Annual Compliance Report 2016
Proposed commercial development, including earthworks, construction of roads and services infrastructure in the Wirraway North Precinct, Essendon Airport, Essendon Fields, Victoria (EPBC 2014/7213)

Reporting Period:
7 May 2015 to 7 May 2016

Summary of Works during the Period:
Land clearing and bulk earthworks were undertaken during the period, followed by construction of new roads to extend the road network into the site and construction of services infrastructure for, electricity supply, street lighting, water, sewer and stormwater.

Additionally, construction of the first three commercial developments (three car dealerships) commenced and was substantially completed during the period.

The evolution of site works is illustrated in the annotated aerial photographs in **Attachment 1**.

Department of the Environment (DoE) condition attached to the approval	Compliant / Non-Compliant / Not Applicable	Evidence / Comments
1. The person taking the action must ensure the action does not occur outside of the **project area** as illustrated at **Annex 1.**	Compliant	The action has not occurred outside of the project area, as demonstrated by site works photos in **Attachment 1** and the Project Area site plan in **Attachment 2**.
2. Prior to the **commencement of construction** the person taking the action must implement the **Construction Environmental Management Plan** including but not limited to:	Compliant	Construction works commenced 7 May 2015, as advised in EAPL's letter to DoE dated 13 May 2015. Prior to the commencement of construction, EAPL implemented the approved Construction Environmental Management Plan with its construction contractor Georgiou Group Pty Ltd. The layout of sediment controls implemented by the contractor are summarised in **Attachment 3**.
a. adequate sedimentation and erosion control measures are in place for major storm events to prevent runoff onto adjacent properties, including surface detention basin/s that hold a volume equivalent to a 10 year **Average Recurrence Interval** event; and	Non-compliant	A rain event on Sunday 12th July 2015, whilst less than a 1 in 10 year event, was not contained by a temporary stormwater basin, resulting in flooding in the north-east corner of the site and two adjoining properties. The construction contractor was instructed to comply with the CEMP requirement and provide proof that the requirements were met. A temporary pump was installed and installation of the pump tank was brought forward, to provide additional detention storage. Following the incident and implementation of additional controls, stormwater runoff was captured in the north eastern corner of the

b. if **potential asbestos containing material** is encountered, management arrangements must follow the processes for the removal and disposal of waste asbestos, as prescribed in the *Victorian Occupational Health and Safety Regulations 2007.*		site, stored in the pump tank and then pumped into the south eastern swale which is capable of containing a 1 in 100 year rain event. The contractor's calculations outlining that these additional measures are capable of containing a 1 in 10 year ARI is included at **Attachment 4**. No further flood events occurred after these additional controls were implemented. Asbestos was encountered on two occasions through the ACS3 construction works. On the first occasion an Asbestos Management Plan was developed by the contractor Georgiou (Georgiou Work Management Plan for the removal of Asbestos) in line with Victorian Occupational Health and Safety Regulations 2007. This plan was reviewed and approved by the Airport Environment Officer at the time, Mr Bryan Perry and enacted shortly thereafter. In line with the plan all works were undertaken under the supervision of a hygienist. On the second occasion the contaminated material was inspected by a hygienist, cleared and secured. This was followed by a clearance certificate from the hygienist.
3. To minimise adverse impacts from stormwater runoff as a result of land use changes at the **project area,** the person taking the action must implement the following measures as outlined in the **Stormwater Strategy Report:** a. on-site detention/s to reduce the **legal point of discharge** from the 10 year **Average Recurrence Interval** post development peak flow rates to the 5 year **Average Recurrence Interval** pre-development peak flow rates in accordance with the *Moonee Valley City Council Stormwater Drainage Requirements for Development Works* (2003); b. convey the majority of a 100 year **Average Recurrence Interval** event in drainage networks and flow paths to the **legal point of discharge;** and	Compliant	Measures outlined in the Stormwater Strategy Report have been implemented/constructed.

c. design and implement **water sensitive urban design** measures in accordance with *Melbourne Waters MUSIC Guidelines* (December 2010) and the CSIRO *Urban Stormwater- Best Practice Environmental Management Guidelines* (2006).		
4. Prior to the commencement of **high risk operational activities, tenants** must develop and implement an **Operational Environmental Management Plan** in consultation with **Airport Management** and the **Airport Environment Officer.** Within a month of commencement of **high risk operational activities,** the approval holder must notify the Department in writing and provide a copy of the **Operational Environmental Management Plan.**	Not Applicable.	No high risk operational activities have commenced.
5. Prior to **commencement of construction** the person taking the action must establish at least 6.6 ha of **NTGVVP Offset** at the **Terrinallum South Property** to compensate for the complete loss of **NTGVVP** at the **project area.** Any proposal for an alternative offset must be agreed to in writing with the **Department.** The person taking the action must: a. enter into an **Agreement** under section 173 of the *Planning and Environment Act 1987,* to secure a **NTGVVP Offset** at the **Terrinallum South Property**, as identified in **Annex 2;** b. provide the **Department** with the offset attributes, shapefile and map(s) clearly defining the location and boundaries of the **NTGVVP Offset,** within 2 weeks of lodgement at the **Titles Office;** and c. ensure the **Agreement** is registered on the title on which the **NTGVVP Offset** is located and provide the **Department** with a signed copy of the **Agreement** and evidence of lodgement with the **Titles Office** within 2 weeks of lodgement.	Compliant	The NTGVVP Offset has been established at the Terrinallum South Property, as confirmed in EAPL's letter to DoE dated 13 May 2015. Complete. Complete The Agreement was registered on the land title for the Terrinallum South Property on 5 May 2015, by Dealing Number AL860292S. EAPL provided a signed copy of the Agreement to the Department on the 13th May 2015.

