STATEWIDE
RIVER & STREAM MANAGEMENT PTY. LTD

MORDIALLOC FREEWAY PROJECT

Independent Reviewer and Environmental Auditor

Quarterly Construction Audit

Report 1, March 2020

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PROJECT
Mordialloc Freeway Project

Quarterly Construction Audit, March 2020

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CONTENTS

APPENDICES

EXECUTIVE SUMMARY

Introduction

This report summarises the audit findings of the Independent Reviewer and Environmental Auditor (IREA) for the Mordialloc Freeway Project (the Project) in Melbourne, Victoria. It covers the findings of the first audit and inspection carried out on the 16th and 17th March 2020 and will be provided to the Major Transport Infrastructure Authority (MTIA) and Victorian Minister for Planning, and made available to the public on the Major Road Projects Victoria (MRPV) website.

The IREA has been appointed by McConnell Dowell Decmil Joint Venture (MCDDJV), the design and construction contractor, to provide independent oversight of the environmental performance of the Project. The IREA undertakes audits of the Project activities to assess whether conformance with Project requirements and approvals are being achieved. This includes the Environmental Management Framework (EMF), Environmental Performances Requirements (EPRs), Environmental Management Plans, site Environmental Control Plans (ECPs) and engineering designs developed by MCDDJV.

Construction on the Project has been underway since October 2019. Activities have consisted of installation of sediment controls (primarily silt fences and swales), clearing vegetation and topsoil, cutting of drains and sedimentation basins and receipt and placement of subgrade material. This audit has focused on these activities only.

Scope and Conduct of This Audit

This report details the results of environment audit and site inspection carried out on the 16th and 17th March 2020. The audit reviewed the implementation of the following plans as they applied to the works at the time of the audit:

- Air Quality EMP 1202-01-ENV-PLN-1000-00102
- Water Management & Monitoring EMP 1202-01-ENV-PLN-1000-00103
- Noise and Vibration EMP - M190285RP1
- Flora and Fauna EMP - 12304_EHP_FF Sub-plan_06052019
- Waterways and Landfill Bridging Structures ECP (1202-01-ENV-PLN-3700-00001 and 1202-01-ENV-MPL-2500-00001 respectively)

The audit also includes an assessment of how the requirements of the above plans had been incorporated into the site specific Environmental Control Plans (ECPs).

Monitoring data collected to date was also reviewed to assess the adequacy of monitoring, the quality of discharges and emissions and their likely impacts.

A site inspection was also carried out in order to:

- Determine if the controls specified in the above plans and ECPs have been implemented, as they applied to the works to date.

- Identify any unsuitable work practices.
- Visually confirm monitoring and sampling locations.

The IREA is required to provide quarterly "audit report" to MTIA and the Minister for Planning and must be made available to the public. The audit and site inspection detailed in this report forms part of the IREA's reporting requirements.

Environmental Management Plans

Air Quality EMP:

The project contractor has four water carts in operation to suppress dust in the construction areas. A 20km/h speed limit is also enforced for vehicles travelling on the project site and aggregate has been placed on the surface of access points onto the construction site, yards and compounds. Long term stockpiles have been grassed and a polymer dust suppressant is applied to exposed surfaces if the project is to be closed down for extended periods (e.g. Easter).

Dust monitoring has found:

- The PM10 and PM2.5 data is well below the national health levels, therefore, the risk to human health is very low.
- The off-site dust deposition levels are below the target levels.
- The dust level coming from the project area is slightly above background at times, therefore dust levels in the residential area may occasionally be slightly higher than normal.

MCDDJV is complying with the monitoring requirements and the meeting the dust target levels. However, it can be challenging to control short term dust episodes as plant and equipment traverses the site, which has resulted in complaints that need to be addressed. A review needs to be carried out and actions developed to implement more effective dust control measures.

Water Management & Monitoring EMP:

Sediment fences have been installed around stockpiles and excavated areas to contain any sediment laden run-off on the construction site. Large open drains have also been installed as temporary devices to contain sediment laden water so it can be reused on site for dust suppression purposes, or treated with a flocculent to reduce the level of suspended material to below the 30 NTU turbidity limit and discharged from the site.

Water measurements are carried out weekly at 8 locations to determine the water quality both on site and in off-site receiving waters. All discharges of excess water from the site have met the water quality limits set in the contract specification.

On-site drains and swales have been sufficient to contain the majority stormwater run-off over the summer months, apart from two flood events in early 2020. The sediment ponds that need to be installed as part of the final project design were partially constructed at the time of the audit. These will need to be completed before the wetter winter months. If

temporary basins are installed, they will need to be reviewed and approved as per the contract specification.

A potential issue was also identified with the turbidity monitoring. The contract specification sets a turbidity limit of 30NTU for any water discharged from the site. The water meter in use by the project is calibrated in FTU. Based on a literature search, it is unclear if NTU and FTU are equivalent when measuring different suspended particles in water. It is recommended that a calibrated water meter that provides an output in NTU be sourced and that one of the weekly monitoring events measures turbidity using both meters at all monitoring locations as a comparison. Based on the results, a decision can been made concerning the on-going use of the current water meter.

Noise and Vibration EMP:

All plant, equipment and vehicles must have serviceable noise attenuation, based on the manufacturer's requirements (e.g. vehicle and truck mufflers).

Operations also are conducted during the day time period (7am – 6pm Monday to Friday and 7am to 1 pm Saturday), wherever possible. Only works that cannot be carried out during these periods can occur out of these hours (e.g. transportation of oversize items from the supplier to the project site that result in significant traffic disruptions). If night time works are required, then noise monitoring will occur.

Two night time monitoring events were carried out prior to the audit. However, a number of issues were identified with the monitoring as detailed below. However, it appears one of the monitoring events exceeded the approved night time noise target developed by the project contractor. However, due to the issues listed below, this could not be confirmed.

The noise monitoring needs to address the following issues:

- The noise meters should be set to "Fast" response time, not "Slow";
- A plot of the noise level over time should also be included in the noise report.
- If a noise measurement spanned several time periods (e.g. evening and night), then the noise plots should be utilised to assess compliance against the Target for each period. However, if the raw data can be downloaded, then it is preferable if the actual 15 minute Leq values for each time period are calculated and compliance assessed.
- The meters should also provide the following, which should be included in the noise report:
  - maximum and minimum 15 minute Leqs over the measurement time;
  - the L10, L90 and L95 values (if available); and
  - the maximum impulse noise.

The noise monitoring data should also be reviewed as soon as possible after it is taken to identify any issues and determine if further noise mitigation actions are required.

Vibration monitoring had not been carried out as piling (the source of potentially damaging off-site vibration) in had not yet occurred close to any sensitive receptors (residential or commercial).

Flora and Fauna EMP:

Preconstruction surveys identified areas of sensitive flora or protected fauna species. Sediment fences and frog fences have been erected around waterways to protect the fauna living or potentially living in these waterways. Fenced of "No-Go Zones" have been established around protected fauna (primarily trees) which were identified during the preliminary surveys.
Fauna surveys were occurring as required. To date, no migratory birds had been identified in the wetlands.

All staff and contractors are required to attend the site induction, which includes details of fauna species that may be encountered on the project site and the actions that must be taken to ensure the individual animal is protected and relocated, if required. The induction also informs attendees of the flora "No-Go Zones" and the need protect these areas.

No issues were identified with respect to fauna and flora management.

Complaints Management:

Complaints can be generated by members of the public, motorists, community groups, regulators and businesses. They can be received via emails, phone calls, SMS, walk-ins, or letters.

Complaints can be made directly to MCDDJV or to a contact centre that collates enquiries and complaints for all MRPV projects and passes them on to the relevant project for response. All incoming and outgoing interactions are logged in a Consultation Manager database and the project uses this information to generate weekly complaint reports.

The Consultation Manager database used by the project logs all individual interactions as events. For example, if the project responds to a complaint, a member of the public phones several times regarding the one issue, or there are back and forward phone calls between a member of the public and the project, each of these interactions is logged as a unique event. Events are assigned a category in Consultation Manager (e.g. Air Quality, Water, Noise, etc.). Sometimes, the wrong category can be assigned to an event which decreases the value of this event data for identifying issues of concern to the community.

Recently, the Project's Community Engagement personnel began reviewing the incoming events data from the Consultation Manager software to identify how many events are unique complaints.

They have also included a description of the issues raised by the individuals lodging the complaint. This process is strongly supported in order to provide Project personnel with a correct indication of the issues of concern to the community and the ability to identify issues that require attention.

Site Specific Environmental Control Plans

The site specific Environmental Control Plans (ECPs) provide detail of where control structures such as sediment fences, spill control kits and concrete wash down areas will be located. The audit found the majority of infrastructure was in compliance with the ECPs, apart from a shortage of spill kits in the landfill bridging area.

Site Inspection Findings

The site inspection reviewed work practices in the field. The vast majority of the site complied with legislative, contractual and good practice requirements. However, a number of issues (listed below) were identified which the contractor needs to address:

- Labelling and segregation of dangerous goods along with location of fire extinguishers in some compounds needs to be improved;
- The labelling of waste bins in some areas can be improved;
- Spill kits should be located near to each compound generator fuel tank and additional spill kits are required in the landfill bridging structure area;
- Improved cleaning facilities need to be established at the Governor Road site access point to prevent soil and (in the winter months) mud, being transported by vehicles onto Governor Road.
- Some sections of internal roadways were damp due to the use of water carts while other sections were dry and generated significant amounts of airborne dust. The scheduling of water carts on the site needs to be reviewed;
- Site personnel need to be reminded to segregate wastes, use the appropriate bins and that wastes should not be stored on bare soil;
- One section of sediment fence should be extended to better protect an open stormwater drain located downhill from the site operations; and
- The contractor needs to dispose of the stockpile of drilling waste located next to the landfill piling area.

1 INTRODUCTION

1.1 Purpose of this Report

Independently assessment compliance with Project requirements and approvals.

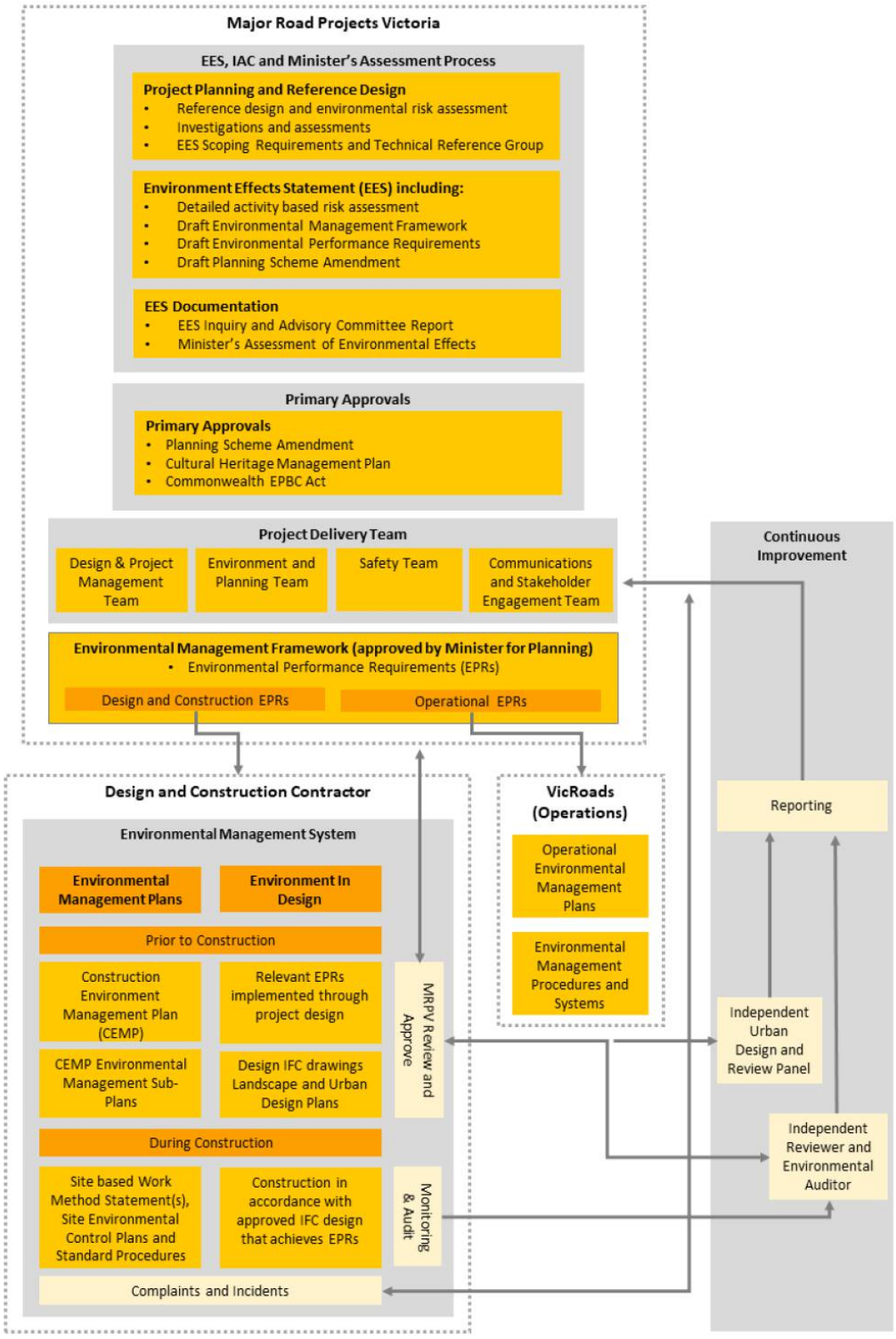
1.2 Project Background

The Mordialloc Freeway will link the Mornington Peninsula Freeway to the Dingley Bypass and will:

- build bridges over Springvale, Governor, Lower Dandenong and Centre Dandenong Roads, including new freeway entry and exit ramps
- build bridges over Old Dandenong Road and the sensitive waterways area
- connect the freeway to Dingley Bypass with traffic lights
- upgrade the existing interchange at Thames Promenade, Chelsea, with the Mornington Peninsula Freeway to provide freeway entry and exit ramps
- build a new shared walking and cycling path along the entire freeway.

