SECTION 177 - ENVIRONMENTAL MANAGEMENT (Major)

This section specifies the minimum environmental management obligations relating to the work to be constructed under this Contract. Additional contract specific requirements may be included in Section 100.

PART A - ENVIRONMENTAL MANAGEMENT
PART B - WATER QUALITY
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PART A - ENVIRONMENTAL MANAGEMENT

177.A1 INTRODUCTION

Works under the Contract shall be undertaken so that impacts on the environment are avoided or minimised. The Contractor shall ensure that the environmental objectives and measures outlined in the relevant State and Federal legislation are complied with.

The Contractor shall prepare a project specific Environmental Management Plan for the management of activities that impact on the environment in accordance with this specification.

##(strikethrough the following paragraph where the project is not identified as containing high environmental risk – seek advice from Operation Services):Work under the Contract includes activities which VicRoads has assessed as having potentially high environmental risk. The Contractor shall ensure a strong focus on environmental management is maintained whilst executing the work under the Contract, including the provision of staff with appropriate environmental skills and experience to manage these risks.

177.A2 DEFINITIONS

Ancillary Works Area – an area outside the defined Limit of Works where activities are undertaken that support the Contractor in the delivery of the project. This may include the establishment of site compounds, borrow areas, temporary sedimentation basins, and temporary works.

Contaminated Material – the presence of any chemical substance or waste that exists above the natural background level of the land or water and represents, or potentially represents an adverse health or environmental impact.

Cultural Heritage – Aboriginal heritage as defined in Section 4 of the *Aboriginal Heritage Act 2006 (Vic)* and cultural heritage and archaeological relic as defined in Section 3 of the *Heritage Act 1995 (Vic)*, including Aboriginal artefacts, scarred trees, burial sites, and historic bridges and buildings.

Cultural Heritage Advisor – a person who is appropriately qualified in a discipline directly related to the management of cultural heritage, such as anthropology, archaeology or history; or has extensive experience or knowledge in relation to the management of cultural heritage.

Cultural Heritage Management Plan (CHMP) – an overview of the heritage values of the project area and an outline of management processes and initiatives to be implemented to avoid or minimise impacts on those values during the course of the project.

Environmental Management Plan (EMP) – contractor's document that provides an overview of the environmental management processes to be utilised for work under the Contract, including procedures to protect the beneficial uses of the environment and details proposals/actions to be undertaken and controls to be implemented for the management of individual stages of work (defined by work activity and/or location) that impact on the environment.

Environmental Improvement Plan (EIP) – a plan prepared for approval of EPA to address the use of non-potable water and/or contaminated materials. The plan identifies potential risks to human and animal health, the environment and surrounding land use areas and details management options to mitigate the risks.

Environmental Incident – an event which results in or has the potential to result in the environmental requirements in this Contract being breached and occurs at any location where works under the Contract are performed.

Noise Sensitive Receptors – uses that may be affected by construction noise. During daytime hours this may include aged care homes, hospitals, schools, kindergartens, libraries and other noise sensitive community buildings.

Rain Event – when rainfall results in an off-site discharge, and/or when on-site construction activities are ceased due to rain, and/or rainfall occurs that requires monitoring as defined in the Rainfall Intensity Chart attached as Attachment A to this Section 177.

Tree Protection Zone - in accordance with AS 4970-2009 the Tree Protection Zone is the area enclosed by a radial distance from the centre of the trunk that is 12 times trunk diameter to a maximum of 15 metres. The trunk diameter is measured at 1.4 metres above ground.

Waterway – includes waterways as defined in the *Water Act 1989* and any natural collection of water (other than water collected and contained in a private dam or a natural depression on private land) whether or not the flow is continuous, as well as tidal and coastal water and groundwater.

177.A3 ENVIRONMENTAL MANAGEMENT PLANS

The Contractor shall be responsible for the preparation, implementation and other arrangements associated with the Environmental Management Plan (EMP). The EMP shall include, as a minimum:

(a) a statement of scope and purpose and the environmental objectives;

(b) a schedule of environmental elements that are expected to be affected by the works under the Contract including an outline of proposed mitigation treatments and proposed timeframes;

(c) the identification of work activities and an assessment of their potential impacts and associated risks to on-site and off-site environmental receptors (e.g. community, land uses, waterways, flora and fauna, cultural heritage, etc.) including times when the Contractor is not on site, including but not limited to matters covered in this specification;

(d) processes and responsibilities for -

- preparation and implementation of the EMP,
- reporting and investigation of environmental incidents or complaints relating to any environmental issue under the Contract,
- implementing an adaptive approach for the review and update of the EMP in conjunction with the assessment of the adequacy of the on-site implementation of controls and procedures as works progress and/or following non-conformances, complaints, or previously unidentified issues, and
- after hours response including arrangements for containing environmental damage and attendance on site in the event of an emergency;

(e) legal and other requirements - details of approvals, licences and permits necessary and their associated conditions to meet statutory requirements;

(f) competence, training and awareness - an induction and training plan to ensure that all site personnel (including subcontractors) understand the EMP and are aware how the EMP is to be implemented in relation to the works, including any possible emergency response procedures;

(g) operational control – the EMP shall document environmental procedures to manage all identified environmental elements to avoid or mitigate impacts. The procedures shall address the environmental protection requirements, including the requirements, where relevant, in Section177 Parts B to H and any specific environmental requirements in Section 100. These procedures shall include inspection and monitoring;

(h) scaled drawing(s) that clearly show the location and extent of environmental controls, modifications to existing control devices and monitoring locations;

(i) emergency preparedness and response - an emergency response procedure shall include processes for managing any environmental emergency on site, such as contacting relevant stakeholders and clean-up of the site;

(j) nonconformity, environmental incidents and corrective and preventative action procedures;

(k) audit - a documented process for audit of the EMP against the contract requirements, including the effectiveness of on-site environmental protection measures.

An EMP shall be prepared for any works undertaken in an ancillary works area.

HP The Contractor shall submit to the Superintendent for review an EMP not less than two weeks prior to the commencement of work. The EMP shall be submitted together with the signed 'Declaration – Environmental Plan Verification' in accordance with Clause 177.L1(a).

HP Work shall not commence until the:

- **Superintendent is satisfied that the EMP meets the requirements of the specification for that stage of work;**
- **controls detailed in the EMP relevant to that stage of work are implemented.**

Control measures identified in the EMP shall be installed prior to works commencing, or at the programmed timing for their implementation. Control measures shall be maintained in working order for the duration of the associated works.

The Contractor shall submit together with the EMP a checklist to demonstrate that each requirement in Section 177 Parts B to K have been addressed in the Environmental Management Plan.

177.A4 TRAINING

(a) Prior to commencement of works on-site, the Contractor shall ensure that all personnel are informed of the environmental issues and specific risks associated with the project and the required management and mitigation measures to address these risks.

(b) Environmental Protection Awareness Workshop

Prior to commencement of works on-site, the Contractor shall ensure that personnel directly involved in the development and implementation of EMPs, EIPs, and the monitoring, installation and maintenance of control measures for this Contract attend an environmental workshop to review the environmental issues associated with the site. The Contractor shall liaise with the Superintendent to determine the agenda of the workshop.

177.A5 PERMITS

The Contractor shall be responsible for obtaining all necessary permits and approvals from the relevant authorities, other than those already obtained by VicRoads. Copies of all relevant documentation relating to permits and approvals obtained by the Contractor shall be provided to the Superintendent within one week of their receipt and prior to any works relating to the permit commencing. Copies of all permits and approvals will be kept on site.

The Contractor shall be responsible for implementing any conditions identified in any permits whether obtained by VicRoads or the Contractor. All permits and associated conditions shall be identified in the EMP.

177.A6 DEVELOPMENT, IMPLEMENTATION AND MONITORING OF ENVIRONMENTAL MANAGEMENT PLANS

The Contractor shall engage a suitably experienced and skilled environmental management professional to prepare the Environmental Management Plan and manage and monitor all environmental issues and environmental treatments implemented during construction. The individual shall be full time on site and shall:

##(choose one of the following options and STRIKETHROUGH the option not required
Option 1 – for use where a project is assessed as containing low, medium or high absolute environmental risk;
Option 2 – for use where a project has been assessed as containing extreme absolute environmental risk(s) associated with significant environmental issues.)
:##(Option 1 – delete this author note before finalising document):

- have demonstrated competence and suitable experience in environmental management in a construction environment; and

- have successfully completed a nationally accredited training course which addresses management practices for erosion and sediment control (Green Card or equivalent).

##(Option 2 – delete this author note before finalising document):

- have the environmental management requirements of the Contract as their sole responsibility;

- have a minimum of five years experience in environmental management, with a minimum of two years environmental management experience in a road construction environment;

- have demonstrated competence and suitable experience in environmental management in a construction environment with high environmental risks and/or complex environmental issues;

- be eligible for membership with the Environment Institute of Australia and New Zealand (EIANZ), Engineers Australia or other appropriate affiliation;

- have successfully completed a nationally accredited training course which addresses management practices for erosion and sediment control (Green Card or equivalent).

Evidence to demonstrate conformance with these requirements shall be provided to the Superintendent in conjunction with the submission of the Environmental Management Plan in accordance with Clause 177.A3.

PART B - WATER QUALITY

177.B1 WATER

(a) General

The quality of water in waterways shall not be detrimentally impacted by runoff from the site.

(b) Monitoring

(i) General

Water quality and rainfall shall be monitored for the parameters identified in Table 177.B1.01 during all stages of construction to ensure that the water quality in the receiving waterways:

- does not vary between the upstream and downstream limits of the work site during the construction period (where upstream results become the background limits). The allowable variation between results shall be no more than twice the measurement uncertainty of the instrument; or
- is as agreed between the Contractor, the Superintendent and Environment Protection Authority Victoria (EPA).

The Contractor shall possess equipment on site that is capable of providing instantaneous monitoring of parameters as required in Table 177.B1.01. All equipment associated with monitoring shall be maintained and calibrated in accordance with the manufacturer's or equipment supplier's requirements.

*** **Table 177.B1.01 Construction Monitoring**

Parameter	Method
Turbidity – NTU	Measure with onsite meter
Electrical Conductivity (EC) – µS/cm	Measure with onsite meter
pH	Measure with onsite meter
Dissolved oxygen (DO) – mg/L	Measure with onsite meter
Temperature - °C	Measure with onsite meter
Litter (definition, including solid inert waste)	Visual (prevent litter from entering waterways and drainage systems)
Oils and Greases	Visual (No visible free oil or greases)
Rainfall	Measure with onsite meter capable of logging rainfall at a minimal interval of 10 minutes.
## Other parameters specific to the project:	##:

(ii) Dewatering

Water quality monitoring shall be undertaken when dewatering ponded water to receiving waterways or drainage infrastructure.

