure (996 -1002 MBa)
- 4-LFG Monitoring Round 4 - Tuesday, 16 Oct 2021, Temperature conditions sunny, 16 C°, Atmospheric pressure (1006 -1009 MBa)
- 5-LFG Monitoring Round 5 - Thursday, 2 Dec 2021, Temperature conditions sunny, 16 to 26 C°, Atmospheric Pressure (1005-1012 MBa)

*Concentrations above 1% highlighted for methane and above 5% highlighted for carbon dioxide.
 *As per the additional factors outlined within the modified Wilson and Card Classification, all concentrations above 1% v/v of methane and/or 5%
 *Gas Screening Value - GSV= maximum borehole flow rate (L/hr) x maximum gas concentration (%) for each area
 *Maximum flow rates have been used for this assessment. Flow has been measured using GA5000.

Very Low Risk
 Low risk

16 Appendix VI – Previous Analytical Results Tables (ADE, 2021a)

Table 35 - Soil Analytical Results



Table with 25 columns: Location, Date, ID, Depth, Material, Soil Type, Asbestos (Y/N), Non-Friable Asbestos (% w/w), Asbestos Fines + Fibrous Asbestos (% w/w), Benzene (mg/kg), Toluene (mg/kg), Ethylbenzene (mg/kg), Xylenes (m & p) (mg/kg), Xylene (o) (mg/kg), Xylene Total (mg/kg), Total BTEX (mg/kg), C6-C10 Fraction (F1) (mg/kg), C6-C10 (F1 minus BTEX) (mg/kg), >C10-C16 Fraction (F2) (mg/kg), >C10-C16 Fraction (F2 minus Naphthalene) (mg/kg), >C16-C24 Fraction (F3) (mg/kg), >C24-C40 Fraction (F4) (mg/kg), >C40-C40 Fraction (Sum) (mg/kg), 2,3,4,5-Tetrachlorophenol (mg/kg), 2,3,4,6-Tetrachlorophenol (mg/kg). Rows include Sydney Speedway Area 5, Sydney Speedway Area 6, Sydney Speedway Link Road, and Sydney Speedway Northern Ticket Box, with various soil types and analytical results.

Table 35 - Soil Analytical Results

Table with columns: Location, Date, ID, Depth, Soil Type, Description, and various chemical analytes (Hydrocarbons, Halogenated Benzenes, Perfluoroalkane Carboxylic Acids) with their respective concentrations in mg/kg.

Table 35 - Soil Analytical Results

						Metals											Pesticides																		
						MAH																													
						Monoyclic aromatic hydrocarbons EPA/Vic	Styrene	Arsenic	Cadmium	Chromium (III+VI)	Copper	Lead	Mercury	Nickel	Zinc	4,4-DDE	4-BHC	Aldrin	β-BHC	Chlordane (cis)	Chlordane (trans)	γ-BHC	DDD	DDT	Dieldrin	Endosulfan I	Endosulfan II	Endosulfan sulphate	Endrin	Endrin aldehyde	Endrin ketone				
						mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg				
Sydney Speedway	Northern Ticket Box	7/10/2021	BH110(1.9-2.0)	1.9-2	Soil	FILL: CLAY	Normal	<1.0	<0.50	20.5	<0.30	25.9	31.5	22.6	<0.20	21.4	67.5	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10

Statistics		92	92	210	210	210	210	210	210	210	210	210	210	210	210	210	210	210	210	210	210	210	210	210	210	210	210	210	210	210	210	210	210
Number of Results		0	0	159	11	203	208	183	0	151	208	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Number of Detects		<1	<0.5	3	<0.3	5	<5	<10	<0.1	9.8	<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	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Minimum Concentration		<1	<0.5	45.5	1.63	88.1	70.4	126.1	<0.2	83.1	177.1	<0.2	<0.2	0.17	<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	<0.2	<0.2

Notes to Table
 1- In the absence of criteria for total cyanide, the health investigation levels for free cyanide have been adopted for conservative purposes.
 * Below prescribed PQL
 *Ch - Chrysotile asbestos
 *Cr - Crocidolite asbestos
 *NAD - No asbestos detected

Environmental Standards
 2013, NEPM 2013 Table 1A(1) HILs Rec C Soil
 HEPA, January 2020, PFAS NEMP 2020 Industrial/ commercial (HIL D)
 2013, NEPM 2013 Table 1B(6) ESLs for Urban Res, Coarse Soil
 HEPA, January 2020, PFAS NEMP 2020 Public open space (HIL C)
 2013, NEPM 2013 Table 1A(1) HILs Comm/Ind D Soil
 CRC Care, 2011, CRC Care HSL-D Commercial / Industrial
 2013, NEPM 2013 Table 1A(3) Comm/Ind D Soil HSL for Vapour Intrusion, Clay
 NEPM, NEPM 2013 Table 1B(7) Management Limits Comm / Ind, Coarse Soil

Table 35 - Soil Analytical Results

Summary table with columns for analytes (e.g., BHC, Heptachlor, PAHs) and detection limits (mg/kg) for various site types and locations.

Main data table with columns: Site ID, Area Code, Date, Field ID, Depth, Matrix Type, Matrix Description, Sample Type, Parent Sample, and 24 analyte columns.

Table 35 - Soil Analytical Results

Main data table with columns for location, date, sample ID, depth, soil type, fill, and various chemical analytes (HCH, PCBs, PAHs, etc.) with their respective concentrations in mg/kg.

Summary table with columns for 'Number of Results', 'Number of Detects', 'Minimum Concentration', and 'Maximum Concentration' across various analyte groups.

Notes to Table: 1- In the absence of criteria for total cyanide, the health investigation levels for free cyanide have been adopted for conservative purposes. * Below prescribed PQL. *Ch - Chrysotile asbestos. *Cr - Crocidolite asbestos. *NAD - No asbestos detected.

Environmental Standards: 2013, NEPM 2013 Table 1A(1) HILs Rec C Soil. HEPA, January 2020, PFAS NEMP 2020 Industrial/ commercial (HIL D). 2013, NEPM 2013 Table 1B(6) ESLS for Urban Res, Coarse Soil. HEPA, January 2020, PFAS NEMP 2020 Public open space (HIL C). 2013, NEPM 2013 Table 1A(1) HILs Comm/Ind D Soil. CRC Care, 2011, CRC Care HSL-D Commercial / Industrial. 2013, NEPM 2013 Table 1A(3) Comm/Ind D Soil HSL for Vapour Intrusion, Clay. NEPM, NEPM 2013 Table 1B(7) Management Limits Comm / Ind, Coarse Soil.

Table 35 - Soil Analytical Results

Main data table with columns: Sample ID, Date, Location, Soil Type, Description, pH, Moisture, Temperature, Arochlor 1248, Arochlor 1254, Arochlor 1260, PCBs (Sum of total), DDT, Parathion, Pirimiphos-methyl. Rows include Sydney Speedway Northern Ticket Box samples and interlab samples.

Statistics table with 8 columns: Metric, 210, 210, 210, 210, 197, 13, 13. Rows include Number of Results, Number of Detects, Minimum Concentration, Maximum Concentration.

Notes to Table
1- In the absence of criteria for total cyanide, the health investigation levels for free cyanide have been adopted for conservative purposes.
* Below prescribed PQL
*Ch - Chrysotile asbestos
*Cr - Crocidolite asbestos
*NAD - No asbestos detected

Environmental Standards
2013, NEPM 2013 Table 1A(1) HILs Rec C Soil
HEPA, January 2020, PFAS NEMP 2020 Industrial/ commercial (HIL D)
2013, NEPM 2013 Table 1B(6) ESLS for Urban Res, Coarse Soil
HEPA, January 2020, PFAS NEMP 2020 Public open space (HIL C)
2013, NEPM 2013 Table 1A(1) HILs Comm/Ind D Soil
CRC Care, 2011, CRC Care HSL-D Commercial / Industrial
2013, NEPM 2013 Table 1A(3) Comm/Ind D Soil HSL for Vapour Intrusion, Clay
NEPM, NEPM 2013 Table 1B(7) Management Limits Comm / Ind, Coarse Soil

Table 36 - Groundwater Analytical Results Table



	BTEX						TRH						3&4-Methylphenol (m&p-creso)		
	Benzene	Toluene	Ethylbenzene	Xylene (m & p)	Xylene (o)	Xylene Total	Total BTEX	C6-C10 Fraction (F1)	C6-C10 (F1 minus BTEX)	>C10-C16 Fraction (F2)	>C10-C16 Fraction (F2 minus Naphthalene)	>C16-C34 Fraction (F3)		>C34-C40 Fraction (F4)	>C10-C40 Fraction (Sum)
EQI	1	1	1	2	1	2	1	20	20	50	50	100	100	100	2
ANZG (2018) Freshwater 95% LOSP Toxicant DGVs	950	180	80		350										
NEPM 2013 Table 1C GILs, Fresh Waters	950				350	550									
NEPM 2013 Table 1A(4) Comm/Ind HSL D GW for Vapour Intrusion, Sand	5,000 5,000 5,000							6,000 6,000 7,000							
NEPM 2013 Table 1A(4) Comm/Ind HSL D GW for Vapour Intrusion, Clay	30,000 30,000 35,000														
PFAS NEMP 2020 Freshwater 99%															

Site ID	Date	Field ID	Matrix Type	Sample Type	Parent Sample	Benzene	Toluene	Ethylbenzene	Xylene (m & p)	Xylene (o)	Xylene Total	Total BTEX	C6-C10 Fraction (F1)	C6-C10 (F1 minus BTEX)	>C10-C16 Fraction (F2)	>C10-C16 Fraction (F2 minus Naphthalene)	>C16-C34 Fraction (F3)	>C34-C40 Fraction (F4)	>C10-C40 Fraction (Sum)	3&4-Methylphenol (m&p-creso)
Sydney Speedway	22/10/2021	MW3	Water	Normal	-	<1	<1	<1	<2	<1	<3		<20	<20	<50	<50	<100	<100	<100	<6
Sydney Speedway	22/10/2021	MW5	Water	Normal	-	<1	<1	<1	<2	<1	<3		<20	<20	<50	<50	<100	<100	<100	<6
Sydney Speedway	22/10/2021	MW6	Water	Normal	-	<1	<1	<1	<2	<1	<3		<20	<20	<50	<50	<100	<100	<100	<6
Sydney Speedway	22/10/2021	DUP01A	Water	Interlab_D	MW6	<1	<2	<2	<2	<2	<2	<1	<20	<20	<100	<100	<100	<100	<100	<2.0
Sydney Speedway	22/10/2021	DUP01	Water	Field_D	MW6	<1	<1	<1	<2	<1	<3		<20	<20	<50	<50	<100	<100	<100	<6

Statistics																				
Number of Results	5	5	5	5	5	5	1	5	5	5	5	5	5	5	5	5	5	5	5	5
Number of Detects	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minimum Concentration	<1	<1	<1	<2	<1	<2	<1	<20	<20	<50	<50	<100	<100	<100	<100	<100	<100	<100	<100	<2
Maximum Concentration	<1	<2	<2	<2	<2	<3	<1	<20	<20	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<6

Notes to Table
 1- In the absence of specific criteria for Chromium (III+VI), the assessment criteria for Chromium (VI) has been adopted for conservative purposes.
 2- For conservative purposes, when the adopted EQL exceeds the adopted SAC, the result is considered to be an exceedance.
 *Below adopted PQL

Environmental Standards
 ANZG, March 2021, ANZG (2018) Freshwater 95% LOSP Toxicant DGVs
 2013, NEPM 2013 Table 1C GILs, Fresh Waters
 2013, NEPM 2013 Table 1A(4) Comm/Ind HSL D GW for Vapour Intrusion, Sand
 2013, NEPM 2013 Table 1A(4) Comm/Ind HSL D GW for Vapour Intrusion, Clay
 HEPA, January 2020, PFAS NEMP 2020 Freshwater 99%