Construction commenced in October 2019 and is due to be completed by the end of 2021.

1.3 Project Approvals



The Project was assessed via a joint State and Commonwealth Environmental Effects Statement (EES) process. State approval was granted via a Planning Scheme Amendment (PSA) and associated conditions. A condition of the PSA required MRPV to prepare an Environmental Management Framework (EMF), inclusive of the Environmental Performance Requirements (EPRs) to the satisfaction of the Minister for Planning. The EMF and EPRs has been approved by the Minister for Planning and published on the MRPV

website. The relationship between MRPV and MCDDJV from approvals through to delivery is outlined below.

MRPV also secured primary approvals under the Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act) and Aboriginal Heritage Act 2006. The obligation to comply with the EMF and design and construction EPRs, EPBC conditions and Cultural Heritage Management Plan (CHMP) conditions has been transferred to MCDDJV through a legally binding contract. MCDDJV is responsible for obtaining and complying with a range of secondary approvals and consents, as indicated below:

Summary of main statutory approvals and consents

Act	Requirements	Responsibility	Implementation
Primary Approvals			
EPBC Act	EPBC referral, assessment and approval	MRPV	MRPV will ensure that approval conditions are met by MCDDJV through contract conditions.
Planning and Environment Act 1987	Planning scheme amendment to permit use and development	MRPV	MRPV will ensure that approval conditions are met by MCDDJV through contract conditions.
Aboriginal Heritage Act 2006	CHMP	MRPV	MRPV will ensure approval conditions are met by MCDDJV through contract conditions.
Secondary Approvals and Consents			
Environment Protection Act 1970	Environmental Improvement Plan	MCDDJV	The MCDDJV will obtain and comply with EP Act permits.
Flora and Fauna Guarantee Act 1988 (FFG Act)	Permit for the removal of listed flora from public land	MCDDJV	The MCDDJV will obtain and comply with FFG Act permits.
Heritage Act 2017	Permit and/or consent to disturb	MCDDJV	The MCDDJV will obtain and comply with all heritage permits and/or consents.
Road Management Act 2004	Consent for traffic management works on roads	MCDDJV	The MCDDJV will obtain and comply with all requisite Road Management Act consents.

Act	Requirements	Responsibility	Implementation
Water Act 1989	Approvals for works to be undertaken in relation to groundwater and waterways	MCDDJV	The MCDDJV obtain and comply with all permits and licenses under the Water Act.
Wildlife Act 1975	Permit to remove, salvage capture or relocate fauna	MCDDJV	The MCDDJV will obtain and comply with any permit that may be required.

1.4 Role of the IREA

The requirement and role for the IREA is outlined in final ERP EM3, as follows:

> "*Appoint a suitably qualified Independent Reviewer and Environmental Auditor (IREA) to review and certify the CEMP and other management plans as required by the EPRs, in accordance with the Environmental Management Framework. The IREA must be an accredited Environmental Auditor. During construction audit reports must be provided to MTIA and the Minister for Planning on a regular basis as appropriate. Audit reports are to be made available to the public.*"

The scope, role and responsibility of the IREA is further defined in the approved EMF as follows:

a) *"Review the D&C Contractor's Environment Management Strategy, CEMP and other management plans as required by the EMF*
b) *Review and certify the D&C Contractors have implemented the relevant EPRs through project design in their drawings*
c) *Monitor and audit the D&C Contractors compliance with the Environment Management Strategy, CEMP and other environmental management sub- plans as required by the EPRs*
d) *Conduct audits of the D&C Contractors work to assess construction compliance with the approved IFC (issued for construction) design*
e) *Assess compliance with project approvals, legislation, regulations, policies, guidelines, codes of practice and applicable industry standards.*
f) *Review complaints which may highlight instances of non-conformance with applicable EPR*
g) *Prepare audit reports and provide to MRPV quarterly."*

1.4.1 Report Scope

As indicated above the IREA is responsible for reviewing the Construction Environment Management Plan (CEMP) and subplans (EMPs) and ECPs. The audit and inspection which is the subject of this report also included an assessment of compliance with the EPRs linked

to these CEMP and subplans. Any identified issues require the Plan/s in question to be updated by MCDDJV and resubmitted to the IREA for final approval.

The IREA is also required to review and certify the MCDDJV have implemented the relevant EPRs through project design in their drawings (e.g. noise wall, fauna underpasses or lighting design) and conduct audits of work to assess construction compliance with the approved IFC (issued for construction) design drawings (items b and d above). In addition, the IREA is required to review a number of other plans that do not relate to traditional CEMP matters, but are a requirement of the EPRs, such as the Business Disruption Plan, Traffic and the Lighting (operation) Plans. These engineering design EPRs and non-CEMP related ERP matters are the subject of a separate IREA report.

This scope of this report and subsequent quarterly reports relates to items c, e, f and g above (Section 1.4) and forms part of the IREA's reporting requirements.

1.4.2 Site Audits and Inspections

The IREA is required to independently assess whether the Plans and ECPs developed by MCDDJV are being implemented and that the implementation of these various plans meet the requirements of the relevant EPRs and other approval conditions. The IREA is also required to inspect the physical works and confirm the controls detailed in the Plans, subplans and ECPs are in place and they are effective in controlling the impact of the works on the surrounding environment and community.

1.4.3 Reporting

The IREA is responsible for preparing an audit report which MCDDJV must forward to Major Transport Infrastructure Projects (MTIA) and Minister for Planning during construction. This audit report, along with the report described in 1.3.1 above (Plans which are not part of the CEMP) will be provide to MITA and the Minister and is the first of the quarterly reports. Reports will be published on the MRPV project website. The audits described in this section have been undertaken by the lead IREA Environment Auditor, Ken Fraser and Assistant Environment Auditor, Vic Natoli.

1.5 Report Structure

This report is divided into the following sections:

- Section 1: The role of the IREA – details the IREA's primary responsibilities and the IREA's report to the Minister
- Section 2: Conduct of Audits – details the scope of the IREA's audit activities undertaken prior to, during and after the audit.
- Sections 3 to 6: Audit Findings and Conclusion – provides the IREA's findings from the audit and conclusions on the MCDDJV's conformance with the requirements of the EMPs, relevant EPRs, ECPs, legislation and good practice.

2 SITE AUDIT

2.1 Audit Objectives

The objective was to assess the implementation of plans as they apply to the current works, specifically the following:

- Air Quality EMP 1202-01-ENV-PLN-1000-00102 (EPR AQ2)
- Water Management & Monitoring EMP 1202-01-ENV-PLN-1000-00103 (includes sediment and erosion) (EPRs W1, W3, W4 and W5)
- Noise and Vibration EMP - M190285RP1 (EOR NV2)
- Flora and Fauna EMP - 12304_EHP_FF Sub-plan_06052019 (EPRs B1, B3, B4, B5)
- Waterways and Landfill Bridging Structures ECP (1202-01-ENV-PLN-3700-00001 and 1202-01-ENV-MPL-2500-00001 respectively) (EPRs CL3, CL4, CL7)

The review included an assessment of how the requirements of the above plans have been incorporated into the site specific ECPs.

Monitoring data collected to date was also reviewed to assess the adequacy of monitoring, the quality of discharges and emissions and their likely impacts. The monitoring results were also used to assess the effectiveness of the controls.

The objective of the site inspection was to assess:

- the implementation of controls;
- compliance of field activities and controls with the requirements of the applicable Plans and EPRs as they applied to the works to date; and
- compliance with applicable regulatory and good practice requirements.

2.2 The Audit Process

The audit process for this particular audit consisted of the following steps:

Pre-audit –

- Preparation of an Audit Agenda[1] detailing the audit process and the documents to be reviewed.

Site Audit –

- Interview staff and review the various Plans and ECPs to assess the whether the controls required by the works to date were being implemented;
- Review of the monitoring data to assess compliance with legislation
- Inspect site to physically assess implementation of controls

[1] The Audit Agenda is included in Appendix A.

Post Audit –

- Issue a draft report along with recommendations for issues identified for review by MCDDJV and various authorities.
- Issue final report incorporating comments received.

2.3 Audit Scope

The areas covered by this audit were the EMPs and EPRs listed in section 2.1 above, the site ECPs and the physical operations occurring on the Project site.

The scope of this audit and subsequent audits is not to audit all EPRs and matters, every audit. Rather, each quarterly audit will take a risk-based approach and focus on the relevant construction activities, the risks, plans and controls. The scope will take into account any complaints and feedback from local stakeholders, community and regulatory agencies. Over the duration of construction, the intention is to ensure all aspects of the project are audited at least once. A full EPR auditing scope and schedule is included as Appendix B.

2.4 Classification of Audit Findings

Audit findings are classified according to the following definitions which have been utilised on previous high-profile Victorian infrastructure projects.

Non-conformance (NC)
An instance, event or occurrence that has not-fulfilled a requirement that has been specified in the Strategy, CEMP, ECPs, EPRs, legislation, or approval conditions.

(Note 1: A non-conformance may be an individual non-conformance or a number of minor but related audit findings, which when considered in total are judged to constitute a non-conformance.)

Area for Improvement (AI)
A deficiency in the implementation of the Strategy, CEMP, ECPs, or associated documentation judged to be a risk to the environment, or to environmental management, without constituting an overall failure in the area concerned.

Observation (O)
An audit finding which may relate to an incidental or isolated system discrepancy, which does not compromise the effectiveness of environmental management, or constitute an actual or potential environmental risk.

IREA does not require Observations to be formally closed out after they have been issued and therefore will not report these in subsequent audit reports. It is the responsibility of the MCCJV to consider these findings.

Priority of Recommendations
The severity and risk posed by findings may vary. In order to assist MCCJDV and the reader, each recommendation related to a finding that may require actions to be taken has been allocated a priority level A, B or C, with A being the most serious. The following definitions have been applied to these priority levels.

A - High risk of system failure, legal non-compliance, an EPR requirement or high environmental risk. **Must be corrected as a matter of priority.**

B - A requirement specified in an internal Plan or procedure, is affecting system efficiency, may result in system failure, or is a moderate environmental risk. **Must be corrected.**

C - Issue which may improve the effectiveness or reliability of the system and/or controls. **Should be considered.**

3 Implementation of Environmental Plans

The project needs to comply with a number of requirements in order to mitigate the impact on the environment and on the surrounding community. These requirements have been specified in the project contract specification, in the EPRs, in legislation and in the various EMPs that detail the actions that MCCJV will take in order to comply with the requirements.

The MCDDJV EMPs have been previously reviewed and assessed by the IREA and written declarations made that the Plans are adequate and fit for purpose. Provided MCDDJV complies with the requirements specified in its EMPs, then it should also meet its contractual obligations, the project EPRs, conditions of approval and broader legislative and policy requirements.