6. The person taking the action must ensure the **NTGVVP Offset** is managed in accordance with the **NTGVVP Offset Management Plan** for a period of at least 10 years from the date of execution of the **Agreement.**	Compliant	Land Holder Monitoring Report Number 1 (May 2016) was prepared by the landowner/manager of the offset site and provided to DoE 20 May 2016.
7. Within seven (7) calendar days after the **commencement of construction,** the person taking the action must advise the **Department** in writing of the actual date of **commencement of construction.**	Compliant	Construction works commenced 7 May 2015, as advised in EAPL's letter to DoE dated 13 May 2015.
8. The person taking the action must maintain accurate records substantiating all activities associated with or relevant to the conditions of approval, including measures taken to implement management plans and make them available upon request to the **Department.** Such records may be subject to audit by the **Department** or an independent auditor in accordance with section 458 of the **EPBC Act,** or used to verify compliance with the conditions of approval. Summaries of audits will be posted on the **Department's** website. The results of audits may also be publicised through the general media.	Compliant	Noted. Records have been maintained by EAPL.
9. Within three months of every 12 month anniversary of the **commencement of construction**, the person taking the action must publish an annual report on their website addressing compliance with each of the conditions of this approval, including implementation of any management plans as specified in the conditions. Documentary evidence providing proof of the date of publication and non-compliance with any of the conditions of this approval must be provided to the **Department** at the same time as the annual report of compliance is published. The person taking the action must continue to publish the annual report until such time as agreed in writing by the **Minister.**	Compliant	This report is required to be published to EAPL's website by 7 August 2016 and was published on Friday 5th August 2016.
10. The person taking the action must notify the **Department** in writing of any non-compliance with conditions no later than two (2) business days of becoming aware of the noncompliance.	Non-compliant	As noted above, controls in place to prevent runoff into adjacent properties during a major rain event roved to be inadequate on one occasion. The Department was not notified of this non-compliance. However, additional measures were implemented and no further flood events occurred.

11. Upon the direction of the **Minister,** the person taking the action must ensure that an independent audit of compliance with the conditions of approval is conducted and a report submitted to the **Minister.** The independent auditor must be approved by the **Minister** prior to the commencement of the audit. Audit criteria must be agreed to by the Minister and the audit report must address the criteria to the satisfaction of the **Minister.**	Not Applicable	An independent audit has not been directed by the Minister.
12. If the person taking the action wishes to carry out any activity otherwise than in accordance with management plans as specified in the conditions, the person taking the action must submit to the **Department** for the **Minister's** written approval a revised version of that management plan. The varied activity shall not commence until the Minister has approved the varied management plan in writing. The **Minister** will not approve a varied management plan unless the revised management plan would result in an equivalent or improved environmental outcome over time. If the **Minister** approves the revised management plan, that management plan must be implemented in place of the management plan originally approved.	Not Applicable	
13. If the **Minister** believes it is necessary or convenient for the better protection of listed threatened species and ecological communities, the **Minister** may request that the person taking the action make specified revisions to the management plans specified in the conditions and submit the revised management plans for the Minister's written approval. The person taking the action must comply with any such request. The revised approved management plans must be implemented. Unless the **Minister** has approved the revised management plans then the person taking the action must continue to implement the management plans originally approved, as specified in the conditions.	Not Applicable	
14. Unless otherwise agreed to in writing by the **Minister,** the person taking the action must publish a copy of each approved management plan referred to in these conditions of approval on	Compliant	The approved management plans are published at the link below: http://www.essendonairport.com.au/planning/epbc-act-assessments

their website within one (1) month of approval of the management plan. Each management plan(s) must be accessible to general members of the public for a period of at least 10 years from the date of approval of the management plan(s). Any variations to management plans must be published on the website within one (1) month of the variation being approved by the **Minister.**		
15. If, at any time after five (5) years from the date of this approval, the person taking the action has not **substantially commenced** the action, then the person taking the action must not **substantially commence** the action without the written agreement of the **Minister.**	Not Applicable.	The action commenced 7 May 2015.

Declaration of accuracy

In making this declaration, I am aware that sections 490 and 491 of the *Environment Protection and Biodiversity Conservation Act 1999* (Cth) (EPBC Act) make it an offence in certain circumstances to knowingly provide false or misleading information or documents. The offence is punishable on conviction by imprisonment or a fine, or both. I declare that all the information and documentation supporting this compliance report is true and correct to the best of my knowledge. I am authorised to bind the approval holder to this declaration and I have no knowledge of that authorisation being revoked at the time of making this declaration.

Essendon Airport Pty Ltd

Chris Cowan
Chief Executive Officer
5 August 2016

Attachment 1: Annotated Aerial Photographs

Photo Date: 17 May 2015
Comments on construction progress:

- Site establishment commenced
- Some site sheds and plant delivered

Attachment 1: Annotated Aerial Photographs

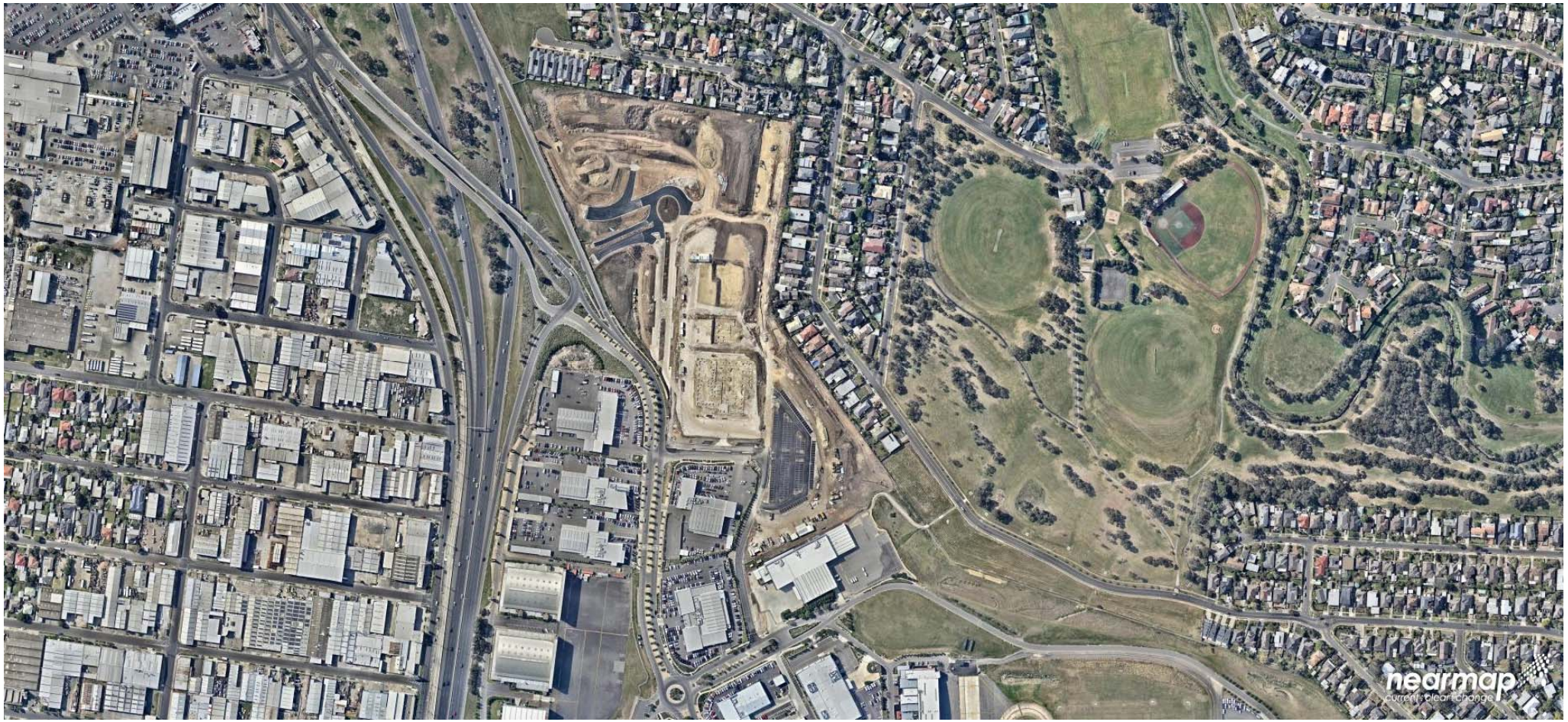


Photo date: 4 October 2015
Comments on construction progress:

- Site stripped and majority of bulk earthworks complete
- Construction of 3 car dealership sites commenced
- Southern car park complete
- Construction of extension to Wirraway Road well underway
- Sewer and stormwater substantially complete

Attachment 1: Annotated Aerial Photographs

Photo Date: 16 December 2015
Comments on construction progress:

- South car park and service road open
- New Wirraway Road alignment complete
- Construction of 3 car dealerships well underway
- Street lighting commissioned
- Landscaping works underway

Attachment 1: Annotated Aerial Photographs

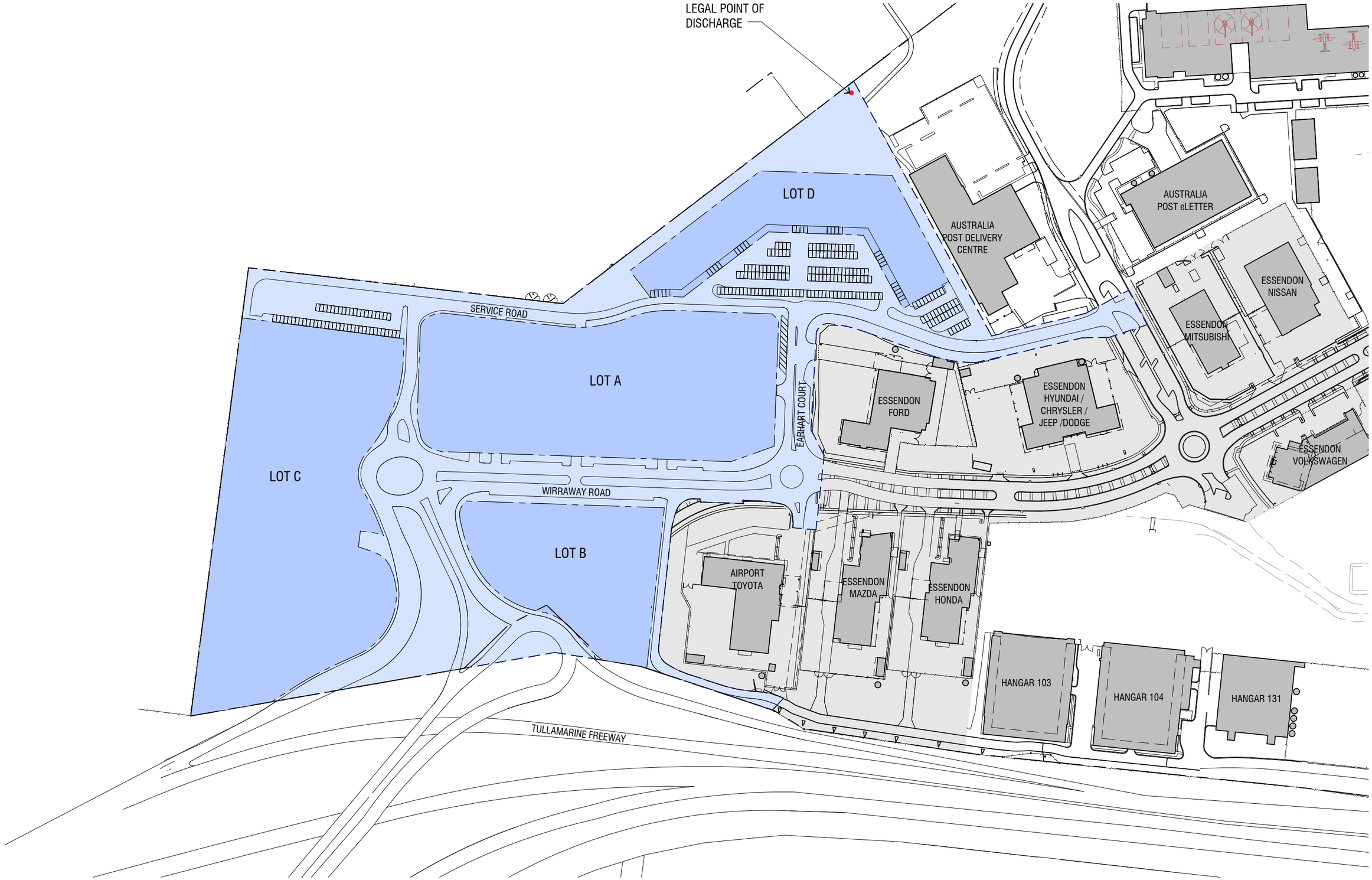
Photo Date: 4 February 2016
Comments on construction progress:

- Construction of 3 car dealerships continues
- Landscaping of Wirraway Road complete
- All roads open, except rear (eastern) link road

Attachment 1: Annotated Aerial Photographs

Photo Date: 4 April 2016
Comments on construction progress:

- Landscaping of freeway entry and exit ramps complete
- Majority of fill material removed from site
- Landscaping of eastern batter underway



AUTOCENTRO STAGE 3 AREA (EPBC 2014/7213 PROJECT AREA)

EXISTING AUTOCENTRO PRECINCT

N

P:\Cad Drawings\EAC\Temp\140813.ACS3 GRASSLANDS OVERLAY.DWG
SHEET FILES:ESSPORT-ACS3-BASEPLAN2.dwg
LAYOUT1

Drawing Title: AUTOCENTRO PROPOSED STAGE 3 AREA

Drawing Status: INFORMATION

Scale	Drawn	Checked	Date
NTS	SM	-	27.03.2015

Drawing Number: ESSPORT-ACS3-BASEPLAN2

Revision: A

Plotted: 27.03.2015 12:43

Sheet size: A3

ATTACHMENT 3

The following have been identified as significant environmental aspects for the site:

ENSURING SEDIMENT LADEN RUNOFF OR OTHER CONTAMINANTS DO NOT LEAVE SITE

These aspects shall be managed with the environmental protection measures outlined on this plan.

Site EMP A1 Plan (1)- Types and Locations of Environmental Protection Measures

Project Name: Essendon Fields Auto Centro Stage 3

Date and Revision: 25/05/2015 Rev 01

Management

1. Responsibilities:
General enquiries regarding this plan and its implementation shall be directed to Georgiou. Enquiries with regard to the design and implementation of environmental controls shall be directed to Essendon Fields.
Individual contractors shall provide each of the protective measures as detailed within this EMP and be responsible for the correct implementation of the EMP. Contractors shall read, sign and understand the EMP prior to commencing any works on site.
Environment Contact 1: Supervisor: Ben Gargiulo
2: Project Manager: Adrian Brady

2. Communication of EMP Requirements:
Staff will be inducted to EMP requirements during site induction and familiarisation. Staff will be required to sign the EMP to acknowledge they have received the training and understand the requirements. The EMP will be made available within the site office.

3. Inspections and Maintenance:
Refer to the EMP inspection checklist for further detail.
Monitoring will occur as part of weekly operations to identify issues which may lead to environmental impacts and longer term periodic monitoring to determine long term trends. Particular attention shall be given to rain events: prior to, during and proceeding. Inspections during rain events shall occur more regularly. Monitoring will generally be in the form of visual inspections. Any deficiency shall be rectified by the responsible contractor within 12 hours of notification.

4. Staging of Works:
Works will be staged to best benefit the site's conditions.

5. Informing Residents:
Essendon Fields in conjunction with Georgiou have notified local residence of construction activities, this was undertaken by a letter drop and postal.

6. Associated Documents:
Refer to the main EMP report

Noise

Risk: ~~Significant~~/Med/~~Low~~

Requirement: EPA Victoria and Council requirements must be adhered to in relation to the level of noise and working hours, to ensure that residents and other applicable neighbours to the site are not disturbed unreasonably.

7. Working Hours:
07.00 to 18.00 Monday - Friday
07.00 to 14.00 Saturday

8. Noise Minimisation Methods:
Fitting and maintaining appropriate mufflers on earth-moving and other vehicles on-site.

9. Other:
Noise levels shall be in accordance with the EPAVs criteria and guidelines and the Superintendent shall contact the EPAV and the Municipal Council where excessive noise is noted. Enforce the use of hearing protection equipment as required by the works

Dust

Risk: Significant/~~Med/Low~~

Requirement: Dust generation must be minimised to ensure there is no health risk or loss of amenity.

10. Minimising Dust Generation:
It is the responsibility of the Contractor to ensure that machinery and vehicles operated on site are regularly maintained in accordance with manufacturer's specifications.

12. Contingencies:
At times when generation in quantities is likely, a water cart shall be maintained on the site for immediate use.
Works should be relocated to areas less affected (if possible). If such an area cannot be found works methods should be reviewed immediately.

11. Dust Suppression:
Dust generated by either moving plant or wind shall be controlled by application of water on exposed surfaces, including access roads.