Table 36 - Groundwater Analytical Results Table



	Phenols															
	2,4,5-Trichlorophenol µg/L	2,4,6-Trichlorophenol µg/L	2,4-Dichlorophenol µg/L	2,4-Dimethylphenol µg/L	2,4-Dinitrophenol mg/L	2,6-Dichlorophenol µg/L	2-Chlorophenol µg/L	2-Methylphenol µg/L	2-Nitrophenol µg/L	4,6-Dinitro-2-methylphenol µg/L	4,6-Dinitro-o-cyclohexyl phenol µg/L	4-chloro-3-methylphenol µg/L	4-Nitrophenol µg/L	Cresol Total mg/L	Pentachlorophenol µg/L	Tetrachlorophenols µg/L
EQL	1	1	1	1	0.03	1	1	1	1	30	100	1	30	0.01	2	30
ANZG (2018) Freshwater 95% LOSP Toxicant DGVs		20	160		0.045		490								10	
NEPM 2013 Table 1C GILs, Fresh Waters		3	120		0.045		340								3.6	
NEPM 2013 Table 1A(4) Comm/Ind HSL D GW for Vapour Intrusion, Sand	5															
NEPM 2013 Table 1A(4) Comm/Ind HSL D GW for Vapour Intrusion, Clay	30															
PFAS NEMP 2020 Freshwater 99%																

Site ID	Date	Field ID	Matrix Type	Sample Type	Parent Sample	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	4,6-Dinitro-2-methylphenol	4,6-Dinitro-o-cyclohexyl phenol	4-chloro-3-methylphenol	4-Nitrophenol	Cresol Total	Pentachlorophenol	Tetrachlorophenols
Sydney Speedway	22/10/2021	MW3	Water	Normal	-	<10	<10	<3	<3	<0.03	<3	<3	<3	<10	<30	<100	<10	<30	<0.01	<10	<30
Sydney Speedway	22/10/2021	MW5	Water	Normal	-	<10	<10	<3	<3	<0.03	<3	<3	<3	<10	<30	<100	<10	<30	<0.01	<10	<30
Sydney Speedway	22/10/2021	MW6	Water	Normal	-	<10	<10	<3	<3	<0.03	<3	<3	<3	<10	<30	<100	<10	<30	<0.01	<10	<30
Sydney Speedway	22/10/2021	DUP01A	Water	Interlab_D	MW6	<1.0	<1.0	<1.0	<1.0		<1.0	<1.0	<1.0	<1.0			<1.0			<2.0	
Sydney Speedway	22/10/2021	DUP01	Water	Field_D	MW6	<10	<10	<3	<3	<0.03	<3	<3	<3	<10	<30	<100	<10	<30	<0.01	<10	<30

Statistics	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	4,6-Dinitro-2-methylphenol	4,6-Dinitro-o-cyclohexyl phenol	4-chloro-3-methylphenol	4-Nitrophenol	Cresol Total	Pentachlorophenol	Tetrachlorophenols
Number of Results	5	5	5	5	4	5	5	5	5	4	4	5	4	4	5	4
Number of Detects	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minimum Concentration	<1	<1	<1	<1	<0.03	<1	<1	<1	<1	<30	<100	<1	<30	<0.01	<2	<30
Maximum Concentration	<10	<10	<3	<3	<0.03	<3	<3	<3	<10	<30	<100	<10	<30	<0.01	<10	<30

Notes to Table

- 1- In the absence of specific criteria for Chromium (III+VI), the assessment criteria for Chromium (VI) has been adopted for conservative purposes
- 2- For conservative purposes, when the adopted EQL exceeds the adopted SAC, the result is considered to be an exceedance.

*Below adopted PQL

Environmental Standards

- ANZG, March 2021, ANZG (2018) Freshwater 95% LOSP Toxicant DGVs
- 2013, NEPM 2013 Table 1C GILs, Fresh Waters
- 2013, NEPM 2013 Table 1A(4) Comm/Ind HSL D GW for Vapour Intrusion, Sand
- 2013, NEPM 2013 Table 1A(4) Comm/Ind HSL D GW for Vapour Intrusion, Clay
- HEPA, January 2020, PFAS NEMP 2020 Freshwater 99%

Table 36 - Groundwater Analytical Results Table



	Phenol µg/L	Phenols (Total Halogenated) mg/L	Phenols (Total Non Halogenated) mg/L	Chlorinated hydrocarbons EPAVic µg/L	Other chlorinated hydrocarbons EPAVic µg/L	1,1,1,2-tetrachloroethane µg/L	1,1,1-trichloroethane µg/L	1,1,2,2-tetrachloroethane µg/L	1,1,2-trichloroethane µg/L	1,1-dichloroethane µg/L	1,1-dichloroethene µg/L	1,1-dichloropropene µg/L	1,2,3-trichloropropane µg/L	1,2-dibromo-3-chloropropane µg/L	1,2-dichloroethane µg/L	1,2-dichloropropane µg/L
EQL	1	0.01	0.1	5	5	1	1	1	1	1	1	5	1	5	1	1
ANZG (2018) Freshwater 95% LOSP Toxicant DGVs	320						270	400	6,500		700				1,900	900
NEPM 2013 Table 1C GILs, Fresh Waters	320								6,500							
NEPM 2013 Table 1A(4) Comm/Ind HSL D GW for Vapour Intrusion, Sand	5															
NEPM 2013 Table 1A(4) Comm/Ind HSL D GW for Vapour Intrusion, Clay	30															
PFAS NEMP 2020 Freshwater 99%																

Site ID	Date	Field ID	Matrix Type	Sample Type	Parent Sample	Phenol	Phenols (Total Halogenated)	Phenols (Total Non Halogenated)	Chlorinated hydrocarbons EPAVic	Other chlorinated hydrocarbons EPAVic	1,1,1,2-tetrachloroethane	1,1,1-trichloroethane	1,1,2,2-tetrachloroethane	1,1,2-trichloroethane	1,1-dichloroethane	1,1-dichloroethene	1,1-dichloropropene	1,2,3-trichloropropane	1,2-dibromo-3-chloropropane	1,2-dichloroethane	1,2-dichloropropane
Sydney Speedway	22/10/2021	MW3	Water	Normal	-	<3	<0.01	<0.1	<5	<5	<1	<1	<1	<1	<1	<1		<1		<1	<1
Sydney Speedway	22/10/2021	MW5	Water	Normal	-	<3	<0.01	<0.1	<5	<5	<1	<1	<1	<1	<1	<1		<1		<1	<1
Sydney Speedway	22/10/2021	MW6	Water	Normal	-	<3	<0.01	<0.1	<5	<5	<1	<1	<1	<1	<1	<1		<1		<1	<1
Sydney Speedway	22/10/2021	DUP01A	Water	Interlab_D	MW6	<1.0					<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Sydney Speedway	22/10/2021	DUP01	Water	Field_D	MW6	<3	<0.01	<0.1	<5	<5	<1	<1	<1	<1	<1	<1		<1		<1	<1

Statistics	Phenol	Phenols (Total Halogenated)	Phenols (Total Non Halogenated)	Chlorinated hydrocarbons EPAVic	Other chlorinated hydrocarbons EPAVic	1,1,1,2-tetrachloroethane	1,1,1-trichloroethane	1,1,2,2-tetrachloroethane	1,1,2-trichloroethane	1,1-dichloroethane	1,1-dichloroethene	1,1-dichloropropene	1,2,3-trichloropropane	1,2-dibromo-3-chloropropane	1,2-dichloroethane	1,2-dichloropropane
Number of Results	5	4	4	4	4	5	5	5	5	5	5	1	5	1	5	5
Number of Detects	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minimum Concentration	<1	<0.01	<0.1	<5	<5	<1	<1	<1	<1	<1	<1	<5	<1	<5	<1	<1
Maximum Concentration	<3	<0.01	<0.1	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5

Notes to Table
 1- In the absence of specific criteria for Chromium (III+VI), the assessment criteria for Chromium (VI) has been adopted for conservative purposes
 2- For conservative purposes, when the adopted EQL exceeds the adopted SAC, the result is considered to be an exceedance.
 *Below adopted PQL

Environmental Standards
 ANZG, March 2021, ANZG (2018) Freshwater 95% LOSP Toxicant DGVs
 2013, NEPM 2013 Table 1C GILs, Fresh Waters
 2013, NEPM 2013 Table 1A(4) Comm/Ind HSL D GW for Vapour Intrusion, Sand
 2013, NEPM 2013 Table 1A(4) Comm/Ind HSL D GW for Vapour Intrusion, Clay
 HEPA, January 2020, PFAS NEMP 2020 Freshwater 99%

Table 36 - Groundwater Analytical Results Table



	Chlorinated Hydrocarbons															
	1,3-dichloropropane µg/L	2,2-dichloropropane µg/L	Bromochloromethane µg/L	Bromodichloromethane µg/L	Bromoform µg/L	Carbon tetrachloride µg/L	Chlorodibromomethane µg/L	Chloroethane µg/L	Chloroform µg/L	Chloromethane µg/L	cis-1,2-dichloroethene µg/L	cis-1,3-dichloropropene µg/L	Dibromomethane µg/L	Dichloromethane µg/L	Hexachlorobutadiene µg/L	Trichloroethene µg/L
EQL	1	5	1	1	1	1	5	5	5	5	1	1	1	5	5	1
ANZG (2018) Freshwater 95% LOSP Toxicant DGVs	1,100					240			770						4,000	330
NEPM 2013 Table 1C GILs, Fresh Waters																
NEPM 2013 Table 1A(4) Comm/Ind HSL D GW for Vapour Intrusion, Sand	5															
NEPM 2013 Table 1A(4) Comm/Ind HSL D GW for Vapour Intrusion, Clay	30															
PFAS NEMP 2020 Freshwater 99%																

Site ID	Date	Field ID	Matrix Type	Sample Type	Parent Sample	1,3-dichloropropane	2,2-dichloropropane	Bromochloromethane	Bromodichloromethane	Bromoform	Carbon tetrachloride	Chlorodibromomethane	Chloroethane	Chloroform	Chloromethane	cis-1,2-dichloroethene	cis-1,3-dichloropropene	Dibromomethane	Dichloromethane	Hexachlorobutadiene	Trichloroethene
Sydney Speedway	22/10/2021	MW3	Water	Normal	-	<1		<1	<1	<1	<1	<1	<5	<5	<5	<1	<1	<1	<5		<1
Sydney Speedway	22/10/2021	MW5	Water	Normal	-	<1		<1	<1	<1	<1	<1	<5	<5	<5	<1	<1	<1	<5		<1
Sydney Speedway	22/10/2021	MW6	Water	Normal	-	<1		<1	<1	<1	<1	<1	<5	<5	<5	<1	<1	<1	<5		<1
Sydney Speedway	22/10/2021	DUP01A	Water	Interlab_D	MW6	<5	<5		<5	<5	<5	<5	<50	<5	<50	<5	<5	<5		<5	<5
Sydney Speedway	22/10/2021	DUP01	Water	Field_D	MW6	<1		<1	<1	<1	<1	<1	<5	<5	<5	<1	<1	<1	<5		<1

Statistics																					
Number of Results	5	1	4	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	4	1	5
Number of Detects	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minimum Concentration	<1	<5	<1	<1	<1	<1	<1	<1	<5	<5	<5	<1	<1	<1	<1	<5	<5	<1	<5	<5	<1
Maximum Concentration	<5	<5	<1	<5	<5	<5	<5	<5	<50	<5	<50	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5

Notes to Table
 1- In the absence of specific criteria for Chromium (III+VI), the assessment criteria for Chromium (VI) has been adopted for conservative purposes
 2- For conservative purposes, when the adopted EQL exceeds the adopted SAC, the result is considered to be an exceedance.
 *Below adopted PQL

Environmental Standards
 ANZG, March 2021, ANZG (2018) Freshwater 95% LOSP Toxicant DGVs
 2013, NEPM 2013 Table 1C GILs, Fresh Waters
 2013, NEPM 2013 Table 1A(4) Comm/Ind HSL D GW for Vapour Intrusion, Sand
 2013, NEPM 2013 Table 1A(4) Comm/Ind HSL D GW for Vapour Intrusion, Clay
 HEPA, January 2020, PFAS NEMP 2020 Freshwater 99%

