Site Environmental Management Plan

Guidelines and Standards Manual

The City of Whittlesea Council

Owner: Rural and Environmental Planning (REP)	
Creation date	
Revision 1	December 2021
Revision 3	April 2022
Please check Council's Intranet to ensure this is the latest Revision.	

Contents

1 Introduction

Construction site managers and supervisors play a key role in protecting the environment and waterways from adverse impacts and pollution. Site Environmental Management Plans (SEMPs) are comprehensive site-specific documents identifying, in detail the potential environmental impacts and risks of a proposed development and the ways in which these impacts and risks may be reduced through management strategies and site practices.

This SEMP Kit - Guidelines and Standards Manual and accompanying Template has been prepared to assist a proponent (developer, contractor) to understand City of Whittlesea's requirements for the development of a satisfactory SEMPs by supplying a standard format for SEMP submissions to Council for approval. It outlines the various aspects of site management, offering a range of acceptable standard measures and options, to eliminate or minimise the impacts of construction activities on the environment and human health.

1.1 Regulatory requirements: Legislation and Enforcement

Developers, consultants and contractors working in the Whittlesea municipality must comply with the following guidelines where applicable, together with the appropriate legislation, regulations, environmental policies and local planning requirements.

Council officers conduct regular inspections and where necessary legal actions, and appropriate enforcement proceedings are likely to follow by Council and other relevant authorities if breaches of legislation or the SEMP occur.

Additional guidance and regulatory requirements may need to be assessed and acceptable management measures may be found in the following regulatory requirements and guidelines (may include but not limited to):

- ✓ Commonwealth of Australia - *Environment Protection and Biodiversity Act* (1999)
- ✓ Land Development Manual (LDM) - Melbourne Water
- ✓ Environment Protection (Industrial Waste Resource) Regulations (2009) – EPA Victoria.
- ✓ Civil construction, building and demolition guide (2020) Publication 1834* – EPA Victoria. *This replaces publications 480 released 1996, 960 released 2004, 981 released 2005, Section 2 of 1254 released 2008 and 1264 released 2008.
- ✓ Doing it Right on Subdivisions (2004) – Temporary Environmental Protection Measures for Subdivision Construction Sites, Publication 960 – EPA Victoria.
- ✓ Noise Control Guidelines (2008), Publication 1254 – EPA Victoria.
- ✓ Noise from large Residential Subdivision or Urban Development Sites (2008), Publication 1264 – EPA Victoria.
- ✓ Worksafe Victoria - Industry Standard - Contaminated Construction Sites, Construction and Utilities (2005)
- ✓ Victorian Government - *Aboriginal Heritage Act* (2016)
- ✓ Victorian Government - *Heritage Act* (1995)
- ✓ Victorian Government - *Catchment and Land Protection Act* (1994)
- ✓ Victorian Government - Agricultural and Veterinary Chemicals (Control of Use) Regulations (2007)
- ✓ Victorian Government - *Occupational Health and Safety Act* (2004)
- ✓ Victorian Government - *Water Act* (1989)
- ✓ Victorian Government - *Public Health and Wellbeing Act* (2008)
- ✓ Victorian Government - *Environment Protection Act* (2017)
- ✓ Victorian Government - *Environment Protection Act* – Environmental Reference Standards (ERS) (2017)
- ✓ Victorian Government - *Wildlife Act* (1975)
- ✓ Victorian Government - P*revention of Cruelty to Animals Act* (1986)

- ✓ Construction Techniques for Sediment Pollution Control (1991), Publication 275 – EPA Victoria.
- ✓ Guidelines for Environmental Management: Use of Reclaimed Water (2003), Publication 464.2 – EPA Victoria.
- ✓ Industrial Waste Resource Guidelines (2009) – EPA Victoria.
- ✓ Victorian Government - *Litter Act* (1987)
- ✓ Victorian Government - *Planning and Environment Act* (1987)
- ✓ Victorian Government - *Flora and Fauna Guarantee Act* (1988)
- ✓ Victorian Government - *Agricultural and Veterinary Chemicals (Control of Use) Act* (1992)

1.2 Local Government Requirements

Clause 53.18-6 Site management objectives - Protection of drainage infrastructure and receiving waters from sedimentation and contamination; Protection of the site and surrounding area from environmental degradation prior to and during construction.

Clause 56.08-1 Site Management Objectives Standard C26 - These provisions require that the subdivision applicants describe how the site will be managed to minimise environmental impacts.

Clause 52.17 Native Vegetation – A permit is required to remove, destroy or lop native vegetation, including dead vegetation. The objective of the native vegetation clearing controls is "no net loss" in the contribution that native vegetation makes to Victoria's biodiversity.

1.3 General Environmental Duty (GED)

Victoria's new *Environment Protection Act* came into effect on 1 July 2021. The laws feature new responsibilities (called duties), and the centrepiece the **'General Environmental Duty' (GED**) creates an obligation and applies to all Victorians to understand risks and harms to human health and the environment from activities you undertake or engage in. It also means you must take reasonable steps to eliminate or minimise these risks and harms to human health and the environment from your activities.

GED = Now everyone must minimise risks of harm to human health and the environment from their activities.

2 Using the Guidelines and Standards Manual and Template

The Manual contains information and reference materials to help in the development of a Site Environmental Management Plan (SEMP). These include lists of suggested standards for environment management and options for acceptable types of environmental protection measures. These lists are by no means comprehensive or exclusive, and other measures may be considered by Council provided they are effective and conform to relevant regulatory requirements.

The Manual should be used in conjunction with relevant legislation, regulations, guidelines, Codes of Practice and Planning Permit conditions, as well as relevant Australian Standards. All sections of the SEMP must be filled and submitted to Council a minimum of 21 days before a required pre-commencement meeting (attended by authorised representatives of the construction contractor and project superintendent as appointed by the developer. Please note that where criteria are deemed 'Not Applicable' to a site, an explanation is required e.g. If no flora and fauna are present on site, evidence is required such as an acceptable flora and fauna assessment and/or Council assessment.

SEMPs will not be considered for approved until the Functional Layout Plan(s) for the relevant stage has been approved by Council, the plan of subdivision has been certified, a draft landscape works plan for the relevant stage has been submitted for comparison against the civil engineering plan and the locations of other authorities' services have been provided to the satisfaction of Council, when approved, the civil engineering plan, landscape works plan and the SEMP will be approved and will then form part of the permit. The plans must be drawn to scale with dimensions and separate (SEMP pdf) copies must be provided.

Works cannot begin until Council has approved the Site Environmental Management Plan.

Furthermore, under the Melbourne Strategic Assessment program development sites inclusive of or adjoining to conservation area, as identified in the Biodiversity Conservation Strategy (DEPI 2013), require a Construction Environmental Management Plan (CEMP) to be prepared to DELWP's satisfaction. Further detail can be found here.

The SEMP Kit consists of information to guide the completion of the four main sections:

1 **Risk Assessment Checklist** – This is used to identify potential issues/aspects and the overall risk these issues pose to the environment.
2 **Environmental Protection Measures section** – This section is used to provide details of the management measures that will be implemented on site to mitigate and manage the potential issues.
3 **Site Plan 1** (Types and Locations of Environmental Protection Measures) – This includes space for a site plan, general notes and details of the types and locations of environmental protection measures on the site.
4 **Site Plan 2** (Risk Assessment and Designs of Environmental Protection Measures) – This includes an area for description of designs (and figures) of the environmental protection management measures that will be employed on site.

The SEMP - Guidelines and Standards Manual and Templates (Site Plan 1 and 2) are available for download on Council's website www.whittlesea.vic.gov.au