3.1 Air Quality EMP

In order to assess compliance with air quality procedural, contractual and legislative requirements, compliance with the following documents was reviewed:

- The Air Quality EMP 1202-01-ENV-PLN-1000-00102;
- The air quality section of the Mordialloc Waterways Bridge Structure EMP 1202-01-ENV-PLN-3700-00001; and
- The air quality management requirements in the Landfill Bridging Structure at 2 Grange Road EMP 1202-01-ENV-MPL-2500-00001.

The dust monitoring carried out by the MCDDJV and the results of this monitoring was also reviewed to assess the likely impact and provide some indication of how well the dust controls were performing.

3.1.1 Controls

A number of controls have been implemented, as detailed in the EMPs, in order to control the generation of dust. These have consisted of:

- The operation of 4 water carts, which are required to wet down trafficked areas where dust is more likely to be generated.
- The enforcement a 20km/h speed limit on the project site.
- Site access points, compounds and yards have had a layer of aggregate or ballast placed on the surface to reduce areas of exposed soil and therefore dust generation.
- Long term stockpiles are grassed (either seeded or local grasses allowed to grow).
- Where the operations are to remain closed for a period of time, a polymer sealant is applied to exposed areas in order to form a crust on the solid surface and reduce the potential for wind borne dust.

The above control measures are all appropriate, however, the effectiveness of these measures will be discussed below in the site inspection section of this report.

3.1.2 Dust Monitoring

MCDDJV operate 2 continuous dust monitors and weather stations that measure PM10 and PM2.5 on a continuous basis. One unit is located at 8 Bradley Close, adjacent the MCDDJV Governor Road compound. A second unit is located at the Din San Nursery at 418 Old Dandenong Road (refer to plans in Appendix C).

PM10 are dust particles which are less than 10 microns (millionths of a meter) in diameter and PM2.5 are particles less than 2.5 microns in diameter. In comparison, human hair can be from 17 to 181 microns with an average of approximately 75 microns. Particles greater than PM10 are mostly filtered out in the nose and throat. PM10 can enter the upper respiratory tract and lungs. PM2.5 particles are small enough to pass deep into the lungs and into the blood stream. Note that PM10 particles include the PM2.5 fraction.

National levels to protect the community's health are in place for PM10 (50 $\mu g/m^3$ averaged over 24 hours) and for PM2.5 (25$\mu g/m^3$ averaged over 24 hours). These levels have been adopted into law in Victoria in the Sate Environment Protection Policy (Ambient Air Quality) and are enforced by the Environment Protection Authority of Victoria (EPA).

There are no formal 1 hour averages, however, MCDDJV have adopted a 1 hour PM10 trigger level of 120 $\mu g/m^3$. An exceedance of the trigger level results in an SMS being sent to members of the MCDDJV environmental team for investigation and action.

MCDDJV also operate a dust depositions gauge and directional dust gauge at 4 locations. The dust deposit gauges measure dust deposited over a period of time and provide reports as grams of dust per m^2 per month. The directional gauges face north, south, east and west and provide an induction of the amount of dust that came from each direction. In this way, the amount of dust coming from the direction of the project can be compared to the amount of dust coming from other locations. One of the three dust deposition and directional gauges is located in a local residential area, well away from the project, to provide background dust levels. The locations of the dust deposit and direction gauges are shown in Appendix C.

The Project contract sets maximum dust deposition limits of "*...4 g/m^2/month or 2 g/m^2/month above the background measurement, whichever is the lesser*."

A review was carried out of the dust monitoring data collected to date. The following summarises the monitoring results.

Real time dust monitors

24 hr averages:
PM2.5 - Maximum: 1.1µg/m^3 // Average: 0.04 µg/m^3
PM10 - Maximum: 0.35 µg/m^3 // Average: 0.5 µg/m^3

This compares to the 24 hour average limits of:
– PM2.5: 25µg/m^3
– PM10: 50µg/m^3

Dust Deposit Gauges

Jan. and Feb.	– All the measured values were less than 4 g/m^2/month
January	– The background gauge had the highest dust deposition level
February	– The three dust deposition gauges near the works area were slightly above the background dust level

Directional Dust Gauges

January	– One directional gauge found a slightly higher dust level coming from the site and one slightly lower (only 2 directional gauges for the month)
February	– One of the three directional gauges found a slightly higher dust level coming from the site and the remaining two found slightly lower dust levels from the site.

Discussion and Conclusions

Based on the monitoring data, the following conclusions can be arrived at:

- The PM10 and PM2.5 data is well below the national health levels, therefore, the risk to human health is very low.
- The off-site dust deposition levels are below the target levels.
- The dust level coming from the project area is slightly above background at times, therefore dust levels in the residential area may occasionally be slightly higher than normal.

Even though the current monitoring confirms that dust levels are below the target limits, efforts should continue to reduce dust further. The site inspection section of this report will discuss additional actions which could be taken.

Opportunity for Improvement

MCDDJV is complying with the monitoring requirements and meeting the dust target levels. However, it can be challenging to control short term dust episodes as plant and equipment traverses the site, which has resulted in complaints that need to be addressed (refer to complaints section below). A review needs to be carried out and actions developed to implement more effective dust control measures.

Recommendation:

1. **MCDDJV should carry out a review to:**
   - **(i) identify the potential dust sources which are or may give rise to complaints; and**
   - **(ii) develop and implement additional and/or changes to existing dust controls that better address the generation of dust from the site.**

3.2 Water Management & Monitoring EMP

In order to assess compliance with water quality procedural, contractual and legislative requirements, compliance with the following documents was reviewed:

- The Water Management and Monitoring Plan 1202-01-ENV-PLN-1000-00103;
- The water quality section of the Mordialloc Waterways Bridge Structure EMP 1202-01-ENV-PLN-3700-00001; and
- The water quality management requirements in the Landfill Bridging Structure at 2 Grange Road EMP 1202-01-ENV-MPL-2500-00001.

The water monitoring carried out by the MCDDJV and the results of this monitoring was also reviewed to assess the likely impact and provide some indication of how well the erosions and sediment controls were performing.

3.2.1 Controls

Sediment fencing has been installed along the majority of the project area. Sensitive locations, such as the waterways area at the southern end of the projects site, have sediment fences installed along the entire boundary of the project.

Temporary drains and swales were also installed early in the project to collect and store stormwater and run-off from the exposed areas. To date, this process has been successful in containing run-off from the site during normal rain events. Two episodes occurred in early 2020 when significant amounts of rain in a short period caused flooding in the area surrounding the construction project, which led to uncontrolled releases of stormwater from the site. The stormwater contained on site has been tested and if acceptable, discharged to surface water. If not suitable for discharge, it has either been treated with liquid gypsum to flock out the sediment prior to discharge, used in water trucks for dust suppression purposes, or irrigated onto grassed areas.

A temporary rock platform has been constructed in the wetland area immediately south-east of Bowen Parkway, which will be used for the piling rig. This has necessitated the use of floating silt curtains within the wetland to contain sediment generated during conduction of the platform and due to run-off from the platform. The floating boom section of the silt curtain has also been fitted with oil absorbent booms in case of a fuel or oil release from the piling rig once it is operation.

Opportunity for Improvement

The construction plans detail a number of permanent sediment ponds that will collect and treat water from the freeway, however, these ponds were only partially constructed at the time of the audit. There needs to be sufficient run-off capacity to cope with the wetter winter months.

Recommendation:

2. **The permanent sediment ponds should be installed as soon as possible. If temporary sediment basins are constructed, they will need to comply with contract specification clause 1200.08(c).**

3.2.2 Water Monitoring

The MCDDJV Water Management and Monitoring Plan sets a number of water quality parameters for any water discharged from the site, as shown below:

- Turbidity of less than 30 NTU (Nephelometric Turbidity Units);
- pH 6.5-8.3;
- Salinity and suspended solids equivalent to background concentrations; and
- No visible floating oil, grease, scum or litter, colours or odours.

Background water monitoring has occurred since 6/9/19. Approximately 170 individual background readings have been measured for pH, dissolved oxygen (DO), electrical conductivity (EC), total dissolved solids (TDS), Temperature, Salinity, Turbidity and the visual presence of oil, grease and litter. Water samples are taken at 8 locations across the project on a weekly basis. An additional 2 locations may also be sampled, if water is flowing (refer to plan in Appendix D).

Opportunity for Improvement

The water monitoring meter used to date measures turbidity in Formazin Nephelometric Unit (FNU). FNU is similar to a Nephelometric Turbidity Unit (NTU) in that both measure scattered light at 90 degrees from the incident light beam, but the FNU is measured with an infrared light source according to the ISO 7027 method whereas the NTU is measured with a white light according to USEPA method 180.1. The turbidity units NTU and FNU are all based on

calibrations using the same formazin primary standards. Therefore, when a formazin standard is measured, the value in NTU and FNU will be the same. However, suspended particles scatter light of different wavelengths with varying efficiency, therefore, turbidity data for actual samples using with infrared light sources and white light sources may differ, depending on the nature of the suspended particles[1, 2]. Therefore, it is unclear how the measured water sample turbidity levels in FNU compare to the 30 NTU limit.

Recommendation:

3. **A calibrated turbidity meter that measures turbidity in NTU should be obtained. As the soil type changes across the site (and therefore the reflective nature of the particles is likely to vary) turbidity testing should occur at all sample locations using both meters and the results compared. Historical data should then be reviewed in light of the results. The need to replace the current meter with a water meter that measures turbidity in NTU should also be decided based on the results.**

MCDDJV environmental personnel calibrate the water meters on a weekly basis and replace internal solutions in the probes 3 monthly. The meters will also be sent back to the supplier annually for factory calibrations. The calibration results are recorded and maintained.

Testing of water collected in the site swales has shown the water quality has been acceptable in most instances (based on the assumption that 30 FNU equals 30 NTU – refer to Opportunity for Improvement above). Water that has been discharged from the site is recorded along with the monitoring data. All discharges complied with the contract water quality limits.

Groundwater is also monitored, however, groundwater monitoring on the majority of the site has consisted of monitoring the depth to groundwater only, as required by the contract specification (approximately 2m depth in the south portion of the project and 4m depth at landfill). Leachate quality monitoring has occurred in the former landfill area in the northern portion of the site. NOTE: the leachate is a legacy issue and not a result of the current works.

<u>Opportunity for Improvement</u>

Apart the area surrounding the former landfill site at the north end of the project, the quality of the groundwater quality below the project area is of unknown quality. If groundwater is encountered and needs to be removed (e.g. pumping out an excavation), MCDDJV will need to know the character and pollutants present in the groundwater before it can determine an appropriate disposal method.

Recommendation:

[1] https://or.water.usgs.gov/grapher/fnu.html
[2] https://www.awe-ltd.co.uk/products/turbidity.html

4. **Samples should be taken from the groundwater wells (excluding those monitoring the former landfill site) where ground water is expected to be encountered and analysed for pH and the waste criteria listed in EPA Victoria Publication IWRG 631. Based on the results, a procedure should then be developed for disposal of ground water in case it is encountered and needs to be removed from site. Areas where groundwater is expected to be encountered during piling activities are Waterways , Springvale Road and Governor Road.**

3.3 Noise and Vibration EMP

3.3.1 Background Noise and Vibration

In order to determine the background noise levels., the noise consultant Resonate carried out 2 weeks of noise monitoring at 10 locations along the project alignment before construction began. The results are shown in the following table.

Existing background noise levels at measurement locations

Location	Address	Background noise level, dB(A)[1]		
		Day	Evening	Night
R1	418 Old Dandenong Road, Dingley Village (Din Sam Nursery)	47	43	38
R2	262 Centre Dandenong Road, Dingley Village	49	44	37
R3	2 Woodlands Drive, Braeside (MDC site office boundary)	59	55	47
R4	Park Victoria offices (Braeside Park)	53	52	50
R5	Bird Hide (Braeside Park)	42	41	38
R6	8 Brady Close, Braeside (Australian Sheet Traders)	57	49	44
R7	17 Westbridge Court, Waterways	41	38	34

R8	12 Pandan Place, Aspendale Gardens	41	41	38
R9	68/29 Wells Road, Chelsea Heights	52	50	40
R10	5/227 Wells Road, Chelsea Heights (Moos Marine)	55	55	50

1 - The background noise levels were calculated in accordance with SEPP N-1.
No background vibration monitoring was carried out, as the background vibration was assumed to be negligible based on the surrounding activities.

3.3.2 Noise Targets

Noise targets have been set for residential and non-residential locations as shown in the following table. Neither the Victorian EPA Noise Control Guidelines nor the VicRoads Guidelines specify a noise target for works during Normal Working Hours. Therefore, construction noise targets for non-residential uses have been adopted based on the NSW EPA Interim Control Noise Guidelines (ICNG), consistent with the approach applied on recent major Victorian infrastructure projects such as the Metro Tunnel Project and West Gate Tunnel Project.