Table 36 - Groundwater Analytical Results Table



	Tetrachloroethene				Halogenated Benzenes										Halogenated Ethanes	
	µg/L	µg/L	µg/L	µg/L	1,2,3-trichlorobenzene	1,2,4-trichlorobenzene	1,2-dichlorobenzene	1,3-dichlorobenzene	1,4-dichlorobenzene	2-chlorotoluene	4-chlorotoluene	Bromobenzene	Chlorobenzene	Hexachlorobenzene	1,2-dibromoethane	Bromomethane
EQL	1	1	1	5	5	5	1	1	1	5	1	1	1	0.2	1	5
ANZG (2018) Freshwater 95% LOSP Toxicant DGVs	70			100	10	170	160	260	60				55	0.1		
NEPM 2013 Table 1C GILs, Fresh Waters					3	85	160	260	60							
NEPM 2013 Table 1A(4) Comm/Ind HSL D GW for Vapour Intrusion, Sand																
NEPM 2013 Table 1A(4) Comm/Ind HSL D GW for Vapour Intrusion, Clay																
PFAS NEMP 2020 Freshwater 99%																

Site ID	Date	Field ID	Matrix Type	Sample Type	Parent Sample	Tetrachloroethene	trans-1,2-dichloroethene	trans-1,3-dichloropropene	Vinyl chloride	1,2,3-trichlorobenzene	1,2,4-trichlorobenzene	1,2-dichlorobenzene	1,3-dichlorobenzene	1,4-dichlorobenzene	2-chlorotoluene	4-chlorotoluene	Bromobenzene	Chlorobenzene	Hexachlorobenzene	1,2-dibromoethane	Bromomethane
Sydney Speedway	22/10/2021	MW3	Water	Normal	-	<1	<1	<1	<5			<1	<1	<1		<1	<1	<1	<0.2	<1	<5
Sydney Speedway	22/10/2021	MW5	Water	Normal	-	<1	<1	<1	<5			<1	<1	<1		<1	<1	<1	<0.2	<1	<5
Sydney Speedway	22/10/2021	MW6	Water	Normal	-	<1	<1	<1	<5			<1	<1	<1		<1	<1	<1	<0.2	<1	<5
Sydney Speedway	22/10/2021	DUP01A	Water	Interlab_D	MW6	<5	<5	<5	<50	<5	<5	<5	<5	<5	<5	<5	<5	<5	<0.5	<5	<50
Sydney Speedway	22/10/2021	DUP01	Water	Field_D	MW6	<1	<1	<1	<5			<1	<1	<1		<1	<1	<1	<0.2	<1	<5

Statistics	Tetrachloroethene	trans-1,2-dichloroethene	trans-1,3-dichloropropene	Vinyl chloride	1,2,3-trichlorobenzene	1,2,4-trichlorobenzene	1,2-dichlorobenzene	1,3-dichlorobenzene	1,4-dichlorobenzene	2-chlorotoluene	4-chlorotoluene	Bromobenzene	Chlorobenzene	Hexachlorobenzene	1,2-dibromoethane	Bromomethane
Number of Results	5	5	5	5	1	1	5	5	5	1	5	5	5	5	5	5
Number of Detects	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minimum Concentration	<1	<1	<1	<5	<5	<5	<1	<1	<1	<5	<1	<1	<1	<0.2	<1	<5
Maximum Concentration	<5	<5	<5	<50	<5	<5	<5	<5	<5	<5	<5	<5	<5	<0.5	<5	<50

Notes to Table

1- In the absence of specific criteria for Chromium (III+VI), the assessment criteria for Chromium (VI) has been adopted for conservative purposes

2- For conservative purposes, when the adopted EQL exceeds the adopted SAC, the result is considered to be an exceedance.

*Below adopted PQL

Environmental Standards

ANZG, March 2021, ANZG (2018) Freshwater 95% LOSP Toxicant DGVs

2013, NEPM 2013 Table 1C GILs, Fresh Waters

2013, NEPM 2013 Table 1A(4) Comm/Ind HSL D GW for Vapour Intrusion, Sand

2013, NEPM 2013 Table 1A(4) Comm/Ind HSL D GW for Vapour Intrusion, Clay

HEPA, January 2020, PFAS NEMP 2020 Freshwater 99%

Table 36 - Groundwater Analytical Results Table



	Halogated Hydrocarbons			Herbicides	Perfluoroalkane Carboxylic Acids												(n:2)			
	Dichlorodifluoromethane	Iodomethane	Trichlorofluoromethane		Dinoseb	Perfluorobutanoic acid (PFBA)	Perfluorohexanoic acid (PFHxA)	Perfluoropentanoic acid (PFPeA)	Perfluoroheptanoic acid (PFHpA)	Perfluorooctanoic acid (PFOA)	Perfluorodecanoic acid (PFDA)	Perfluorododecanoic acid (PFDoDA)	Perfluorononanoic acid (PFNA)	Perfluorotetradecanoic acid (PFTeDA)	Perfluorotridecanoic acid (PFTriDA)	Perfluoroundecanoic acid (PFUnDA)		4:2 Fluorotelomer sulfonic acid (4:2 FTS)		
EQL	5	1	5	100	0.05	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
ANZG (2018) Freshwater 95% LOSP Toxicant DGVs																				
NEPM 2013 Table 1C GILs, Fresh Waters																				
NEPM 2013 Table 1A(4) Comm/Ind HSL D GW for Vapour Intrusion, Sand	5																			
NEPM 2013 Table 1A(4) Comm/Ind HSL D GW for Vapour Intrusion, Clay	30																			
PFAS NEMP 2020 Freshwater 99%									19											

Site ID	Date	Field ID	Matrix Type	Sample Type	Parent Sample	Dichlorodifluoromethane	Iodomethane	Trichlorofluoromethane	Dinoseb	Perfluorobutanoic acid (PFBA)	Perfluorohexanoic acid (PFHxA)	Perfluoropentanoic acid (PFPeA)	Perfluoroheptanoic acid (PFHpA)	Perfluorooctanoic acid (PFOA)	Perfluorodecanoic acid (PFDA)	Perfluorododecanoic acid (PFDoDA)	Perfluorononanoic acid (PFNA)	Perfluorotetradecanoic acid (PFTeDA)	Perfluorotridecanoic acid (PFTriDA)	Perfluoroundecanoic acid (PFUnDA)	4:2 Fluorotelomer sulfonic acid (4:2 FTS)	
Sydney Speedway	22/10/2021	MW3	Water	Normal	-	<5	<1	<5	<100	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Sydney Speedway	22/10/2021	MW5	Water	Normal	-	<5	<1	<5	<100	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Sydney Speedway	22/10/2021	MW6	Water	Normal	-	<5	<1	<5	<100	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Sydney Speedway	22/10/2021	DUP01A	Water	Interlab_D	MW6	<50	<5	<50		<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.05	<0.02	<0.02	<0.02	<0.05
Sydney Speedway	22/10/2021	DUP01	Water	Field_D	MW6	<5	<1	<5	<100	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01

Statistics																					
Number of Results	5	5	5	4	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	
Number of Detects	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Minimum Concentration	<5	<1	<5	<100	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	
Maximum Concentration	<50	<5	<50	<100	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.02	

Notes to Table
 1- In the absence of specific criteria for Chromium (III+VI), the assessment criteria for Chromium (VI) has been adopted for conservative purposes
 2- For conservative purposes, when the adopted EQL exceeds the adopted SAC, the result is considered to be an exceedance.
 *Below adopted PQL

Environmental Standards
 ANZG, March 2021, ANZG (2018) Freshwater 95% LOSP Toxicant DGVs
 2013, NEPM 2013 Table 1C GILs, Fresh Waters
 2013, NEPM 2013 Table 1A(4) Comm/Ind HSL D GW for Vapour Intrusion, Sand
 2013, NEPM 2013 Table 1A(4) Comm/Ind HSL D GW for Vapour Intrusion, Clay
 HEPA, January 2020, PFAS NEMP 2020 Freshwater 99%

Table 36 - Groundwater Analytical Results Table



	Fluorotelomer Sulfonic Acids			Perfluoroalkane Sulfonic Acids							Perfluoroalkyl Sulfonamides					
	6:2 Fluorotelomer sulfonic acid (6:2 FTS) µg/L	8:2 Fluorotelomer sulfonic acid (8:2 FTS) µg/L	10:2 Fluorotelomer sulfonic acid (10:2 FTS) µg/L	Perfluoropropanesulfonic acid (PFPrS) µg/L	Perfluorobutane sulfonic acid (PFBS) µg/L	Perfluoropentane sulfonic acid (PFPeS) µg/L	Perfluorohexane sulfonic acid (PFHxS) µg/L	Perfluoroheptane sulfonic acid (PFHpS) µg/L	Perfluorooctane sulfonic acid (PFOS) µg/L	Perfluorodecane sulfonic acid (PFDS) µg/L	Perfluorooctane sulfonamide (FOSA) µg/L	N-Methyl perfluorooctane sulfonamide (MeFOSA) µg/L	N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA) µg/L	N-methyl perfluorooctane sulfonamidoethanol (MeFOSE) µg/L	N-Ethyl perfluorooctane sulfonamide (EtFOSA) µg/L	N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA) µg/L
EQL	0.05	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.02	0.05	0.02	0.05	0.05	0.02
ANZG (2018) Freshwater 95% LOSP Toxicant DGVs																
NEPM 2013 Table 1C GILs, Fresh Waters																
NEPM 2013 Table 1A(4) Comm/Ind HSL D GW for Vapour Intrusion, Sand																
NEPM 2013 Table 1A(4) Comm/Ind HSL D GW for Vapour Intrusion, Clay																
PFAS NEMP 2020 Freshwater 99%									0.00023							

Site ID	Date	Field ID	Matrix Type	Sample Type	Parent Sample	6:2 FTS	8:2 FTS	10:2 FTS	PFPrS	PFBS	PFPeS	PFHxS	PFHpS	PFOS	PFDS	FOSA	MeFOSA	MeFOSAA	MeFOSE	EtFOSA	EtFOSAA
Sydney Speedway	22/10/2021	MW3	Water	Normal	-	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Sydney Speedway	22/10/2021	MW5	Water	Normal	-	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Sydney Speedway	22/10/2021	MW6	Water	Normal	-	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Sydney Speedway	22/10/2021	DUP01A	Water	Interlab_D	MW6	<0.05	<0.05	<0.05		<0.02	<0.02	<0.01	<0.02	<0.01	<0.02	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02
Sydney Speedway	22/10/2021	DUP01	Water	Field_D	MW6	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05

Statistics																					
Number of Results	5	5	5	4	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	
Number of Detects	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Minimum Concentration	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02
Maximum Concentration	<0.05	<0.05	<0.05	<0.01	<0.02	<0.02	<0.01	<0.02	<0.01	<0.02	<0.01	<0.02	<0.01	<0.02	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05

Notes to Table
 1- In the absence of specific criteria for Chromium (III+VI), the assessment criteria for Chromium (VI) has been adopted for conservative purposes
 2- For conservative purposes, when the adopted EQL exceeds the adopted SAC, the result is considered to be an exceedance.
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Environmental Standards
 ANZG, March 2021, ANZG (2018) Freshwater 95% LOSP Toxicant DGVs
 2013, NEPM 2013 Table 1C GILs, Fresh Waters
 2013, NEPM 2013 Table 1A(4) Comm/Ind HSL D GW for Vapour Intrusion, Sand
 2013, NEPM 2013 Table 1A(4) Comm/Ind HSL D GW for Vapour Intrusion, Clay
 HEPA, January 2020, PFAS NEMP 2020 Freshwater 99%