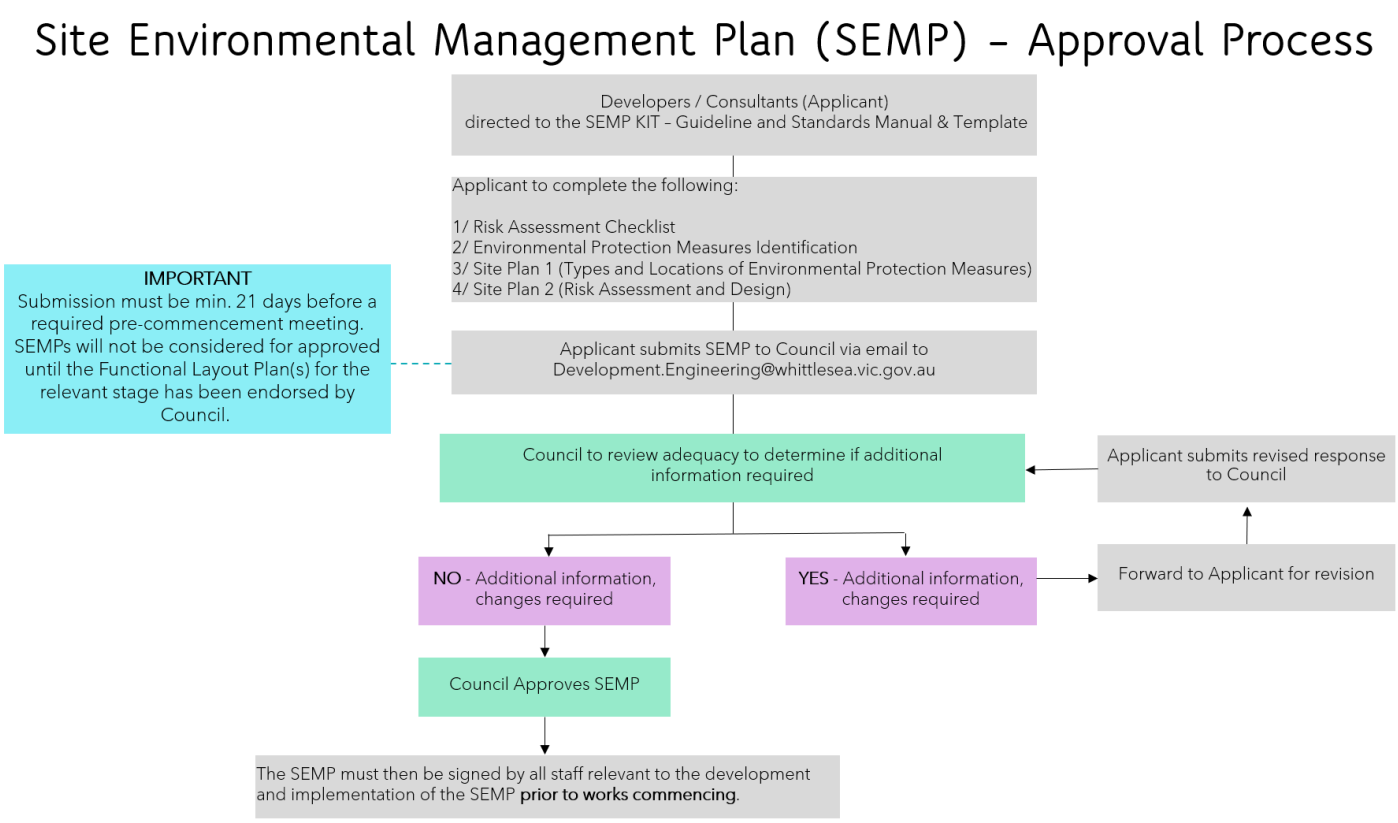


Figure 1. Site Environmental Management Plan Approval Process Flowchart

3 Risk Assessment Checklist

The Risk Assessment Checklist enables the developer/consultant to note all sources and causes of potential environmental issues/aspects, including the proximity and type of impacted environment (environment and human health). The checklist includes key environmental components of erosion and sediment, noise (vibration & lighting), dust, waste, chemicals, significant flora and fauna, and archaeological heritage, as well as Dispersive/Sodic soil have also been identified, as these are aspects of interest to Council. Other site-specific aspects may be identified informally through your knowledge of the site or formally through forums such as risk identification.

A risk assessment must be undertaken before selecting the environmental protection measures that will be utilised on the site.

3.1 Issues/Aspects

All potential issues within each environmental component must be addressed. Site specific issues for each environmental component must be noted in the checklist. Where necessary, other components and issues may be included. Appropriate legislation and regulations must be consulted for assistance and guidance when addressing each issue.

3.2 Risk Matrix

It is required that the overall risk of each environmental component of the site be noted in the Risk Assessment Checklist. This must be determined using the likelihood of an issue occurring (without preventative measures) and the severity of the consequence of the issue occurring (without preventative measures). These can be assessed and determined using the definitions and risk matrix given below. The likelihood, consequence and overall risk for each aspect must be noted in the right-hand column of the Checklist.

3.2.1 Likelihood:

- ***Rare:*** Unlikely to occur during a project even if controls are missing.
- ***Unlikely:*** May occur once or twice if preventative measures are not applied.
- ***Likely:*** Will occur more than once or twice but less than weekly if preventative measures are not applied.
- ***Certain:*** Will occur more often than weekly if preventative measures are not applied.

3.2.2 Consequence:

- ***Minor:*** No or minimal adverse environmental or social impacts.
- ***Moderate:*** Moderate undesirable environmental or social impacts.
- ***Major:*** Major adverse environmental or social impacts.
- ***Catastrophic:*** Significant damage or impact on environment or community.

3.2.3 Overall Risk:

Using the table below, determine the level of risk based on the likelihood of occurrence and the

potential consequence. Document the level of risk on both the Plan 2 Risk Assessment in the box marked 'Overall Risk' and on Plan 1 marked 'Risk:'. The level of risk will determine the type and amount of environmental protection measures that will be required. Where a significant risk to the environment has been identified, environmental protection measures must be introduced to reduce the risk to an acceptable level. Aspects with a medium or low risk should also have practicable management measures implemented if these can further reduce risk.

The environmental protection measures selected to minimise risk must be outlined on both Plan 1 and Plan 2.

	CONSEQUENCE			
LIKELIHOOD	Minor	Moderate	Major	Catastrophic
Rare	Low	Low	Medium	Medium
Unlikely	Low	Medium	Significant	Significant
Likely	Medium	Significant	Significant	Significant
Certain	Medium	Significant	Significant	Significant

4 Environmental Protection Measures

This section provides details of Environment Protection Measures to mitigate and manage the identified aspects, risks and issues to be considered for your site within the City of Whittlesea.

It is worth noting that project managers/contractors may propose any approach for management measures in addition to the ones given below provided they meet Council's satisfaction. Plans can be changed or updated as appropriate to address changing site conditions, however Council or Regulatory Authority must be consulted for advice on changes and obtain the required approval and permit where necessary. Moreover, extra measures may be required by Council or Regulatory Authority to deal with site-specific and/or other emerging issues.

All measures to be used must be clearly specified in the appropriate space. Locations for measures must be detailed (Plan 1) in addition to guidance on how the measures should be installed and maintained (Plan 2).

4.1 Management

Details of the general site management measures and implementation of the Site Environmental Management Plan (SEMP) is given here. The details below provide information and recommendations for acceptable management measures within the Whittlesea municipality. Note that these may be modified, and additional measures may be proposed for some project sites, where required.

4.1.1 Responsibilities:

Document who is responsible for implementing the components of the plan and who is responsible for the overall implementation. The division of responsibility between the developer, consultant and contractor to be nominated.

- Include the names and contact details of a min. 2 individuals responsible for the implementation of the SEMP and works on site (e.g. contractors, site supervisors, superintendents, consultants, developers) and out of hours.

4.1.2 Communication of SEMP Requirements:

It is necessary that the objectives and requirements of the SEMP be communicated to all individuals on the site, including sub-contractors.

- All contractors, subcontractors and others working on site must be aware and inducted into SEMP.
- Detail how the requirements of the SEMP will be conveyed to individuals working on the site inc. displayed on site shed walls, inductions, toolbox meetings, training sessions.
- All transient personnel (e.g. delivering drivers) are to be supervised by inducted personnel to ensure their compliance with this SEMP. Maintain an Induction Register.
- SEMP must be displayed in visible location within site compound/office.
- SEMP must be addressed through other forms of communication such as toolbox meetings.
- Amended versions of the SEMP are to be submitted for approval by City of Whittlesea's Development Engineering Department to address any identified deficiencies or alterations required to protect significant environmental aspects.

4.1.3 Inspection and Maintenance:

The nature and frequency of inspections should be nominated on the plan.

- SEMP protection measures must be monitored at least twice per week.

- Sediment and Erosion Control measures to be inspected daily for functionality and compliance with SEMP. Immediate rectifications and repair of sediment control measure to occur.
- Any defects in environmental protection devices to be rectified within 24hrs of detection.
- Monthly inspections by consultants where significant flora or fauna may be impacted.
- Inspect control measures to ensure all are operational, including before, during and after heavy rain events &/or storm events.
- Inspect nearby receiving environments eg. Roads, Neighbouring residential properties, Conservation Zones, Waterbodies/waterways.
- Maintain records of inspections and rectifications/repairs in order to prove due diligence.

4.1.4 Staging of Works:

Indicate clearly whether construction works will be staged and detail how this will be undertaken.

- Staging in relation to weather conditions.
- All environmental protection devices to be installed prior to the commencement of corresponding activities/works.
- Staging construction to reduce time and area of exposed soil, and commence rehabilitation as soon as possible following completion of construction
- Maintain maximum soil surface cover and minimise the “footprint” of soil disturbance at any one time.
- Inspect control measures to ensure all are operational, including before, during and after rain events &/or storm/extreme wind events.
- All rectifications to be addressed immediately of incident/report.
- Immediate repair of sediment control measure to occur.

4.1.5 Informing Residents:

Provide details relating to the circumstances that will result in residents being informed about items of works and how this will be undertaken.

- Indicate when and how nearby necessary residents will be informed/contacted.
- All residents within specified radius of the development site to be advised of works through possible considerations inc. Letter drop, Signage, Door knock, Newspaper articles, of the activities eg. Tree removal, works, rock crushing or loading, at least 48hrs prior to commencement.

4.1.6 Associated Documents:

Associated documents, which support the SEMP, should be used to keep records to demonstrate due diligence in the event of an incident. They may also provide additional information to that provided on the Site EMP. The types and locations of documents that support the Site EMP should be noted.

Documents to be listed and attached could include all or any of the following depending on the project.

- ✓ City of Whittlesea Planning Permit.
- ✓ Inspection checklists.
- ✓ Risk assessments.
- ✓ Emergency procedures.
- ✓ Induction checklists.
- ✓ Incident report forms.
- ✓ Incident management and procedures.
- ✓ Project Management Plan.
- ✓ Traffic Management Plan.
- ✓ Flora and Fauna Assessment.
- ✓ Arboricultural reports.
- ✓ Dilapidation reports.
- ✓ Tree Management Plan.
- ✓ Offset Management Plan.
- ✓ Conservation Management Plan.
- ✓ Salvage and Translocation Plan.
- ✓ Weed Management Plan.
- ✓ Kangaroo Management Plan.
- ✓ Cultural Heritage Management Plan.
- ✓ Bushfire Management Plan.
- ✓ Fuel/Chemical Spill Response Plan.
- ✓ Soil/Sodic Soil Management Plan.
- ✓ Other related assessments plans or reports.

4.1.7 Risk and Incident Management:

Incident management frameworks and processes must be clearly exhibited in site office and central locations around site. Must include chemical spill, fire, animal rescue, vegetation damage, archaeological/heritage, OH&S and pollution response procedures, flowcharts/checklists and relevant Authority contact details.

- All vehicles and machinery to be parked on established gravel areas.
- All workers must be aware of Fire Danger Period and days of Total Fire Ban
- Monitor weather conditions during periods of high fire danger
- Adequate fire suppression equipment on site, including contact number for local CFA.
- Fire hazard prevention e.g. fire breaks and grass slashing, including during reinstatement and maintenance period.

4.1.8 Other:

- Council to inspect measures such as all sediment, erosion, native vegetation measures etc. before construction works begin.
- Trigger points/hold points for Council inspection prior to continuing.
- Other site specific and emerging management issues.

4.2 Noise, Vibration and Lighting Control Standards

Identify and draw on Plan 1 the location of receptors that may be affected by site noise, vibration and lighting. This may include residents in close proximity to the site or other sensitive site neighbours (inc. fauna).

4.2.1 Working Hours:

- Enter the working hours for the project in the spaces provided.
- Schedule works in accordance with EPA guidelines and are as per Council approved Traffic Management Plan.
- All noise from construction equipment (including warming up of plant) is prohibited before 7 am.