There are different targets for Day, Evening, Night and weekend periods. The Targets are also based on the preconstruction background noise levels. The areas bordering the project boundaries have therefore been broken up into 8 "Noise Control Areas" (NCA). Each NCA has noise targets based on the background levels.

Day / Evening / Night / Weekend Periods

Period	Time
Day	7 am – 6 pm Weekdays, and 8 am – 1 pm Saturdays
Evening and Weekends	6 pm - 10 pm Weekdays 7 am - 8 am and 1 pm to 10 pm Saturdays, and 7 am - 10 pm Sundays
Night	10 pm – 7 am

Construction noise targets for residential land uses

NCA[1]	Construction noise target, dB(A) $L_{eq,15min}$			
	Normal Working Hours		Weekend / Evening Working Hours[4]	Night Hours[5]
	Noise Target[2]	Highly Noise Affected[3]		
NCA1	55	75	52	36
NCA2	55	75	52	36
NCA3	50	75	46	33
NCA5	49	75	50	36
NCA6	51	75	48	36
NCA7	62	75	59	40
NCA8	62	75	59	40

1 - NCA area 4 is purely rural and therefore is not included in the table.

2 - Noise target (Leq,15min) is the background noise level + 10 dB. This represents the level above which there may be some community reaction to noise as per the NSW EPA ICNG.

3 - Highly noise affected level of 75 dB(A) Leq,15min. This represents the level above which there may be strong community reaction to noise as per the ICNG.

4 - The Weekend/Evening target has been set at Background + 10 dB(A) in accordance with Victorian EPA Noise Control Guidelines requirements for projects lasting less than 18 months. It is not expected that works during such hours would extend beyond 18 months.

5 - The Night target has been set at the RBL level, consistent with VicRoads Guidelines requirements. It is noted that the Victorian EPA Noise Control Guidelines requires inaudibility within habitable rooms with windows and doors closed and this may impose more stringent requirements in some situations.

Construction noise targets for non-residential land uses

Type of sensitive use	Construction noise target, dB(A) Leq,15min
Classrooms at schools and other educational institutions (e.g. Chelsea Heights Primary School)	Internal: 45 External: 65
Hospital wards and operating theatres	Internal: 45 External: 65
Places of worship (e.g. Christ Church Dingley)	Internal: 45 External: 65
Active recreation areas (e.g. Chadwick Reserve)	External: 65
Passive recreation areas (e.g. wetlands and Braeside Park through NCA4)	External: 60
Community buildings	Dependent on usage. If required, refer to AS/NZS 2017:2016 *Acoustics* –

	Recommended design sound levels and reverberation times for building interiors for internal target.
Commercial buildings	External: 70
Industrial buildings	External: 75

3.3.3 Vibration Targets

The project contract defines the maximum vibration allowed, based on the type of building or structure. The maximum vibration criteria are shown in the following table.

Vibration criteria for assessing potential for damage to buildings

Type of Structure	Peak Vibration Velocity at foundation (mm/s)
Reinforced or framed structures. Industrial and heavy commercial buildings	20
Unreinforced or light framed structure. Residential or light commercial type buildings	5
Structures that because of their sensitivity to vibration do not correspond to those listed above and are of great intrinsic value (e.g. heritage listed buildings)	3

3.3.4 Noise Controls

All plant, equipment and vehicles must have serviceable noise attenuation, based on the manufacturer's requirements (e.g. vehicle and truck mufflers).

Operations also are conducted during the day time periods (7am – 7pm Monday to Friday and 7am to 3 pm Saturday), wherever possible. Only works that cannot be carried out during these periods can occur out of these hours (e.g. transportation of oversize items from the supplier to the project site that result in significant traffic disruptions).

If night time works are required, then noise monitoring will occur. Residents should also be notified of any out-of-hours works that may result in significant noise levels.

No issues were identified with the implementation of the above controls during the audit period.

3.3.5 Construction Noise Monitoring

Noise monitoring has occurred on two occasions since the project commenced construction. One monitoring events occurred in the day time period and one in the night time period

when noise barriers were being installed south of Governor Road. The following table provides the noise monitoring results.

Noise Monitoring Results

Date	Time	Location	LAeq	LAmax	LAmin
5/2/2020	6.20 am to 7.00 am	Appox. 50m east of 9 Ferntree Grove and 300m west of the construction site	44.9	47.7	42.6
12/3/2020 to 13/3/2020	6.44 pm to 7.14 am	Approx. 100m west of 13 Barmah Pl. and 24m south of Governor Rd.	53.7	80.3	36.3

3.3.6 Vibration Monitoring

No piling activities have occurred close to sensitive locations, therefore no vibration monitoring has occurred to date.

3.3.7 Discussions and Conclusions

A review of the monitoring data identified a number of issues that will need to be addressed:

- The noise meter was set to "Slow" response, which has the effect of decreasing the level of short term noise peaks. The meter should be set to "Fast" response.
- The LAeq is the equivalent sound pressure level averaged over a set time period. The targets are based on a 15 minute Leq values, however, the LAeq measurements were over the entire monitoring period and are therefore not comparable to the Target noise levels.
- It is unclear what averaging time period was used for the LAmax and LAmin. They should be 15 minute periods so the results can be compared to the Target noise levels.
- The night time measurement from 6.44 pm to 7.14 am commenced in an evening period (for 3 hrs 16 min) carried through the night period (for 9 hrs) and finished during the day period (for 16 minutes). Each different period has a different Target making it difficult to assess compliance. The meter is capable of producing a plot of the noise level over time, which would be invaluable in assessing the noise level at the different times of the day. It would also highlight noise peaks that can help identify noisy activities or work practices.
- It is not unusual to have various impact noises on construction sites (rocks dropped into tipper trucks, or metal parts clashing together), which can impact on the neighbouring community. The impulse noise readings should also be reported.
- The night time works near Governor Rd are in area NCA5 and has a night limit of 36dB(A). The Lmin (the minimum noise measured) was 36.3 dB(A). Assuming the Lmin was set to a 15 minute period, then all other measurements will have been higher than 36.3 dB(A) and will have exceeded the 36dB(A) night time Target.

- The LAmax was 80 dB(A). Assuming it was a 15 minute average, this level would have exceeded all the targets, irrespective of the time of day. It will also have exceeded the Highly Noise Affected level of 75dB(A).

Opportunity for Improvement

Noise measurement practices and reports should be amended in order to assess compliance with the project noise Targets. Appropriate actions should be taken based on the results.

Recommendation:

5. The following changes should be made to the noise measurement field practices and subsequent noise reports:

- **The noise meters should be set to "Fast" response time;**
- **A plot of the noise level over time should also be included in the noise report.**
- **If a noise measurement spanned several time periods (e.g. evening and night), then the noise plots should be utilised to assess compliance against the Target for each period. However, if the raw data can be downloaded, then it is preferable if the actual 15 minute Leq values for each time period are calculated and compliance assessed.**
- **The meters should also provide the following, which should be included in the noise report:**
  - maximum and minimum 15 minute Leqs over the measurement time;
  - the L10, L90 and L95 values (if available); and
  - the maximum impulse noise.

6. The noise data should be reviewed to assess compliance with the Project noise Targets as soon as possible. Based on the results of the noise monitoring, the need to carry out investigation of noise sources and/or alter work practices should then be determined.

3.4 Flora and Fauna EMP

3.4.1 Pre-construction Controls

Local fauna and flora surveys were carried out to identify the locations of sensitive flora and fauna sites. Fauna that would be impacted on by construction activities were relocated by professional handlers and a register relocated fauna maintained (primarily frogs, skinks and, snakes).

As detailed earlier on this report, silt curtains and silt fences were in place to protect the on-site and surrounding waterways. To prevent frogs entering the works area, the silt fences in locations that may contain frogs (e.g. the wetlands area in the southern portion of the project), have also had frog fencing incorporated into the silt fence.

Sensitive flora that is to remain on the project site has been identified and marked onto the CMPs. "No-Go Zone" fences were installed around the identified protected flora before construction commenced along with signage on the fences.

Where sensitive flora had to be removed for the new roadway, planting offsets have been determined as per regulatory requirements. An offset compensates for biodiversity losses arising from native vegetation removal. Offset owners secure and manage offset sites either locally, or at another site to improve native vegetation condition. Offset sites can either be managed directly by the offset owner, or can be managed by a third party who is paid for their services by the offset owner. An offset can be the ongoing protection and management of:

- a patch of native vegetation
- one or more scattered trees, or
- an area of revegetation.

All employees and contractors working on the project have been required to attend a site induction before they can commence works on the site. The induction includes details of fauna species that may be encountered on the project site and the actions that must be taken to ensure the individual animal is protected and relocated, if required. The induction also informs attendees of the flora "No-Go Zones" and the need protect these areas.

3.4.2 Construction and Post Construction Controls

Two under road culverts, one in zone 4 and one in zone 5 north, that will be fauna underpasses, were being installed, as required by the approved project design plans.

A migratory bird report was in the process of being prepared with Park Victoria to determine what migratory species may use the wetlands on the project site. Monitoring of the wetland areas has been occurring, but no migratory species have been identified to date.

As detailed above, project personnel have been made aware of the fauna species that may be present on the site in case they are encountered during construction.

3.4.3 Discussion and Conclusions

Fauna and flora management activities and controls are consistent with good industry practice, regulatory requirements (legislation & EPRs) and contractual requirements. No issues with fauna and flora management were identified during the audit process.

3.5 Environmental Control Plans

Environmental Control Plans (ECPs) have been developed by MCDDJV for the various sections of the project. Each ECP consists of a map or aerial photograph of as section of the project. The various environmental controls have then been overlain on the maps or photographs.

Controls consist of:

- Sediment fences;
- Silt curtains;
- No-Go Zones;
- Diversion drains;
- Spill kits;
- Concrete wash out bays; and
- Monitoring locations.

The ECPs have been used to plan and then implement the various controls across the project site.

Opportunity for Improvement

The sediment control structures (either permanent or temporary) were being installed at the time of the audit, but have not been marked on the ECPs. The retention and treatment of stormwater during the wetter winter months is essential and should be included as a control on the ECPs.

Recommendation:

7. **The site ECPs should be updated to include either the permanent sediment control basins or the temporary stormwater retentions structures, along with any associated stormwater collection drains (either temporary or permanent).**

The implementation of the controls shown in the ECP was assessed during the site inspection and will be addressed in Section 4 below.

3.6 Complaints Management

Complaints can be generated by members of the public, motorists, community groups, regulators and businesses. They can be received via emails, phone calls, SMS, walk-ins, or letters.

These can be made directly to MCDDJV or to a contact centre that collates enquires and complaints for all MRPV projects and passes them on to the relevant project for response. These can be passed to either MRPV or MCDDJV depending on the nature of the enquiry. Records of complaints are compiled and reported weekly to MRPV.

All incoming and outgoing interactions with stakeholders are logged as individual ‘events’ in the Consultation Manager database used by the project, whether they are a simple enquiry from a member of the public, or a project-based complaint.

Each interaction is also logged as a unique event, even if related to a single complaint. For example, if the project responds to a complaint, a member of the public phones several times regarding the one issue, or there are back and forward phone calls between a member of the public and the project, each of these interactions is logged as a unique ‘event’. Without proper filtering, each event can then be presented as a unique complaint, distorting the actual number of complaints.

Since February, the Project's Community Engagement personnel have reviewed the incoming events data in the Consultation Manager database to filter and identify the number of unique complaints. They have also included descriptions of the issues raised by the individuals lodging the complaint in their weekly complaint summaries. As a result, the number of unique complaints for the week of the 7th March was 6 compared to a total of 42 reported events. Similarly, the actual number of complaints for the week of the 29th February was 4, compared to the 21 reported events and 5 complaints compared to 15 reported events for the week of the 22nd February.

A closer comparison of the raw events data to the actual description of complaints also identified that some events are being logged under the incorrect issue. For example, in the week of the 7th March, the events data recorded 3 "Air" related events. However, a review the actual complaint descriptions found there were no complaints related to the air environment. Similarly, there were 13 events for the week related to "Night Works", but there was no mention of night works in the complaint descriptions.