13. Other:

Erosion and Sediment

Risk: Significant/~~Med/Low~~

Requirement: Erosion and sediment must be managed in accordance with current best practice environmental management practices, to prevent sediment-laden water from entering any drainage system or natural waterway.

14. Drainage Management
Protective measures to the approval of the Responsible Authority, City West Water and EF will be provided to control runoff from the land and ensure that polluted and sediment-laden runoff is diverted and does not enter drains, roadways and watercourse downstream.
Where construction activity permits, earthworks shall be kept clear of water and sediment laden water shall not enter adjacent waterways. Discharged water shall be either:

- Surface drained by gravity or removed by pumping to a sediment basin/trap/pond which provides adequate retention and settling time, or
- Where necessary the use of weirs or hay bales to be used as means of filtering

17. Sediment Traps:
All erosion and sediment control works will be inspected every week and within 12 hours after heavy rain.
Silt traps shall be incorporated in to the drainage controls to minimise the silt discharge to native flora and fauna, archaeological/heritage sites of significance, or waterways.

18. Dewatering:
Treat contaminated water from the stormwater system or natural waterway to remove sediment if the turbidity exceeds 30 NTU. Ensure the level of suspended solids in water discharged to natural waterways never exceeds the regulatory water quality standard.

15. Soil Stabilisation:
During Construction:
Erosion can be minimised by minimising the area of disturbed soil. Wind erosion from stockpile areas to be minimised by spraying with water as needed, rolling off surface or back-bluding.
Sensitive areas such as haul roads, batter, scoured drainage outfalls to be periodically compacted and reformed.
Post Works:
EF to undertake landscaping as soon as construction activities allow this to occur.

16. Stockpile Protection:
Stockpiles are to be placed on the Northern side of the site. Stockpiles shall be located away from sensitive receptors and shall be constructed in a manner to ensure that they do not contribute sediment-laden runoff to waterways or areas of native vegetation, and to ensure that erosion is controlled. Protective measures to the approval of the Responsible Authority will be provided to control runoff from stockpiles and ensure that polluted and sediment-laden runoff does not enter existing drains, roadways and watercourse downstream. Stockpiles shall be constructed with appropriate batters and slopes to ensure that occupational health and safety requirements are satisfied. Stockpiled areas must be maintained, have adequate drainage and must be appropriately rehabilitated afterwards. Stockpiling of rock/soil for future use will only occur in the designated stockpile areas.

19. Vehicle and Road Management:
Site Access:
Site access to be from the designated entry and exit points only
Cleaning Vehicles:
Vehicles are to be cleaned prior to leaving the site
Wheel washes and/or Rumble Grids are to be installed at all entry/exit points
Crushed rock pads to be provided at entry and exit points to prevent sediment from leaving site
Street Cleaning:
Entrance and exit points to the existing road network are to be monitored daily or following a rainfall event.
Roads are to be maintained in a state free of sediment.

20. Other:
Maintenance of such temporary drains, pumps and other equipment will occur as necessary to protect the works, native flora and fauna, archaeological/heritage sites of significance, or waterways

Waste

Risk: ~~Significant/Med~~/Low

Requirement: Litter and waste must be contained on site, before disposal in a responsible manner. Waste generation must be minimised.

21. Movement of Soil : ~~Off site/ On Site~~/ N/A
Contaminant Status: Clean Fill

23. Waste Storage and Disposal:
All construction generated recycled waste material to be disposed of by the contractor.

22. Waste Minimisation Methods:
Reduce, Reuse and Recycle materials where appropriate. A waste minimisation and recycling program will be implemented where specified. This will include solid inert waste, which is suitable for on-site reuse and which is considered non-hazardous. Advice will be sought from Sustainability Victoria and the Superintendent prior to selecting materials for reuse.

24. Other:
The Site is to be properly signed and barricaded to prevent unauthorised disposal of waste material on the Site by others. Any rubbish or waste deposited is to be cleared from the Site by the Contractor immediately.