Table 36 - Groundwater Analytical Results Table



	N-Ethylperfluorooctanesulfonamidoethanol (EFOSE) µg/L	PFAS						Sulfate as SO4 - Turbidimetric (filtered) mg/L	Nitrite + Nitrate as N mg/L	Alkalinity (Bicarbonate as CaCO3) mg/L	Alkalinity (Carbonate as CaCO3) mg/L	Alkalinity (Hydroxide) as CaCO3 mg/L	Alkalinity (total) as CaCO3 mg/L	Ammonia as N mg/L	Anions Total meq/L	Cations Total meq/L
		Perfluorononanesulfonic acid (PFNS) mg/L	Sum of PFHxS and PFOS µg/L	Sum of PFAS µg/L	Sum of PFAS (WA DER List) µg/L	Sum of enHealth PFAS (PFHxS + PFOS + PFOA) µg/L	Sum of PFAS (PFOS + PFOA) µg/L									
EQL	0.05	0.00001	0.01	0.01	0.01	0.01	0.01	1	0.01	1	1	1	1	0.01	0.01	0.01
ANZG (2018) Freshwater 95% LOSP Toxicant DGVs														0.9		
NEPM 2013 Table 1C GILs, Fresh Waters																
NEPM 2013 Table 1A(4) Comm/Ind HSL D GW for Vapour Intrusion, Sand																
NEPM 2013 Table 1A(4) Comm/Ind HSL D GW for Vapour Intrusion, Clay																
PFAS NEMP 2020 Freshwater 99%																

Site ID	Date	Field ID	Matrix Type	Sample Type	Parent Sample	<0.05	<0.00001	<0.01	<0.1	<0.05	<0.01	<0.01			1,400	<10	<20	1,400	0.22		
Sydney Speedway	22/10/2021	MW3	Water	Normal	-	<0.05	<0.00001	<0.01	<0.1	<0.05	<0.01	<0.01			1,400	<10	<20	1,400	0.22		
Sydney Speedway	22/10/2021	MW5	Water	Normal	-	<0.05	<0.00001	<0.01	<0.1	<0.05	<0.01	<0.01			1,100	<10	<20	1,100	0.42		
Sydney Speedway	22/10/2021	MW6	Water	Normal	-	<0.05	<0.00001	<0.01	<0.1	<0.05	<0.01	<0.01			1,000	<10	<20	1,000	0.12		
Sydney Speedway	22/10/2021	DUP01A	Water	Interlab_D	MW6	<0.05		<0.01	<0.01	<0.01			310	0.03	875	<1	<1	875	0.08	115	96.7
Sydney Speedway	22/10/2021	DUP01	Water	Field_D	MW6	<0.05	<0.00001	<0.01	<0.1	<0.05	<0.01	<0.01			1,000	<10	<20	1,000	0.12		

Statistics	5	4	5	5	5	4	4	1	1	5	5	5	5	5	5	1	1
Number of Results	5	4	5	5	5	4	4	1	1	5	5	5	5	5	5	1	1
Number of Detects	0	0	0	0	0	0	0	1	1	5	0	0	5	5	1	1	
Minimum Concentration	<0.05	<0.00001	<0.01	<0.01	<0.01	<0.01	<0.01	310	0.03	875	<1	<1	875	0.08	115	96.7	
Maximum Concentration	<0.05	<0.00001	<0.01	<0.1	<0.05	<0.01	<0.01	310	0.03	1,400	<10	<20	1,400	0.42	115	96.7	

Notes to Table
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 *Below adopted PQL

Environmental Standards
 ANZG, March 2021, ANZG (2018) Freshwater 95% LOSP Toxicant DGVs
 2013, NEPM 2013 Table 1C GILs, Fresh Waters
 2013, NEPM 2013 Table 1A(4) Comm/Ind HSL D GW for Vapour Intrusion, Sand
 2013, NEPM 2013 Table 1A(4) Comm/Ind HSL D GW for Vapour Intrusion, Clay
 HEPA, January 2020, PFAS NEMP 2020 Freshwater 99%

Table 36 - Groundwater Analytical Results Table



	Inorganics										MAH					
	Chloride mg/L	Cyanide Total mg/L	Fluoride mg/L	Ionic Balance %	Kjeldahl Nitrogen Total mg/L	Nitrate (as N) mg/L	Nitrite (as N) mg/L	Sodium mg/L	Sodium (filtered) mg/L	Sulphate mg/L	Total MAH mg/L	1,2,4- trimethylbenzene µg/L	1,3,5- trimethylbenzene µg/L	Isopropylbenzene µg/L	n-butylbenzene µg/L	n-propylbenzene µg/L
EQL	1	0.004	0.5	0.01	0.1	0.01	0.01	0.5	0.5	2	0.003	1	1	1	5	5
ANZG (2018) Freshwater 95% LOSP Toxicant DGVs														30		
NEPM 2013 Table 1C GILs, Fresh Waters		0.007														
NEPM 2013 Table 1A(4) Comm/Ind HSL D GW for Vapour Intrusion, Sand																
NEPM 2013 Table 1A(4) Comm/Ind HSL D GW for Vapour Intrusion, Clay																
PFAS NEMP 2020 Freshwater 99%																

Site ID	Date	Field ID	Matrix Type	Sample Type	Parent Sample	Chloride	Cyanide Total	Fluoride	Ionic Balance	Kjeldahl Nitrogen Total	Nitrate (as N)	Nitrite (as N)	Sodium	Sodium (filtered)	Sulphate	Total MAH	1,2,4-trimethylbenzene	1,3,5-trimethylbenzene	Isopropylbenzene	n-butylbenzene	n-propylbenzene
Sydney Speedway	22/10/2021	MW3	Water	Normal	-	7,700	<0.005	<0.5		<0.2	0.83		4,600		990	<0.003	<1	<1	<1		
Sydney Speedway	22/10/2021	MW5	Water	Normal	-	6,600	<0.005	<0.5		0.9	1.4		4,200		600	<0.003	<1	<1	<1		
Sydney Speedway	22/10/2021	MW6	Water	Normal	-	2,700	<0.005	<0.5		<0.2	0.02		2,000		230	<0.003	<1	<1	<1		
Sydney Speedway	22/10/2021	DUP01A	Water	Interlab_D	MW6	3,220	<0.004		8.54	<0.2	0.03	<0.01		1,550			<5	<5	<5	<5	<5
Sydney Speedway	22/10/2021	DUP01	Water	Field_D	MW6	2,700	<0.005	<0.5		<0.2	0.61		1,900		230	<0.003	<1	<1	<1		

Statistics	Chloride	Cyanide Total	Fluoride	Ionic Balance	Kjeldahl Nitrogen Total	Nitrate (as N)	Nitrite (as N)	Sodium	Sodium (filtered)	Sulphate	Total MAH	1,2,4-trimethylbenzene	1,3,5-trimethylbenzene	Isopropylbenzene	n-butylbenzene	n-propylbenzene
Number of Results	5	5	4	1	5	5	1	4	1	4	4	5	5	5	1	1
Number of Detects	5	0	0	1	1	5	0	4	1	4	0	0	0	0	0	0
Minimum Concentration	2,700	<0.004	<0.5	8.54	<0.2	0.02	<0.01	1,900	1,550	230	<0.003	<1	<1	<1	<5	<5
Maximum Concentration	7,700	<0.005	<0.5	8.54	0.9	1.4	<0.01	4,600	1,550	990	<0.003	<5	<5	<5	<5	<5

Notes to Table

- 1- In the absence of specific criteria for Chromium (III+VI), the assessment criteria for Chromium (VI) has been adopted for conservative purposes
- 2- For conservative purposes, when the adopted EQL exceeds the adopted SAC, the result is considered to be an exceedance.

*Below adopted PQL

Environmental Standards

- ANZG, March 2021, ANZG (2018) Freshwater 95% LOSP Toxicant DGVs
- 2013, NEPM 2013 Table 1C GILs, Fresh Waters
- 2013, NEPM 2013 Table 1A(4) Comm/Ind HSL D GW for Vapour Intrusion, Sand
- 2013, NEPM 2013 Table 1A(4) Comm/Ind HSL D GW for Vapour Intrusion, Clay
- HEPA, January 2020, PFAS NEMP 2020 Freshwater 99%

Table 36 - Groundwater Analytical Results Table



	p-isopropyltoluene µg/L	sec-butylbenzene µg/L	Styrene µg/L	tert-butylbenzene µg/L	Arsenic µg/L	Arsenic (filtered) µg/L	Cadmium µg/L	Cadmium (filtered) µg/L	Calcium µg/L	Calcium (filtered) µg/L	Chromium (III+VI) µg/L	Chromium (III+VI) (filtered) µg/L	Copper µg/L	Copper (filtered) µg/L	Iron µg/L	Iron (filtered) µg/L
EQL	5	5	1	5	1	1	1	1	50	50	1	1	1	1	50	50
ANZG (2018) Freshwater 95% LOSP Toxicant DGVs					13	13	0.2	0.2				1 ¹	1.4	1.4		
NEPM 2013 Table 1C GILs, Fresh Waters					13	13	0.2	0.2				1 ¹	1.4	1.4		
NEPM 2013 Table 1A(4) Comm/Ind HSL D GW for Vapour Intrusion, Sand	5															
NEPM 2013 Table 1A(4) Comm/Ind HSL D GW for Vapour Intrusion, Clay	30															
PFAS NEMP 2020 Freshwater 99%																

Site ID	Date	Field ID	Matrix Type	Sample Type	Parent Sample	p-isopropyltoluene	sec-butylbenzene	Styrene	tert-butylbenzene	Arsenic	Arsenic (filtered)	Cadmium	Cadmium (filtered)	Calcium	Calcium (filtered)	Chromium (III+VI)	Chromium (III+VI) (filtered)	Copper	Copper (filtered)	Iron	Iron (filtered)	
Sydney Speedway	22/10/2021	MW3	Water	Normal	-			<1			2		0.3	270000			1		8			<50
Sydney Speedway	22/10/2021	MW5	Water	Normal	-			<1			3		0.2	280000			2		4			<50
Sydney Speedway	22/10/2021	MW6	Water	Normal	-			<1			<1		<0.2	170000			<1		12			<50
Sydney Speedway	22/10/2021	DUP01A	Water	Interlab_D	MW6	<5	<5	<5	<5	<1		<0.1			133000	<1		13			<50	
Sydney Speedway	22/10/2021	DUP01	Water	Field_D	MW6			<1			<1		<0.2	160000			<1		10			<50

Statistics	p-isopropyltoluene	sec-butylbenzene	Styrene	tert-butylbenzene	Arsenic	Arsenic (filtered)	Cadmium	Cadmium (filtered)	Calcium	Calcium (filtered)	Chromium (III+VI)	Chromium (III+VI) (filtered)	Copper	Copper (filtered)	Iron	Iron (filtered)
Number of Results	1	1	5	1	1	4	1	4	4	1	1	4	1	4	1	4
Number of Detects	0	0	0	0	0	2	0	2	4	1	0	2	1	4	0	0
Minimum Concentration	<5	<5	<1	<5	<1	<1	<0.1	<0.2	160000	133000	<1	<1	13	4	<50	<50
Maximum Concentration	<5	<5	<5	<5	<1	3	<0.1	0.3	280000	133000	<1	2	13	12	<50	<50

Notes to Table

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0.5

*Below adopted PQL

3.5

Environmental Standards

- ANZG, March 2021, ANZG (2018) Freshwater 95% LOSP Toxicant DGVs
- 2013, NEPM 2013 Table 1C GILs, Fresh Waters
- 2013, NEPM 2013 Table 1A(4) Comm/Ind HSL D GW for Vapour Intrusion, Sand
- 2013, NEPM 2013 Table 1A(4) Comm/Ind HSL D GW for Vapour Intrusion, Clay
- HEPA, January 2020, PFAS NEMP 2020 Freshwater 99%

Table 36 - Groundwater Analytical Results Table



	Metals														Organic	Organochlorine pesticides EPAVic
	Lead	Lead (filtered)	Magnesium	Magnesium (filtered)	Manganese	Manganese (filtered)	Mercury	Mercury (filtered)	Nickel	Nickel (filtered)	Potassium	Potassium (filtered)	Zinc	Zinc (filtered)	Methane	
	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	mg/L	µg/L
EQL	1	1	500	500	1	1	0.1	0.1	1	1	500	500	5	0.005	0.01	2
ANZG (2018) Freshwater 95% LOSP Toxicant DGVs	3.4	3.4			1900	1900	0.06	0.06	11	11			8	8		
NEPM 2013 Table 1C GILs, Fresh Waters	3.4	3.4			1900	1900	0.06	0.06	11	11			8	8		
NEPM 2013 Table 1A(4) Comm/Ind HSL D GW for Vapour Intrusion, Sand																
NEPM 2013 Table 1A(4) Comm/Ind HSL D GW for Vapour Intrusion, Clay																
PFAS NEMP 2020 Freshwater 99%																