Following is a summary of the raw events data. The summary has focussed on the environmental issues relevant to the scope of this audit, namely:

- Dust/Air
- Noise
- Vibration
- Water
- Fauna/Flora
- Night Works/Light Pollution

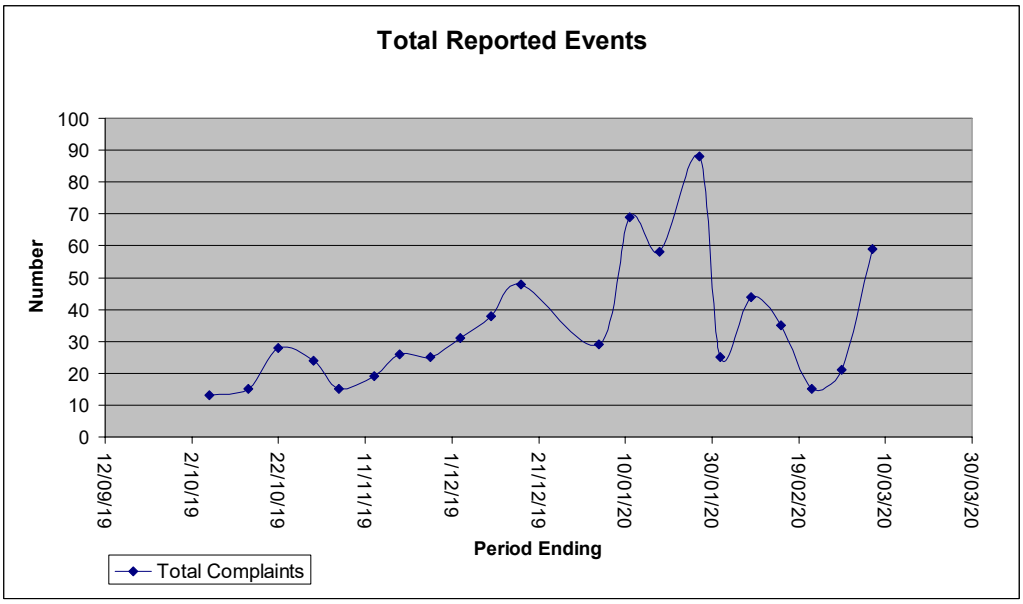
Summary of Raw Events

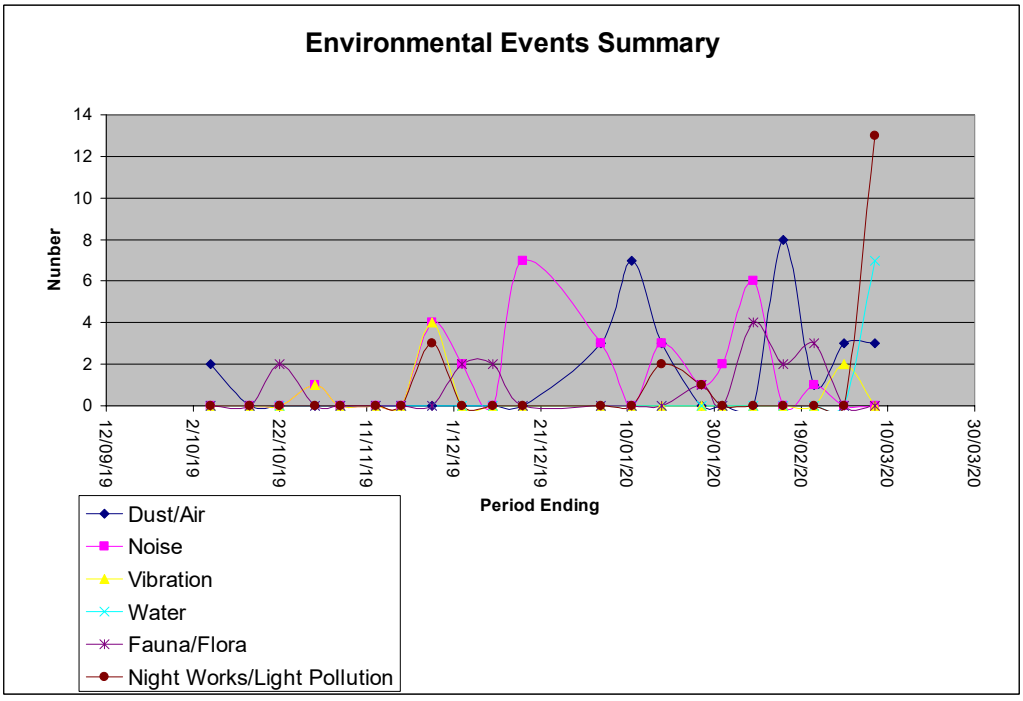
Period Ending	Total Events[1]	Dust/ Air	Noise	Vibration	Water	Fauna/ Flora	Night Works/ Light Pollution
6/10/19	13	2	0	0	0	0	0
15/10/19	15	0	0	0	0	0	0
22/10/19	28	0	0	0	0	2	0
30/10/19	24	0	1	1	0	0	0
5/11/19	15	0	0	0	0	0	0
13/11/19	19	0	0	0	0	0	0
19/11/19	26	0	0	0	0	0	0
26/11/19	25	0	4	4	0	0	3
3/12/19	31	0	2	0	0	2	0
10/12/19	38	0	0	0	0	2	0
17/12/19	48	0	7	0	0	0	0
4/01/20	29	3	3	0	0	0	0
11/01/20	69	7	0	0	0	0	0
18/01/20	58	3	3	0	0	0	2
27/01/20	88	0	1	0	0	1	1
1/02/20	25	0	2	0	0	0	0
8/02/20	44	0	6	0	0	4	0
15/02/20	35	8	0	0	0	2	0
22/02/20	15	1	1	0	0	3	0
29/02/20	21	3	0	2	0	0	0

7/03/20	42	3	0	0	7	0	13
TOTALS	725	30	30	7	12	16	19

1 – Total events include non-environmental issues (e.g. business disruption, traffic issues, property damage, pedestrian access issues, visual issues), but have excluded "Engagement Activities", which record the number of communications initiated by the Project. Total events also count potentially multiple communications regarding a single complaint issue. If the results of the final 3 weeks, where the raw events data was reviewed to identity the actual number of complaints, were extrapolated to the total events to date, they would result 161 complaints of all types, compared to the 725 events reported.

The data in the above table is presented graphically below.





As can be seen in the above table, noise and dust events are the most frequent; however, as discussed above, the lack of filtered information about unique complaints makes it difficult to assess the level of concern expressed by the community. Instances of incorrect allocation of events to the issue type (i.e. Air Quality, Water, Noise, etc.) further decreases the value of this event data.

The Project's responses to actual complaints appears appropriate, however, a record of the responses have only been recorded in the weekly reports for the last three weeks, since the Project started reviewing the raw events data. Therefore, the auditor's review of responses is limited to this three week period.

Complaint levels are a good indication of how well controls to protect the community are working. Therefore, the current practice of reviewing and filtering the raw events data to identify the actual number of complaints and confirming the issue the complaint is related to is strongly supported. The number of complaints and complaint types should then be reviewed in order to highlight any issues, events or work practices that require attention.

Opportunity for Improvement

The Project event data records each interaction event rather than individual complaints, which if not filtered can skew the data and make it difficult to assess the actual issues in the community. Compounding this is the apparent allocation of some events to the incorrect event category (i.e. Air, Water, Traffic, etc.). The current practice of reviewing the raw events data to identify the actual number of complaints and confirming the issue to which the complaint is related is strongly supported.

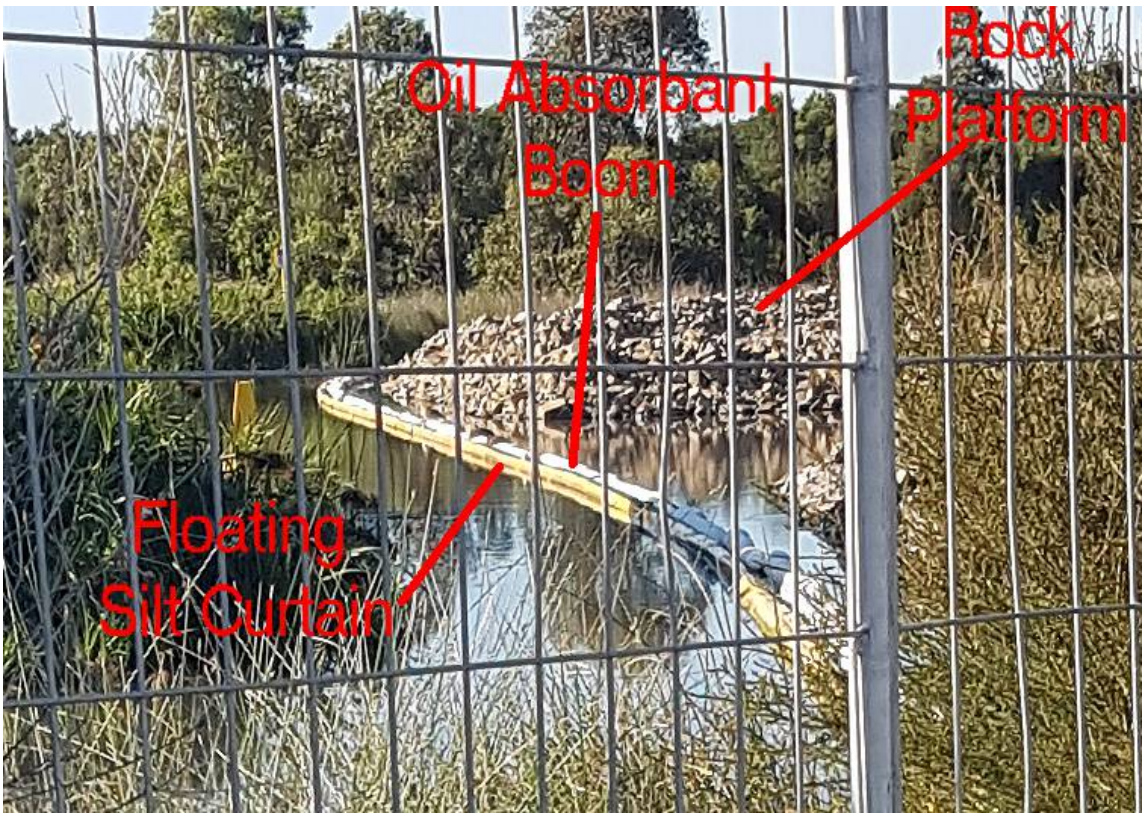
Recommendations:

8. **The current practice of reviewing the raw events data to identify the actual number of complaints and confirming the issue to which the complaint is related should continue.**

9. **A "significant" number of complaints for one issue or event should trigger a formal investigation and the development of remedial actions to prevent reoccurrences. A formal process should be implemented detailing when such actions should be triggered.**

4 Site Inspection

Left: Example of the combined sediment and frog fence south of Bowen Parkway
Right: Marine spill kit in use around the waterways.



Above: One of the floating silt curtains and oil absorbent booms along the edge of the new piling rig platform, south of Bowen Parkway.

Left: The flammable goods container at the Governor Rd Compound. Note the missing DG diamond. Also note the close proximity of the fire extinguisher to the flammable materials. This would make it difficult to access the fire extinguisher in case of a fire.

Left: Fire extinguisher inside the Dangerous Goods container at the Woodlands compound, making it impossible to retrieve in case of a fire in the container.

Right: The outside of the Dangerous Goods container at the Woodlands compound indicating that flammable gases and flammable liquids would be stored together, contrary to regulatory requirements that these materials be segregated. The container held boxes of pressure pack cans and several empty petrol jerry cans.

Opportunity for Improvement

Storage of dangerous goods should be in compliance with Dangerous Goods Regulations.

Recommendations:

10. A dangerous goods diamond label should be fixed to the front of the dangerous goods container at the Governor Road compound.

11. Flammable gases and flammable liquids should not be stored in the same container. A dedicated flammable gas cabinet should be purchased.

12. Fire extinguishers should not be stored inside Dangerous Goods containers and ideally, not on the container itself. Labelled fire extinguisher stations should be established approximately 2 m away from each Dangerous Goods container.

Above: A good example of well labelled and accessible waste bins and spill kits– Governor Road Compound.

Left: Spill kit on the Governor Road generator fuel tank, ready for use in case of a spill during refueling.

Opportunity for Improvement

Not all compounds had well labelled waste bins and obvious spill kits.

Recommendations:

13. **The Project should review the labelling of waste bins and the availability of spill kits near to compound generator fuel tanks. The actions taken at the Governor Road compound could be used as an example of good practice.**

Left: Rumble Grid at exit of Governor Road compound.