Chemicals

Risk: ~~Significant/Med~~/Low

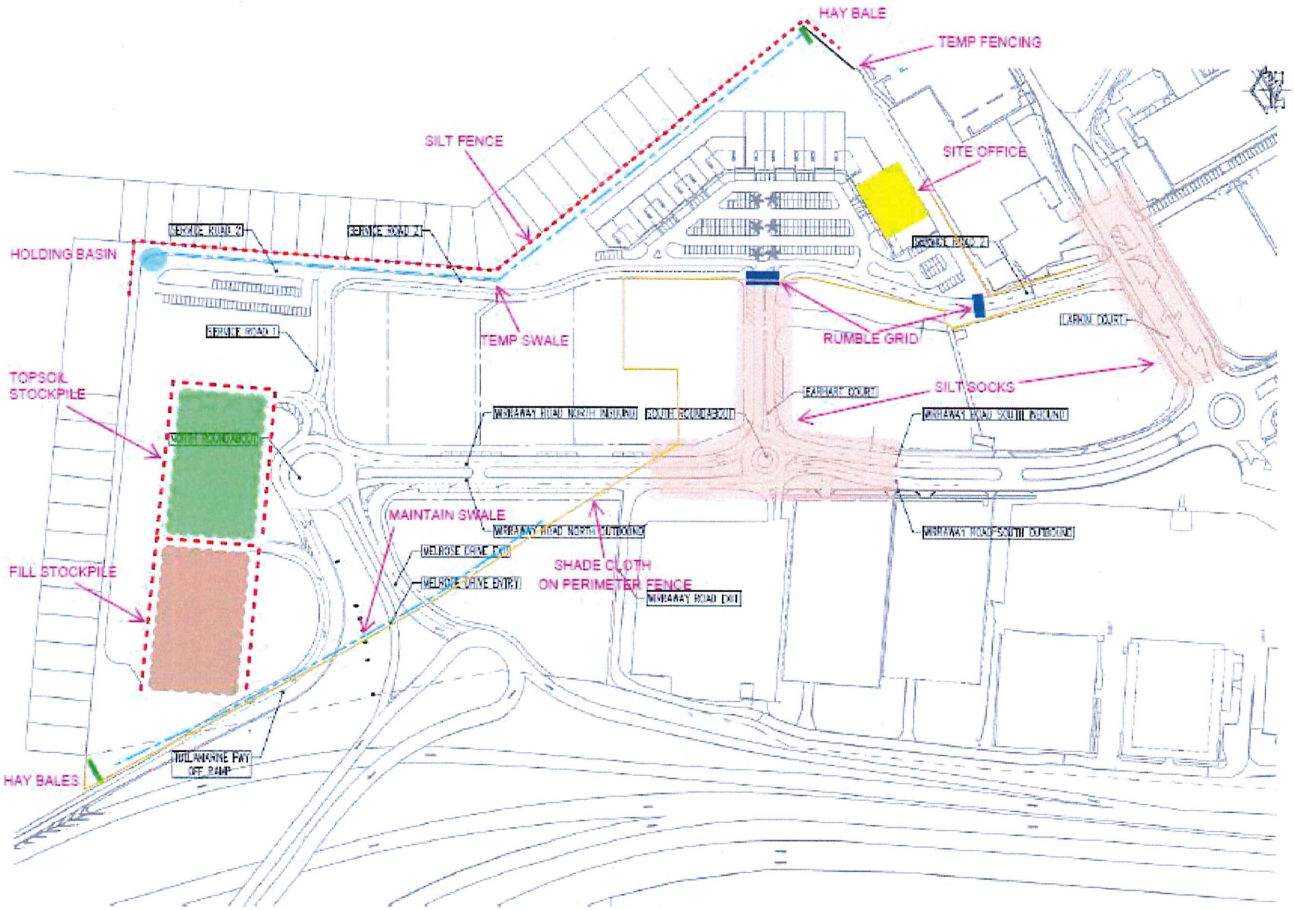
Requirement: Storage and spill management practices must be implemented to ensure that no environmental damage can result from the escape or spillage of chemicals or fuels.

25. Storage:
Hazardous materials stored on site shall be clearly labelled and signed as to their nature and risk warnings. A register of hazardous materials stored on the site will be maintained, and an emergency response plan in the event of an accident. All personnel, working in possible contact with hazardous chemicals or materials, will be trained in material storage and procedures to be followed in the event of an emergency.

26: Spill Management:
The Contractor shall provide on-site and have access at all times to a hydrocarbon spill kit

27. Refuelling Procedure:
The Contractor shall restrict re-fuelling and maintenance of vehicles, plant and machinery to a designated re-fuelling and maintenance area. Re-fuelling shall not be undertaken outside this area. The designated re-fuelling and maintenance area shall be appropriately highlighted, where possible, to ensure that fuel product does not adversely impact on surrounding areas in the event of a fuel spill. Emergency procedures in accordance with SMP will be implemented in the event of fuel or hazardous chemical spills. These emergency procedures will also be implemented in the event of a chemical fire.

28. Other:
Remediation of the refuelling areas may be required at completion of the work or in the event of a major spill.



Other Site Specific Issues

Significant Flora/ Fauna Risk: Significant/~~Med/Low~~

Requirement: All significant flora and fauna on and adjacent to the site must be protected.

29. Yes/No, Details:

Archaeological/ Heritage Risk: ~~Significant/Med~~/Low

Requirement: Places, sites and objects of archaeological or heritage significance must be protected.

30. Yes/No, Details:

☐ Risk: Significant/Med/Low

31.

☐ Risk: Significant/Med/Low

32.

I have read this Environmental Management Plan and agree to undertake works and ensure sub-contractors undertake works in accordance with this plan. Developer Consultant Contractor

RISK ASSESSMENT CHECKLIST

Noise

Issues:
- Nature of Noise Generating Works: Vehicles, machinery, construction activities
- Potential Noise Receptors: Surrounding residents / Contractors

Likelihood: **Likely**
Consequence: **Minor**
Overall Risk: **Medium**

Dust

Issues:
- Dust Sources: Construction areas, roadways, stockpiles
- Potential Dust Receptors: Surrounding residents / Contractors
- Extent of Exposed Earth and Duration of Time Exposed: Project duration
- Wind Conditions: northerly winds during summer and south westerlies during winter

Likelihood: **Likely**
Consequence: **Moderate**
Overall Risk: **Significant**

Erosion and Sediment

Issues:
- Erosion and Sediment Sources: Stockpiles, construction areas, exposed soil areas
- Potential Erosion and Sediment Receptors: Stormwater system, local waterways
- Proximity of Works to Erosion and Sediment Receptors: 50m
- Extent of Exposed Earth and Duration of Time Exposed: Project duration
- Slope: 1:3 is the maximum
- Site Drainage Regime: Overland flow during construction, then to engineered drainage system once complete
- Rainfall: Variable
- Vehicle Movements On and Off Site: To be kept to a minimum and to VMP
- Site Specific Controls: Refer to details

Likelihood: **Likely**
Consequence: **Major**
Overall Risk: **Significant**

Waste

Issues:
- Nature of Waste to be Generated: Litter, some construction products, illegally dumped materials
- Presence of Waste on Site Prior to Work Commencement: It is understood pre-existing wastes have been removed including UXO.
- Quantity of Waste Anticipated: Minimal
- Potential Waste Receptors: Surrounding residents