The quality of ponded water to be dewatered to receiving waterways shall not exceed 30 NTU or shall be equal to or better than the water quality in the receiving waterways if the turbidity in the receiving waterway is less than 30 NTU.

*** The pH of ponded water to be dewatered shall be within the range of ##(strikethrough the pH range that is not applicable, as defined in EPA Publication 960 – Section 4.4 Dewatering (Figure 37):##6.4 - 7.7: ##6.5 - 8.3:.

(iii) Bypass Pumping

Water quality monitoring shall be undertaken when bypass pumping water around works that is being undertaken within a waterway.

(iv) Locations

Monitoring shall be carried out:

- in waterways upstream and downstream of the limits of the site;
- at appropriate locations in waterways within the site including immediately upstream and downstream of each point source (or flow) entering along the length of waterways within the project site.

Details of all monitoring locations shall be maintained on the scaled drawings associated with the EMP. Monitoring sites must be accessible during all on-site activity and in all weather conditions.

Monitoring for dewatering activities will be undertaken:

- at the ponded water at the pump intake; and
- in the receiving waterways immediately upstream and downstream of the discharge point (within the mixing zone of the waterway and discharged water); or
- at the pump outlet where dewatering occurs into drainage infrastructure.

Monitoring for bypass pumping activities will be undertaken at locations immediately upstream and downstream of the pumping activity in the waterway.

(v) Timing

Monitoring shall be undertaken:

- immediately prior to work commencing;
- *** ##(edit as appropriate):daily / weekly / other;
- for each rain event as follows -
  - within one hour of commencement of rain event during working hours,
  - every four hours for periods of continuous rain during working hours, and
  - within 12 hours of a rain event, outside working hours;
- immediately prior to the commencement of and then hourly during dewatering and bypass pumping activities.

177.B2 GROUNDWATER

(a) General

The beneficial uses of groundwater shall not be adversely affected.

An assessment of the potential impact of the work under the Contract shall determine the beneficial uses to be protected as provided for in *State Environmental Planning Policy (Groundwaters of Victoria)* and *State Environmental Planning Policy (Waters of Victoria)* when groundwater is:

- expected to be encountered during works under the Contract – as part of the development of the EMP;
- unexpectedly encountered during works under the Contract – immediately after identification of the presence of groundwater.

The Contractor shall consider the beneficial uses, quality and quantity of groundwater when determining the ongoing management of groundwater (i.e. reuse, discharge, aquifer recharge). Such consideration shall be completed prior to the completion of related design and prior to commencement/continuation of related construction activities.

Where groundwater is unexpectedly encountered, a management plan shall be developed and implemented to manage the groundwater and protect beneficial uses in accordance with the requirements of the EPA. The Contractor shall undertake monitoring in accordance with the requirements of the EPA.

Groundwater encountered on site shall be assessed for the opportunity for reuse as a non-potable water source for the duration of the Contract if no higher fit for purpose use can be identified.

(b) Monitoring Locations

The Contractor shall undertake a visual assessment of the site for groundwater daily during all excavation activities.

177.B3 NON-POTABLE WATER

(a) General

Non-potable water sources shall be utilised as the primary source of water for all activities unless the Contractor can demonstrate to the Superintendent's satisfaction that the use of non-potable water is not practicable and feasible.

Where non-potable water is used an Environmental Improvement Plan shall be developed in accordance with VicRoads guidelines (refer Table 177.M1.01) and shall include the management of all activities related to the sourcing, transport, storage and use of the non-potable water.

The Contractor shall meet the following requirements, and include appropriate measures to meet these requirements in the Environmental Improvement Plan:

(i) the transport, storage and use of non-potable water shall be in accordance with the Environment Improvement Plan prepared for the contract;

(ii) the use of non-potable water shall not result in any off-site discharge, either as run-off or airborne.

(b) Monitoring

Monitoring shall be undertaken in accordance with the Environmental Improvement Plan.

PART C - AIR QUALITY

177.C1 AIR QUALITY

(a) General

All work under the Contract shall comply with the following requirements:

- emissions of odorous substances or particulates shall not create or be likely to create objectionable conditions for the public;
- materials of any type shall not be disposed of through burning;
- material that may create a hazard or nuisance dust shall be covered during transport; and
- dust generated from road construction activities shall not create a hazard or nuisance to the public, shall not disperse from the site or across roadways, nor interfere with crops, stock or any other dust-sensitive receptors.

(b) Plant and Equipment

All work under the Contract shall comply with the following requirements:

- emissions of visible smoke to the atmosphere from construction plant and equipment shall not be for periods greater than 10 consecutive seconds;
- where practicable all heavy duty diesel engines must be fitted with Selective Catalytic Reduction (SCR) and diesel particulate filters.

(c) Monitoring

(i) General

Monitoring shall comply with the following requirements:

- insoluble solids from any air quality monitoring station, as measured by a dust deposit gauge in accordance with the requirements of AS 3580.10.1, shall not exceed 4 g/m²/month or 2 g/m²/month above the background measurement, whichever is the lesser;
- directional dust gauges that comply with the equipment requirements of AS 2724.5 shall be installed alongside each air quality monitoring station. Directional dust gauges shall be orientated such that one of the collecting cylinders is directed towards the construction activities;
- directional dust shall be measured as insoluble solids in accordance with AS 3580.10.1 for each of the four collecting cylinders. Directional dust gravimetric results shall be expressed as the percentage of the total directional dust gauge catch for each cylinder;
- dust deposition and directional dust monitoring shall be supplemented with continuous monitoring using a portable laser light scattering instrument, or equivalent, to allow changes to dust control measures if the PM10 1 hour average concentration exceeds 120 µg/m³;

***
- no less than ##(edit as appropriate):one/two/three/other portable laser light scattering instruments shall be operational daily while undertaking construction activities;
- portable laser light scattering instrument(s) shall provide a visible and logged alarm and SMS notification if the 1 hour average criterion of 120 µg/m³ is exceeded;
- the portable light scattering instrument shall be calibrated and maintained in accordance with manufacturer's instructions with calibration and maintenance records retained and made available to the Superintendent upon request. Daily records shall include checks of instrument zero and flow rate.

(ii) Location of Monitoring Equipment

Dust deposit gauges and directional dust gauges shall be established in accordance with the requirements of AS 3580.1.1.

One dust deposit gauge shall be installed and maintained as a background reference station. The reference station shall be in close proximity to the site, but unaffected by works under the Contract.

*** No less than ##(edit as appropriate):two/four/six/other monitoring stations shall be located where roadworks are likely to have the greatest impact on adjacent properties or create nuisance/inconvenience to the public.

The location of portable laser light scattering instrument(s) shall be adaptive to changes in wind direction or construction activity.

Portable laser light scattering instrument(s) shall be located downwind of road construction activities or adjacent to a sensitive receptor when in proximity to the works.

All monitoring stations to be located such that they are secure from vandalism and tampering at all times.

(iii) Results

Results of dust deposition and directional dust monitoring shall be submitted to the Superintendent within 24 hours of receipt from the laboratory.

Daily results of continuous monitoring including the location(s) of the instrument shall be made available upon request.

A daily visual assessment of the site for airborne dust and vehicle emissions shall be undertaken at locations where works are being carried out and records maintained of these inspections.

Hourly wind speed and wind direction data that correlates to the site location shall be obtained and maintained in the Contractor's records and made available to the Superintendent upon request.

(iv) Timing

Sampling frequency for dust deposition and directional dust is based on the risk of generation of nuisance dust and is season dependent. Dust deposition and directional dust sampling frequency shall comply with Table 177.C1.01.

Table 177.C1.01

Period	Sampling Frequency
November to March	14 day consecutive period
April to October	30 day consecutive period

PART D - EROSION AND SEDIMENT CONTROL

177.D1 EROSION AND SEDIMENT CONTROL

(a) General

All exposed surfaces shall be free of or treated to minimise erosion.

Erosion and sediment controls shall include:

- minimising the amount of exposed erodible surfaces during construction including the staging of works;
- prompt temporary and/or permanent progressive revegetation of the site as work proceeds;
- *** prompt covering of exposed surfaces (including batters and stockpiles) that would otherwise remain bare for more than ##28: days. Cover may include mulch, erosion control mat or seeding with sterile grass;
- installation, stabilisation and maintenance of catch and diversion drains that segregate water runoff from catchments outside of the construction site from water exposed to the construction site;
- installation and maintenance of erosion and sedimentation controls, established in accordance with EPA best practice guidelines for the treatment of sediment laden run-off resulting from construction activities;
- adequately control and route runoff within the construction site to the appropriate sedimentation controls; and
- where trees are required to be removed more than two months in advance of any construction works, remove only that part of the tree that is above ground level and where possible allow the roots to remain intact beneath the ground surface to assist with erosion control.

(b) Work in/near Waters

Works shall be programmed and managed to avoid work in waters. Where work in waters is unavoidable, procedures shall be developed and implemented to satisfy the requirements of the specification and as required by any permits from the responsible authority(s).

Where construction activities are undertaken in, near or over waters, the EMP shall address the protection of beneficial uses in accordance with any permit, the *State Environmental Planning Policy (Waters of Victoria)* and best practice guidelines.

(c) Sedimentation Basins

Sedimentation basins shall be utilised as the primary sediment control for the works unless the Contractor can demonstrate to the Superintendent's satisfaction that the implementation of a sedimentation basin is not technically feasible for the works.

Where sedimentation basins are proposed as control measures, basins shall be designed to contain flows from a rainfall event having an Average Recurrence Interval of not less than two years and six hours duration when allowing for a 30% reduction in capacity as a result of sediment accumulation.

Sedimentation basins shall be modelled and sized to manage rainfall intensities and soil characteristics specific to the region and for any material that is imported to the site. The sizing and modelling of sedimentation basin(s) shall consider the expected works and associated area of disturbance within catchment area(s) within the site.

The sizing and modelling of temporary sedimentation basins shall be undertaken using recognised 'best practice' modelling techniques or '*VicRoads Temporary Sedimentation Basin Design Tool*'.

Spillways shall be designed for an event having an Average Recurrence Interval of five years.

An independent hydraulic consultant who has demonstrated competence and suitable experience in the design of temporary sedimentation basins shall complete and sign a declaration in accordance with Attachment C to this Section 177. The declaration shall accompany submission of the sedimentation basin designs to the Superintendent.