It was noted during the inspection that truck drivers are required to leave their vehicles in an inspection area just prior to the site exit and inspect their vehicle to ensure no rocks have been caught between the duel tyres. However, it was also noted that a significant amount of

dust was on the roadway in front of the Governor Road exit. On average, 200 to 250 trucks per day reportedly pass through the site and this number has been as high as 400 truck movements per day. In many instances, the vehicles consist of both truck and trailer. The exit to the site is fitted with two rumble grids (refer to photograph above). However, observation found that the grids are too narrow and that that trucks are able to pass over each grid in less than one tyre rotation, which reduces the efficiency of cleaning the vehicles.

It was also found that the short section of road from the exit of the rumble grids to Governor Road was unpaved and loose. Reportedly, the site has attempted to stabilise this area, however, the trucks need to make a sharp turn onto Governor Road and the truck tyres very quickly break up the surface, which contributes to the dust carried by the trucks onto Governor Road. Street sweepers are in use, however, it appears their effectiveness is limited given the amount of dust transported onto the roadway by the large number of truck movements.

Of greater concern is the likely impact during the wetter winter months, when the truck under bodies and wheels are likely to collect significant amounts of mud. The rumble grids will be even less successful in removing the mud, which will be transported onto Governor Road. This will increase the amount of sediment laden run-off entering drains and subsequently discharged into waterways.

The most effective way of controlling material exiting the site is to ensure the vehicles are clear of dust and mud before they exit the site. More effective cleaning facilities need to be installed and a method implemented so the trucks don't become recontaminated, particularly the section intersecting Governor Road where the trucks begin their turn.

Opportunity for Improvement

The movement of dust and potentially mud from the Project site onto Governor Road needs to be managed so it does not pose an off-site environmental issues.

Recommendation:

14. **More effective truck cleaning facilities need to be installed at the Governor Road compound exit. A method needs to be developed and implemented so the trucks don't become recontaminated after cleaning, particularly the section intersecting Governor Road where the trucks begin their turn. Entry and exit points to other sections of the Project should also be reviewed for the same potential issues, the effectiveness of existing controls and the risk posed given the site specific circumstances.**

Left: An example of one of the large swales used to successfully contain storm water run-off during normal rain events over the summer period.

Left: Wind blown dust after a truck had passed – north of Park Way entrance. It was noted that the section of the access road south of the Park Way entrance appeared damp, while the Park Way entrance and the section north of the entrance appeared dry and truck movements generated significant dust.

Opportunity for Improvement

Dust generated during heavy vehicle movement on the site should be reviewed with the aim of reducing dust generation.

Recommendation:

15. The current use of the four water carts should be reviewed to determine if they could be scheduled to provide more effective and regular coverage of the Project site. Supervisors should also be requested to assess and report on the speed of heavy vehicles and if the speed appears excessive.

Left: Example of "No-Go" Zone fencing around a large gum tree west of the Parks Victoria compound.

Left: Rubbish placed in spill kit container at the Woodland Drive compound. The general waste bin is in background, 2m away.
Right: Empty containers of a diesel fuel additive were in the general waste bin at the Woodland Drive compound. It is unclear if these containers should be treated as a general waste or a contaminated waste.

Opportunity for Improvement

Wastes generated in compounds needs to be appropriately stored and disposed.

Recommendations:

16. **Toolbox sessions should be used to remind all employees and contractors that spill kits are not rubbish bins.**

17. **The Project should obtain breakable ties and seal all spill kits. The daily inspections should then check any kit that has a broken seal, restock the kit if necessary and reseal the kit.**

18. **The Project should check to see if empty Adblue diesel additive containers can be disposed of as general waste, or need to be disposed of as a contaminated waste.**

Left: A sediment fence has been installed down slope from a stockpile – south of Zone 1, Gate 4. However, the site slopes towards the west and sediment can be seen collecting along the edge of the grassed area. It would be prudent to extend the silt fence further north to ensure the drain running just outside the construction boundary is protected.

Opportunity for Improvement

The containment of sediment south of Zone 1 Gate 4 needs to be improved.

Recommendation:

19. **The sediment fence down slope from the stockpile south of Zone 1, Gate 4 should be extended northwards in order to prevent any run-off entering the nearby swale drain during heavy winter rains.**

Left: Sediment laden water has collected in the western end of the blocked Old Dandenong Road Drain. This water should no be discharged off site without treatment, or it should be used on-site for dust suppression.

Observation

Sediment laden water should be managed appropriately.

Recommendation:

20. The Project should ensure the sediment laden water which has collected in the western end of the blocked Old Dandenong Road Drain should either be treated before it is discharged, or preferable, used on-site for dust suppression.

Left: Several 205L drums and a 1000L IBC container were found on the west side of the Landfill piling operations. They appear to be filled with drilling waste (mud and dirty water) and should be disposed of.

Opportunity for Improvement

Wastes generated on the site should be stored and disposed of appropriately and in a timely manner.

Recommendations:

21. **The Project should ensure the 205L drums and a 1000L IBC container located on the west side of the Landfill piling operations are disposed of appropriately as soon as possible.**

22. **Employees and contractors should be reminded that any contaminated waste should not be stored on bare soil in an uncontained area. Wastes should only be stored in a secure bunded area.**

It was also identified that the landfill piling area only had 1 spill kit, which appears to belong to the piling contractor. The ECP for this area shows 4 spill kits across the landfill piling area.

Opportunity for Improvement

Sufficient emergency equipment should be available, as required by the site ECPs.

Recommendations:

23. **The Project should ensure there are 4 spill kits in the landfill piling area, as required by the ECP. Site inspections should review the number and location of spill kits in other areas of the Project site.**

5 Summary of Recommendations

Recommendation Types:

Non-conformance (NC)

An instance, event or occurrence that has not-fulfilled a requirement that has been specified in the Strategy, CEMP, ECPs, EPRs, legislation, or approval conditions.

(Note 1: A non-conformance may be an individual non-conformance or a number of minor but related audit findings, which when considered in total are judged to constitute a non-conformance.)

Opportunity for Improvement (OI)

A deficiency in the implementation of the Strategy, CEMP, ECPs, or associated documentation judged to be a risk to the environment, or to environmental management, without constituting an overall failure in the area concerned.

Observation (O)

An audit finding which may relate to an incidental or isolated system discrepancy, which does not compromise the effectiveness of environmental management, or constitute an actual or potential environmental risk.

IREA does not require Observations to be formally closed out after they have been issued and therefore will not report these in subsequent audit reports. It is the responsibility of the MCCJV to consider these findings.

Recommendation Priorities:

A - High risk of system failure, legal non-compliance, an EPR requirement or high environmental risk. **Must be corrected as a matter of priority.**

B - A requirement specified in an internal Plan or procedure, is affecting system efficiency, may result in system failure, or is a moderate environmental risk. **Must be corrected.**

Recomm. No.	Type	Recommendation	Priority
1.	OI	MCDDJV should carry out a review to: (i) identify the potential dust sources which are or may give rise to complaints; and (ii) develop and implement additional and/or changes to existing dust controls that better address the generation of dust from the site.	A
2.	OI	The permanent sediment ponds should be installed as soon as possible. If temporary sediment basins are constructed, they will need to comply with contract specification clause 1200.08(c).	A
3.	OI	A calibrated turbidity meter that measures turbidity in NTU should be obtained. As the soil type changes across the site (and therefore the reflective nature of the particles is likely to vary) turbidity testing should occur at all sample locations using both meters and the results compared. Historical data should then be reviewed in light of the results. The need to replace the current meter with a water meter that measures turbidity in NTU should also be decided based on the results.	A
4.	OI	Samples should be taken from the groundwater wells (excluding those monitoring the former landfill site) where ground water is expected to be encountered and analysed for pH and the waste criteria listed in EPA Victoria Publication IWRG 631. Based on the results, a procedure should then be developed for disposal of ground water in	B

Recomm. No.	Type	Recommendation	Priority
		case it is encountered and needs to be removed from site. Areas where groundwater is expected to be encountered during piling activities are Waterways , Springvale Road and Governor Road.	
5.	OI	The following changes should be made to the noise measurement field practices and subsequent noise reports: • The noise meters should be set to "Fast" response time; • A plot of the noise level over time should also be included in the noise report. • If a noise measurement spanned several time periods (e.g. evening and night), then the noise plots should be utilised to assess compliance against the Target for each period. However, if the raw data can be downloaded, then it is preferable if the actual 15 minute Leq values for each time period are calculated and compliance assessed. • The meters should also provide the following, which should be included in the noise report: – maximum and minimum 15 minute Leqs over the measurement time; – the L10, L90 and L95 values (if available); and – the maximum impulse noise	A
6.	OI	The noise data should be reviewed to assess compliance with the Project noise Targets as soon as possible. Based on the results of the noise monitoring, the need to carry out investigation of noise sources and/or alter work practices should then be determined.	B
7.	OI	The site ECPs should be updated to include either the permanent sediment control basins or the temporary stormwater retentions structures, along with any associated stormwater collection drains (either temporary or permanent).	A
8.	O	The current practice of reviewing the raw events data to identify the actual number of complaints and confirming the issue to which the complaint is related should continue.	B
9.	OI	A "significant" number of complaints for one issue or event should trigger a formal investigation and the development of remedial actions to prevent reoccurrences. A formal process should be implemented detailing when	B

Recomm. No.	Type	Recommendation	Priority
		such actions should be triggered.	
10.	OI	A dangerous goods diamond label should be fixed to the front of the dangerous goods container at the Governor Road compound.	B
11.	OI	Flammable gases and flammable liquids should not be stored in the same container. A dedicated flammable gas cabinet should be purchased.	A
12.	OI	Fire extinguishers should not be stored inside Dangerous Goods containers and ideally, not on the container itself. Labelled fire extinguisher stations should be established approximately 2 m away from each Dangerous Goods container.	B
13.	OI	The Project should review the labelling of waste bins and the availability of spill kits near to compound generator fuel tanks. The actions taken at the Governor Road compound could be used as an example of good practice.	B
14.	OI	More effective truck cleaning facilities need to be installed at the Governor Road compound exit. A method needs to be developed and implemented so the trucks don't become recontaminated after cleaning, particularly the section intersecting Governor Road where the trucks begin their turn. Entry and exit points to other sections of the Project should also be reviewed for the same potential issues, the effectiveness of existing controls and the risk posed given the site specific circumstances.	A
15.	OI	The current use of the four water carts should be reviewed to determine if they could be scheduled to provide more effective and regular coverage of the Project site. Supervisors should also be requested to assess and report on the speed of heavy vehicles and if the speed appears excessive.	B
16.	OI	Toolbox sessions should be used to remind all employees and contractors that spill kits are not rubbish bins.	B
17.	OI	The Project should obtain breakable ties and seal all spill kits. The daily inspections should then check any kit that has a broken seal, restock the kit if necessary and reseal the kit.	B

Recomm. No.	Type	Recommendation	Priority
18.	OI	The Project should check to see if empty Adblue diesel additive containers can be disposed of as general waste, or need to be disposed of as a contaminated waste.	B
19.	OI	The sediment fence down slope from the stockpile south of Zone 1, Gate 4 should be extended northwards in order to prevent any run-off entering the nearby swale drain during heavy winter rains.	B
20.	O	The Project should ensure the sediment laden water which has collected in the western end of the blocked Old Dandenong Road Drain should either be treated before it is discharged, or preferable, used on-site for dust suppression.	B
21.	OI	The Project should ensure the 205L drums and a 1000L IBC container located on the west side of the Landfill piling operations are disposed of appropriately as soon as possible.	B
22.	OI	Employees and contractors should be reminded that any contaminated waste should not be stored on bare soil in an uncontained area. Wastes should only be stored in a secure bunded area.	B
23.	OI	The Project should ensure there are 4 spill kits in the landfill piling area, as required by the ECP. Site inspections should review the number and location of spill kits in other areas of the Project site.	B

6 Audit Conclusions

6.1 Environment Management Plans

The work practices and processes were in the main complying with the commitments made by the contractor in its EMPs. A number of issues were identified with work practices and monitoring which the contractor will need to address to ensure it complies with its contractual and legislative requirements. Of note is the need to install documented and approved stormwater collection structures, the need to amend its current noise monitoring process and to improve the cleaning of vehicles exiting the project site. The contractor's

actions to address the audit findings will be reviewed and reported on in future quarterly audits

6.2 Environment Performance Requirements

The EPR requirements have been incorporated into the contractor's EMPs (this was confirmed in a pre-construction audit). Therefore, compliance with the EMPs ensures compliance with the related EPRs. Hence the comments in the section 6.1 above are also applicable to the contractor's compliance with the EPR requirements.