Site ID	Date	Field ID	Matrix Type	Sample Type	Parent Sample	Lead	Lead (filtered)	Magnesium	Magnesium (filtered)	Manganese	Manganese (filtered)	Mercury	Mercury (filtered)	Nickel	Nickel (filtered)	Potassium	Potassium (filtered)	Zinc	Zinc (filtered)	Methane	Organochlorine pesticides EPAVic
Sydney Speedway	22/10/2021	MW3	Water	Normal	-	<1	<1	1200000			740	<0.1	<0.1		9	41000			40	<0.05	<2
Sydney Speedway	22/10/2021	MW5	Water	Normal	-	<1	<1	800000			5100	<0.1	<0.1		7	29000			20	<0.05	<2
Sydney Speedway	22/10/2021	MW6	Water	Normal	-	<1	<1	360000			170	<0.1	<0.1		3	12000			51	<0.05	<2
Sydney Speedway	22/10/2021	DUP01A	Water	Interlab_D	MW6	<1	<1		272000	178		<0.1	<0.1	7		11000	10000	56	20	<0.01	
Sydney Speedway	22/10/2021	DUP01	Water	Field_D	MW6	<1	<1	350000			170	<0.1	<0.1		3	11000			54	<0.05	<2

Statistics	Lead	Lead (filtered)	Magnesium	Magnesium (filtered)	Manganese	Manganese (filtered)	Mercury	Mercury (filtered)	Nickel	Nickel (filtered)	Potassium	Potassium (filtered)	Zinc	Zinc (filtered)	Methane	Organochlorine pesticides EPAVic
Number of Results	1	4	4	1	1	4	1	4	1	4	4	1	1	4	5	4
Number of Detects	0	0	4	1	1	4	0	0	1	4	4	1	1	4	0	0
Minimum Concentration	<1	<1	350000	272000	178	170	<0.1	<0.1	7	3	11000	10000	56	20	<0.01	<2
Maximum Concentration	<1	<1	1200000	272000	178	5100	<0.1	<0.1	7	9	41000	10000	56	54	<0.05	<2

Notes to Table

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*Below adopted PQL

4750

20

Environmental Standards

ANZG, March 2021, ANZG (2018) Freshwater 95% LOSP Toxicant DGVs
 2013, NEPM 2013 Table 1C GILs, Fresh Waters
 2013, NEPM 2013 Table 1A(4) Comm/Ind HSL D GW for Vapour Intrusion, Sand
 2013, NEPM 2013 Table 1A(4) Comm/Ind HSL D GW for Vapour Intrusion, Clay
 HEPA, January 2020, PFAS NEMP 2020 Freshwater 99%

4750

Table 36 - Groundwater Analytical Results Table



	Other organochlorine pesticides EPAVIC	4,4-DDE	a-BHC	Aldrin	Aldrin + Dieldrin	b-BHC	Chlordane	Chlordane (cis)	Chlordane (trans)	d-BHC	DDD	DDT	DDT+DDE+DDD	Dieldrin	Endosulfan I	Endosulfan II
	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
EQL	2	0.2	0.2	0.2	0.2	0.2	0.5	0.5	0.5	0.2	0.2	0.2	0.2	0.2	0.2	0.2
ANZG (2018) Freshwater 95% LOSP Toxicant DGVs							0.08					0.01				
NEPM 2013 Table 1C GILs, Fresh Waters							0.03					0.006				
NEPM 2013 Table 1A(4) Comm/Ind HSL D GW for Vapour Intrusion, Sand																
NEPM 2013 Table 1A(4) Comm/Ind HSL D GW for Vapour Intrusion, Clay																
PFAS NEMP 2020 Freshwater 99%																

Site ID	Date	Field ID	Matrix Type	Sample Type	Parent Sample	Other organochlorine pesticides EPAVIC	4,4-DDE	a-BHC	Aldrin	Aldrin + Dieldrin	b-BHC	Chlordane	Chlordane (cis)	Chlordane (trans)	d-BHC	DDD	DDT	DDT+DDE+DDD	Dieldrin	Endosulfan I	Endosulfan II	
Sydney Speedway	22/10/2021	MW3	Water	Normal	-	<2	<0.2	<0.2	<0.2	<0.2	<0.2	<2			<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Sydney Speedway	22/10/2021	MW5	Water	Normal	-	<2	<0.2	<0.2	<0.2	<0.2	<0.2	<2			<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Sydney Speedway	22/10/2021	MW6	Water	Normal	-	<2	<0.2	<0.2	<0.2	<0.2	<0.2	<2			<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Sydney Speedway	22/10/2021	DUP01A	Water	Interlab_D	MW6		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2.0	<0.5	<0.5	<0.5	<0.5	<0.5
Sydney Speedway	22/10/2021	DUP01	Water	Field_D	MW6	<2	<0.2	<0.2	<0.2	<0.2	<0.2	<2			<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2

Statistics	Other organochlorine pesticides EPAVIC	4,4-DDE	a-BHC	Aldrin	Aldrin + Dieldrin	b-BHC	Chlordane	Chlordane (cis)	Chlordane (trans)	d-BHC	DDD	DDT	DDT+DDE+DDD	Dieldrin	Endosulfan I	Endosulfan II
Number of Results	4	5	5	5	5	5	5	1	1	5	5	5	5	5	5	5
Number of Detects	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minimum Concentration	<2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.5	<0.5	<0.5	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Maximum Concentration	<2	<0.5	<0.5	<0.5	<0.5	<0.5	<2	<0.5	<0.5	<0.5	<0.5	<2	<0.5	<0.5	<0.5	<0.5

Notes to Table

- 1- In the absence of specific criteria for Chromium (III+VI), the assessment criteria for Chromium (VI) has been adopted for conservative purposes
- 2- For conservative purposes, when the adopted EQL exceeds the adopted SAC, the result is considered to be an exceedance.

*Below adopted PQL

Environmental Standards

ANZG, March 2021, ANZG (2018) Freshwater 95% LOSP Toxicant DGVs
 2013, NEPM 2013 Table 1C GILs, Fresh Waters
 2013, NEPM 2013 Table 1A(4) Comm/Ind HSL D GW for Vapour Intrusion, Sand
 2013, NEPM 2013 Table 1A(4) Comm/Ind HSL D GW for Vapour Intrusion, Clay
 HEPA, January 2020, PFAS NEMP 2020 Freshwater 99%

Table 36 - Groundwater Analytical Results Table



	Pesticides															
	Endosulfan sulphate	Endrin	Endrin aldehyde	Endrin ketone	γ-BHC (Lindane)	Heptachlor	Heptachlor epoxide	Methoxychlor	Toxaphene	Tokuthion	Azinophos methyl	Bolstar (Sulprofos)	Bromophos-ethyl	Carbophenothion	Chlorfenvinphos	Chlorpyrifos
	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	mg/L	mg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
EQL	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.005	0.002	0.5	2	0.5	0.5	0.5	0.5
ANZG (2018) Freshwater 95% LOSP Toxicant DGVs		0.02			0.2	0.09			0.0002		0.02					0.01
NEPM 2013 Table 1C GILs, Fresh Waters		0.01			0.2	0.01			0.0001							0.01
NEPM 2013 Table 1A(4) Comm/Ind HSL D GW for Vapour Intrusion, Sand	5															
NEPM 2013 Table 1A(4) Comm/Ind HSL D GW for Vapour Intrusion, Clay	30															
PFAS NEMP 2020 Freshwater 99%																

Site ID	Date	Field ID	Matrix Type	Sample Type	Parent Sample	Endosulfan sulphate	Endrin	Endrin aldehyde	Endrin ketone	γ-BHC (Lindane)	Heptachlor	Heptachlor epoxide	Methoxychlor	Toxaphene	Tokuthion	Azinophos methyl	Bolstar (Sulprofos)	Bromophos-ethyl	Carbophenothion	Chlorfenvinphos	Chlorpyrifos
Sydney Speedway	22/10/2021	MW3	Water	Normal	-	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.005	<0.002	<2	<2			<20	<2
Sydney Speedway	22/10/2021	MW5	Water	Normal	-	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.005	<0.002	<2	<2			<20	<2
Sydney Speedway	22/10/2021	MW6	Water	Normal	-	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.005	<0.002	<2	<2			<20	<2
Sydney Speedway	22/10/2021	DUP01A	Water	Interlab_D	MW6	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2.0			<0.5		<0.5	<0.5	<0.5	<0.5
Sydney Speedway	22/10/2021	DUP01	Water	Field_D	MW6	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.005	<0.002	<2	<2			<20	<2

Statistics	Endosulfan sulphate	Endrin	Endrin aldehyde	Endrin ketone	γ-BHC (Lindane)	Heptachlor	Heptachlor epoxide	Methoxychlor	Toxaphene	Tokuthion	Azinophos methyl	Bolstar (Sulprofos)	Bromophos-ethyl	Carbophenothion	Chlorfenvinphos	Chlorpyrifos
Number of Results	5	5	5	5	5	5	5	5	4	4	5	4	1	1	5	5
Number of Detects	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minimum Concentration	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.005	<0.002	<0.5	<2	<0.5	<0.5	<0.5	<0.5
Maximum Concentration	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2	<0.005	<0.002	<2	<2	<0.5	<0.5	<20	<2

Notes to Table

- 1- In the absence of specific criteria for Chromium (III+VI), the assessment criteria for Chromium (VI) has been adopted for conservative purposes
- 2- For conservative purposes, when the adopted EQL exceeds the adopted SAC, the result is considered to be an exceedance.

*Below adopted PQL

Environmental Standards

- ANZG, March 2021, ANZG (2018) Freshwater 95% LOSP Toxicant DGVs
- 2013, NEPM 2013 Table 1C GILs, Fresh Waters
- 2013, NEPM 2013 Table 1A(4) Comm/Ind HSL D GW for Vapour Intrusion, Sand
- 2013, NEPM 2013 Table 1A(4) Comm/Ind HSL D GW for Vapour Intrusion, Clay
- HEPA, January 2020, PFAS NEMP 2020 Freshwater 99%

Table 36 - Groundwater Analytical Results Table



	Chlorpyrifos-methyl	Coumaphos	Demeton-O	Demeton-S	Diazinon	Dichlorvos	Dimethoate	Disulfoton	Ethion	Ethoprop	Fenitrothion	Fensulfothion	Fenthion	EPN	Malathion	Merphos
	mg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	mg/L
EQL	0.0005	20	2	2	0.5	0.5	0.5	2	0.5	2	2	2	0.5	2	0.5	0.002
ANZG (2018) Freshwater 95% LOSP Toxicant DGVs					0.01		0.15				0.2				0.05	
NEPM 2013 Table 1C GILs, Fresh Waters					0.01		0.15				0.2				0.05	
NEPM 2013 Table 1A(4) Comm/Ind HSL D GW for Vapour Intrusion, Sand	5															
NEPM 2013 Table 1A(4) Comm/Ind HSL D GW for Vapour Intrusion, Clay	30															
PFAS NEMP 2020 Freshwater 99%																

Site ID	Date	Field ID	Matrix Type	Sample Type	Parent Sample	Chlorpyrifos-methyl	Coumaphos	Demeton-O	Demeton-S	Diazinon	Dichlorvos	Dimethoate	Disulfoton	Ethion	Ethoprop	Fenitrothion	Fensulfothion	Fenthion	EPN	Malathion	Merphos	
Sydney Speedway	22/10/2021	MW3	Water	Normal	-	<0.002	<20	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<0.002
Sydney Speedway	22/10/2021	MW5	Water	Normal	-	<0.002	<20	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<0.002
Sydney Speedway	22/10/2021	MW6	Water	Normal	-	<0.002	<20	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<0.002
Sydney Speedway	22/10/2021	DUP01A	Water	Interlab_D	MW6	<0.0005				<0.5	<0.5	<0.5		<0.5				<0.5		<0.5		
Sydney Speedway	22/10/2021	DUP01	Water	Field_D	MW6	<0.002	<20	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<0.002