Likelihood: **Unlikely**
Consequence: **Minor**
Overall Risk: **Low**

Chemicals

Issues:
- Types of Chemicals and Fuels Used and/or Stored On Site: Diesel fuels primarily, some vehicle hydraulic fluids and oils
- Quantities of Chemicals and Fuels Used and/or Stored On Site: To be defined by Contractor
- Potential Chemical Receptors: Surrounding residents / contractors / waterways

Likelihood: **Rare**
Consequence: **Minor**
Overall Risk: **Low**

Significant Flora/ Fauna

Issues:
- Types of Flora / Fauna: Typical flora / fauna assemblages associated with volcanic plains grasslands.
- Work Activities Which May Threaten Flora / Fauna: Earthmoving, earth placement and excavation
- Potential Impacts on Flora / Fauna: Habitat loss

Likelihood: **Rare**
Consequence: **Minor**
Overall Risk: **High**

Archaeological/ Heritage

Issues:
- Traditional Land Owners Consulted? Yes / No [EF]
- Survey or Assessment Conducted? Yes / No / Not Required
- Probability of Encountering Archaeological/ Heritage Items During Works:
- Types of Archaeological/ Heritage Items On Site:
- Proximity of Archaeological/ Heritage Items to Works On Site:
- Work Activities Which May Threaten Archaeological/ Heritage Items:
- Potential Impacts on Archaeological/ Heritage Items:

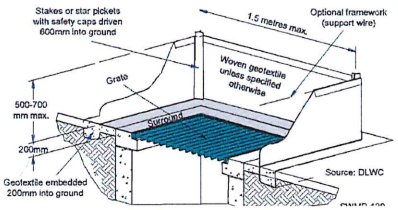
Likelihood: **Rare**
Consequence: **Minor**
Overall Risk: **Low**

Site EMP A1 Plan (2)- Risk Assessment and Designs of Environmental Protection Measures

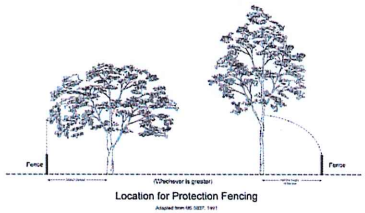
Project Name:
Date and Revision:

Environmental protection measures shall be constructed in accordance with the following designs.

1. Geotextile Inlet Guard – Phase B**



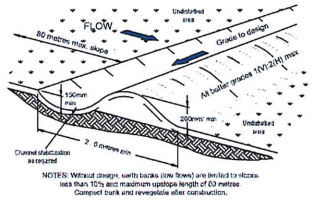
2. Tree Protection Detail – Phase A/B



Tree Protection Fencing
Tree exclusion zones are to be constructed to the following requirements:
- Flag off any effecting trees
- Posts must be sunken into the ground by 450mm
- The exclusion zone is to be clearly signposted

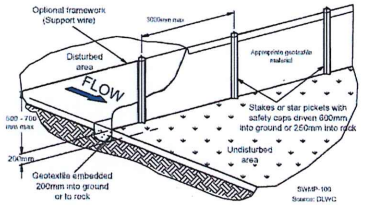
i.e. **No Go Zone**

3. Low Flow Earth Bank – Phase A**



4. Inlet Filter Bag – Phase B**

5. Silt Fence – Phase A**



6. Geotextile Pit Guard

☐

Issues:

ALL CONTRACTORS TO IMPLEMENT AND ADHERE TO THE GUIDELINES AS DESCRIBED WITHIN THIS EMP. PLEASE REFER TO ALL ASSOCIATED DOCUMENTS AND DETAILED DESIGN DRAWINGS FOR EXACT LOCATION OF ELEMENTS.
ALL CONTRACTORS TO IMPLEMENT, MONITOR AND REVIEW ENVIRONMENTAL PROTECTIVE MEASURES ON A STAGE BY STAGE BASIS.