HP **The Contractor shall submit to the Superintendent the sedimentation designs and the associated independent verification declarations not less than two weeks prior to the commencement of construction of the temporary sedimentation basin.**

Sedimentation basins shall be cleaned out whenever the accumulated sediment has reduced the capacity of the basin by 30% or more, or whenever the sediment has built up to a point where it is less than 500 mm below the spillway crest, whichever occurs earlier.

The Contractor shall maintain the capacity of the sedimentation basin and shall ensure compliance with Clause 177.B1(b)(ii) if dewatering to a waterway.

(d) Stockpiles

Where soil is stockpiled on site, such stockpiles shall be located, where possible, to provide a clearance of not less than 10 m from waterways. Where it is not possible to provide a clearance of 10 m, the stockpile shall be above the normal high water level of the waterways and additional protection shall be provided to prevent the stockpiled material entering the waterways.

(e) Monitoring

The Contractor shall inspect the whole site for instances of soil erosion or scour and the effectiveness of erosion and sedimentation controls:

- at intervals not more than seven days;
- within one hour of the commencement of any runoff resulting from rain events during working hours;
- every four hours during periods of continuous rain during working hours;
- within 12 hours of a rain event outside working hours.

Any defects and/or deficiencies in control measures identified by monitoring undertaken shall be rectified immediately and these control measures shall be cleaned, repaired and augmented as required to ensure effective control.

PART E - CONTAMINATED SOILS AND MATERIALS

177.E1 CONTAMINATED SOILS AND MATERIALS

(a) General

All work under the Contract shall comply with the following requirements:

- soils or materials shall not be contaminated as a consequence of work under the Contract;
- materials imported to the site shall be free from contamination;
- contaminated materials shall only be reused on site following approval from the Superintendent and EPA;
- contaminated materials to be reused on site as part of the Contract shall be temporarily stored and managed to minimise any impact on the site or surrounding environment;
- the importing, transport and disposal of contaminated soils or materials off-site shall be undertaken in accordance with relevant legislation and State Environment Protection Policies;
- disposal of contaminated materials off-site (where required) shall be undertaken in accordance with relevant legislation and State Environment Protection Policies.

(b) Sites of Known Contamination

Table 177.E1.01 lists known contaminated sites.

*** **Table 177.E1.01**

Contamination type	Chainage / AMG grid reference / location / Drawing No.
## e.g. hydrocarbons, heavy metals, PCBs:	## e.g. AAV 7822/935: ## e.g. E:321900, N:5828525: ## e.g. Drawing Number:
##:	

(c) Discovery of Contaminated Material

The discovery of contaminated material on the site during works shall be managed in accordance with VicRoads and EPA Guidelines. In the event that contaminated material is encountered on the site, the Contractor shall:

(i) notify the Superintendent and where applicable EPA;

(ii) undertake comprehensive sampling and analysis to determine the type levels and extent of contamination in accordance with current VicRoads and EPA guidelines;

(iii) investigate the opportunity to reuse the contaminated soil and/or material as a fill material on site;

(iv) ensure that any proposed reuse and/or disposal methods are acceptable to the Superintendent and EPA.

(d) Use of Contaminated Material

The use of contaminated material in the Works shall be subject to the approval of the Superintendent and EPA. The Contractor shall follow procedures and best practice containment and management techniques in VicRoads and relevant EPA documentation when such materials are reused on site.

Prior to the use of any contaminated material on the site, the contractor shall verify that the proposed use is in accordance with legislative requirements. Where directed an EIP or other documentation shall be prepared in liaison with EPA and the Superintendent.

Where any contaminated material is used in the works, records shall be kept of the source, type of contamination, volume of contaminated material incorporated, the locations placed and all investigations undertaken. The location of contaminated material incorporated into the site shall be identified in the 'As Constructed' drawings. Copies of all documentation including the EIP are to be forwarded to the Superintendent.

A copy shall also be forwarded to the Superintendent for inclusion in VicRoads Contaminated Site Register.

(e) Monitoring

The Contractor shall undertake a visual assessment of the site for contaminated soils and materials at the following intervals:

When stripping:	Daily
During excavations:	Daily
When importing filling material:	Daily

(f) Acid Sulfate Soils
##(this clause only applies to projects that are to be undertaken in areas where Acid Sulfate soils have been identified – only strikethrough all of (f) if sufficient investigation has determined that it is not relevant and there is no likelihood of its occurrence):
The locations identified in Table 177.E1.02 have been identified as having the potential for the presence of acid sulphate soils. A specific environmental management plan to minimise the risk of disturbance and/or to manage its treatment and offsite removal must be prepared and approved by the EPA prior to review by the Superintendant.

*** **Table 177.E1.02 Acid Sulfate Soils**

Site Location	Chainage / AMG grid reference / Location
##:	##E [insert grid reference e.g. 321900]: ##N [insert grid reference e.g. 5828525]: ## refer to Volume 3 – Drawings; or reports as required:

Wherever possible the locations identified above should be avoided. Where this is not possible, minimising disturbance may involve:

- planning to arrange and minimise construction in such a way so that it limits the amount of excavation of acid sulfate soil required;
- locating aspects of the contract on the part of a land where acid sulfate soils are buried deepest, so the amount of acid sulfate soil removed is reduced;
- using construction methods and site management procedures that do not leave acid sulfate soils exposed to air without treatment; and/or
- aligning and designing linear infrastructure in tidal areas so that natural water flows (both surface and groundwater) are not blocked.

If acid sulfate soil is disturbed, it must be treated.

PART F - WASTE AND RESOURCE USE

177.F1 WASTE AND RESOURCE USE

(a) General

The generation of waste materials shall be managed in accordance with the hierarchy, to avoid, reuse, recycle or dispose of waste material. The Contractor shall be responsible for the management of any waste produced in performing the work under the Contract.

All work under the Contract shall comply with the following requirements:

- the nature of wastes generated as a consequence of works under the Contract shall be identified;
- wastes shall be stored prior to reuse or disposal to minimise any impact on the site or surrounding environment;
- where approval is granted to incorporate recycled materials into the works, the Contractor shall maintain appropriate records of the type of material and its location;
- vehicles transporting waste shall be covered and appropriately licensed.

Where recycling facilities are available, the materials shall be managed in accordance with Table 177.F1.01.

Table 177.F1.01 Resource Management Requirements

Material	Waste Management Option
Asbestos	EPA licensed landfill
Asphalt	Recycle or reuse - not to landfill
Concrete and concrete washings	Recycle or reuse - not to landfill
Contaminated soil	Recycle or reuse on site if opportunity exists If removed from site, transported by an EPA licensed contractor and disposed in accordance with EPA regulations
Felled woody vegetation (except fragments of noxious or environmental weeds capable of regeneration)	Mulched for reuse, or used for habitat logs
Woody weed fragments capable of regeneration	Burial on site (deeper than 500 mm and not in fill, pavement or other critical areas), composting, or disposal to landfill
Formwork	Reuse or dispose to landfill
Plastics (Recycle Nos. 1, 2, 3, 4, 5, 6, 7)	Recycling facility - not to landfill
Metal	Recycle or reuse - not to landfill
Oil containers and lead acid batteries	Recycling facility - not to landfill
Packaging materials	Recycle where possible or dispose to landfill
Empty paint tins	Recycling facility - not to landfill
Petroleum products from spills (absorbed in spill kit material or contaminated soil)	Recycle or reuse with rehabilitation of contaminated soils if opportunity exists Transported by an EPA licensed contractor and disposed in accordance with EPA regulations
Timber (untreated)	Recycle - not to landfill
Litter	Recycle or dispose to landfill
Office waste	Recycle where possible or dispose to landfill
Other waste excluding the above wastes	Recycle or reuse if opportunity exists

(b) Monitoring

The Contractor shall monitor the whole site for instances of inappropriate waste management or disposal at intervals of not more than 7 days.

PART G - FUELS AND CHEMICALS

177.G1 FUELS AND CHEMICALS

(a) General

Any leakage or spillage of any fuels or chemicals shall not have a detrimental environmental impact.

The EMP shall include specific procedures to mitigate the effect on the environment from fuels and chemicals, including herbicides and pesticides. Such procedures shall include:

- nominated fuel and chemical storage areas that comply with Dangerous Goods (Storage and Handling) Regulations 2012 and EPA Bunding Guidelines (EPA Publication 347) including the placarding of compounds and bulk storage containers;
- nominated points for the refuelling and fluid top up of vehicles and plant which shall be undertaken in a designated area at least 20 m from any drainage point or waterways;
- provision of readily accessible and maintained spill kits for the purpose of cleaning up chemical, oil and fuel spillages on the site at all times;
- ensuring that personnel trained in the efficient deployment of the spill kits are readily available in the event of spillages; and
- a contingency plan that shall address the containment, treatment and disposal of any spill.

(b) Monitoring

Fuel and chemical storages and equipment fill areas shall be monitored for compliance at intervals of not more than 7 days.

PART H - NOISE AND VIBRATION

177.H1 NOISE

The mitigation of construction noise shall include:

- hours of work shall be between 7am and 6pm weekdays and Saturday;
- construction vehicles and equipment shall have appropriate measures fitted and be effectively maintained to minimise engine noise;
- noisy equipment shall be enclosed where possible;
- establishment of temporary noise attenuation barriers where appropriate;
- scheduling noisy work practices (e.g. pile driving) to minimise likelihood of community annoyance; and
- use of smart movement alarms for vehicles particularly when working in proximity to noise sensitive receptors or where working outside normal hours.

177.H2 VIBRATION

(a) General

All work under the Contract shall be undertaken utilising construction methodologies that will minimise vibration disturbance to the community and avoid damage to buildings and/or structures.

Vibration generated through construction plant and equipment or blasting (Clause 177.H3 – Blasting) shall not de-stabilise the existing ground condition especially if work is carried out in the vicinity of any natural slopes or embankment.

Construction methodologies shall be utilised to ensure that vibration does not exceed the peak vibration criteria in Table 177.H2.01 and/or criteria set by a responsible authority for a specified structure/asset that falls within its responsibility.

(b) Monitoring

Where directed by the Superintendent, vibration monitoring shall be undertaken to ensure that construction activities do not pose the potential for damage to surrounding buildings.

Monitoring shall be undertaken to assess the potential vibration impacts on buildings in accordance with German Standard DIN 4150, part 3 - 1999 (Effects of Vibration on Structures).

Peak vibration velocities shall not exceed the criteria in Table 177.H1.01

Table 177.H2.01 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

(c) Results

Vibration monitoring results shall be submitted to the Superintendent within 24 hours being obtained.