6.3 Environment Control Plans

The ECPs have been implemented in the field. An issue was identified with the number of spill kits in one location that need to be remedied. The need to update the ECPs to include the stormwater run-off collection and treatment structures (once completed) was also identified.

6.4 Site Works

The vast majority of controls were in place. A number of issues were identified with work practices along with improvements in dust control from the work site and (as detailed above) the cleaning of vehicles exiting the project site.

6.5 Overall Conclusion

The vast majority of controls have been suitably implemented by the contractor. A number of issues were identified with work practices, controls and monitoring that the contractor must address to ensure it complies with its contractual and legislative requirements.

Appendix A – Audit Agenda

Audit Agenda

Site:	Mordialloc Freeway Project
For:	McConnell Dowell Decmil Joint Venture
Site Auditor:	Vic Natoli
VicRoads Auditor/Reviewer:	Ken Fraser
Company Representative:	Chris DiDomenico
Audit Date/s:	16th – 17th March 2020

Day 1

9:00 Opening meeting with company representatives to review audit process, availability of data and personnel and confirm audit agenda

9:30 **Desktop review of plans and data**

Review implementation of plans as they apply to the current works:

- Air Quality EMP 1202-01-ENV-PLN-1000-00102 (AQ2)
- Water Management & Monitoring EMP 1202-01-ENV-PLN-1000-00103 (includes sediment and erosion) (W1, W3, W4, W5)
- Noise and Vibration EMP - M190285RP1 (NV2)
- Flora and Fauna EMP - 12304_EHP_FF Sub-plan_06052019 (B1, B3, B4, B5)
- Waterways and Landfill Bridging Structures ECP (CL3, CL4, CL7)

The review will include an assessment of how the requirements of the above plans have been incorporated into the site specific plans.

Monitoring data collected to date will also be reviewed to assess the adequacy of monitoring, the quality of discharges and emissions and their likely impacts.

4:30 Day 1 Wrap up meeting

Any issues identified during the day will be reviewed and discussed.

5:00 End of Day 1

Day 2

Site Inspection

9:00 An inspection will be carried out of the site in order to:

- Determine if the controls specified in the plans and site specific plans have been implemented, as they apply to the works to date.
- Identify any unsuitable work practices.
- Visually confirm monitoring and sampling locations.

12:00 Day 2 Wrap up meeting

Any issues identified during the day will be reviewed and discussed.

12:30 End of Day 2

NOTE: Day 2 may be extended if required in order to complete the tasks listed in the Audit Agenda.

Appendix B – Quarterly Audit Schedule

EPR	EPR Title	Quarterly Site Audit and Inspection						
Audit/Review Date		6/2020	9/2020	12/2020	3/2021	6/2021	9/2021	12/2021
EM1	Construction Environmental Management Plans	*	*	*	*	*	*	*
EM2	Environmental complaints management	*	*	*	*	*	*	*
EM3	Independent Reviewer and Environmental Auditor (IREA)							
AQ1	Air quality (operation)							
AQ2	Air quality (construction)	*	*	*	*	*	*	*
B1	Fauna habitat							
B2	Lighting design (operation)							
B3	Native vegetation and habitat	*	*	*	*	*	*	*
B4	Fauna (construction)	*	*	*	*	*	*	*
B5	Native vegetation (construction)	*	*	*	*	*	*	*
B6	Flora and Fauna Monitoring Management Plan (operation)							

CL1	Soil Management Plan	*	*	*	*	*	*	*
CL2	Acid Sulphate Soil Management Plan	*	*	*	*	*	*	*
CL3	Passive landfill gas capture and venting design							
CL4	Landfill Gas Management Plan (Construction)		*				*	
CL5	Landfill Gas Management Plan (Operation)							
CL6	PFAS Management Plan	*	*	*	*	*	*	*
CL7	Landfill material							
E1	Business Disruption Plan							
E2	Utility assets							
GG1	Greenhouse gas monitoring and reporting							
GG2	Emissions reduction							
H1	Cultural Heritage Management Plan	*	*	*	*	*	*	*
H2	Unidentified non-Aboriginal historical archaeological sites	*	*	*	*	*	*	*
H3	Non-Aboriginal heritage sites	*	*	*	*	*	*	*

LV1	Landscape and urban design							
LV2	Crime prevention through environmental design							
LV3	Reinstatement works							
LV4	Lighting (operation)							
LV5	Light spillage (construction)	*	*	*	*	*	*	*
LV6	Minimise large (amenity - non native) tree removal outside no-go zones	*	*	*	*	*	*	*
LV7	Landscape management strategy							
LV8	Independent urban design review panel							
NV1	Noise and vibration (design)							
NV2	Construction Noise and Vibration Management Plan	*	*	*	*	*	*	*
NV3	Traffic noise verification							
S1	Community and Stakeholder Engagement Plan	*	*	*	*	*	*	*
S2	Recreational facilities							
T1	Intersection and freeway design and performance							

T2	Transport Management Plan							
T3	Vehicle and pedestrian access							
T4	Traffic validation							
W1	Water body health (water quality operation)							
W2	Flood protection (operation)							
W3	Surface water management (construction)	*	*	*	*	*	*	*
W4	Flood protection (Flood Management Plan for temporary works) (construction)	*			*			
W5	Water Management and Monitoring Plan	*	*	*	*	*	*	*
W6	Surface water management (design and operation)							
W7	Water Asset Management Plan (Operation)							

NOTE:

- Greyed out cells are not applicable.
- An asterisk in the "Quarterly Site Audit and Inspection" columns does not mean every item in the referenced EPR will be reviewed. Refer to the Quarterly Site Audit and Inspection Topic Agenda below for additional details.
- Separate "Quarterly Site Audit and Inspection" and "IREA EPR Review" reports will be produced for each quarter.
- The IREA's review of EPR NV3 (Traffic Noise Verification) will occur post construction.

Quarterly Site Audit and Inspection Topic Agenda

Audit Date	Quarterly Site Audit and Inspection Topics
June 2020	• Review actions taken to close previous audit findings. • Water monitoring results and compliance. (W3, W5) • Air Monitoring results and compliance (AQ2) • Noise monitoring results and compliance (NV2) • Soil Monitoring Results (where monitoring has occurred) (CL1, CL2, CL6) • Incident reporting and response since previous audit • Community complaints and response since previous audit (EM2, LV5, S1) • Flora Fauna EMP (B3, B4, B5) • Flood Management EMP (W4) • Site Inspection (AQ2, B3, B4, B5, H1, H2, H3, LV6, W3)
September 2020	• Review actions taken to close previous audit findings. • Water monitoring results and compliance. (W3, W5) • Air Monitoring results and compliance (AQ2) • Noise monitoring results and compliance (NV2) • Soil Monitoring Results (where monitoring has occurred) (CL1, CL2, CL6) • Incident reporting and response since previous audit • Community complaints and response since previous audit (EM2, LV5, S1) • Soil contamination EMP (CL1, CL2, CL6) • Landfill Gas EMP (CL4) • Site Inspection (AQ2, B3, B4, B5, H1, H2, H3, LV6, W3)
December 2020	• Review actions taken to close previous audit findings. • Water monitoring results and compliance. (W3, W5) • Air Monitoring results and compliance (AQ2) • Noise monitoring results and compliance (NV2) • Soil Monitoring Results (where monitoring has occurred) (CL1, CL2, CL6) • Incident reporting and response since previous audit

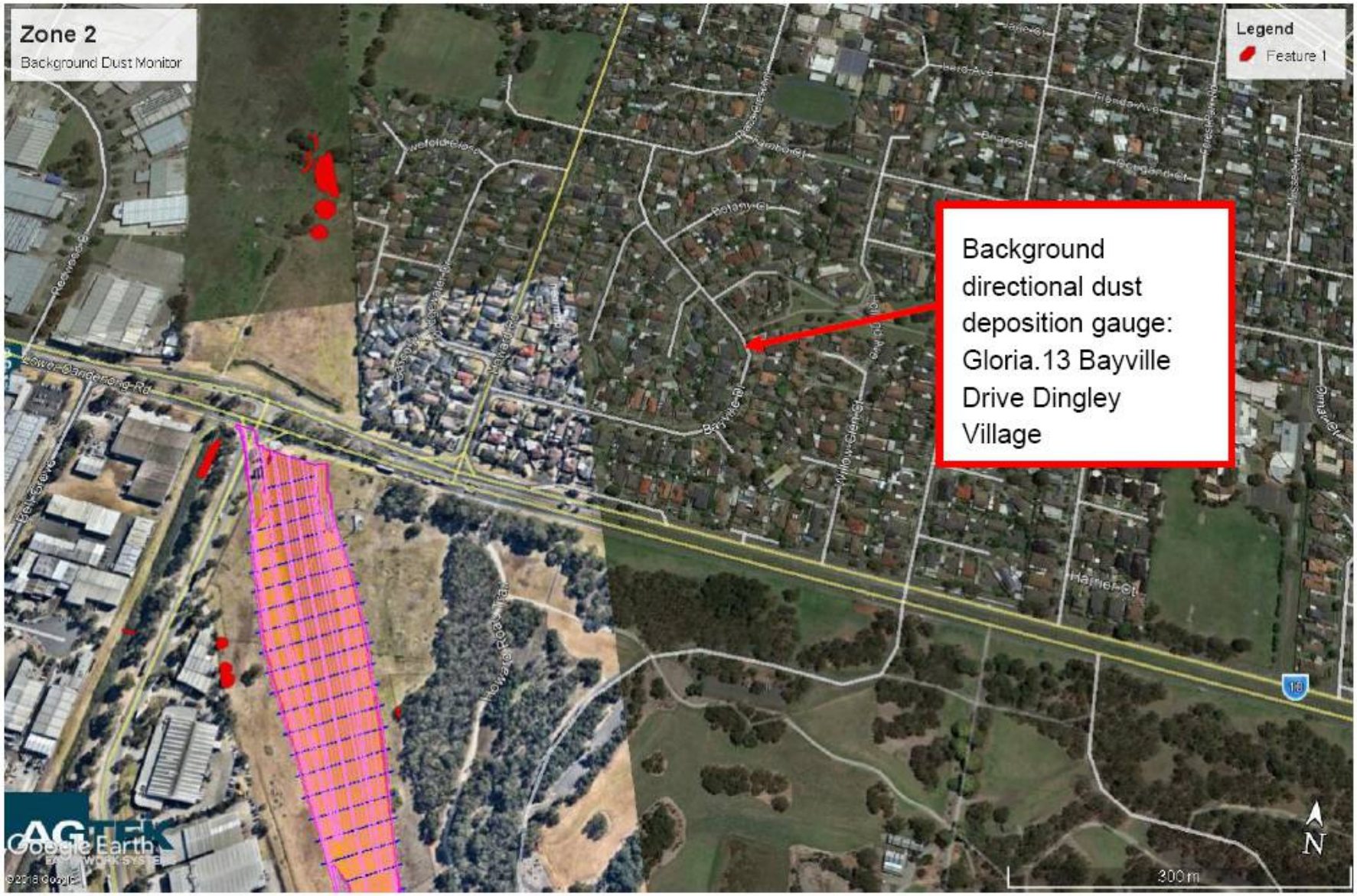
	• Community complaints and response since previous audit (EM2, LV5, S1) • Noise EMP (NV2) • Site Inspection (AQ2, B3, B4, B5, H1, H2, H3, LV6, W3)
March 2021	• Review actions taken to close previous audit findings. • Water monitoring results and compliance. (W3, W5) • Air Monitoring results and compliance (AQ2) • Noise monitoring results and compliance (NV2) • Soil Monitoring Results (where monitoring has occurred) (CL1, CL2, CL6) • Incident reporting and response since previous audit • Community complaints and response since previous audit (EM2, LV5, S1) • Water EMP (W5) • Flood Management EMP (W4) • Site Inspection (AQ2, B3, B4, B5, H1, H2, H3, LV6, W3)
June 2021	• Review actions taken to close previous audit findings. • Water monitoring results and compliance. (W3, W5) • Air Monitoring results and compliance (AQ2) • Noise monitoring results and compliance (NV2) • Soil Monitoring Results (where monitoring has occurred) (CL1, CL2, CL6) • Incident reporting and response since previous audit • Community complaints and response since previous audit (EM2, LV5, S1) • Waste Management EMP • Site Inspection (AQ2, B3, B4, B5, H1, H2, H3, LV6, W3)
September 2021	• Review actions taken to close previous audit findings. • Water monitoring results and compliance. (W3, W5) • Air Monitoring results and compliance (AQ2) • Noise monitoring results and compliance (NV2) • Soil Monitoring Results (where monitoring has occurred) (CL1, CL2, CL6) • Incident reporting and response since previous audit