Statistics	Chlorpyrifos-methyl	Coumaphos	Demeton-O	Demeton-S	Diazinon	Dichlorvos	Dimethoate	Disulfoton	Ethion	Ethoprop	Fenitrothion	Fensulfothion	Fenthion	EPN	Malathion	Merphos
Number of Results	5	4	4	4	5	5	5	4	5	4	4	4	5	4	5	4
Number of Detects	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minimum Concentration	<0.0005	<20	<2	<2	<0.5	<0.5	<0.5	<2	<0.5	<2	<2	<2	<0.5	<2	<0.5	<0.002
Maximum Concentration	<0.002	<20	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<0.002

Notes to Table
 1- In the absence of specific criteria for Chromium (III+VI), the assessment criteria for Chromium (VI) has been adopted for conservative purposes
 2- For conservative purposes, when the adopted EQL exceeds the adopted SAC, the result is considered to be an exceedance.
 *Below adopted PQL

Environmental Standards
 ANZG, March 2021, ANZG (2018) Freshwater 95% LOSP Toxicant DGVs
 2013, NEPM 2013 Table 1C GILs, Fresh Waters
 2013, NEPM 2013 Table 1A(4) Comm/Ind HSL D GW for Vapour Intrusion, Sand
 2013, NEPM 2013 Table 1A(4) Comm/Ind HSL D GW for Vapour Intrusion, Clay
 HEPA, January 2020, PFAS NEMP 2020 Freshwater 99%

Table 36 - Groundwater Analytical Results Table



	Methyl parathion	Mevinphos (Phosdrin)	Monocrotophos	Naled (Dibrom)	Omethoate	Phorate	Prothiofos	Pyrazophos	Ronnel	Terbufos	Trichloronate	Tetrachlorvinphos	Acenaphthene	Acenaphthylene	Anthracene	Benz(a)anthracene
	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	mg/L	µg/L	µg/L	µg/L	µg/L
EQL	2	2	2	2	20	2	0.5	2	2	2	2	0.002	1	1	1	1
ANZG (2018) Freshwater 95% LOSP Toxicant DGVs															0.4	
NEPM 2013 Table 1C GILs, Fresh Waters																
NEPM 2013 Table 1A(4) Comm/Ind HSL D GW for Vapour Intrusion, Sand																
NEPM 2013 Table 1A(4) Comm/Ind HSL D GW for Vapour Intrusion, Clay																
PFAS NEMP 2020 Freshwater 99%																

Site ID	Date	Field ID	Matrix Type	Sample Type	Parent Sample	Methyl parathion	Mevinphos (Phosdrin)	Monocrotophos	Naled (Dibrom)	Omethoate	Phorate	Prothiofos	Pyrazophos	Ronnel	Terbufos	Trichloronate	Tetrachlorvinphos	Acenaphthene	Acenaphthylene	Anthracene	Benz(a)anthracene
Sydney Speedway	22/10/2021	MW3	Water	Normal	-	<2	<2	<2	<2	<20	<2		<2	<2	<2	<2	<0.002	<1	<1	<1	<1
Sydney Speedway	22/10/2021	MW5	Water	Normal	-	<2	<2	<2	<2	<20	<2		<2	<2	<2	<2	<0.002	<1	<1	<1	<1
Sydney Speedway	22/10/2021	MW6	Water	Normal	-	<2	<2	<2	<2	<20	<2		<2	<2	<2	<2	<0.002	<1	<1	<1	<1
Sydney Speedway	22/10/2021	DUP01A	Water	Interlab_D	MW6	<2.0		<2.0				<0.5						<1.0	<1.0	<1.0	<1.0
Sydney Speedway	22/10/2021	DUP01	Water	Field_D	MW6	<2	<2	<2	<2	<20	<2		<2	<2	<2	<2	<0.002	<1	<1	<1	<1

Statistics	Methyl parathion	Mevinphos (Phosdrin)	Monocrotophos	Naled (Dibrom)	Omethoate	Phorate	Prothiofos	Pyrazophos	Ronnel	Terbufos	Trichloronate	Tetrachlorvinphos	Acenaphthene	Acenaphthylene	Anthracene	Benz(a)anthracene
Number of Results	5	4	5	4	4	4	1	4	4	4	4	4	5	5	5	5
Number of Detects	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minimum Concentration	<2	<2	<2	<2	<20	<2	<0.5	<2	<2	<2	<2	<0.002	<1	<1	<1	<1
Maximum Concentration	<2	<2	<2	<2	<20	<2	<0.5	<2	<2	<2	<2	<0.002	<1	<1	<1	<1

Notes to Table
 1- In the absence of specific criteria for Chromium (III+VI), the assessment criteria for Chromium (VI) has been adopted for conservative purposes
 2- For conservative purposes, when the adopted EQL exceeds the adopted SAC, the result is considered to be an exceedance.
 *Below adopted PQL

Environmental Standards
 ANZG, March 2021, ANZG (2018) Freshwater 95% LOSP Toxicant DGVs
 2013, NEPM 2013 Table 1C GILs, Fresh Waters
 2013, NEPM 2013 Table 1A(4) Comm/Ind HSL D GW for Vapour Intrusion, Sand
 2013, NEPM 2013 Table 1A(4) Comm/Ind HSL D GW for Vapour Intrusion, Clay
 HEPA, January 2020, PFAS NEMP 2020 Freshwater 99%

Table 36 - Groundwater Analytical Results Table



	PAH												Arochlor 1016	Arochlor 1221	Arochlor 1232				
	Benzo(a) pyrene	Benzo(b+g)fluoranthene	Benzo(k)fluoranthene	Chrysene	Dibenz(a,h)anthracene	Fluoranthene	Fluorene	Indeno(1,2,3-c,d)pyrene	Naphthalene	Phenanthrene	Pyrene	PAHs (Sum of total)							
EQI	µg/L	mg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L			
EQI	0.5	0.001	1	1	1	1	1	1	1	1	1	1	1	1	1	0.5	5	5	5
ANZG (2018) Freshwater 95% LOSP Toxicant DGVs	0.2						1.4					16	2						
NEPM 2013 Table 1C GILs, Fresh Waters												16							
NEPM 2013 Table 1A(4) Comm/Ind HSL D GW for Vapour Intrusion, Sand	5																		
NEPM 2013 Table 1A(4) Comm/Ind HSL D GW for Vapour Intrusion, Clay	30																		
PFAS NEMP 2020 Freshwater 99%																			

Site ID	Date	Field ID	Matrix Type	Sample Type	Parent Sample	Benzo(a) pyrene	Benzo(b+g)fluoranthene	Benzo(k)fluoranthene	Chrysene	Dibenz(a,h)anthracene	Fluoranthene	Fluorene	Indeno(1,2,3-c,d)pyrene	Naphthalene	Phenanthrene	Pyrene	PAHs (Sum of total)	Arochlor 1016	Arochlor 1221	Arochlor 1232
Sydney Speedway	22/10/2021	MW3	Water	Normal	-	<1	<0.001	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<5	<5	<5
Sydney Speedway	22/10/2021	MW5	Water	Normal	-	<1	<0.001	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<5	<5	<5
Sydney Speedway	22/10/2021	MW6	Water	Normal	-	<1	<0.001	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<5	<5	<5
Sydney Speedway	22/10/2021	DUP01A	Water	Interlab_D	MW6	<0.5	<0.0010	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.5			
Sydney Speedway	22/10/2021	DUP01	Water	Field_D	MW6	<1	<0.001	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<5	<5	<5

Statistics	Benzo(a) pyrene	Benzo(b+g)fluoranthene	Benzo(k)fluoranthene	Chrysene	Dibenz(a,h)anthracene	Fluoranthene	Fluorene	Indeno(1,2,3-c,d)pyrene	Naphthalene	Phenanthrene	Pyrene	PAHs (Sum of total)	Arochlor 1016	Arochlor 1221	Arochlor 1232
Number of Results	5	5	5	5	5	5	5	5	5	5	5	5	4	4	4
Number of Detects	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minimum Concentration	<0.5	<0.001	<1	<1	<1	<1	<1	<1	<1	<1	<1	<0.5	<5	<5	<5
Maximum Concentration	<1	<0.001	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<5	<5	<5

Notes to Table
 1- In the absence of specific criteria for Chromium (III+VI), the assessment criteria for Chromium (VI) has been adopted for conservative purposes
 2- For conservative purposes, when the adopted EQL exceeds the adopted SAC, the result is considered to be an exceedance.
 *Below adopted PQL

Environmental Standards
 ANZG, March 2021, ANZG (2018) Freshwater 95% LOSP Toxicant DGVs
 2013, NEPM 2013 Table 1C GILs, Fresh Waters
 2013, NEPM 2013 Table 1A(4) Comm/Ind HSL D GW for Vapour Intrusion, Sand
 2013, NEPM 2013 Table 1A(4) Comm/Ind HSL D GW for Vapour Intrusion, Clay
 HEPA, January 2020, PFAS NEMP 2020 Freshwater 99%

Table 36 - Groundwater Analytical Results Table



	PCBs					Pesticides					Solvents					
	Arochlor 1242 µg/L	Arochlor 1248 µg/L	Arochlor 1254 µg/L	Arochlor 1260 µg/L	PCBs (Sum of total) µg/L	Demeton-S-methyl µg/L	Fenamiphos µg/L	Parathion µg/L	Pirimiphos-methyl mg/L	Pirimiphos-ethyl µg/L	Methyl Ethyl Ketone µg/L	2-hexanone (MBK) µg/L	4-Methyl-2-pentanone µg/L	Acetone mg/L	Allyl chloride mg/L	Carbon disulfide µg/L
EQL	5	5	5	5	1	0.5	0.5	2	0.02	0.5	5	50	5	0.005	0.001	1
ANZG (2018) Freshwater 95% LOSP Toxicant DGVs	0.6		0.03					0.004								
NEPM 2013 Table 1C GILs, Fresh Waters	0.3		0.01					0.004								
NEPM 2013 Table 1A(4) Comm/Ind HSL D GW for Vapour Intrusion, Sand	5															
NEPM 2013 Table 1A(4) Comm/Ind HSL D GW for Vapour Intrusion, Clay	30															
PFAS NEMP 2020 Freshwater 99%																

Site ID	Date	Field ID	Matrix Type	Sample Type	Parent Sample	Arochlor 1242	Arochlor 1248	Arochlor 1254	Arochlor 1260	PCBs (Sum of total)	Demeton-S-methyl	Fenamiphos	Parathion	Pirimiphos-methyl	Pirimiphos-ethyl	Methyl Ethyl Ketone	2-hexanone (MBK)	4-Methyl-2-pentanone	Acetone	Allyl chloride	Carbon disulfide
Sydney Speedway	22/10/2021	MW3	Water	Normal	-	<5	<5	<5	<5	<5			<2	<0.02		<5		<5	<0.005	<0.001	<1
Sydney Speedway	22/10/2021	MW5	Water	Normal	-	<5	<5	<5	<5	<5			<2	<0.02		<5		<5	<0.005	<0.001	<1
Sydney Speedway	22/10/2021	MW6	Water	Normal	-	<5	<5	<5	<5	<5			<2	<0.02		<5		<5	<0.005	<0.001	<1
Sydney Speedway	22/10/2021	DUP01A	Water	Interlab_D	MW6					<1	<0.5	<0.5	<2.0		<0.5	<50	<50	<50			<5
Sydney Speedway	22/10/2021	DUP01	Water	Field_D	MW6	<5	<5	<5	<5	<5			<2	<0.02		<5		<5	<0.005	<0.001	<1

Statistics	Arochlor 1242	Arochlor 1248	Arochlor 1254	Arochlor 1260	PCBs (Sum of total)	Demeton-S-methyl	Fenamiphos	Parathion	Pirimiphos-methyl	Pirimiphos-ethyl	Methyl Ethyl Ketone	2-hexanone (MBK)	4-Methyl-2-pentanone	Acetone	Allyl chloride	Carbon disulfide
Number of Results	4	4	4	4	5	1	1	5	4	1	5	1	5	4	4	5
Number of Detects	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minimum Concentration	<5	<5	<5	<5	<1	<0.5	<0.5	<2	<0.02	<0.5	<5	<50	<5	<0.005	<0.001	<1
Maximum Concentration	<5	<5	<5	<5	<5	<0.5	<0.5	<2	<0.02	<0.5	<50	<50	<50	<0.005	<0.001	<5

Notes to Table

- 1- In the absence of specific criteria for Chromium (III+VI), the assessment criteria for Chromium (VI) has been adopted for conservative purposes
- 2- For conservative purposes, when the adopted EQL exceeds the adopted SAC, the result is considered to be an exceedance.