4.2.2 Noise and Vibration Minimisation Methods:

- Regular maintenance and inspection of machinery.
- All machinery and vehicles used on site to be fitted with standard noise management equipment.
- Locate works that may generate noise and vibration as far away from neighbours and sensitive environments (Sensitive receivers) as possible.
- Schedule noisy activities for least sensitive times of the day.
- Obstruct the transmission path of sound eg. Using noise barriers, acoustic walls or screens.
- Prioritise construction of structures such as buildings and walls, even stockpiles that can contribute to shielding noise form construction site.
- No equipment shall be use within 35m of any residential premises boundaries in accordance with EPA regulations. Only the following equipment is permitted for use between 35m & 200m from any residential premises boundaries:
    - earthmoving machinery (such as graders or excavators)
    - concrete trucks
    - self-propelled, single-drum vibrating rollers
    - non-vibrating compaction machinery.

4.2.3 Lighting:

- Site lighting must be designed and used to minimise impacts on surrounding land uses.
- Lighting should consider impacts to wildlife it should only be used;
    - IF needed
    - WHEN needed
    - WHERE needed
    - Only AS MUCH as needed
    - Warmer light is better
- Outdoor lighting must be designed, baffled and located to ensure no direct light is emitted outside the boundaries of the subject land to the satisfaction of the Responsible Authority.
- Lighting must not illuminate/project onto areas of conservation including conservation areas, wetlands, waterways and habitat for nocturnal fauna and migratory birds.

4.3 Dust Control Standards

Dust generation must be minimised to ensure there is no health risk or loss of amenity. Identify and draw on the plan the location of receptors that may be affected by dust generated by the site. This may include residents in close proximity to the site or other sensitive sites eg. waterways.

4.3.1 Minimising Dust Generation:

- Retain vegetation through avoid stripping large areas at once. Strip in stages where possible.
- Encourage establishment of vegetation/Re-grass filled areas after completion to stabilise exposed soils.
- Reduce traffic speeds to apply to works area (20km/h speed limit).
- Haulage roads and parking areas to be covered with gravel.
- Keep to approved truck/haulage route and maintain truck route appropriately.

- Schedule dust generating activities ie. activity involving the handling and moving of soil, by avoiding adverse weather conditions, such as during hot and dry periods, high winds, and days with poor air quality.

4.3.2 Dust Suppression:

- Water spray (eg. water cart, sprinklers, hand- held hose) exposed surfaces, as necessary.
- All loads of soil being taken off site for disposal must be covered.
- A water truck/cart must be available on site full-time to spray truck routes and exposed surfaces.
- Any hose used for water spraying to be fitted with a trigger nozzle.
- Check water restrictions with local authorities for guidelines.
- Recycled water (refer to EPA guidelines for controls on usage) to be used for dust suppression.
- Stabilise exposed soils prior to leaving works area at the end of the day.

4.3.3 Contingencies:

- Weather forecasts must be assessed prior to undertaking stripping.
- Activities generating dust must be monitored and restricted if they reduce visibility onsite and become hazardous.
- Stop work if dust generated from construction on site reaches neighbouring areas, properties, sensitive receptors and if visibility is affected on adjoining roads or if dust on the work site is a risk to occupational health.

4.3.4 Other:

- Addition of dust suppressants may be utilised, ensure that the product will not have an impact on the environment. Provide a copy of the Safety Data Sheet (SDS).
- Manage stockpiles in a way that minimises dust generation.
- Conduct post-installation maintenance of established controls (including dust monitoring equipment) and assess control effectiveness at regular intervals.
- Understand the proximity of sensitive receivers that may be impacted by dust
- Understand structural stability of soil on site (some soil types are structurally unstable and more prone to erosion and can collapse in water and lead to sedimentation of waterways).

4.4 Erosion and Sediment Control Standards

Erosion and sediment must be managed to prevent sediment-laden water from entering waterways and stormwater systems, neighbouring properties and other site-specific sensitive areas. All water leaving or discharged from the works area is to meet EPA Victoria water quality requirements, including for turbidity, salinity, pH, temperature, dissolved oxygen and contaminants.

- Detail the silt fence/erosion control methods to be utilised and provide Figures in Plan 2 of set-up and maintenance.
- Sediment runoff controls at the construction site must be decided and established before commencing any soil disturbance or earthworks.
- Suitable sediment control measures include sediment fences, grass filter strips, rock bounds, biodegradable/synthetic logs, coir logs, geotextile sediment fences, check dams, gravel sausage. Measures selected must be in accordance with relevant guidelines and must take into consideration site specific constraint.

- The use of hay and straw bales will NOT BE APPROVED by the City of Whittlesea.
- Sediment runoff controls must be regularly inspected and maintained for the duration of construction works particularly before and after storm events to ensure they are operating properly.
- Sediment retention/runoff controls should be designed and installed to cater for the predicted flows from a 1in2 year storm event (two-year ARI with intensity of six hours).
- Keep extra sediment and erosion control materials on site for replacement.
- Install sediment runoff controls downslope of disturbed areas on site.
- When working near waterways, sediment runoff controls must be installed as far inland as practical.
- Install sediment runoff controls (e.g. filter socks) along any open channels.
- Stormwater pits along established roadways likely to receive sediment deposits must be fitted with either kerb inlet protectors or filter material (geofabric) to capture sediments.
- Grated channel pit fitted/ wrapped with geotextile, also require filter/gravel sausage (to be maintained until the end of the maintenance period) ie. not only wrapped in geotextile.
- Sediment fences should only be used in areas of sheet flow. They are not suitable for use in concentrated flow.
- They are most effective in removing coarse particles from runoff and have limited to no filtering capacity of fine or dispersive soils.
- When choosing silt fence products ensure that it is fit for the soil characteristics on site.
- Provide details of material to be utilised. Silt fences geofabric to be tear-resistant and resistant to UV degradation. Provide specifications of the geotextile to be used for silt fencing.

4.4.1 Drainage Management

- Appropriate functional drainage controls during construction phase must be installed.
- Required drainage control measure must be assessed based on anticipated catchment and weather conditions.
- Put in place measures (such as interceptors, diversions, vegetated buffers, etc.) to slow down stormwater runoff as it moves across and away from site.
- Stormwater must not be unlawfully diverted or released into neighbouring properties or allowed to cause erosion at discharge locations.
- Diversion of up-slope runoff around any given soil disturbance or earthwork, batters or stockpiles.
- Diversion of off-site run-off from the site.
- Drainage lines must be naturalised as much as practical.
- Avoid cutting drains into dispersive or highly erodible soils. In such cases, Flow Diversion Banks to redirect water across the slope should be use.
- Where flow velocities are expected to be high, water velocity can be controlled using Check Dam or an appropriate channel lining.
- Stormwater drain inlets must be protected.
- Break up long slopes with sediment barriers or under drain or divert stormwater away from slopes.
- Sheet runoff should be collected and diverted across a slope or around a soil disturbance. Catch drains can be used especially on erosion-resistant and non-dispersive soil.

- Stabilise catch-drains within 14 days of installation and regularly inspected to ensure: size is adequate for the flow, erosion of the channel is not occurring, run-off has not damaged the bank, utilise Grassing / stabilisation matting / rock armoring.

4.4.2 Soil Management (Soil Stabilisation and Dispersive / Sodic Soil)

Consider the following methods to limit the impacts of soil disturbance and management during Construction and Post works:

- Avoid clearing areas that do not need to be disturbed.
- Minimize vegetation disturbance.
- Stage soil work to minimize areas of exposure.
- Plan and schedule soil disturbance activities and consider weather conditions (e.g. hot, dry or wet periods, high winds, heavy rainfall events and days with poor air quality).
- Regular meteorological monitoring must be performed (e.g. wind conditions and rainfall) and be flexible and adjust your work plan or reschedule, as necessary. For instance, where possible, plan topsoil stripping and grading on days when wind conditions are less likely to carry dust towards sensitive receivers. Resume works only when you can implement effective controls or weather conditions and air quality improve.
- Divert clean surface water away from disturbed soil where possible.
- Wind barriers (e.g. solid board fences, crate walls, burlap fences and trees) help with preventing erosion by obstructing the wind near the ground and in turn, prevent soil from being blown off site. Wind barriers are most effective when placed perpendicular to the prevailing wind.
- Avoid driving over stabilised or exposed soils.
- Stabilised exposed soils for example, revegetating soils (e.g. hydroseeding, hydro-mulching) by applying spray suppressants or soil binders or installing stabilizing matting.
- Regularly undertake maintenance and reinforcement as required of installed controls (e.g. replanting failed vegetation or further application of soil binders).
- Inspect controls following high rainfall and/or high wind events to confirm if any reinforcing or re-establishment is required.

Consider the following to manage or limit impact of Dispersive / Sodic Soil:

- Site managers must be aware of any potentially problematic soils such as highly erodible soils, dispersive or sodic soils. Consult Council about the site prior to commencing any soil disturbance.
- Appropriate soil testing and analysis must be performed, if necessary, for cases of problematic soils and necessary management measures prior to any earthwork.
- Ensure excavated material is not stockpiled in locations where it increases public liability risk, or be washed into a gutter, drain or waterways including (i) adjacent to creek banks, (ii) within an overland flow path, (iii) within canopy drip zone of protected trees.
- Avoid earthworks during periods when rainfall is either occurring or the soil is saturated. Working when soil is very wet can damage soil structure, increase erosion and sediment runoff into stormwater outlets and waterways.
- As soon as practical, exposed soils must be rehabilitated (re-grass or revegetate) to Council satisfaction and reinstatement standards to reduce erosion and sediment load risk. (Always use seed or plant type approved by Council)
- Stabilized all exposed areas immediately after land alterations by vegetating, mulching.

- Dispersive subsoils must be covered with a non-dispersive soil before placement of final surface material.
- Non-dispersive subsoils must be covered with a suitable layer of topsoil especially if the area is to be revegetated.
- Avoid cutting drains into dispersive or highly erodible soils which can results in severe erosion problems and large sediment loads into stormwater outlets and waterways during storm events.
- Lined drain with a non-dispersive soil or with rocks, grass or erosion control mat if drain is required to be cut into dispersive soils.
- Imported soils and aggregate must be free of weeds, debris and other pollutants as per current standards and guidelines.