	• Community complaints and response since previous audit (EM2, LV5, S1) • Landfill Gas EMP (CL4) • Site Inspection (AQ2, B3, B4, B5, H1, H2, H3, LV6, W3)
December 2021	• Review actions taken to close previous audit findings. • Water monitoring results and compliance. (W3, W5) • Air Monitoring results and compliance (AQ2) • Noise monitoring results and compliance (NV2) • Soil Monitoring Results (where monitoring has occurred) (CL1, CL2, CL6) • Incident reporting and response since previous audit • Community complaints and response since previous audit (EM2, LV5, S1) • Waste Management EMP • Site Inspection (AQ2, B3, B4, B5, H1, H2, H3, LV6, W3)

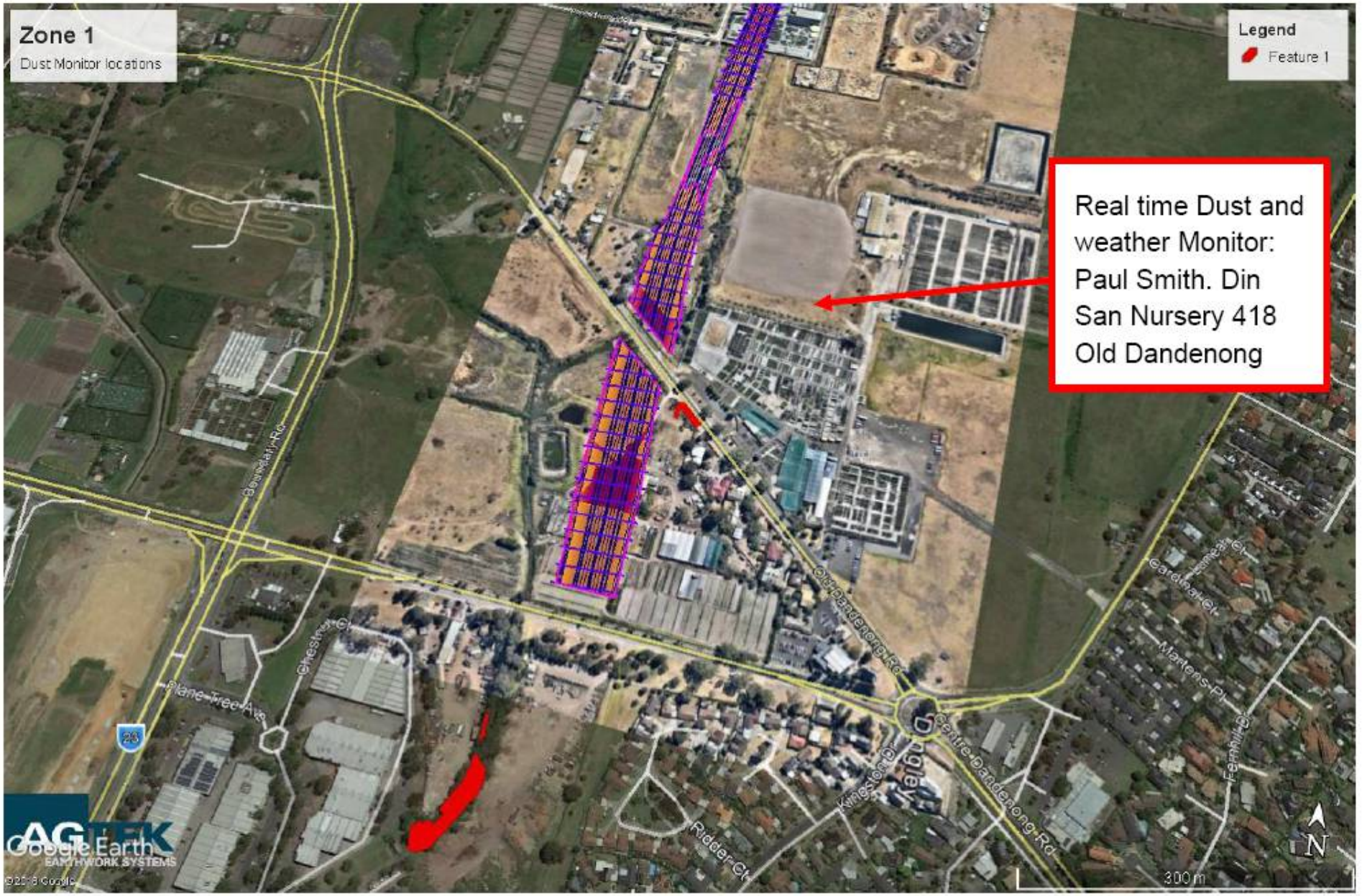
NOTE:

- References in brackets are the respective EPR numbers.

Appendix C – Dust Monitoring Locations



STATEWIDE
RIVER & STREAM MANAGEMENT PTY. LTD



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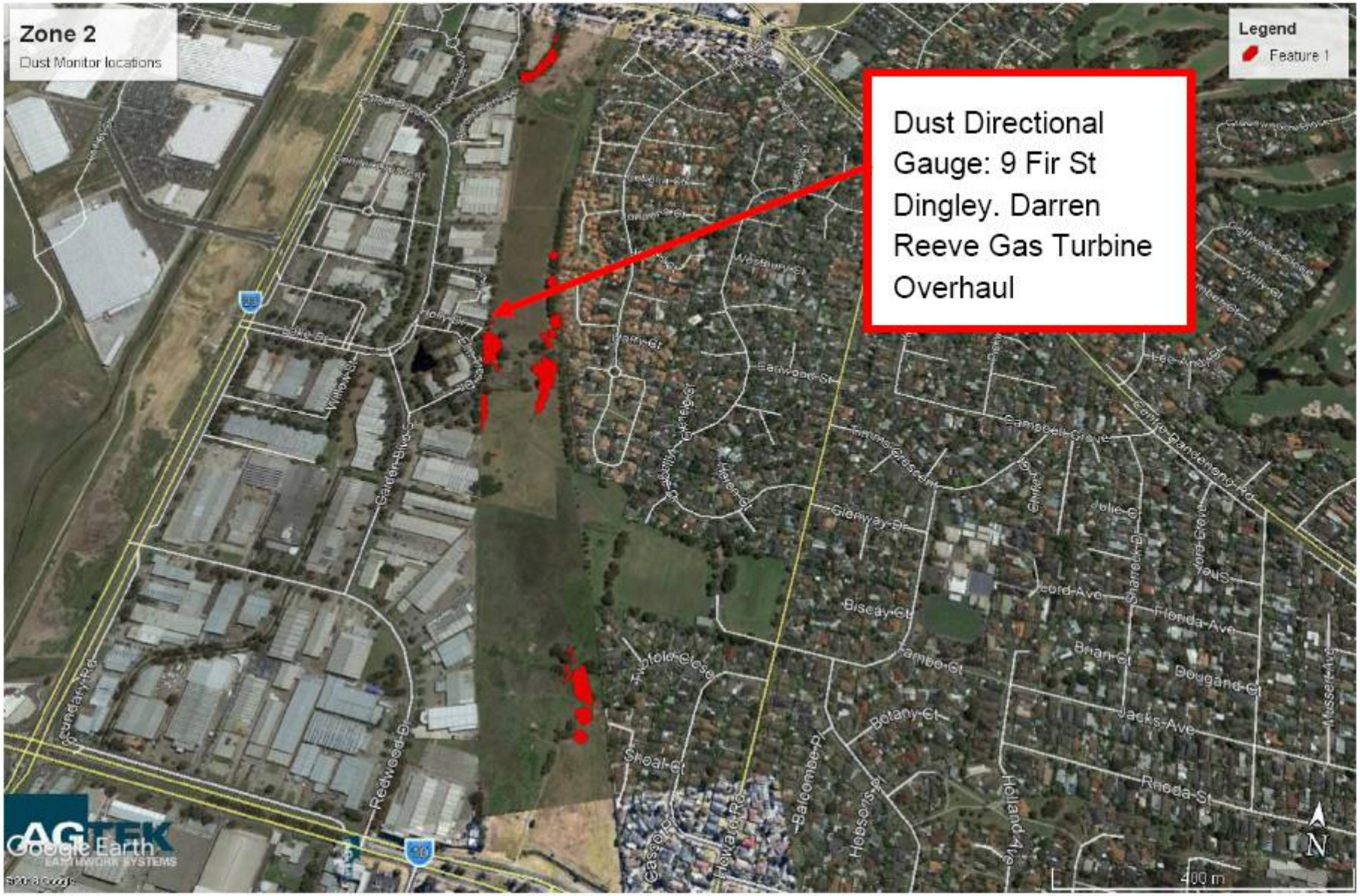

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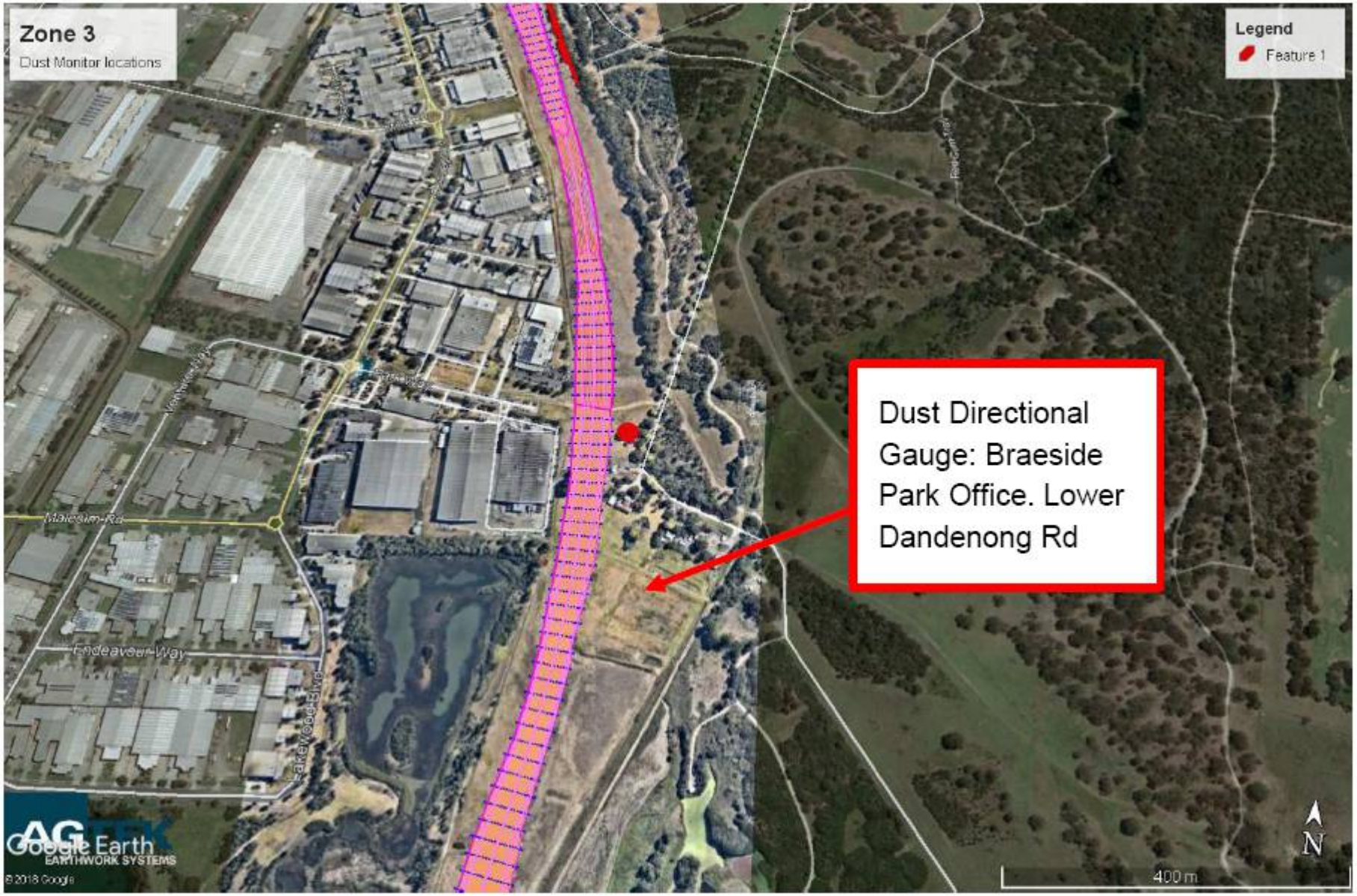

Appendix D – Water Monitoring Locations