*Below adopted PQL

Environmental Standards

- ANZG, March 2021, ANZG (2018) Freshwater 95% LOSP Toxicant DGVs
- 2013, NEPM 2013 Table 1C GILs, Fresh Waters
- 2013, NEPM 2013 Table 1A(4) Comm/Ind HSL D GW for Vapour Intrusion, Sand
- 2013, NEPM 2013 Table 1A(4) Comm/Ind HSL D GW for Vapour Intrusion, Clay
- HEPA, January 2020, PFAS NEMP 2020 Freshwater 99%

Table 36 - Groundwater Analytical Results Table



	TPH					VOCs			
	Vinyl acetate	C6-C9 Fraction	C10-C14 Fraction	C15-C28 Fraction	C29-C36 Fraction	C10-C36 Fraction (Sum)	cis-1,4-Dichloro-2-butene	trans-1,4-Dichloro-2-butene	Pentachloroethane
EQI	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
ANZG (2018) Freshwater 95% LOSP Toxicant DGVs	50	20	50	100	50	50	5	5	5
NEPM 2013 Table 1C GILs, Fresh Waters									80
NEPM 2013 Table 1A(4) Comm/Ind HSL D GW for Vapour Intrusion, Sand	5								
NEPM 2013 Table 1A(4) Comm/Ind HSL D GW for Vapour Intrusion, Clay	30								
PFAS NEMP 2020 Freshwater 99%									

Site ID	Date	Field ID	Matrix Type	Sample Type	Parent Sample									
Sydney Speedway	22/10/2021	MW3	Water	Normal	-		<20	<50	<100	<100	<100			
Sydney Speedway	22/10/2021	MW5	Water	Normal	-		<20	<50	<100	<100	<100			
Sydney Speedway	22/10/2021	MW6	Water	Normal	-		<20	<50	<100	<100	<100			
Sydney Speedway	22/10/2021	DUP01A	Water	interlab_D	MW6	<50	<20	<50	<100	<50	<50	<5	<5	<5
Sydney Speedway	22/10/2021	DUP01	Water	Field_D	MW6		<20	<50	<100	<100	<100			

Statistics

Number of Results	1	5	5	5	5	5	1	1	1
Number of Detects	0	0	0	0	0	0	0	0	0
Minimum Concentration	<50	<20	<50	<100	<50	<50	<5	<5	<5
Maximum Concentration	<50	<20	<50	<100	<100	<100	<5	<5	<5

Notes to Table

1- In the absence of specific criteria for Chromium (III+VI), the assessment criteria for Chromium (VI) has been adopted for conservative purposes

2- For conservative purposes, when the adopted EQL exceeds the adopted SAC, the result is considered to be an exceedance.

*Below adopted PQL

Environmental Standards

ANZG, March 2021, ANZG (2018) Freshwater 95% LOSP Toxicant DGVs

2013, NEPM 2013 Table 1C GILs, Fresh Waters

2013, NEPM 2013 Table 1A(4) Comm/Ind HSL D GW for Vapour Intrusion, Sand

2013, NEPM 2013 Table 1A(4) Comm/Ind HSL D GW for Vapour Intrusion, Clay

HEPA, January 2020, PFAS NEMP 2020 Freshwater 99%

17 Appendix VII - Monitoring Checklist

Table 16. Monitoring Checklist.

Management Activity	Persons Responsible	Timing/Frequency	Completion Date (Initials/Date)	Reference/Notes
Administrative Requirements				
Conduct a formal audit of the EMP once every five years. This will involve a formal review of all documents, records and monitoring results by an experienced environmental consultant. All changes to the EMP must be reviewed and approved by an NSW EPA accredited site auditor.	Site Manager	Once every 5 years		EMP Section 6.2
Ensure a formal review is undertaken of the EMP following the completion of the post-construction hazardous ground gas monitoring.	Site Manager	Following completion of the 12-month post-construction monitoring period.		EMP Section 6.2
Ensure a formal review is undertaken of the EMP if any of the following requirements are met: <ul style="list-style-type: none"> • If the integrity of the capping layer is compromised; • Changes in the land use of the site; • Following the identification of a significant environmental or health & safety issue; • Upon the discovery of an unexpected find/incident; and • Completion of an environmental audit; and • Upon successful decommissioning and closure of the EMP. 	Site Manager	As required		EMP Sections 6.2 and 8.1
Ensure appropriate communication is undertaken with all relevant stakeholders if any changes are made to the current site condition or EMP occur.	Site Manager	As required		EMP Section 7.1 and EMP Section 7.2
Management of Residual Asbestos Contamination - Level One				
All intrusive activities must be undertaken within a fenced off or isolated area accompanied with appropriate signage. All workers must attend a suitable toolbox talk or pre-start which outlines the minimum PPE requirements, appropriate training requirements, the contingency/incident response protocol and emergency/response contact list.	Site Manager	Before the commencement of any intrusive activities within a level one classified area		EMP Section 4.1.1.1
All workers abide by the general site PPE requirements and also wear a minimum fit-test P2 mask and disposable gloves at all times when working within a low-risk asbestos designated area.	Site Manager / General Workers	Before the commencement of any intrusive activities within a level one classified area		EMP Section 4.1.1.2
If suspected asbestos is identified during any intrusive activities within a low-risk asbestos area, all intrusive activities must cease, and the contingency/incident response protocol enacted.	Site Manager / General Workers	Upon the identification of a suspected asbestos-related find.		EMP Section 4.1.1.3
Assess, review and integrate all applicable operational management practices outlined within the operational environmental management plan (OEMP).	Site Manager	Before Commencement of any Intrusive Activities		EMP Section 4.3
Management of Residual Asbestos Contamination - Level Two				
Before the commencement of any intrusive activities within a 'medium to high risk' asbestos area the following controls must be implemented: <ul style="list-style-type: none"> • Completion of a toolbox talk and preliminaries e.g., safety toolbox, review of SWMS and ARCP; • All workers must wear the appropriate PPE including a P2 or P3 respirator mask disposable coveralls, disposable gloves and disposal boot covers; 	Site Manager/ Competent Person/ Asbestos Removalist	Before Commencement of any Intrusive Activities		EMP Section 4.1.2

Management Activity	Persons Responsible	Timing/Frequency	Completion Date (Initials/Date)	Reference/Notes
<ul style="list-style-type: none"> Asbestos air monitoring must be undertaken for the duration of any disturbance works; Suitable dust and sediment control measures must be implemented at all times; Appropriate equipment and plant decontamination areas must be established, and protocols enforced. 				
Assess, review and integrate all applicable operational management practices outlined within the operational environmental management plan (OEMP).	Site Manager	Before Commencement of any Intrusive Activities		EMP Section 4.3
General Management of Area 7				
All intrusive activities must conform with level two asbestos contamination management practices.	Site Manager / Maintenance Workers	Before commencement of any intrusive activities		EMP Sections 4.1.2 and 4.1.4
A full assessment as per the NEPM (NPEC, 2013) and the WA DOH (2009), must be completed should any of the following conditions apply: <ul style="list-style-type: none"> A change in the proposed land use; More than two metres of soil is removed from the current soil surface; Material is intended to be beneficially re-used within the site boundaries. 	Site Manager/ Environmental Consultant	Upon meeting of any of the prescribed conditions		EMP Section 4.1.4
Upon completion of any intrusive activities, an asbestos clearance inspection and validation (if required), must be undertaken to validate that the affected area is 'safe' with regards to an asbestos hazard.	Site Manager/ Environmental Consultant	Following completion of any intrusive activities		EMP Section 4.1.4
Any service installation and further assessments must be reviewed and approved by an NSW EPA accredited site auditor.	Site Manager / NSW EPA Site Auditor	Upon commencement of any related assessment or change		EMP Section 4.1.4
General Management of Link Road (Setbacks)				
All intrusive activities must conform with level two asbestos contamination management practices.	Site Manager / Maintenance Workers	Before commencement of any Intrusive activities		EMP Section 4.1.2 / EMP Section 4.1.5
The Link Road setbacks must be inspected on an annual basis to ensure the existing 'cap' is maintained to a suitable standard.	Site Manager	Once every year		EMP Section 4.1.5
A minimum 100mm 'cap' containing a suitable landscaping material must be maintained within 'good condition'. Care must be undertaken as not to disturb existing vegetation.	Site Manager	At all times		EMP Section 4.1.5
Asbestos Clearance Inspections Requirements				
A visual clearance inspection and certificate must be obtained by an independent third party upon completion of any asbestos removal works. The inspection/certificate must validate that the removal activity has been undertaken to a suitable standard and the area and surroundings is visually free of suspected or confirmed asbestos.	Environment Consultant / Competent Person	Following completion of any asbestos-related removal/disturbance activities		EMP Section 4.1.6
General management of the asbestos containment cell				
Engage a suitability qualified person i.e., an environmental consultant to undertake a routine surface monitoring inspection of the hardstand situated above the footprint of the containment cell.	Site Manager	Once every year		EMP Section 4.1.3.1
All intrusive activities which have the potential to affect the integrity of the asbestos containment cell must be supervised by a competent person or Safework LAA and at least one licenced asbestos removalist.	Site Manager	Before Commencement of Intrusive Activities within the Footprint of the Containment Cell		EMP Section 4.1.3.2

Management Activity	Persons Responsible	Timing/Frequency	Completion Date (Initials/Date)	Reference/Notes
All level two asbestos management practices outlined within Section 4.1.2 must be implemented before the commencement of any intrusive activities.	Site Manager / Asbestos Removalist / Environmental Consultant	Before Commencement of Intrusive Activities within the Footprint of the Containment Cell		EMP Section 4.1.3.2
Ensure that the site condition within the footprint of the containment cell is reinstated as per the original design. All walls must be lined with a marker layer. An updated survey of the design must be completed.	Site Manager	Following the completion of disturbance activities and before reinstatement		EMP Section 4.1.3.3
Ensure a suitability qualified environmental consultant is engaged to complete the decommissioning phase and final inspection of the asbestos containment cell.	Site Manager	Before the decommissioning of the asbestos containment cell		EMP Section 4.1.3.4
Should the containment cell require decommissioning, the following practices must be implemented: <ul style="list-style-type: none"> The walls and the base must be visually inspected for asbestos and validated via a gravimetric asbestos assessment as outlined in the NEPM (NEPC, 2013); Samples must be collected and analysed for AF and FA at a NATA accredited laboratory; An asbestos clearance report must be provided by a suitability qualified environmental consultant to demonstrate that the cell has been decommissioned to a satisfactory standard. 	Environmental Consultant	Ongoing during the decommissioning of the asbestos containment cell		EMP Section 4.1.3.5
Assess, review and integrate all applicable operational management practices outlined within the operational environmental management plan (OEMP).	Site Manager	Before Commencement of any Intrusive Activities		EMP Section 4.3
General management of Hazardous Ground Gas				
Sub-floor gas monitoring must be undertaken by an experienced environmental consultant in the Northern Ticket Box (if accessible).	Site Manager / Environmental Consultant	Every quarter over a 12-month period upon commencement of the defect liability period		EMP Section 4.2.1.1
Ensure indoor monitoring and surface inspections of enclosed buildings and structures are undertaken by an experienced environmental consultant in all enclosed structures.	Site Manager / Environmental Consultant	Every quarter over a 12-month period upon commencement of the defect liability period		EMP Section 4.2.1.2
All pre-existing, functional landfill gas monitoring wells within the Sydney Dragway footprint must be subject to type 4 ground gas monitoring. Works must be undertaken by an experienced environmental consultant.	Site Manager / Environmental Consultant	Every quarter over a 12-month period upon commencement of the defect liability period		EMP Section 4.2.1.4
Before entry to any confined space, all personnel must have the appropriate training and be issued with an entry permit by a competent person. All personnel must wear portable 4 in 1 gas detectors.	Site Manager / Maintenance Worker (Qualified)	Before entry to a confined space		EMP Section 4.2.2
Sub-floor monitoring from the vents in the northern ticket box must be undertaken by a qualified person with a working at heights accreditation. All appropriate controls e.g., fall arrest system must be in place before commencement of any relevant activities.	Site Manager / Maintenance Worker (Qualified)	Before commencement of post-construction sub-floor monitoring		EMP Section 4.2.3
All monitoring events must be undertaken using appropriately calibrated equipment which meet the required sensitivity for the purposes of the assessment. Sampling should be ideally undertaken during low or declining atmospheric pressure events.	Environmental Consultant	Ongoing during monitoring events		EMP Section 4.2.4
Ensure that all installed ventilation infrastructure including gas sampling points and subfloor ventilation systems are regularly inspected by a suitability qualified person.	Site Manager / Suitably qualified person	Once every 12 months		EMP Section 4.2.5