4.4.3 Stockpile Protection Standards

Stockpiles are very susceptible to erosion by both wind and water as the material generally is not covered and has no structure.

Stockpiles should be protected through the following considerations:

- Design and designate key stockpiling areas on site before work commence.
- Stockpile areas must be away from site boundary, waterways, residential areas and other sensitive areas such as Tree Protection Zones and Conservation Areas.
- 10m minimum setback from adjacent properties; 30m minimum setback from waterways (natural or man-made).
- Stockpiles (sand/soil/earth) must not be located in a position where the material could cause harm (e.g. across footpaths and roads) or be washed into waterways, drainage inlets, open drains, paved areas (minimum 10m away).
- Keep stockpiles away from lowest point on site.
- Stockpiles are not to be placed in reserves and that all reserves are fenced off and identified as no-go zones.
- Reduce the number and size of stockpiles (maximum 2:1 height to width ratio; 3m maximum height).
- Divert stormwater away from stockpiles using a Flow Diversion Bank or Catch Drain. Flow diversion around stockpile is generally deem necessary when rainfall is possible and up-slope catchment area greater than 1500m^2.
- Suitable dust control must exist for all stockpiles.
- Stockpiles in place for more than 28days must be temporarily grassed.
- Cover stockpiles (especially those with high clayey matter) with mulch or temporary vegetation, a tarp, geotextiles, stabilisation matting or other suitable material, when necessary and particularly if located within the drainage catchment of a sediment basin. Anchor covers will prevent them from blowing away.
- Contour stockpiles within floodplains to minimize erosion during high rainfall events.
- Appropriate sediment control system must be located down-slope of stockpiles.
- When stockpiles are stored off site, appropriate measures need to be taken to protect downstream drainage network for example Protect downstream stormwater pit with a sediment log and clean around the log regularly when soil and sand build up.

4.4.4 Sediment Traps:

Acceptable sediment control measures include (but not limited to) geotextile sediment fences, grass filter strips, rock bunds, synthetic /biodegradable logs, coir logs, check dams, and gravel sausages. Designs and specifications of all sediment control measures must be in accordance with relevant Authority guidelines.

- Sediment run-off controls and drainage around all construction areas must be established prior to commencement of any building or works.
- Sediment fences should only be used in areas of sheet flow. They are not suitable for use in concentrated flow. They are most effective in removing coarse particles from runoff and have limited to no filtering capacity of fine or dispersive soils.
- Sediment retention/runoff controls should be designed and installed to cater for the predicted flows from a 1in2yr storm event (two-year ARI with intensity of six hours).
- All sediment control measures must be maintained and intact for the duration of the works (including reinstatement period) and inspected regularly including prior to (and after) rain events to ensure they are functioning properly.
- Immediate repair of sediment control measure damages.
- Sediment fencing (or other acceptable sediment control measures) must be installed downslope of disturbed areas.
- Stormwater pits along established roadways subject to sediment deposits must be either fitted with kerb inlet protectors or (geofabric) filter material to capture sediments.
- Install sediment runoff controls (e.g. filter socks) along any open channels.
- Sediment fences should only be used in areas of sheet flow. They are not suitable for use in concentrated flow. They are most effective in removing coarse particles from runoff and have limited to no filtering capacity of fine or dispersive soils.
- Provide details of material to be utilised. Silt fences geofabric must be tear-resistant and resistant to UV degradation. Provide specifications of the geotextile to be used for silt fencing.
- Sediment fences require desilting (removal of collected sediment) when sediment has built up to 1/3 the height of the measure or when built up sediment is preventing the fence from working effectively.
- Storm water pits along established roadways subject to sediment deposits must be either fitted with kerb inlet protectors or (geofabric) filter material to capture sediments.

4.4.5 Dewatering Standards

- Method and location of dewatering to be detailed on the plan.
- Grade site in a way to avoid water ponding.
- In the case of water ponding, pump water into a temporary sump pit and filtered through sediment runoff controls before discharging into any drains.
- Water to be reused onsite (e.g. for dust suppression) as a preference to discharging.
- Water must not be discharged into any NO GO ZONEs or adjacent properties without prior written consent from City of Whittlesea's Development Engineering Department and any affected landowners.

4.4.6 Vehicle and Road Management (site access, vehicle and street cleaning):

Site Access

- Where practical, only one access point to be used on site (as per reference to Council Works in Road Reserve Permit Works in road reserve permit (vehicle crossover) -

Whittlesea Council (https://www.whittlesea.vic.gov.au/parking-roads-footpaths/nature-strips-and-road-reserves/works-in-road-reserve-permit-vehicle-crossover/) and where an approved Traffic Management Plan is required.

- Plan and adequately size entrance for all anticipate vehicles, with consideration of anticipated truck movements within local residential streets (may not be able to accommodate larger vehicles).
- Stabilised access area or path.
- Build crushed rock crossover for access area and restrict vehicle movement to crushed rock path.
- Council may require access to be sealed to prevent gravel and other materials being carried onto the road.
- Site access point must be maintained to avoid stripped/exposed earth onto sealed roads ie. fitted with mud removal devices eg. Rumble grid raised above ground level; Must be at least two full wheel rotations in length; Must be designed to cater for the weight of fully loaded vehicles; Must abut a firm, stable exit-road surface.
- Physically remove mud and dirt from the wheels of construction vehicles before leaving construction site.
- Sediment runoff control measure must be erected around vehicle wash down area.
- Construction entrance must not become buried in soil.

Vehicle and Street Cleaning

- Physical scrape off of material with a shovel or brush.
- Ensure to keep the wash water out of the stormwater system.
- Have a dedicated bunded cleaning and washing up area on site, away from all stormwater drains.
- Clean equipment off any mud and debris before washing. This ensure less water is used to clean that may end up in stormwater drains.
- Never hose down paved surfaces to clean dust, debris or trash. This water is likely to wash directly into storm drains and waterways.
- Properly dispose of chemicals and hazardous materials.
- Keep potential sources of pollution (especially chemicals and hazardous materials) from the rain as practicable (e.g., inside a building, covered with plastic or tarps, or sealed tightly in a leak-proof container).
- Clean using a street sweeper or for small areas by physically sweeping the street.

Temporary access roads management

- Appropriate drainage controls are required on all unsealed roads subject to rainfall.
- Long-term unsealed road for construction activities must be gravelled to reduce the release of fine sediments and turbid waters from the roadway.
- Dust management must be ensured regularly.

4.4.7 Other

- Topsoil must be kept separate from sub-soil when stockpiling soil.
- Imported soils, mulch and aggregate must be free of weeds, debris, acid sulphate and other contaminants as per current Australian standards and Authority guidelines.
- Extra sediment fencing and other sediment control measures must be stockpiled on site for emergency repairs.
- Other site-specific erosion and sediment management issues.

4.4.8 Managing works near waterways

- Ensure all required approvals are obtained from Council or other regulatory bodies prior to any works close to waterways.
- Minimize the duration, magnitude and frequency of works within a waterway or floodplain.
- Schedule works to occur during drier months of the year and low flow periods in the waterway.
- Regularly monitor local weather conditions and avoid works on hot, windy, or wet days.
- Avoid works during the peak activity period of aquatic animals particularly during migration or spawning.
- Only use lighting, if needed, where needed, when needed, as much as needed and using warm lighting.
- Minimize disturbance to the riparian vegetation around the waterway to the maximum degree practicable.
- Protect and install vegetative buffers along waterways to slow and filter stormwater runoff. Use locally indigenous species wherever possible, or suitable non-invasive grass, vegetation, stabilisation matting or rock armour.
- Maintain buffers or replant periodically when necessary to ensure their effectiveness
- Minimize temporal crossings near waterways during construction.
- Ensure all reasonable and practical steps to prevent operating construction equipment within main channel of waterways.
- Where feasible, priority must be given to the use of instream flow diversion systems that effectively isolate all earthwork or soil disturbance from the waterway flow.
- Any disturbed surfaces, banks and overbank areas must be suitably rehabilitated as soon as practical.
- Temporal erosion control measures must be installed. For example, using rocks (along the toe of the bank, if practicable 100% biodegradable erosion control blankets and native vegetation.
- Use biodegradable lubricants and oils on excavators and plant equipment that work within or adjacent to waterways.
- Monitor surface water quality regularly upstream and downstream from the activity. If monitoring shows a change in water quality, stop the works. Confirm if works are the cause of these changes, assess for any adverse impacts on aquatic ecosystem and modify work practices.
- Seek specialist ecological advice to determine the sensitivity of ecological receptors to dust impacts on local waterways and riparian zones.

4.4.9 Monitoring and Inspecting site

Runoff, erosion and sediment control measures must be inspected regularly. Guidelines include:

- Daily inspections of sediment control measures to ensure they are intact and functioning correctly.
- Inspect before and after storm/rain and/or sever weather events.
- All silt controls to be continually maintained in working order and must not block drains.
- Not advisable to wait for the next storm event before checking all controls are in place and functioning properly.
- Monitoring will potentially include specific water quality sampling particularly on a large projects and sites considered as high-risk.
- Keep detailed log entries of construction site's monitoring and maintenance activities.

4.5 Waste Standards

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

4.5.1 Movement of Soil

Identify if soil is being moved on or off site, where is it being sourced from or relocated to, what quantity and the EPA Contaminant Status.

- Indicate whether soil will be moved on or off the site as part of the works.
- Indicate contaminant status of soils.
- Provide details of contamination and risk control methods.
- All fill exported off site must be taken to a legal site of disposal in accordance with the approved Soil and Fill Recovery Plan.
- Refer to EPA guidelines for further information regarding contaminated soil management.
- Any fill brought into the property must be classified as 'Fill material' as per EPA Industrial Waste Resource Guidelines (IWRG), Publication IRWG621 - Soil hazard categorisation and management. All fill must be free of weed propagules and pathogens.

4.5.2 Waste Minimisation Methods

- Reduce usage of materials/reuse materials where possible – avoid, reduce, reuse, and recycle.
- Reduce waste through appropriate ordering
- Keep and reuse surplus materials on other projects, where possible.
- Distinguish recyclable waste and materials from general waste for recycling. Recycling bins must be clearly marked to prevent contamination of recyclable materials. 80% of construction and demolition waste (by mass) must be recycled.