177.H3 BLASTING

(a) General

The contractor shall undertake blast monitoring to ensure that blasting activities do not pose the potential for damage to surrounding buildings or structures and to minimise disturbance to the community.

The contractor shall ensure that:

- vibration generated by blasting does not exceed the criteria set out in Table 177.H3.01; and
- blasting overpressure does not exceed 133 dBL.

(b) Monitoring

Monitoring of blasting activities shall be undertaken in accordance with Section J.3.2 of AS 2187.2-2006 (Explosives - Storage and use - Use of explosives), at locations relevant to sensitive buildings agreed with the Superintendent.

The peak component particle velocity of predominant pulse shall not exceed the criteria in Table 177.H3.01.

Table 177.H3.01 Transient Ground Vibration Criteria for Assessing Potential for Damage to Buildings

Type of Structure	Peak Vibration Velocity (mm/s)
Reinforced or framed structures Industrial and heavy commercial buildings	50
Unreinforced or light framed structure Residential or light commercial type buildings	15
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

(c) Monitoring Results

Monitoring results of blasting for activities shall be submitted to the Superintendent within 24 hours.

PART I - FLORA AND FAUNA

177.I1 FLORA AND FAUNA

(a) General

All work under the Contract shall comply with the following requirements:

- avoid, minimise and offset (where appropriate) the removal of native vegetation during construction;
- avoid injury to fauna or damage to protected vegetation or habitat; and
- the discovery of significant flora and fauna sites, species or habitat not previously identified shall be managed to protect flora and fauna.

(b) Permits and Approvals

The permits and/or approvals identified in Table 177.I1.01 have already been obtained, or are being obtained by VicRoads. Works under the contract shall comply with all permits and approvals and associated conditions.

*** **Table 177.I1.01 Flora and Fauna Permits Obtained by VicRoads**

Site/Species	Permit/Approval Number	Issuing Authority
Flora		
##:		
Fauna		
##:		

Permits from relevant authorities must be obtained prior to disturbance of flora/fauna sites or relocation of native fauna affected by works under the Contract.

(c) Protection of Flora and Fauna Sites

Works shall not damage, disturb or otherwise adversely impact:

- vegetation or habitat sites and areas of significance listed in Table 177.I1.02;
- any other significant vegetation or habitat sites, not listed in Table 177.I1.02, that are not required to be removed for permanent works; and
- any significant native flora/fauna sites or habitat discovered during works under the Contract without prior approval from the Superintendent and obtaining all relevant permits.

*** **Table 177.I1.02**

Vegetation/Habitat Site	Chainage/AMG Grid Reference/Location
##[insert site detail, e.g. State significant species]:	##E [insert grid reference e.g. 321900]: ##N [insert grid reference e.g. 5828525]: ##or refer to Volume 3 – Drawings or flora/fauna reports as required:
##:	##:

All personnel working on site shall be trained in the identification of:

- flora or habitat sites listed in Table 177.I1.02, and other vegetation/habitat sites that are not to be damaged or disturbed;
- likely significant flora and fauna species which may be present and the actions required for their management if encountered.

All sites nominated in Table 177.I1.02 and any additional existing vegetation and native fauna habitat identified to be retained, shall be identified as 'No-Go Zones' and protected by temporary fencing and signage. All fencing of 'No-Go Zones' shall as a minimum be:

- erected a minimum of 1 m beyond the boundary of the habitat to be protected, or at the tree protection zone;
- constructed of star picket and paraweb with one wire support;
- signage installed on the temporary fencing at intervals no less than 20 m apart stating 'No-Go Zone – No Unauthorised Access'; and
- retained in place for the duration of construction activities.

The Contractor shall ensure the No-Go Zone includes the full Tree Protection Zone. Where encroachment within the Tree Protection Zone is unavoidable the contractor shall:

- engage a suitably qualified arborist (with a minimum qualification of Australian Qualification Framework Level 5, Diploma of Horticulture (Arboriculture) to assess the potential impact on the trees;
- the arborist assessment shall include the botanical name, diameter at a height of 1.4 metres, useful life expectancy, the tree location and whether the proposed impact on any Tree Protection Zone will significantly impact the future health of the tree(s). The assessment shall recommend whether the tree can be retained with mitigation measures or whether it should be removed.

The arborist assessment shall be approved by the Superintendent prior to the commencement of vegetation removal.

HP **Prior to removing any vegetation or habitat, the Contractor shall arrange an on-site inspection with the Superintendent and other relevant authorities to confirm and clearly identify and mark trees, vegetation or habitat to be removed, consistent with the Contract drawings and any relevant permits and shall fence and sign all sites nominated as No-Go Zones.**

Plant, equipment, material or debris shall not be driven, dragged, placed or stored within the No-Go Zones. Vegetation management activities required to protect vegetation quality may be undertaken in No-Go Zones.

(d) Removal of Flora and Protection of Fauna

A suitably qualified ecologist with the appropriate permits/licenses shall be present on site during the removal of vegetation to:

- identify and examine any native fauna habitat including trees (including hollow bearing trees) and/or fallen logs affected by works under the Contract to identify, capture and relocate fauna identified within the zone to be cleared; and
- provide advice on alternative fauna habitat sites.

If appropriate, relocation of any fauna or nests shall be made to adjacent habitat and shall be undertaken in accordance with the requirements of the Department of Environment, Land, Water and Planning. Where practicable, any nests found to be inhabited by native birds or by mammals (e.g. possums or gliders) shall be removed outside of the species' breeding season.

Any targeted vegetation removal from within the No-Go Zones shall be shall be undertaken utilising methods that avoid impact on any other flora or habitat within the No-Go Zone.

Pruning of any vegetation to be retained shall be undertaken by a suitably qualified practicing arborist (minimum Australian Qualification Framework Level 3, Certificate III Horticulture (Arboriculture).

(e) Discovery of Significant Flora or Fauna

In the event that significant flora or fauna is discovered, the Contractor shall immediately cease operation and notify the Superintendent.

An appropriately qualified ecologist shall be engaged to accurately identify and provide advice for the management of the discovered significant flora or fauna species.

The Contractor shall submit to the Superintendent for approval a procedure/management plan that has been approved by the relevant authority to manage the flora or fauna species.

(f) Damage to Protected Vegetation

Where damage to flora or fauna habitat has occurred as the result of work under the Contract, the Superintendent reserves the right to direct the Contractor to repair or offset the vegetation and/or provide fauna habitat to an equivalent or better quality in accordance with the Department of Environment, Land, Water and Planning (formerly DEPI) documents *'Permitted clearing of naïve vegetation – Biodiversity assessment guidelines'* and '*Native vegetation gain scoring manual'*.

(g) Monitoring

The Contractor shall undertake monitoring of the condition of flora and fauna habitat sites and protective measures at the sites at the following intervals:

When construction activities are occurring in the vicinity of the sites:	Daily
At other times:	At least every 7 days
##:	##:

177.I2 WEEDS, PESTS AND DISEASES

(a) General

Declared noxious weeds, pests and diseases (also referred to as pathogens) shall not be introduced to the site, spread through the site, or removed from the site (if present) as a consequence of work under the Contract.

The Contractor shall prevent the spread of declared noxious weeds, pests and diseases within the site and off-site through the implementation of controls that shall include the:

- treatment of declared noxious weeds prior to the commencement of any ground disturbing activities and in response to their identification through monitoring of the site;
- management of noxious weeds and soil pathogens potential within imported materials;
- provisions for cleaning plant and equipment at the following times -

  prior to arrival on site,

  prior to departure from site, and

  prior to movement within the site from infested to non-infested areas;
- location of cleaning areas;
- use of a vehicle and machinery hygiene log book.

(b) Cinnamon Fungus ##(this clause only applies to projects that are to be undertaken in high risk infested zone / area - strikethrough all of (b) if this is not relevant):

Topsoil shall not be removed from the site.

Plant involved in the initial earthworks shall be cleaned and then disinfected with a suitable disinfectant applied with a high pressure pump spray prior to leaving the site.

(c) Phylloxera ##(this clause only applies to projects that are to be undertaken in Phylloxera Infected Zones as identified by the Phylloxera and Grape Industry Board of South Australia website mapping - strikethrough all of (c) if this is not relevant):

Contractors shall contact the Department of Environment, Land, Water and Planning (DELWP) to discuss and develop an agreed procedure for the movement and protocol requirements of plant and equipment within the Phylloxera Infected Zone.

(d) Monitoring

*** The site shall be monitored for the presence of weeds and pests at intervals of not more than ##(edit as appropriate):weekly/fortnightly/other.

PART J - CULTURAL HERITAGE

177.J1 CULTURAL HERITAGE

(a) General

Cultural heritage sites and areas of cultural significance shall not be damaged, disturbed or otherwise adversely impacted unless an appropriate authorisation has been obtained.

Aboriginal Cultural Heritage

strikethrough one of the following *** options:

*** The Contractor shall undertake all works under the Contract in accordance with the requirements set out in the Cultural Heritage Management Plan (CHMP) ##(insert the name of the CHMP):. The requirements set out in Clauses 177.J1(d), (e) (f) and (g) are not applicable for the management of Aboriginal Cultural Heritage as these requirements are addressed in the CHMP.

*** A Cultural Heritage Management Plan has not been prepared for the works under this Contract. Works shall comply with any cultural heritage management procedures or initiatives outlined in an Aboriginal cultural heritage agreement or Aboriginal cultural heritage permit listed in Table 177.J1.01.

Historical Archaeological Heritage

The work under the Contract shall be undertaken to comply with any Historical Archaeological Heritage permit or consent relevant to the project. Historical Archaeological Heritage shall be protected from unauthorised disturbance during site establishment and construction.

(b) Permits and Approvals

The permits and/or approvals identified in Table 177.J1.01 have already been obtained, or are being obtained by VicRoads. The Contractor shall comply with the terms and conditions of these permits and approvals.

*** **Table 177.J1.01 Heritage Permits and Approvals Obtained by VicRoads (including Cultural Heritage Management Plans)**

Site	Permit/Approval Number	Issuing Authority
Aboriginal Cultural Heritage		
##:		
Historical Archaeological Heritage		
##:		

(c) Cultural Heritage Sites

Table 177.J1.02 lists known cultural heritage sites.