Management Activity	Persons Responsible	Timing/Frequency	Completion Date (Initials/Date)	Reference/Notes
If deterioration or damage is suspected or identified, a suitably qualified technician must be engaged to repair the impacted system and recorded any repairs within a live register.				
If repair is required of existing seals or new services are to be installed which has the potential to act as a gas migration pathway within enclosed structures, all pathways must be sealed with a construction grade insulating foam and Sikaflex or equivalent.	Site Manager / Suitably qualified person	As required		EMP Section 4.2.5
Upon cessation of the post-construction monitoring program complete a formal review of the EMP.	Site Manager	Upon completion of post-construction monitoring		EMP Sections 4.2 and 6.2
Waste Management				
All waste classification assessments under the NSW EPA Waste Classification Guidelines and beneficial re-use assessments under the NEPM (NEPC, 2013), must follow the minimum sampling requirements and regime.	Site Manager	Ongoing during operations		EMP Section 4.4.1
Importation of soil/landscaping materials must be either classified as virgin excavated natural material (VENM) or meet an approved NSW EPA resource recovery order. Recycled aggregate is not considered appropriate for importation without appropriate validation.	Site Manager	Ongoing during operations		EMP Section 4.4.2
Ensure that all waste is tracked, and all records are collected, maintained and well documented across the lifetime of the EMP. All relevant documentation must be attached to the EMP.	Site Manager	Lifetime of the EMP		EMP Section 4.4.3
Potentially contaminated stockpiles and 'clean' stockpiles e.g., imported materials must be stored within a separate, designated area.	Site Manager	At all times		EMP Section 4.4.4
All stockpiles must be managed in accordance with the following: <ul style="list-style-type: none"> • Appropriate signage; • Assigned a unique identifier; • Covered in black plastic or geotextile if left over a 24hr period; • Kept damp is left exposed to minimise potential dust generation; • Have appropriate erosion and sedimentation controls. 	Site Manager	At all times		EMP Section 4.4.4
Material imports, exports and on-site soil movements must be suitably tracked within an appropriate register.	Site Manager	At all times		EMP Section 4.4.4
Assess, review and integrate all applicable operational management practices outlined within the operational environmental management plan (OEMP).	Site Manager	At all times		EMP Section 4.3

Reviewed by:				
	Name	Position	Signature	Date

18 Appendix VIII – Site Inspection Checklists

Inspection Checklist 1 - Asbestos Containment Cell (Carpark D1)

Proforma Inspection Checklist I.D.:	Asbestos Containment Cell (Carpark D1)		
Date:			
Time:			
Inspector (Name/Position):			
Ground Gas Monitoring Requirements:	N/A		
Areas and Key Features Requiring Inspection:	1. Integrity of hardstand surface or capping layer e.g., slumps, depreciations, cracks etc - Y <input type="checkbox"/> / N <input type="checkbox"/> 2. Signs of erosion and soil deposition - Y <input type="checkbox"/> / N <input type="checkbox"/> 3. Indications of unapproved intrusive activities - Y <input type="checkbox"/> / N <input type="checkbox"/> 4. Signs of vegetative stress - Y <input type="checkbox"/> / N <input type="checkbox"/> 5. Other? If No, provide justification:		
Observations (Include area inspected, key features, design, drainage, etc) :	Current Condition	Description of Location	
Are there any signs of disturbance/damage/deterioration? (e.g., blockages, cracks, slumps, unauthorised excavations, stressed vegetation etc)			
Areas of Concern (if any):			
Report to (Nominee):			
Corrective Actions Required (if any):	List Corrective Actions	Date of Completion	
Recommendations for Future Management:			
Report provided to (Site Environmental Manager or Nominee):			
	Name	Signature	Date

Inspection Checklist 2 - Area 7

Proforma Inspection Checklist I.D.:		Area 7	
Date:			
Time:			
Inspector (Name/Position):			
Ground Gas Monitoring Requirements:		N/A	
Areas and Key Features Requiring Inspection:		1. Signs of erosion and soil deposition - Y <input type="checkbox"/> / N <input type="checkbox"/> 2. Are there signs of potential ACM across the soil surface - Y <input type="checkbox"/> / N <input type="checkbox"/> 3. Indications of unapproved intrusive activities - Y <input type="checkbox"/> / N <input type="checkbox"/> 4. Vegetation is in 'good condition' with no visible signs of stress - Y <input type="checkbox"/> / N <input type="checkbox"/> 5. Vegetation provides adequate coverage across the area - Y <input type="checkbox"/> / N <input type="checkbox"/> 6. Other? If No, provide justification:	
Observations (Include area inspected, key features, design, drainage, etc) :		Current Condition	Description of Location
Are there any signs of disturbance/damage/deterioration? (e.g., blockages, cracks, slumps, unauthorised excavations, stressed vegetation etc)			
Areas of Concern (if any):			
Report to (Nominee):			
Corrective Actions Required (if any):		List Corrective Actions	Date of Completion
Recommendations for Future Management:			
Report provided to (Site Environmental Manager or Nominee):			
		Name	Signature
		Date	

Inspection Checklist 3 - The Northern Ticket Box.

Proforma Inspection Checklist I.D.:	The Northern Ticket Box		
Date:			
Time:			
Inspector (Name/Position):			
Ground Gas Monitoring Requirements:	Type 1 - Sub-Floor Monitoring (if accessible) Type 2 - Indoor Monitoring		
Areas and Key Features Requiring Inspection:	1. Integrity and condition of all ground gas vents- Y <input type="checkbox"/> / N <input type="checkbox"/> 2. Condition of seals for all service penetration points - Y <input type="checkbox"/> / N <input type="checkbox"/> 3. Vents are unhindered and are not physically blocked - Y <input type="checkbox"/> / N <input type="checkbox"/> 4. The integrity of the concrete slab is in 'good condition' and free from any deficiencies - Y <input type="checkbox"/> / N <input type="checkbox"/> 5. Other? If No, provide justification:		
Observations (Include area inspected, key features, design, drainage, etc) :	Current Condition	Description of Location	
Are there any signs of disturbance/damage/deterioration? (e.g., blockages, cracks, slumps)			
Areas of Concern (if any):			
Report to (Nominee):			
Corrective Actions Required (if any):	List Corrective Actions	Date of Completion	
Recommendations for Future Management:			
Report provided to (Site Environmental Manager or Nominee):			
	Name	Signature	Date

19 Appendix IX – Environmental Management Plan (EMP) Review Checklist

Requirements	Addressed			Comments/Required Actions	Date/Actions Taken
	Yes	No	N/A		
Administrative Review					
1. Is the EMP considered compliant with all current legislative requirements and codes of best practice?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
2. Has the EMP has been reviewed at a minimum once every five years or when any of the following requirements have been met? a) If the integrity of the capping layer is compromised; b) Changes in the land use of the site; c) Following the identification of a significant environmental or health & safety issue; d) Upon the discovery of an unexpected find/incident; e) Completion of an environmental audit.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
3. Have all changes and reviews of the EMP been undertaken by a suitability qualified environmental consultant and approved by an NSW EPA accredited Site auditor?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
4. Are there any changes to the operational environmental management plan (OEMP)? If yes, are the prescribed changes applicable to the EMP and has the EMP been updated to reflect the relevant changes?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
Containment Cell Design and Management					
4. Have all required preliminaries been undertaken before the commencement of any intrusive activities which have the potential to disturb asbestos e.g., SWMS, Safework Notification?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		

Requirements	Addressed			Comments/Required Actions	Date/Actions Taken
	Yes	No	N/A		
5. Have all intrusive activities and asbestos removal work been undertaken by suitably qualified personnel and as per Section 4 and relevant sub-plans?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
6. Has the EMP has been updated to include any relevant changes to the design of the asbestos containment cell, ensuring that an updated survey plan has been provided which has been provided by a licensed surveyor?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
7. Has the containment cell been re-instated within its original state?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
8. Does the revised containment cell design possess the required lateral and vertical delineation marker layers?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
Management of Residual Asbestos Contamination					
9. Have all unexpected asbestos finds been managed in accordance with the contingency/incident response protocol and been recorded on a suitable register?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
10. Do any asbestos risk areas asbestos need to be re-classified based on the confirmed reports of asbestos contamination?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
11. Are all training and development e.g., asbestos awareness training, registers up-to-date and relevant for the current workers?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
Management of Hazardous Ground Gas					
12. Have annual maintenance inspections been undertaken of all installed landfill gas mitigation measures and associated infrastructure e.g., sub-floor ventilation systems, by a suitability qualified person?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
13. Have all inspected areas been demonstrated to be free of blockages, cracks, slumps, or any other deficiency which has the potential to impede the intended operation or effectiveness of the prescribed measure?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		

Requirements	Addressed			Comments/Required Actions	Date/Actions Taken
	Yes	No	N/A		
14. Have there been any triggers against the trigger criteria since the previous review period? Has a suitably qualified environmental consultant been engaged to review and implement appropriate controls measures?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
Waste Management and Importation Requirements					
15. Have all material which have been beneficially re-used within the site boundaries been sampled in accordance with the minimum sampling requirements outlined within Section 4.5.1. Does the material met the minimum criteria for beneficial re-use outlined below? a) Is not considered to be former landfill material; b) Has been demonstrated to meet the requirements of the prescribed land-use criteria as outlined within the NEPM (NEPC, 2013).	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
16. Has all materials sent for off-site has been classified in accordance with the <i>NSW EPA Waste Classification Guidelines (NSW EPA, 2014)</i> or an appropriate NSW EPA approved RRO?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
17. Have all materials which have been sent for off-site disposal have been sent to a licenced receiving facility which is legally able to receive the waste?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
18. Have appropriate records have been maintained of any generated waste materials which have been disposed of off-site, including: a) Details of the primary source location (e.g., address, lot number or GPS coordinates); b) Date of dispatch or collection of the waste; c) Classification of the resource and analysis results; d) Details surrounding the transport of the waste (e.g., truck type and licence plate); e) Business name, ABN and address of the person/organisation receiving the waste;	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		

Requirements	Addressed			Comments/Required Actions	Date/Actions Taken
	Yes	No	N/A		
f) Final destination of the waste; and g) Quantity of the waste supplied or received (in tonnes).					
Communication and Closure					
19. Have all relevant stakeholders been informed of any recent changes or updated status of the EMP?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
20. Has an NSW Safework Notification been obtained for any excavation activities which have exceeded 10m ³ or involved work likely to involve disturbing asbestos?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
21. Have any events transpired, or criterion met which requires a duty to report contamination to the NSW EPA under the CLM Act 1997?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
22. Does the site in its current condition meet the following closure requirements? a) Significant changes to the current layout resulting in the complete change existing site conditions; b) A change in the prescribed land use; c) All soil materials within the site have been assessed as per relevant legislation/codes of best practice and validated for the prescribed land-use; d) Hazardous ground gas is not considered to present an unacceptable risk to human health without the implementation of any protection measures; and e) All asbestos impacted soils within the containment cell have been adequately removed and validated.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
23. Before cessation, has the EMP been revised by a suitability qualified environmental consultant and approved by an NSW EPA accredited site auditor?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		

Reviewed by:				
	Name	Position	Signature	Date



ADECONSULTINGGROUP
SOLUTIONS THROUGH INNOVATION

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