4.5.3 Waste Storage and Disposal

Provide details on how litter and waste will be stored and disposed of. Waste on the site at work commencement and waste that will be generated throughout the works process should be considered.

- Adhere to regulatory requirements for waste disposal.
- Contain all waste materials on site in accordance with regulatory requirements.
- Store all litter and hard waste in assigned area to prevent it being washed or blown away.
- Install litter bins with lids or covered skips and empty them regularly. Bin with a closable lid is preferred for larger items.
- Bins must be locked at the end of each workday to avoid illegal or unwanted waste accumulation.
- Keep all litter contained on site and if practical, in one location to minimize cleaning.
- Where practicable, keep different materials in separate bins.
- Sweep up all litter and dispose in bin. Never bury trash or debris.
- Site fencing helps to keep litter from being carried away by wind or water while also providing security. However, a fence does not negate the need for a bin.
- Site must be kept free of litter - any visible litter on site must be collected daily.

4.6 Chemicals and Hazardous Material Standards

Storage and spill management practices must be implemented to ensure that no environmental

damage can result from the escape or spillage of chemicals or fuels.

4.6.1 Storage:

- All fuels, oils, chemicals and other hazardous materials must be stored in appropriate designated and bunded area. Ensure that the capacity of the bunded area is adequate for the volume of stored chemicals/fuels.
- Where possible, reduce storage of fuel and other chemicals on site.
- Adhere to chemical storage procedures ie. consider slope, flow path, stormwater inlets.
- Identify where all chemicals will be stored and/or used on site and mark on Plan 1.
- Bunding and liners for chemical storage must be installed (see Authority guidelines EPA Publication 1698 – Liquid Storage and Handling Guidelines).
- Provision of Safety Data Sheets (SDS) onsite for stored chemicals/suppressants.

4.6.2 Refuelling Procedures:

- Suitable refuelling point must be identified.
- Site compound and designated refuelling areas must be appropriately bunded and graded to a sump at the lowest point where spills collect. Cut-off drains must be installed to direct runoff away from refuelling points.
- All refuelling and other hazardous materials must be done only within appropriate bunded or portable sealed bunded area.
- Avoid refuelling within minimum 10m of any drainage inlet, open drain, wetland, waterway or any protected area such as conservation areas, tree protection zones and recreational infrastructure.
- Drain seals must be in place prior to refuelling.
- Minimize refuelling of vehicles on site, where possible, it should be done off site.

4.6.3 Spill Management:

- Chemical/fuel and hazardous materials spill response plans must be prepared, with identified staff trained to undertake emergency containment, clean up and disposal.
- Emergency contact numbers and emergency responses flow charts must be shared and displayed clearly.
- Consider appropriate spill management measures for materials on site.
- Immediately clean up all spills must to prevent contamination of the soil or water course.
- All spills must be reported to the superintendent and relevant authorities.
- Weekly inspections of management measures with immediate follow up.
- Notify relevant authorities if native vegetation, fauna and/or waterbodies are impacted by spill (i.e. state or federal authorities, wildlife rescue).
- Any soil contaminated from a spill must be removed and disposed of at an appropriate EPA landfill licensed to receive the waste type. The extent of soil contamination must be assessed, classified and removed in accordance with relevant authority guidelines.
- Spill kits must be placed and clearly marked throughout construction site and on Plan 1.
- Spill kits must be kept 10m from chemical storage and refuelling areas (accessible, but safely out of range).

4.6.4 Other:

- All oily water collected from sumps, interceptors and drip trays must be disposed of at an appropriate licensed waste disposal facility immediately.
- Vehicular and machinery maintenance must not occur on site.

- Contact relevant Regulatory Authority to notify of spill, as required.

4.7 Significant Flora and Fauna Protection Standards

It is important to indicate whether any significant or native flora or fauna are present or potentially present on or adjacent the site. Provide any details including the type of flora or fauna if an assessment has been completed and relevant management measures haven been provided. It is worth noting that where threatened species are present (e.g. Growling Grass Frogs, Striped Legless Lizard, Spiny Rice Flower), additional species management plans may be required.

These management standards aim to provide guidance for the level of protection required and may be adapted for individual site requirements. Additional protection measures or changes must be in line with regulatory requirements and are subject to approval by Council and other relevant authorities. *Environmental Protection and Biodiversity Act (1999)* and *Flora and Fauna Guarantee Act (1988)* approval may be required before works commence, including: (i) Specific species protection requirements and management plans; (ii) Salvage and translocation plans.

Under the Melbourne Strategic Assessment program development sites inclusive of or adjoining to Conservation Area, as identified in the Biodiversity Conservation Strategy (DEPI 2013), require a Construction Environmental Management Plan (CEMP) to be prepared to DELWP's satisfaction. Further detail can be found here (https://www.msa.vic.gov.au/regulatory-requirements/works-in-a-conservation-area)

4.7.1 Identify Significant Flora or Fauna. These includes (but is not limited to):

- Native or landscaped vegetation.
- Native flora or fauna species, noting that threatened fauna can live in landscaped and non-native vegetation (e.g. Golden Sun Moth).
- Mature or memorial trees.
- Habitats, breeding areas or wildlife corridors for fauna.
- Rare, vulnerable, endangered or threatened species.

4.7.2 Identify Tree Protection Zones (TPZs):

- Temporary tree protection fencing shall be erected around the perimeter of all Tree Protection Zones (TPZs) and shall be inspected by a Council representative prior to any buildings, works or demolition commencing on a lot, open space and/or road reserve.
- No works are to be undertaken within TPZ. Boring for the provision of services/utilities will only be acceptable subject to proof of feasibility.
- All significant flora, fauna and habitat on or adjacent to the site must be protected and signed accordingly for all stages of work.
- Prior to any works commencing in proximity to TPZ, a consulting arborist must induct all personnel involved in construction in close proximity to and/or involved in works that may impact tree protection zone.
- Temporary tree protection fencing (refer to SDL.2.02) shall be erected around the perimeter of all TPZs and shall be inspected by an approved Council representative prior to any buildings, works or demolition commencing on a lot, open space and/or road reserve.
- Council does not except Cyclone fencing.
- Signage on tree protection fencing marking area as per Signage Details Council Standard Drawing SDL.2.03A must be clearly posted at all times for the duration of works.

- All Tree Protection Fencing must be installed from the construction site, with no entry to the TPZs. All waste materials must be sensitively removed immediately. Trees/Vegetation within protection areas must not be impacted during installation of fencing.
- No access at any time to TPZs. Areas within TPZs not to be used for vehicular or pedestrian access, trenching, soil excavation, storage/dumping of tools, equipment materials or waste and storage of any vehicles, machinery, equipment or other materials. TPZs may only be accessed by suitably qualified contractors for the purposes of weed control or other Council or Authority approved maintenance or inspection where necessary. Protected vegetation must not be damaged or destroyed.
- Each TPZ must be established prior to works commencing and fencing and signage must be maintained and intact until completion of works.
- Tree Protection Zone fencing must be regularly maintained and may only be removed after the landscape pre-commencement meeting has occurred or until such date as is approved by Council in writing.
- Tree Protection Fencing is not to be removed and all variations to tree protection zones must be approved by Council in writing.
- Interface treatment between TPZ and roads/development must be to satisfaction of Council, other relevant Authorities and relevant stakeholders.
- The storing or disposal of chemicals or toxic material must not be undertaken within 10 metres of any exclusion zone. Where the slope of the land suggests that these materials may drain towards an exclusion zone, the storing or disposal of these materials is strictly forbidden.

4.7.3 Identify Conservation Areas (CAs), Local Conservation Reserves (LCRs) and native vegetation:

- Prior to the commencement of works in or around a Conservation Area (CA), Local Conservation Reserve (LCR), scattered native tree or patch of native vegetation, a conservation area/vegetation protection fence must be erected that is:
    - Highly visible
    - At least 2 metres in height
    - Sturdy and strong enough to withstand knocks from construction vehicles
    - Kept in place for the whole period of construction
    - Located minimum distance from the element to be protected as per Council requirements as outlined in the relevant Precinct Structure Plan etc.
    - Clearly signposted at regular intervals to show 'Conservation - No-Go Zone'
    - Installed to avoid impacts on native vegetation and scattered trees to DELWP's standards below.
- Unless directed by the responsible authority, no party shall enter into a native vegetation protection area or modify the fencing in any way.
- No buildings or works (including loading and unloading, storage of materials, dumping of waste, vehicle access and parking or other construction activity) are to occur in the No-Go Zone without the written consent of and to the satisfaction of the responsible authority.
- Works within a conservation area, all areas outside the construction footprint must be approved by DELWP and clearly shown as a No-Go Zone. To ensure retention of native vegetation, DELWP requires (latest requirements Further detail can be found here. https://www.msa.vic.gov.au/regulatory-requirements/works-in-a-conservation-area):
    - Protection fencing to be located at a minimum distance of 2 metres from remnant patches

- 12 x the Diameter at Breast Height from scattered trees.
- Unless otherwise agreed to by DELWP, the fencing treatment must be:
  - Exclusion fencing (e.g. chain link or welded mesh) to a height of 1.8 metres mounted on vertical steel pipes at 3 metre intervals driven 0.7 metres into the ground.
  - Signs stating: 'Conservation Area – NO GO ZONE' consistent with council requirements and securely affixed to fencing at 30 metre intervals and at a height of 1.5 metres.