*** **Table 177.J1.02**

Site	**Reference Number**	**Chainage/ AMG grid reference/ location**
Aboriginal Cultural Heritage		
## e.g. Isolated artefact scatter:	## e.g. AAV 7822/935:	## e.g. E:321900, N:5828525:
Historical Archaeological Heritage		
## e.g. Dry-stone wall, stone shed foundations:	## e.g. H7822/0271:	##e.g. E:322650, N:5831175:

(d) Protection of Cultural Heritage

A 'No-Go Zone' shall be established for identified Cultural Heritage sites that are to be protected during the work under the contract. Temporary fencing of 'No-Go Zones' shall be:

- constructed of, as a minimum, star pickets, single strand of wire at the top and paraweb;
- located at the maximum practical distance from the site with a minimum of 1 m beyond the limit of the Cultural Heritage site; and
- retained in place for the duration of the construction period (until Practical Completion), or until removal of the Cultural Heritage from the site.

Signage shall be installed on the temporary fencing at intervals no less than 20 m apart stating 'Protected Area – No Unauthorised Access'.

(e) Discovery of Cultural Heritage

The following procedure will apply in the event of the discovery i.e. uncovering and/or identification of any cultural heritage during construction:

- work at the location to be suspended;
- immediate notification of the Superintendent;
- the site shall be isolated by a 'No-Go Zone' as specified in Clause 177.J1(d), pending completion of an evaluation of the cultural heritage and the determination of an appropriate course of protective action;
- within 24 hours notify the relevant approval authorities of the discovery of cultural heritage and its location;
- work greater than 50 m away from the area in which the cultural heritage was uncovered and/or identified may recommence and continue. Work in areas less than 50 m from the cultural heritage site may proceed if agreed by the relevant approval authority, and in consultation with any other relevant cultural heritage stakeholders and the Superintendent;

- the Contractor shall engage a cultural heritage advisor to evaluate the nature, extent and significance of the cultural heritage;
- the Contractor shall consult with the Superintendent, relevant approval authorities and the Contractor's cultural heritage advisor to determine the process to be followed to manage the discovered cultural heritage and how to proceed with the works. The Superintendent's agreement shall be obtained for the proposed process for management of the discovered cultural heritage prior to implementation;
- the Contractor shall obtain the relevant cultural heritage approvals prior to any disturbance of cultural heritage discovered during construction and shall comply with all conditions of any such approvals. Removal of any cultural heritage from the site shall be undertaken in accordance with statutory requirements and relevant cultural heritage approval conditions;
- works may recommence in the relevant area if:

  the conditions of the cultural heritage approval have been met, or

  works can resume without risk to the discovered cultural heritage.

(f) Discovery of Human Remains During Construction

The following procedure will apply in the event of the discovery of suspected human remains:

- all activity in the vicinity shall stop;
- the remains must be left in place, and protected from harm or damage;
- immediately notify the local office of Victoria Police or the State Coroner's Office and the Superintendent of the discovery;
- if there are reasonable grounds to believe that the remains are Aboriginal human remains, report the discovery (including the particulars of the location and nature of the human remains) to Aboriginal Affairs Victoria; and
- implement an appropriate impact mitigation or salvage strategy as determined by the responsible authority and if relevant, in consultation with any Aboriginal person or body with an interest in the Aboriginal human remains.

(g) Monitoring

The Contractor shall undertake a visual assessment of the site for cultural heritage during ground disturbing activities.

The condition of heritage sites and protective measures at the sites shall be monitored at the following intervals:

When construction activities are occurring within 10 m of the sites:	Daily
At other times:	At least every 7 days

PART K - REPORTING

177.K1 REPORTING

(a) General

All environmental monitoring results and all non-conformance reports relating to environmental performance and current status shall be submitted to the Superintendent monthly or as agreed by the Superintendent.

The Contractor shall submit to the Superintendent copies of the data/information listed in Table 177.K1.01. This data/information shall include both the data for the latest reporting period and a summary of use to date in the Contract.

Table 177.K1.01

Data/Information	Frequency
Pollution Infringement Notices or Pollution Abatement Notices and/or any notices of prosecution	Within 24 hours of receipt by the Contractor.
Statutory documents obtained by the Contractor as part of the project (e.g. permits)	Within one week of receipt by the Contractor.
Results of any air quality and water quality monitoring undertaken as part of the project	Monthly
Itemised quantities of any materials nominated within the sustainability attributes schedule. This includes both materials in the pavement material and other sustainability categories.	Quarterly
Itemised quantities and types of materials sent off-site including prescribed waste certificates	Quarterly
Itemised quantities and sources of all water used on-site	Quarterly

(b) Notice of Authority Inspections

The Contractor shall notify the Superintendent within 24 hours of all environmental inspections, correspondence and/or discussions with the EPA or other authorities.

The Contractor shall allow site access to authorities, however must do so in a manner that protects the health and safety of the authority representatives.

177.K2 ENVIRONMENTAL INCIDENTS

In the event that an environmental incident occurs in relation to the work under the Contract, the Contractor shall:

- take immediate action to avoid continuance of the incident (which may include cessation of work), and to minimise the effect of the incident on the environment, as outlined in any Environmental Management or Environmental Improvement Plans;
- immediately notify the Superintendent and EPA Pollution Watch (Tel. 1300EPAVIC) and other responsible authorities of the incident (or by 9am the next working day if the incident occurs outside working hours); and
- submit to the Superintendent for review an incident report within 7 days of the incident. The incident report shall include photographs where available and cover details of the incident and the proposed corrective action to avoid a re-occurrence.

PART L - AUDITS

177.L1 ENVIRONMENTAL AUDITS AND SURVEILLANCE

(a) Independent Auditing of the Environmental Management Plan Prior to the Commencement of Works

The Contractor shall arrange an audit of the Environmental Management Plan prior to the commencement of Works.

The environmental audit shall be undertaken by an environmental auditor that:

- is listed on VicRoads 'Register for Pre-qualified Contractors and Consultants' for the level 'Environmental Auditing (Construction)';
- is independent of the Contractor (a specialist in the employ of the Contractor is not acceptable); and
- has no involvement in the development of the Contractor's EMP for the works under this Contract.

The Contractor's Environmental Management Plan shall be audited to ensure compliance with this Specification and to verify that the EMP will be sufficient to protect the beneficial uses.

The auditor shall complete and sign a declaration in accordance with Attachment B to this Section 177. The declaration shall accompany submission of the documents to the Superintendent.

(b) Surveillance and Audits During Construction

The Superintendent will arrange surveillance and audits to verify the effectiveness of the Environmental Management Plan and compliance with this Specification.

The Contractor shall co-operate with any reasonable requests by the Superintendent or from relevant environmental agencies to undertake environmental audits and or surveillance activities of the Contract.

All non-conformances arising from an audit shall be addressed by the Contractor. The Contractor shall take immediate action to address any significant environmental non-conformance identified by an audit.

If the Contractor does not take action to address a non-conformance, the Superintendent may act to resolve the non-conformance and the cost of such action shall be deducted from moneys due or becoming due to the Contractor.

PART M - REFERENCES

177.M1 REFERENCES

Environment protection shall be implemented in accordance with, but not limited to, the references listed in Table 177.M1.01. The reference shall be the edition or version current at the time of closing of tenders.

Table 177.M1.01 References

STATUTORY GUIDELINES / PUBLICATIONS
Australian and New Zealand Environment and Conservation Council - Australian and New Zealand Guidelines for Fresh and Marine Water Quality
Environment Protection Authority Publication 275 – Construction Techniques for Sediment Pollution Control
Environment Protection Authority Publication 347 – Bunding Guidelines
Environment Protection Authority Publication 448 – Classifications of Wastes
Environment Protection Authority Publication 480 – Environmental Guidelines for Major Construction Sites
Environment Protection Authority Publication 464.2 – Guidelines for Environmental Management - Use of Reclaimed Water
Environment Protection Authority Publication 669 – Groundwater Sampling Guidelines
Environment Protection Authority Publication 960 – Doing It Right On Subdivisions
Environment Protection Authority Publication 1178 – Off-site Management and Acceptance to Landfill
Environment Protection Authority Publicaiton 1254 – Noise Control Guidelines
Environment Protection Authority Publication 1436 to 1442 - Industrial Waste Fact Sheet Series
Industrial Waste Resource Guidelines (IWRG701): Sampling and analysis of waters, wastewaters, soils and waste
State Environment Protection Policy (Air Quality Management)
State Environment Protection Policy (Groundwaters of Victoria)
State Environment Protection Policy (Prevention and Management of Contaminated Land)
State Environment Protection Policy (Waters of Victoria) and schedules
Department of Environment, Land, Water and Planning (formerly DEPI) – Permitted clearing of native vegetation Biodiversity assessment guidelines
Department of Environment, Land, Water and Planning (formerly DEPI) – Native vegetation gain scoring manual
VICROADS DOCUMENTS
VicRoads Sustainability and Climate Change Policy
VicRoads Environmental Risk Management Guidelines
VicRoads Integrated Water Management Guidelines
VicRoads Contaminated Land (Planning, Construction and Maintenance) Guidelines
VicRoads Cultural Heritage Guidelines
VicRoads Biodiversity Guidelines
VicRoads Noise Guidelines - Construction and Maintenance Works

Continued next page

Table 177.M1.01 References … continued

AUSTRALIAN STANDARDS
AS 2187.2 Explosives - Storage and use - Use of explosives
AS 2436 – Guide to noise and vibration control on construction, demolition and maintenance sites
AS 3580.10.2 Methods for sampling and analysis of ambient air – Determination of particulate matter – impinged matter – gravimetric method
AS 3580.10.1 Methods for sampling and analysis of ambient air. Method 10.1 Determination of particulate matter – Deposited matter – Gravimetric method
AS 3580.9.6 Methods for sampling and analysis of ambient air. Method 9.6 Determination of suspended particulate matter—PM10 high volume sampler with size selective inlet—Gravimetric method
AS 3580.9.7 Methods for sampling and analysis of ambient air. Method 9.7 Determination of suspended particulate matter—PM10 dichotomous sampler — Gravimetric method
AS 3580.9.8 Methods for sampling and analysis of ambient air. Method 9.8 Determination of suspended particulate matter — PM10 continuous direct mass method using a tapered element oscillating microbalance analyser
AS 3580.9.9 Methods for sampling and analysis of ambient air. Method 9.9 Determination of suspended particulate matter — PM10 low volume sampler — Gravimetric method
AS 3580.9.11 Methods for sampling and analysis of ambient air. Method 9.11 Determination of suspended particulate matter — PM10 beta attenuation monitors
AS 3580.14 Methods for sampling and analysis of ambient air – meteorological monitoring for ambient air quality monitoring applications
ADDITIONAL REPORTS AND TOOLS
Austroads Guide to Road Design - Part 6B: Roadside Environment and VicRoads Supplement to AGRD Part 6B
Best Practice Erosion and Sediment Control – International Erosion Control Association
Engineers Australia - Australian Runoff Quality – A guide to Water Sensitive Urban Design
Melbourne Water (2005) WSUD Engineering Procedures: Stormwater
VicRoads Carbon Gauge Calculator
VicRoads Temporary Sedimentation Basin Design Tool
VicRoads Project Environment Protection Strategy ##(insert name, date and version):
German Standard DIN 4150, part 3 – 1999 Effects of Vibration on Structures
##(insert report names relating to Flora and Fauna studies):
##(insert report names relating to Cultural Heritage studies):
##(insert report names of other relevant pre-construction investigations):
##(insert any other relevant references):

ATTACHMENT A TO SECTION 177

RAINFALL INTENSITY CHART

ATTACHMENT B TO SECTION 177

DECLARATION
ENVIRONMENTAL PLAN VERIFICATION

VicRoads Contract ##[Contract No]: – ##[description]:

Name of Contractor : .....