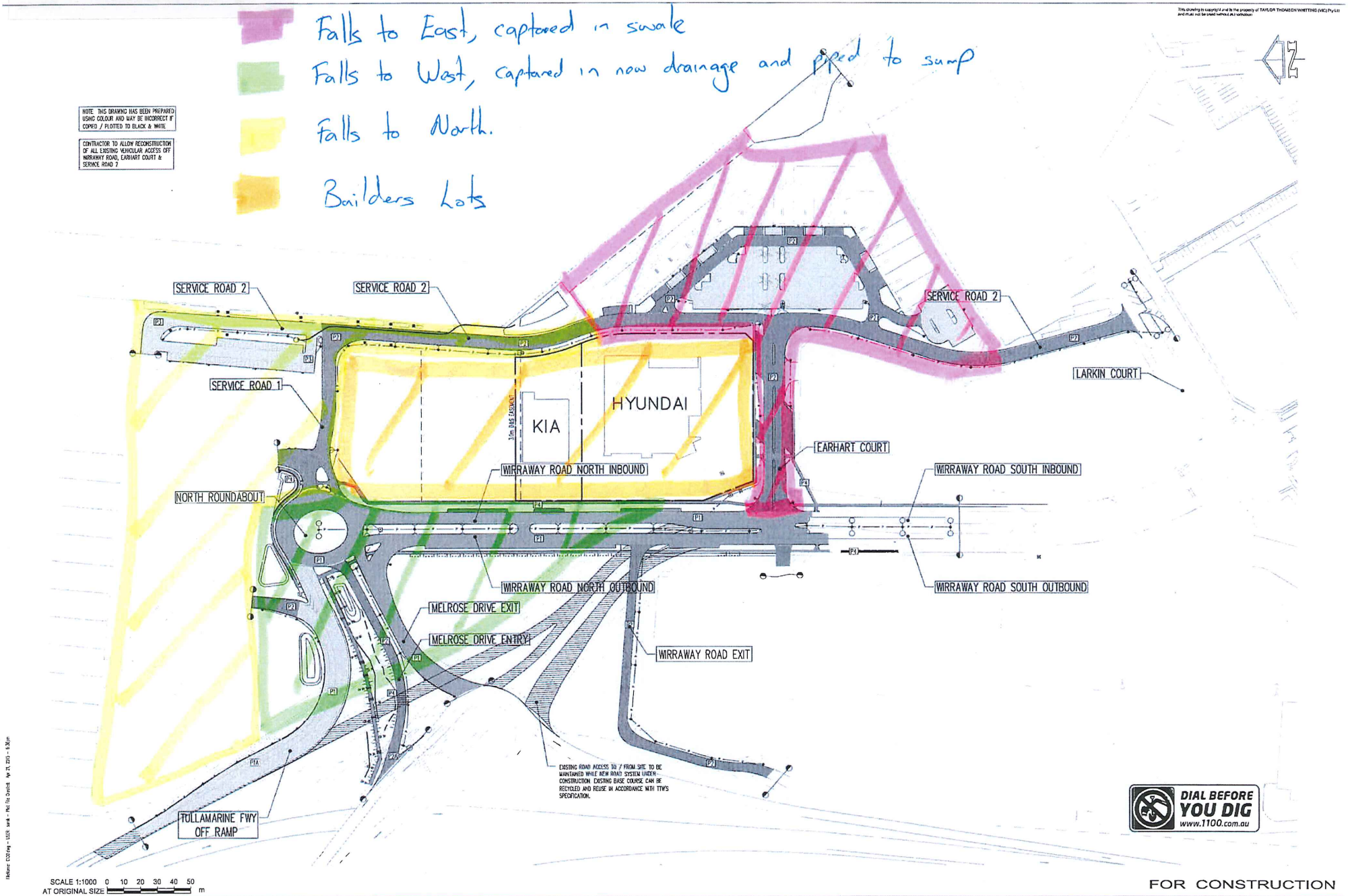
Likelihood
Consequence
Overall Risk

☐

Issues:
-
-
-
-
-

Likelihood
Consequence
Overall Risk

ATTACHMENT 4



FOR CONSTRUCTION

Rev	Description	Eng	Draft	Date
0	ISSUED FOR CONSTRUCTION	JB	SK	31.04.15

Client: ESSENDON FIELDS

TaylorThomsonWhitting
Consulting Engineers
Level 12, 190 Queen Street Melbourne VIC 3000
T +61 3 9602 1433 F +61 3 9602 4040 ttwvic@ttw.com.au

Project: AUTO CENTRO STAGE 3 ESSENDON FIELDS

Sheet Subject: PAVEMENT TYPE LIMITS PLAN

Scale - A1	Drawn: SK	Authorised
1:1000	RV	

Job No	Drawing No	Revision
134007	C100	0

Plot File Created: Apr 21, 2015 - 6:36pm

Rainfall Storage Volume

Area 1 - Green Current	21,000 m2		Runoff	0.9
	mm/hr1:2	Volume 1.2 (m3)	mm/hr 1:10	Volume 1.10 (m3)
2hr	24	453.6	37	699.3
6hr	35.4	669.1	52.32	988.8
24hr	56.64	1070.5	83.76	1583.1
3 day	74.88	1415.2	116.64	2204.5

Area 2 - Green Future	10,000 m2		Runoff	0.9
	mm/hr1:2	Volume 1.2 (m3)	mm/hr 1:10	Volume 1.10 (m3)
2hr	24	216.0	37	333.0
6hr	35.4	318.6	52.32	470.9
24hr	56.64	509.8	83.76	753.8
3 day	74.88	673.9	116.64	1049.8

Area 3 - Yellow Current	36,000 m2		Runoff	0.9
	mm/hr1:2	Volume 1.2 (m3)	mm/hr 1:10	Volume 1.10 (m3)
2hr	24	777.6	37	1198.8
6hr	35.4	1147.0	52.32	1695.2
24hr	56.64	1835.1	83.76	2713.8
3 day	74.88	2426.1	116.64	3779.1

Area 4 - Yellow Future	29,000 m2		Runoff	0.9
	mm/hr1:2	Volume 1.2 (m3)	mm/hr 1:10	Volume 1.10 (m3)
2hr	24	626.4	37	965.7
6hr	35.4	923.9	52.32	1365.6
24hr	56.64	1478.3	83.76	2186.1
3 day	74.88	1954.4	116.64	3044.3

Area 5 - Orange	18,000 m2		Runoff	0.9
	mm/hr1:2	Volume 1.2 (m3)	mm/hr 1:10	Volume 1.10 (m3)
2hr	24	388.8	37	599.4
6hr	35.4	573.5	52.32	847.6
24hr	56.64	917.6	83.76	1356.9
3 day	74.88	1213.1	116.64	1889.6

Water Catchment Requirements

	Area	1 in 2 year Volume (m3)	1 in 10 year Volume (m3)	Comments
Current				
Yellow	36000	800	1200	Assume 2hr event is worst case with pump keeping up with additional volume for 6 or 24 hr event
Green	21000	450	700	Assume all being taken by stormwater ag lines and pits.
New				
Yellow	29000	650	1000	Assume 2hr event is worst case with pump keeping up with additional volume for 6 or 24 hr event
Green	10000	220	350	Assume all being taken by stormwater ag lines and pits.
Orange	18000	400	600	Assume all is retaining within lots

Catchment	Volume (m3)	1 in 2 year	1 in 10 year	Comments
Current				
Northern Corner	1200	ok	ok	0.5m of depth to lower area
Future (no PS)				
Northern Corner	600	not ok	not ok	0.25m of depth to lower area
Future (PS)				
Northern Corner	240	ok final design	ok final design	0.1m kerb height, pump station in operation so drainage working