4.7.4 Tree Protection measures:

- Utilise Council's Standard SDL 2.01A for calculating TPZ's. Council's tree protection zone guideline shall supersede AS4970 – 2009 and/or any other tree protection zone standard/calculation.
- Refer to and provide notation identifying Council Standards and Technical Note to be adhered to including:
  - Technical Note: Retention and Protection of Existing Trees: https://www.whittlesea.vic.gov.au/media/2017/technical-note-retention-and-protection-of-existing-trees.pdf
  - Tree Protection Zones Council Standard Drawing SDL 2.01A: https://www.whittlesea.vic.gov.au/media/2014/sdl201a-tree-protection-zone-tpz.pdf
  - Temporary Tree Protection Zone Fencing Council Standard Drawing SDL.2.02A: https://www.whittlesea.vic.gov.au/media/2015/sdl202a-tpz-fence.pdf
- Signage Details Council Standard Drawing SDL 203A (https://www.whittlesea.vic.gov.au/media/2016/sdl203a-temporary-tree-protection-fence-signage.pdf).
- Tree Protection Zone fencing must be to the satisfaction of the Responsible Authority and should comprise:
  - treated pine posts with a minimum height of 1.8 metres (total post length) at every corner or at a maximum interval of 9.0 metres. These posts shall be sunk 450mm into the ground. Concrete may affect the soil pH level and shall not be used to secure posts;
  - treated pine stays shall be fixed to all corner posts;
  - steel star pickets with a minimum height of 1.8 metres (total picket length) shall be installed between the treated pine posts at a maximum interval of 3.0 metres. These pickets shall be sunk 450mm into the ground and shall include high visibility safety caps;
  - ring lock wire mesh fencing with a minimum height of 1.2 metres shall be securely fixed at each post with wire ties. The fence shall completely enclose the tree protection zone;
  - high visibility hazard marker tape shall be securely fixed to the top of the ring lock mesh fencing with wire ties;
  - signage must be attached to the fence at regular intervals. Signage must read "TREE PROTECTION ZONE. NO ENTRY EXCEPT TO AUTHORISED PERSONNEL. FINES SHALL BE IMPOSED FOR REMOVAL OR DAMAGE OF FENCING AND/OR TREES" (refer to SDL.2.03).
- Unless authorised by the consulting arborist or as directed by the responsible authority, no party shall enter into a tree protection zone or modify the tree protection zone fencing in any way.

- No buildings or works (including loading and unloading, storage of materials, dumping of waste, vehicle access and parking or other construction activity) are to occur in the tree protection zone without the written consent of and to the satisfaction of the responsible authority.
- The storing or disposal of chemicals or toxic material shall not be untaken within 10 metres of any exclusion zone. Where the slope of the land suggests that these materials may drain towards an exclusion zone, the storing or disposal of these materials is strictly forbidden.
- Any trees that are to be removed next to exclusion zones are to be done so manually under the direct supervision of the consulting arborist (ie. cut not pushed). Stumps are to be ground and not excavated to prevent damage to trees in close proximity.
- Any encroachment into TPZs must only be undertaken in accordance with Council requirements and approval.
- Any works in the vicinity of street trees must only be undertaken in accordance with Council requirements.
- No disturbance within the drip line and damage to the bark, roots and limbs of trees and shrubs to be retained.
- Trenching must not to occur within the drip line of trees with a trunk diameter of 10cm of higher at Breast Height without Council approval.
- An approved tree management plan is required for retained trees and any work in the vicinity trees.

4.7.5 Vegetation Removal measures:

- Removal of any native vegetation should be avoided wherever possible and otherwise minimised.
- Removal of trees and other vegetation must adhere to regulatory requirements.
- Permits and offsets may be required where vegetation is removed. Illegal damage and removal are enforceable under relevant legislation.
- Retain/relocate hollow bearing trees, hollow logs and trees containing large nests where possible.
- Prior to removal, the subject trees must be inspected by a suitably experienced Wildlife Handler to determine the presence of animals living or nesting in the tree. Should any native animals be detected, reasonable steps must be taken to capture and relocate such animals as recommended by the Wildlife Handler.
- Suitably qualified wildlife rescue/animal handling contractors must be present during the removal of trees, native vegetation and other potential animal habitat.
- Where possible, salvage native vegetation approved for removal and using in any associated landscaping or reinstatement works or relocated into a suitable Local Conservation Reserve. Only to be undertaken with Council and relevant Authority approval.
- Roots and limbs permitted to be removed must be removed by a suitably qualified practitioner.
- Within the construction site where native grassland has been permitted to be removed, slash grasslands one week prior to removal to a height of 15cm, then again two days prior to 3cm to encourage native fauna to move out.
- Any trees that are to be removed next to exclusion zones are to be done so manually under the direct supervision of the consulting arborist (ie. cut not pushed). Stumps are to be ground and not excavated to prevent damage to trees in close proximity.

4.7.6 Fauna Management (eg. Kangaroo Management, Growling Grass Frog, Grassland species (such as the Striped legless lizard and the Golden sun moth)

Outline how works will be undertaken in accordance with the relevant approved Kangaroo Management Plan (KMP), Growling Grass Frog Management Plan etc. This may include:

Kangaroo Management:

- Induction of all onsite personnel on the requirements of the KMP.
- Displaying information on what to do if workers see a kangaroo in the construction area eg. Report any Kangaroos to the Site-Supervisor and Ecologist
- Installation of protective fencing consistent with the requirements of the KMP. This includes where the KMP's strategy to avoiding landlocking is dependent on kangaroos dispersing through a conservation area.
- Establishment and maintenance of No-Go Zones. The site plan must show the alignment of protection fencing (ie. fencing with kangaroo-proof features) and location of no-go zone signage.
- Exclusion fencing must be designed to discourage kangaroos from trying to jump over, go under or push through it. Exclusion fencing for kangaroos should:
    - not be ring-lock-style fencing (which is an entanglement hazard).
    - be high-tensile, heavy galvanised wire.
    - be at least 1.9 m high (deer mesh is produced in this size).
    - have no barbs.
    - have no loose or open wires.
    - be completely free of holes and gaps in, and under, the fence to stop the kangaroos trying to escape, and to stop them being injured.
    - Prevent gaps at the base of the fencing by having a secured mesh apron; embedding the fence; grading the fence line to eliminate dips and using crushed rock or concrete footing underneath.
- Don't herd the kangaroo: it is an offence under the *Wildlife Act 1975*. Herding can stress and confuse a kangaroo, and make it behave erratically. This can result in the kangaroo, and people, being injured.
- Outline the implementation of hygiene measures to minimise risk of introducing/spreading fungus and other diseases.

Growling Grass Frog:

- Outline hygiene measures for controlling amphibian diseases (specific to Growling Grass Frog conservation areas) and may comprise of the following:
    - cleaning – removal of soil and debris with pressurised water and other means required.
    - disinfection – application of appropriate disinfectant (e.g. PhytoClean) following cleaning of surfaces.
    - Cleaning and disinfection must be carried out in a wash down area with an earthen bund and sump at a safe distance, greater than 30 m, from any water bodies.
- Include a photo on Plan 2 of a Growling Grass Frog to aid identification. Further detail can be found here.https://www.msa.vic.gov.au/regulatory-requirements/works-in-a-conservation-area).

Golden Sun Moth:

- Reduce the impact of construction works by employing an appropriate buffer around Golden sun moth habitat (for example 100–200 m around breeding habitat), restricting vehicular movement during times of high soil moisture, and when adult moths are flying.
- Design fences to: – allow the passage of golden sun moth adults, and – limit birds perching close to habitat patches, to limit predation on golden sun moths. (https://www.awe.gov.au/sites/default/files/documents/golden-sun-moth.pdf)

4.7.7 Other:

- Dust and stormwater management controls must be frequently inspected to ensure no damage to native vegetation.
- All staff working on site must be made aware of TPZs and associated requirements.

4.8 Archaeological and Heritage protection

Indicate whether any places, sites and/or objects of archaeological or heritage value are or are likely to be present on site and provide details of management techniques and/or specific Cultural Heritage Management Plan. Management measures should be included on the SEMP even when nothing of archaeological or heritage value is present on site, or a Cultural Heritage Management Plan is not required. The following set of standards provides some suggestions for acceptable management measures.

- Develop Cultural Heritage Management Plan (CHMP) (if required) for approval.
- Address environmental controls and cultural heritage and/or drystone wall protection measures to the satisfaction of the Responsible Authority.
- Demonstrate all environmental and cultural heritage and/or drystone wall protection measures identified on a drawing(s) drawn to scale and prepared in accordance with Council's and any other Authorities' standards for such drawings.
- Should any artefacts be uncovered during the process of the works the superintendent must be contacted immediately and relevant procedures followed.
- Management Measures:
    - Contact community/traditional landowners.
    - Procedures and monitoring.
    - Collection and relocation by relevant authorised persons.
    - Design changes.
    - Stop works.
    - Protection zones.
    - Any other management measures as identified in approved Cultural Heritage Management Plan, Drystone Wall Management Plan etc.
    - Other site specific archaeological and heritage management measures.

4.9 Weed and Pest Control

All Council and relevant Authority requirements must be adhered to in relation to weed and pest animal control. Provide details on weeds or pests present on site and management measures. The protection of significant flora and fauna must be considered when controlling weeds and pests on site.

- *Catchment and Land Protection Act* (1994), *Agricultural and Veterinary Chemicals* (Control of Use) *Act* (1992) and Agricultural and Veterinary Chemicals (Control of Use) Regulations (2007) must be complied with for weed and pest control, along with manufacturer's instructions with any herbicide use.

- Under the *Catchment and Land Protection Act 1994* (CaLP Act) all landowners must take reasonable steps to prevent the spread of, and as far as possible eradicate, established pest animals on their land, including rabbits and foxes. All landowners are required to eradicate regionally prohibited weeds and prevent the growth and spread of regionally controlled weeds
- Any weed or pest animal control is to be undertaken by a suitably qualified contractor.
- Site must be kept free from all target weeds for the duration of works and the reinstatement and maintenance period.
- Target weeds include all declared noxious weed species, all weed species listed on the City of Whittlesea Pest Plan Local Law, new and emerging weeds such as Lobed Needle Grass and African Weed Orchid.

Weed/Pest Control:

- Herbicide use in or adjacent to water bodies and drainage lines must be minimised, with waterway sensitive products used where necessary.
- Treat weeds before the plant has flowered and set seed. Indigenous plants should not be impacted during treatment.
- Weeds are to be controlled by spot spraying with appropriate, non-residual herbicide, no off target killing of native flora species via herbicide drift/herbicide over spraying.
- Other weed control options may include mechanical and manual removal, subject to native vegetation protection.
- Any weed disposal must be undertaken according to relevant Authority standards.
- Rabbit baiting (if required) to be conducted twice yearly, in autumn and spring, in conjunction with adjacent landowners (if possible). Adjoining landowner notification and signage required.
- Fox dens (where present) must be destroyed through fumigation and hand collapse. Fox baiting requires adjoining landowner notification and signage.
- When baiting, collect and dispose of carcasses to prevent poisoning of native predators.
- Remove harbour used by pest animals; remove rubbish and disperse artificial piles of logs and rocks (where it does not impact native vegetation or cultural heritage).