Environmental Plan(s): .....

.....(Document Reference)

I .....

of .....

in my capacity as Consultant to the above named company certify that:

(a) I am an environmental professional who -

(i) has demonstrated competence and suitable experience in the application of environmental controls and environmental management procedures in a construction environment;

(ii) is listed on VicRoads 'Register for Pre-qualified Contractors and Consultants' for the level 'Environmental Auditing (Construction)';

(iii) is independent of the Contractor (a specialist in the employ of the Contractor is not acceptable); and

(iv) has had no involvement in the development of the Contractors' Environmental Management Plan for the works under this Contract.

(b) I have visited the Site and areas where work under the Contract will be carried out and familiarised myself with works to be undertaken under the Contract.

(c) I have reviewed and assessed the above document/s and it/they -

(i) address the environmental requirements of the works to be carried out under the above Contract,

(ii) satisfies all relevant legislative and regulatory requirements,

(iii) complies with all applicable Codes of Practice and EPA Guidelines,

(iv) addresses all the requirements of VicRoads 'Environmental Management Guidelines' and other relevant VicRoads guidelines.

(d) In signing this declaration, I endorse the above document as adequate and fit for purpose.

Signed .....

Name *(please print)* .....

On behalf of ..... **(Company)**

Date .....

ATTACHMENT C TO SECTION 177

DECLARATION
TEMPORARY SEDIMENTATION BASIN VERIFICATION

VicRoads Contract ##[Contract No]: – ##[description]:

Name of Contractor : .....

Name of Consulting Company : .....

Document(s) Description and Reference Nos.: .....

.....

Area/stream/sensitive uses intended for protection by temporary sedimentation basin:

.....

.....

.....

I .....

of .....

in my capacity as an Independent Consultant to the above named construction contractor certify that:

(a) I have reviewed and assessed the above document(s) for the control of water runoff from the site associated with a 1:2 ARI (39.35% AEP) over a 6 hour duration and verify that the proposed temporary sedimentation basin(s) has/have been designed as a containment/treatment pond (strikethrough as appropriate) and -

  (i) will address the requirements of the works (and the catchment) to provide environmental protection for the catchment, and

  (ii) are modelled in accordance with industry recognised 'best practice' methodology for design of sedimentation basins;

(b) in signing this declaration I endorse the above document(s) as adequate and fit for purpose.

Signed .....

Name *(please print)* .....

On behalf of ..... **(Company)**

Date .....

SECTION 176 - ENVIRONMENTAL MANAGEMENT (Minor)

This section specifies the minimum environmental management obligations relating to the work to be constructed under this Contract. Additional contract specific requirements may be included in Section 100.

PART A - ENVIRONMENTAL MANAGEMENT
PART B - WATER QUALITY
PART C - AIR QUALITY
PART D - EROSION AND SEDIMENT CONTROL
PART E - CONTAMINATED SOILS AND MATERIALS
PART F - WASTE AND RESOURCE USE
PART G - FUELS AND CHEMICALS
PART H - NOISE
PART I - FLORA AND FAUNA
PART J - CULTURAL HERITAGE
PART K - REPORTING
PART L - REFERENCES

PART A - ENVIRONMENTAL MANAGEMENT

176.A1 INTRODUCTION

Works under the Contract shall be undertaken so that impacts on the environment are avoided or minimised. The Contractor shall ensure that the environmental objectives and measures outlined in the relevant State and Federal legislation are complied with. Where different objectives are nominated, the more stringent requirement shall be adopted.

The Contractor shall prepare a project specific Environmental Management Plan for the management of activities that impact on the environment in accordance with the requirements of this section.
##(strikethrough the following paragraph where project is not identified as containing high environmental risk – seek advice from Environmental Sustainability):
Work under the Contract includes activities which VicRoads has assessed as having potentially high environmental risk. The Contractor shall ensure a strong focus on environmental management is maintained whilst executing the work under the Contract, including the provision of staff with environmental skills and experience to manage these risks.

176.A2 DEFINITIONS

Ancillary Work Area – an area outside the Limit of Works that is used by the Contractor to support the delivery of the project. This may include but is not limited to the establishment of site compounds, borrow areas and temporary sedimentation basins and temporary works.

Contaminated Material – the presence of any chemical substance or waste that exists above the natural background level of the land or water and represents, or potentially represents, an adverse health or environmental impact.

Cultural Heritage – Aboriginal heritage as defined in Section 4 of the *Aboriginal Heritage Act 2006 (Vic)* and cultural heritage and archaeological relic as defined in Section 3 of the *Heritage Act 1995 (Vic)*, including but not limited to, Aboriginal artefacts, scarred trees, burial sites, and historic bridges and buildings.

Cultural Heritage Advisor – a person who is appropriately qualified in a discipline directly related to the management of cultural heritage, such as anthropology or history; or has extensive experience or knowledge in relation to the management of cultural heritage.

Cultural Heritage Management Plan (CHMP) – an overview of the heritage values of the project area and an outline of management processes and initiatives to be implemented to avoid or minimise impacts on those values during the course of the project.

Environmental Management Plan (EMP) – Contractor's document that provides:

- an overview of the environmental management processes to be utilised for work under the Contract, including procedures to protect the beneficial uses of the environment; and
- and details proposals/actions to be undertaken for the management of individual stages of work (defined by work activity and/or location) that impact on the environment.

Environmental Improvement Plan (EIP) – a plan, prepared for approval by the Environment Protection Authority (EPA) Victoria, to address the use of non-potable water and/or contaminated materials that identifies potential risks to human health or the environment, and details management options to mitigate the identified risks.

Environmental Incident – an event which results in or has the potential to result in the environmental requirements in this Contract being breached, and occurs at any location where works under the Contract are performed.

Noise Sensitive Receptors – dwellings that may be affected by construction noise during the day such as aged persons homes, hospitals, schools, kindergartens, libraries and other noise sensitive community buildings.

Rain Event – when rainfall results in an offsite discharge, and/or when onsite construction activities are ceased due to rain, and/or rainfall that is equal to or greater than the Rainfall Intensity Chart published in the VicRoads Integrated Water Management Guidelines (Section 5.4.2 - Construction Monitoring).

Waterway – includes waterways as defined in the *Water Act 1989* and any natural collection of water (other than water collected and contained in a private dam or a natural depression on private land) whether or not the flow is continuous, as well as tidal and coastal water and groundwater.

176.A3 ENVIRONMENTAL MANAGEMENT PLANS

The Contractor shall be responsible for the preparation, implementation and other arrangements associated with the Environmental Management Plan (EMP). The EMP shall include, as a minimum:

(a) a statement of scope, purpose and environmental objectives

(b) a schedule of environmental elements that are expected to be affected by the works under the Contract including an outline of proposed mitigation treatments and proposed timeframes

(c) the identification of work activities and an assessment of their potential impacts and associated risks to onsite and offsite environmental receptors (e.g. community, land uses, waterways, flora and fauna, cultural heritage, etc.) including times when the Contractor is not on site, including but not limited to matters covered in this specification

(d) processes and responsibilities for -

- the implementation, onsite review and maintenance of EMP and associated controls
- reporting and investigation of environmental incidents or complaints relating to any environmental issue under the Contract
- an adaptive approach for the review and update of the EMP as works progress and/or following non-conformances, complaints, or previously unidentified issues
- after hours response including arrangements for containing environmental damage and attendance on site in the event of an emergency

(e) legal and other requirements - details of approvals, licences and permits necessary to meet statutory requirements and associated conditions

(f) competence, training and awareness - an induction and training plan to ensure that all site personnel (including subcontractors) understand the EMP and are aware how the EMP is to be implemented in relation to the works, including any possible emergency response procedures

(g) operational control – the EMP shall document environmental procedures to manage all identified impacts and environmental protection requirements, including the requirements, where relevant, in Section 176 Parts B – H and any specific environmental requirements in Section 100. These procedures shall include inspection and monitoring

(h) scaled drawings that clearly show the location and extent of environmental controls, modifications to existing control devices and monitoring locations

(i) emergency preparedness and response - an emergency response procedure shall include processes for managing any environmental emergency on-site, such as contacting relevant stakeholders and clean-up of the site

(j) nonconformity, environmental incidents and corrective and preventative action procedures

(k) audit - a documented process for audit of the EMP against the contract requirements, including the effectiveness of on-site environmental protection measures.

The EMP shall consider any other Contract specific requirements identified elsewhere in the Specification.

HP The Contractor shall submit to the Superintendent for review an EMP not less than two weeks prior to the commencement of work. Work shall not commence until:

- **the Superintendent is satisfied that the EMP meets the requirements of the specification for that stage of work**
- **the controls detailed in the EMP relevant to that stage of work are implemented.**

Control measures identified in the EMP shall be installed prior to works commencing, or at the programmed timing for their implementation. Control measures shall be maintained in working order for the duration of the associated works.

The Superintendent will undertake surveillance of the Contract and may arrange for audits of the EMP and may issue a non compliance report. If the Contractor does not take action within seven days of receipt of a non compliance report, remedial action may be arranged by the Superintendent and the cost of such remedial work shall be deducted from money due to the Contractor.

176.A4 TRAINING

Prior to commencement of works onsite, the Contractor shall ensure that all personnel are informed of the environmental issues and specific risks associated with the project and the required management and mitigation measures to address these risks.

Prior to commencement of works onsite, the Contractor shall ensure that personnel directly involved in the implementation of the EMP and the installation and maintenance of control measures for this contract:

- have demonstrated competence and suitable experience in environmental management in a construction environment; or
- have successfully completed a nationally accredited training course which addresses management practices for erosion and sediment control (Green Card or equivalent).

176.A5 PERMITS

The Contractor shall be responsible for obtaining all necessary permits and approvals from the relevant authorities, other than those already obtained by VicRoads. Copies of all relevant documentation relating to permits and approvals obtained by the Contractor shall be provided to the Superintendent within one week of their receipt and prior to any works relating to the permit commencing. Copies of all permits and approvals will be kept on site.

The Contractor shall be responsible for implementing any conditions identified in any permits whether obtained by VicRoads or the Contractor. All permits and associated conditions shall be identified in the EMP.

PART B - WATER QUALITY

176.B1 WATER QUALITY

(a) General

The quality of water in waterways shall not be detrimentally impacted by runoff from the site.

Water quality and rainfall shall be monitored for the parameters identified in Table 176.B1.01 during all stages of construction to ensure that the water quality in the receiving waterways:

- does not vary between the upstream and downstream limits of the works site during the period (where upstream results become the background limits), although a variation between results of no more than twice the measurement uncertainty of the instrument will be allowable; or
- is as agreed between the Contractor, the Superintendent and EPA.

Table 176.B1.01 Construction Monitoring

Parameter	Method
Turbidity - NTU	Measure with on-site meter
Electrical Conductivity (EC) – µS/cm	Measure with on-site meter
pH	Measure with on-site meter
Dissolved oxygen (DO) – mg/L	Measure with on-site meter
Temperature - °C	Measure with on-site meter
Litter (definition, including solid inert waste)	Visual (prevent litter from entering waterways and drainage systems)
Oils and Greases	Visual (No visible free oil or greases)

(b) Monitoring

Monitoring shall be carried out in waterways and/or drainage infrastructure upstream and downstream of the limits of the site for each rain event as follows:

- within one hour of commencement of rain event during working hours
- every four hours for periods of continuous rain during working hours
- within 12 hours of a rain event, outside working hours.

(c) Dewatering

Water quality monitoring shall be undertaken when dewatering ponded water to receiving waterways.

The quality of ponded water to be dewatered to receiving waterways shall not exceed 30 NTU or shall not exceed the turbidity of water in the receiving waterways.

*** The pH of ponded water to be dewatered shall be within the range of ##:6.4 - 7.7 / 6.5 - 8.3. ##(strikethrough the pH range that is not applicable, as defined in EPA Publication 960 – Section 4.4 Dewatering (Figure 37)):

176.B2 NON-POTABLE WATER

Non-potable water sources shall be used as the primary source of water for all activities unless the Contractor can demonstrate to the Superintendent's satisfaction that the use of non-potable water is not practicable and feasible.

Where non-potable water is used an Environmental Improvement Plan (EIP) shall be developed in accordance with VicRoads Integrated Water Management Guidelines and shall include the management of all activities related to the sourcing, transport, storage and use of the non-potable water.

PART C - AIR QUALITY

176.C1 DUST

All work under the Contract shall comply with the following requirements:

- dust generated from road construction activities shall not create a hazard or nuisance to the public, disperse from the site or across roadways, nor interfere with crops and stock or commercial or residential properties or other dust-sensitive receptors
- emissions of visible smoke from construction plant and equipment shall be for periods no greater than ten consecutive seconds
- emissions of odorous substances or particulates shall not create or be likely to create objectionable conditions for the public
- materials of any type shall not be disposed of through burning
- materials that may create a hazard or nuisance dust shall be covered during transport.

PART D - EROSION AND SEDIMENT CONTROL

176.D1 EROSION AND SEDIMENT CONTROL

The Contractor shall minimise the risk of soil erosion and sediment pollution of the site, adjacent land, and waterways, by defining and implementing erosion and sediment controls measures as part of its EMP.

The control measures shall be developed with reference (but not limited) to the Environment Protection Authority's publications including EPA Publication No. 960 *'Doing it Right on Subdivisions',* EPA Publication No. 275 *'Construction Techniques for Sediment Pollution Control'*, EPA Publication No. 480 *'Environmental Guidelines for Major Construction Sites'* and the International Erosion Control Association *'Best Practice Erosion and Sediment Control' (IECA, 2008)*.

The Contractor shall inspect all erosion and sedimentation control works at least once per week with additional inspections during a rain event as follows:

- within one hour of commencement during working hours
- every four hours for periods of continuous rain during working hours
- within 12 hours of a rain event outside working hours
- when runoff is leaving the site.

Any defects and/or deficiencies in control measures identified by monitoring undertaken shall be rectified immediately and these control measures shall be cleaned, repaired and augmented as required to ensure effective control measures thereafter.

176.D2 STOCKPILES

Where soil is stockpiled on site it shall be located no less than 10 metres from waterways. Where it is not possible to provide a clearance of 10 metres, the stockpile shall be above the normal high water level of the waterways and protection shall be provided to prevent stockpiled material entering the waterways.

176.D3 MUD ON PUBLIC ROADS

The Contractor shall take all steps necessary to prevent vehicles from trafficking and depositing mud and other debris on the surface of adjacent roads when entering and leaving the site. The cleaning of plant and equipment shall not impact on any other element of the environment.

Any mud deposited on the road shall be removed immediately.

PART E - CONTAMINATED SOILS AND MATERIALS

176.E1 CONTAMINATED SOILS AND MATERIALS

All work under the Contract shall comply with the following requirements:

- soils or materials shall not be contaminated as a consequence of work under the Contract
- materials imported to the site shall be free from contaminants
- contaminated materials shall only be reused on site through agreement and approval from the Superintendent and EPA
- contaminated materials to be reused onsite shall be temporarily stored and managed to minimise any impact on the site or surrounding environment
- the transport and disposal of contaminated soils or materials offsite shall be undertaken in accordance with relevant legislation and State Environment Protection Policies, or by a method agreed with the EPA.

The discovery of contaminated material on the site during works shall be managed in accordance with VicRoads and EPA Guidelines. The contractor shall immediately notify the Superintendent and where applicable EPA when contaminated material is encountered.

The nature and extent of the waste material should be identified. Where required by the Superintendent and/or EPA a management plan shall be developed to manage the waste.

The use of contaminated material in the Works shall be subject to the approval of the Superintendent and EPA. Prior to the use of any material on the site, the material shall be analysed to verify that the proposed use is in accordance with legislative requirements. Where directed an EIP or other documentation shall be prepared in liaison with EPA and the Superintendent. Where any contaminated material is used in the Works, records shall be kept of the source, type of contamination, volume of contaminated material incorporated, the locations placed and all investigations undertaken. The location of contaminated material incorporated into the site shall be identified in the 'As Constructed' drawings. Copies of all documentation including the EIP are to be forwarded to the Superintendent for inclusion in the VicRoads Contaminated Site Register.

PART F - WASTE AND RESOURCE REUSE

176.F1 WASTE AND RESOURCE REUSE

(a) General

The generation of waste materials shall be managed in accordance with the hierarchy, of avoid, reuse, recycle or dispose of waste material. The Contractor shall be responsible for the management of any waste produced in performing the work under the Contract.

Solid inert wastes may be reused when approved by the Superintendent.

The Contractor shall also control the generation of wind blown litter, or litter spread by birds and animals, from disturbed material. This may include limiting the disturbed area or recovering material.

All vehicles transporting waste shall be covered and appropriately licensed.

Copies of all waste disposal records shall be provided to the Superintendent within five working days of their issue date.

Unless otherwise agreed by the Superintendent and where recycling facilities are available, the materials shall be managed in accordance with Table 176.F1.01.

Table 176.F1.01 Resource Management Requirements

Material	Waste Management Option
Asbestos	EPA licensed landfill
Asphalt	Recycle or reuse - not to landfill
Concrete and concrete washings	Recycle or reuse - not to landfill
Contaminated soil	Recycle or reuse on site if opportunity exists If removed from site, transported by an EPA licensed contractor and disposed in accordance with EPA regulations
Felled woody vegetation (except fragments of noxious or environmental weeds capable of regeneration)	Mulched for re-use, or used for habitat logs
Woody weed fragments capable of regeneration	Burial on site (deeper than 500mm and not in fill, pavement or other critical areas), composting, or disposal to landfill
Formwork	Reuse or dispose to landfill
Plastics (Recycle Nos. 1,2,3,4,5,6,7)	Recycling facility - not to landfill
Metal	Recycle or reuse - not to landfill
Oils and containers and lead acid batteries	Recycling facility - not to landfill
Packaging materials	Recycle where possible or dispose to landfill
Empty paint tins	Recycling facility - not to landfill
Petroleum products from spills (absorbed in spill kit material or contaminated soil)	Recycle or reuse with rehabilitation of contaminated soils if opportunity exists Transported by an EPA licensed contractor and disposed in accordance with EPA regulations
Timber (untreated)	Recycle - not to landfill
Litter	Recycle or dispose to landfill
Office waste	Recycle where possible or dispose to landfill
Other waste excluding the above wastes	Recycle or reuse if opportunity exists

(b) Monitoring

The Contractor shall monitor the whole site for instances of inappropriate waste management or disposal at intervals of not more every 7 days.

PART G - FUELS AND CHEMICALS

176.G1 FUELS AND CHEMICALS

(a) General

Any leakage or spillage of any fuels or chemicals shall not have detrimental environmental impact.

The Contractor shall include specific procedures to mitigate the effect on the environment from fuels and chemicals, including herbicides and pesticides. Such procedures shall include but not be limited to:

- nominated fuel and chemical storage areas that comply with Dangerous Goods (Storage and Handling) Regulations 2012 and EPA Bunding Guidelines (EPA Publication No. 347) including the placarding of compounds and bulk storage containers
- nominated points for fuel and chemical storage, the refueling and fluid top up of vehicles and plant which shall be undertaken in a designated area at least 20 metres from any drainage point or waterways
- provision of readily accessible and maintained spill kits for the purpose of cleaning up chemical, oil and fuel spillages on the Site at all times
- ensuring that personnel trained in the efficient deployment of the spill kits are readily available in the event of spillages
- a contingency plan that shall address the containment, treatment and disposal of any spill.

(b) Monitoring

Fuel and chemical storages and equipment fill areas shall be monitored for compliance at intervals of not more than 7 days.

PART H - NOISE

176.H1 NOISE

All work under the Contract shall comply with the following requirements:

- hours of work shall be between 7am and 6pm Monday to Saturday
- construction vehicles and equipment shall have appropriate measures fitted and be effectively maintained to minimise engine noise
- noisy equipment shall be enclosed where possible
- advise local residents in advance when unavoidable out-of-hours work will occur.

The contractor shall obtain the Superintendent’s approval prior to undertaking works outside of the above hours.

PART I - FLORA AND FAUNA

176.I1 FLORA AND FAUNA

(a) General

All work under the Contract shall comply with the following requirements:

- avoid, minimise and offset (where appropriate) the removal of native vegetation during construction
- avoid injury to fauna or damage to protected vegetation or habitat
- protect significant flora and fauna sites, species or habitat not previously identified.