Weed/Pest Spread Control:

All contractors, sub-contractors and others working on site must be trained in issues relating to weed hygiene at a compulsory induction prior to commencing works.

- Slashing must not occur when the targeted weeds are setting seed.
- To prevent spreading chytrid (a fungus affecting frogs) in frog habitat, wash down any machinery and vehicles that have come into contact with mud or water off-site by first scraping off all soil and then sterilising with a disinfectant containing benzalkonium chloride in designated wash down area. Thoroughly rinse sterilised vehicles and machinery with clean water.
- Hosing down, air-blasting and vacuuming of vehicles, equipment and machinery to removing weed seeds must occur when entering and leaving site (in designated wash down area only).
- Shade-cloth must be installed on the perimeter fence to catch weed seeds and prevent the spread of seed by wind where necessary.

- Commence working with clean machinery in weed-free areas and subsequently move into weed affected areas where possible.
- Any weeds that might germinate from soil accumulated in wash down area to be controlled.
- Site must be inspected and surveyed regularly for any noxious or highly invasive weeds.
- Any infestations of target weed species must be immediately eliminated prior to seeding during the period of construction and the duration of the reinstatement and maintenance period.

5 Site Plans

Site Plans provide an overview of the construction site, visual location representation and design and set-up details of the environmental management measures. Two (2) site plans are to be provided.

Given the concise format and diagrammatic nature of the A1 plans, they can be carried around on site with the construction plans and posted on site shed walls for ease of reference.

5.1 Site Plan 1 – Types and Locations of Environmental Protection Measures

Site Plan 1 provides a map of the site and its environs along with the nature and locations of the environmental protection measures and other important site characteristics. General notes are also provided. The plan must be clear and easily interpreted, with all required protection measures and features to the satisfaction of Council and relevant standards and guidelines.

The Site EMP Plan 1 must include (but not limited to):

- Aerial image of site and minimum 50m around all sides of construction site including locations of noise, lighting, dust, erosion and sediment controls
- Map features including Legend, North arrow, Scale, Site boundary, Contour lines, drainage patterns (including overland flow, outfall point)
- Sediment and erosion control measures
- Construction site office
- Stockpiles
- Site drainage patterns including exit points
- Chemical/fuel storage area
- Spill kits, First Aid station
- Waste storage and Bin locations
- Wash and cleaning area including concrete wash bays, vehicle wash bays.
- Refuelling area
- Site parking, vehicle/haulage route and access point(s)
- Any existing water bodies on and adjoining site (within at least 200m)
- Overhead and underground utilities
- Areas of native vegetation including trees (both to be removed and retained)
- Protection measures for flora and fauna
- All conservation and protection zones (including tree and heritage, vegetation)
- Environmental Significance Overlay (if applicable)

- Proximity to sensitive areas (eg. waterways, native vegetation, residential housing)

Appendix A provides STANDARD SYMBOLS FOR USE ON SITE EMP's

5.2 Site Plan 2 – Designs and Specifications of Environmental Protection Measures

Site Plan 2 shows the designs, specifications (construction and maintenance notes) and diagrammatic nature of all the environmental protection measures described in the SEMP and depicted in Plan 1. All designs and specifications must meet the satisfaction of Council and relevant standards and guidelines.

The designs and specifications must include (but not limited to):

- Erosion and Sediment control measures/structures
- Construction site access point(s) – Rumble grip/Stabilised site access point.
- Bunding specifications
- Flora, fauna and tree protection measures
- Conservation and Protection Zones
- Water diversion features
- Stockpile protection
- Chemical and Waste containment measures
- Material deposit
- Vehicle cleaning measures

The SEMP must then be signed by all staff relevant to the development and implementation of the SEMP (such as the developer, consultant and contractor) prior to works commencing.

Appendix B provides for examples of commonly used DESIGNS AND SPECIFICATIONS OF ENVIRONMENTAL PROTECTION MEASURES.

6 Submission to Council

When submitting your SEMP to Council to Development.Engineering@whittlesea.vic.gov.au ensure you submit:

1. Plan 1 of the Template,
2. Plan 2 of the Template and
3. Any other relevant documentation.

Where additional information is required or the submission is not adequate, Council may request further details and a resubmission.

Further information and questions relating to the SEMP Guidelines and Standards Manual and Template should be directed to City of Whittlesea's Development Engineering Department.

If you have any concerns or questions regarding the draft conditions, please do not hesitate to contact the Planning Officer assigned to your application.

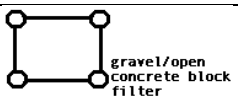
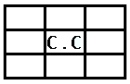
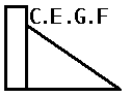
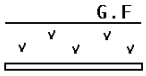
7 Further Guidance

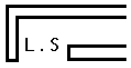
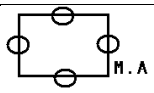
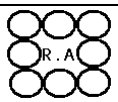
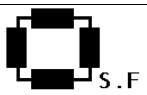
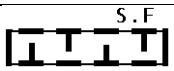
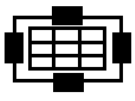
Additional guidance on assessing risk and possible environmental protection measures may be found within:

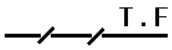
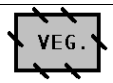
- EPA's publication 1834 "Civil construction, building and demolition guide" (available online https://www.epa.vic.gov.au/about-epa/publications/1834)
- EPA's publication 1820.1 "Construction - guide to preventing harm to people and the environment" (available online https://www.epa.vic.gov.au/about-epa/publications/1820-1)
- EPA's publication 480 "Environmental Management Guidelines for Major Construction Sites" (available online https://www.epa.vic.gov.au/about-epa/publications/480),
- EPA's Publication 275 "Construction Techniques for Sediment and Pollution Control" (available online: https://www.epa.vic.gov.au/about-epa/publications/275),
- Civil Contractors Federation's (CCF) publication 'Guidelines for Civil Construction' https://www.egwater.vic.gov.au/wp-content/uploads/2016/03/CivilContractorsFederationEnvironmentalGuidelinesforCivilConstruction-May2010-1.pdf *Please note although this document promotes the use of hay and straw bales, City of Whittlesea will not be approve their use.*
- The Local Government Infrastructure Design Manual (IDM). https://www.designmanual.com.au/download-idm
- LG PRO's "Specification for the Protection of Stormwater Quality" (available online: www.lgpro.com/stormwater.html
- *Engineering Design and Construction Manual for Subdivision in Growth Areas* (EDCM) https://vpa.vic.gov.au/strategy-guidelines/engineering-standards/

*Please note that a technical document has been developed as part of the VSAP funded 'Subdivision Project', to provide guidance on the environmental protection measures currently available. The document contains details on the appropriate uses, installation and maintenance of measures in addition to performance comparisons. Standard designs and symbols for inclusion in your Site EMP should be sourced from this document. This document is titled *Temporary Environmental Control Measures for Subdivision Construction Sites* EPA Publication 960 https://www.epa.vic.gov.au/about-epa/publications/960

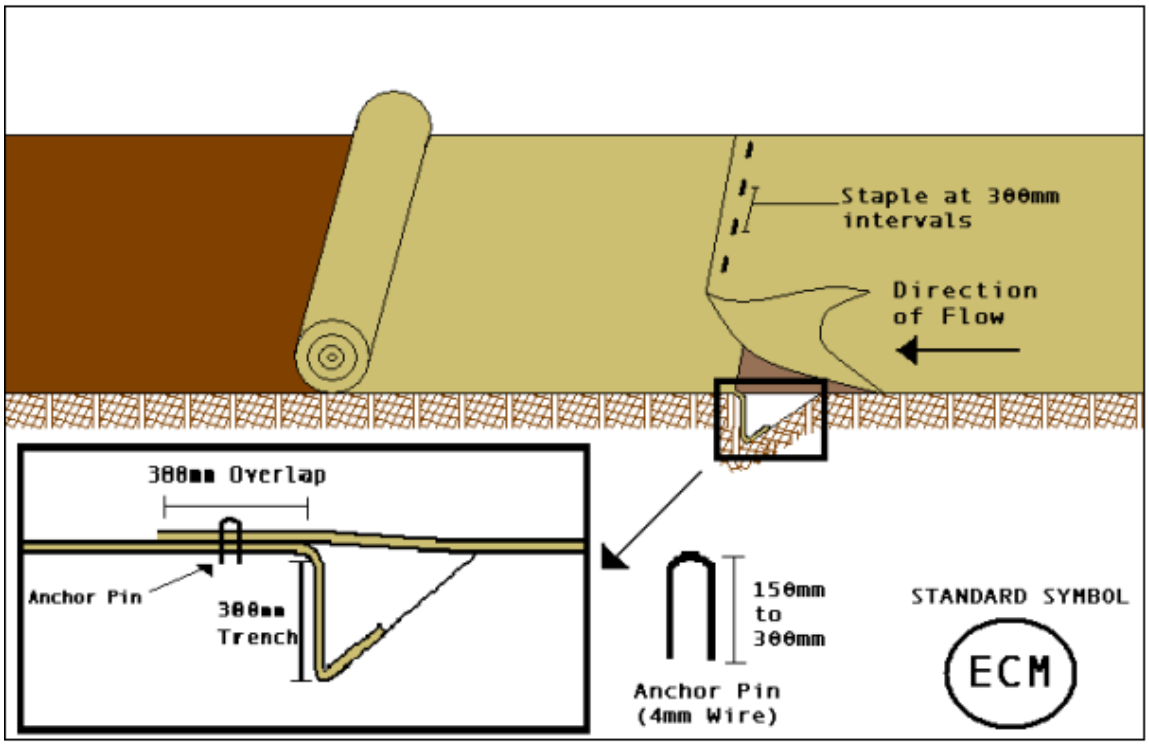
APPENDIX A: STANDARD SYMBOLS FOR USE ON SITE EMP

Environmental Protection Measure	Standard Symbol
Bin	
Biodegradable log	
Block and gravel inlet filter	
Bund	
Catch drain	
Coir logs	
Composite silt curtain	
Cultural Heritage	
Culvert entry gravel filter	
Down drain	
Earth bank	
Energy dissipater	
Floating silt curtain	
Grass filter strip	
Gravel sausage	
Haulage route	