(b) Permits and Approvals

Permits from relevant authorities shall be obtained prior to disturbance of flora/fauna sites or relocation of native fauna affected by works under the Contract. Works under the Contract shall comply with all permits and approvals and associated conditions.

(c) Protection of Flora and Fauna

Areas of existing vegetation and native fauna habitat identified to be retained, shall be identified as 'No-Go Zones' and protected by temporary fencing and signage.

HP **Prior to removing any vegetation or habitat, the Contractor shall arrange an on-site inspection with the Superintendent and other relevant authorities to confirm and clearly identify and mark trees, vegetation or habitat to be removed. Any removal shall be consistent with the Contract drawings and any relevant permits and shall fence and sign all sites nominated as No-Go Zones.**

Plant, equipment, material or debris shall not be placed or stored within the limit of the root zone of the tree or vegetation to be retained.

(d) Soil Compaction

The Contractor shall avoid trafficking and compacting, or storing materials on soil in all areas that are currently vegetated and those areas to be re-vegetated.

(e) Monitoring

The Contractor shall undertake monitoring of the condition of flora and fauna habitat sites and protective measures at the site every 7 days.

176.I2 WEED PEST AND DISEASE MANAGEMENT

(a) General

Declared weeds, pests and diseases (also referred to as pathogens) shall not be introduced to the Site, spread through the Site, or removed from the Site as a consequence of work under the Contract.

The Contractor shall prevent the spread of declared weeds, pests and diseases within the Site and off-site through the implementation of controls that as a minimum shall include:

- treatment of declared weeds prior to the commencement of any ground disturbing activities
- response to their identification through monitoring of the site
- management of weed and soil pathogen potential within imported materials
- provisions for cleaning plant and equipment at the following times -
  - prior to arrival on Site
  - prior to departure from Site
  - prior to movement within the Site from infested to non-infested areas.

(b) Monitoring

The Site shall be monitored for the presence of weeds and pests. At intervals of not more than ##(7 days / 14 days / other):

PART J - CULTURAL HERITAGE

176.J1 CULTURAL HERITAGE

(a) General

Cultural heritage sites and areas of cultural significance shall not be damaged, disturbed or otherwise adversely impacted unless an appropriate authorisation has been obtained.

Where a Cultural Heritage Management Plan (CHMP) has been prepared for the project, the Contractor shall comply with the Plan in relation to any discovery.

Where a CHMP for the project is not required, the Contractor shall obtain a Cultural Heritage Permit prior to any disturbance of cultural heritage sites and shall comply with all conditions of any permits.

The Contractor shall identify and protect with clearly marked fencing all nominated archaeological and/or heritage areas prior to commencing work on site.

(b) Discovery of Cultural Heritage

The following procedure will apply in the event of the discovery i.e. uncovering and/or identification of any cultural heritage during works:

- immediate notification to the Superintendent;
- work at the immediate location to be suspended, and the site isolated by a 'No-Go Zone' as specified in Clause 177.J1(e), pending completion of an evaluation of the cultural heritage and the determination of an appropriate course of protective action;
- the Contractor shall evaluate the nature and extent of the cultural heritage. A cultural heritage advisor shall be engaged to assist in this evaluation;
- work greater than 50 metres away from the area in which the cultural heritage was uncovered and/or identified may recommence and continue. Work in areas less than 50 metres from the cultural heritage site may proceed if agreed by the relevant approval authority, and in consultation with any other relevant cultural heritage stakeholders and the Superintendent;
- the Contractor shall consult with the Superintendent, relevant approval authorities, any monitor(s) on site and the Contractor's cultural heritage advisor to determine the process to be followed to manage the discovered cultural heritage, and how to proceed with the works. The Superintendent's agreement shall be obtained to the proposed process for management of the discovered cultural heritage prior to implementation;
- within 24 hours notify any monitor(s) on site, any engaged cultural heritage advisor and the relevant approval authorities of the discovery of cultural heritage and its location;
- the Contractor shall obtain a cultural heritage permit prior to any disturbance of cultural heritage discovered during construction and shall comply with all conditions of any such permits. Removal of any cultural heritage from the site shall be undertaken in accordance with statutory requirements and relevant cultural heritage permit conditions;
- works may recommence in the relevant area if all relevant cultural heritage records have been updated and/or completed, and -

  works can resume without risk to the discovered cultural heritage, or

  the discovered cultural heritage been removed from the relevant part of the works area, or

  any agreed or stipulated cultural heritage management actions have been fully implemented.

(c) Monitoring

The Contractor shall undertake a visual assessment of the site for cultural heritage during ground disturbing activities.

PART K - REPORTING

176.K1 REPORTING

(a) General

All environmental monitoring results and all non-conformance reports relating to environmental performance and current status shall be submitted to the Superintendent.

The Contractor shall submit to the Superintendent copies of the data/information listed in Table 176.K1.01. This submission shall include both the data for the latest report and a summary of data collected to date under the Contract.

Table 176.K1.01

Data/Information	Frequency
Pollution Infringement Notices or Pollution Abatement Notices and/or any notices of prosecution.	Within 24 hours of receipt by the Contractor.
Statutory documents obtained by the Contractor as part of the project (e.g. permits).	Within one week of receipt by the Contractor.
Results of any air quality and water quality monitoring undertaken as part of the project.	##Monthly / At completion of Works / Other:
Itemised fuel (diesel unleaded and LPG) use on-site by contractors and sub-contractors.	##Quarterly / At completion of Works / Other:
Itemised volumes/quantities, including recycled materials, for the following: • concrete • steel (reinforced and other) • road surface material i.e. spray seal, asphalt • aggregate • cement treated crushed rock • fill material • lime stabilized aggregate • plastic products • copper wire.	##Quarterly / At completion of Works / Other:
Itemised quantities and types of materials sent offsite including prescribed waste certificates.	##Quarterly / At completion of Works / Other:
Itemised quantities and sources of all water used on site.	##Quarterly / At completion of Works / Other:
Itemised quantities of energy use (electricity and gas) including the proportion of renewable sources.	##Quarterly / At completion of Works / Other:

(b) Notice of Authority Inspections

The Contractor shall notify the Superintendent within 24 hours of all environmental inspections, correspondence and/or discussions with the EPA or other authorities.

176.K2 ENVIRONMENTAL INCIDENTS

In the event that an environmental incident occurs in relation to the work under the Contract, the Contractor shall:

- take immediate action to avoid continuance of the incident (which may include cessation of work), and to minimise the effect of the incident on the environment
- immediately notify the Superintendent and EPA Pollution Watch (Tel. 1300 EPA VIC) or other responsible authorities of the incident (or by 9am the next working day if the incident occurs outside of working hours)
- submit to the Superintendent for review an incident report within 7 days of the incident. The incident report shall include photographs where available and cover details of the incident, and the proposed corrective action to avoid a re-occurrence.

PART L - REFERENCES

Unless otherwise specified, environment protection shall be implemented in accordance with, but not limited to, the references listed in Table 176.L1.01. The reference shall be the edition or version current at the time of closing of tenders, unless otherwise specified.

Table 176.L1.01 References

STATUTORY GUIDELINES / PUBLICATIONS
Environment Protection Authority Publication 275 – Construction Techniques for Sediment Pollution Control
Environment Protection Authority Publication 347 – Bunding Guidelines
Environment Protection Authority Publication 448 – Classifications of Wastes
Environment Protection Authority Publication 480 – Environmental Guidelines for Major Construction Sites
Environment Protection Authority Publication 464.2 – Guidelines for Environmental Management - Use of Reclaimed Water
Environment Protection Authority Publication 960 – Doing It Right On Subdivisions
Environment Protection Authority Publication 1178 – Off-site Management and Acceptance to Landfill
Industrial Waste Resource Guidelines (IWRG701): Sampling and analysis of waters, wastewaters, soils and waste
State Environment Protection Policy (Groundwaters of Victoria)
State Environment Protection Policy (Prevention and Management of Contaminated Land)
State Environment Protection Policy (Waters of Victoria) and schedules
VICROADS DOCUMENTS
VicRoads Sustainability and Climate Change Policy
VicRoads Guide to Managing Environmental Risks during Road Construction and Maintenance Guidelines
VicRoads Integrated Water Management Guidelines
VicRoads Contaminated Land (Planning, Construction & Maintenance) Guidelines
VicRoads Cultural Heritage Guidelines
VicRoads Biodiversity Guidelines
VicRoads Noise Guidelines - Construction and Maintenance Works
AUSTRALIAN STANDARDS
AS 2724.5 (1987) Ambient Air Particulate Matter Part 5 – Determination of impinged matter expressed as direction dirtiness, background dirtiness and/or area dirtiness (directional dust gauge method)
AS 3580.10.1 (2003) – Method for sampling and analysis of ambient air. Method 10.1 Determination of particulate matter – deposited matter – Gravimetric method
AS 3580.9.6 Methods for sampling and analysis of ambient air Method 9.6: Determination of suspended particulate matter - PM10 high volume sampler with size selective inlet - Gravimetric method
AS 3580.9.7 Methods for sampling and analysis of ambient air Method 9.7: Determination of suspended particulate matter - PM10 dichotomous sampler - Gravimetric method
AS 3580.9.8 Methods for sampling and analysis of ambient air Method 9.8: Determination of suspended particulate matter — PM10 continuous direct mass method using a tapered element oscillating microbalance analyser
AS 3580.9.9 Methods for sampling and analysis of ambient air Method 9.9: Determination of suspended particulate matter - PM10 low volume sampler - Gravimetric method
AS 3580.9.11 Methods for sampling and analysis of ambient air Method 9.11: Determination of suspended particulate matter - PM10 beta attenuation monitors

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Table 176.L1.01 References … continued

ADDITIONAL REPORTS AND TOOLS
Austroads Guide to Road Design - Part 6B: Roadside Environment and VicRoads Supplement to AGRD Part 6B
Engineers Australia - Australian Runoff Quality – A guide to Water Sensitive Urban Design
International Erosion Control Association – Best Practice Erosion and Sediment Control
Melbourne Water (2005) WSUD Engineering Procedures: Stormwater
VicRoads Carbon Gauge Calculator 2012
VicRoads Temporary Sedimentation Basin Design Tool
VicRoads Project Environment Protection Strategy ##(insert name, date and version):
##(insert report names relating to Flora and Fauna studies):
##(insert report names relating to Cultural Heritage studies):
##(insert report names of other relevant pre-construction investigations):
##(insert any other relevant references):