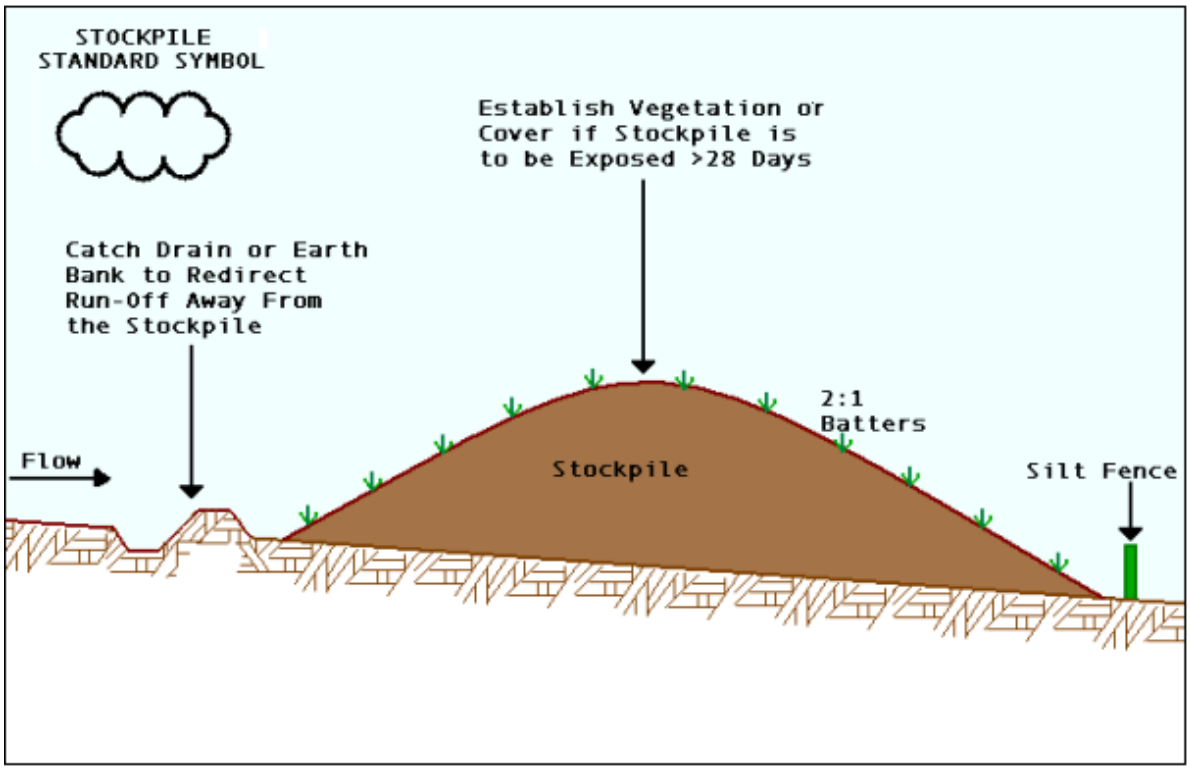
Level spreader	
Mesh and aggregate drop inlet filter	
Mulch	
Noise barrier	
Portable settling tank	
Rock armouring	
Rock bund	
Rumble grid	
Sediment basin	
Sediment sandbag barrier	
Silt fence	
Silt fence drop inlet filter	
Silt fence sediment trap	
Silt fence under grate (**MUST BE ACCOMPANIED BY** Silt/Gravel Sausage)	
Silt filtering bung	
Skip	
Solid waste stockpile	
Spill kit	

Stabilisation matting	
Stabilised access point	
Stockpile	
Stone sediment trap	
Synthetic log	
Temporary fencing	
Temporary pit lid	
Vegetation to be retained	
Vegetation to be retained and TPZ temporary fencing	
Wash up area	
Wind fence	

APPENDIX B: EXAMPLES OF DESIGN AND SPECIFICATIONS



Stabilisation Matting (EPA Publication 960)



Stockpile Protection (EPA Publication 960)

Managing Stockpiles EPA Pub 1834

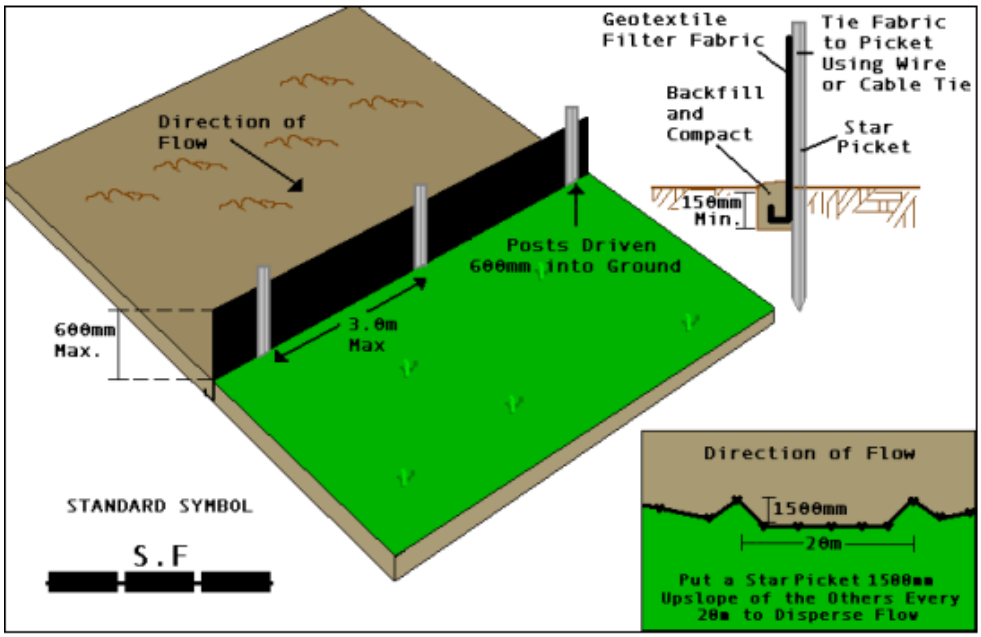
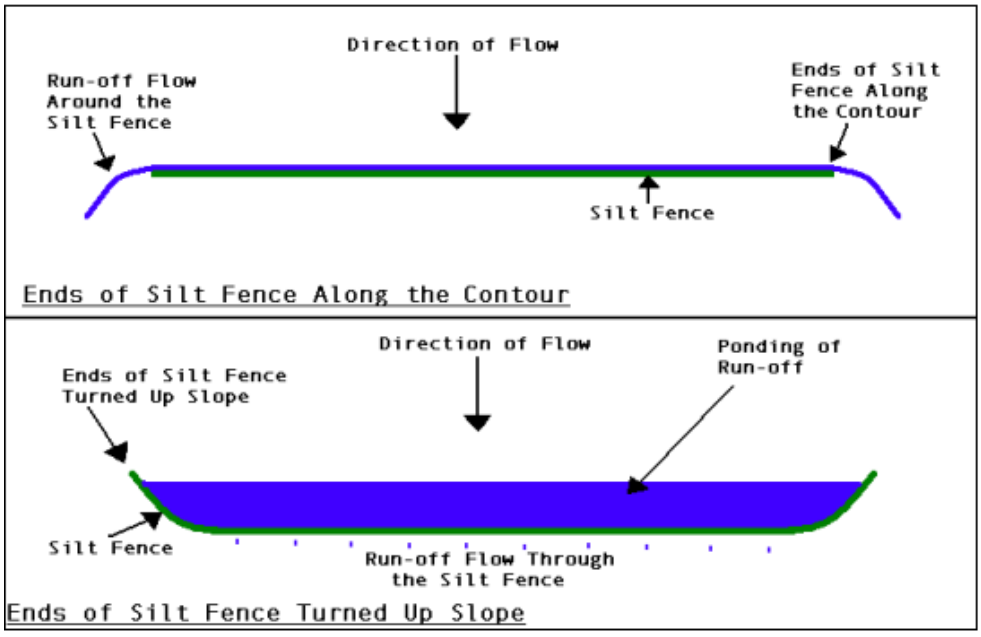
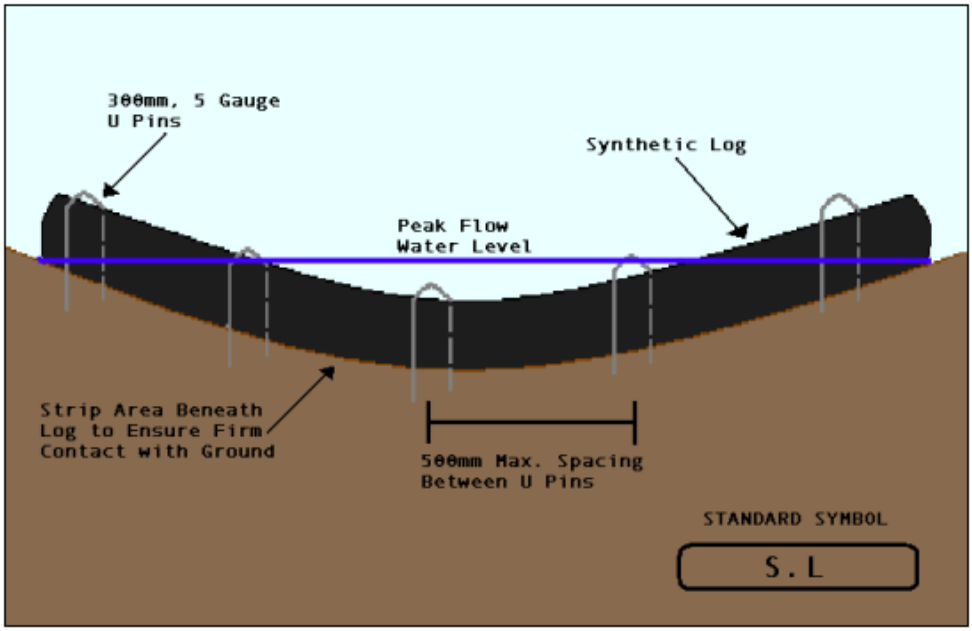


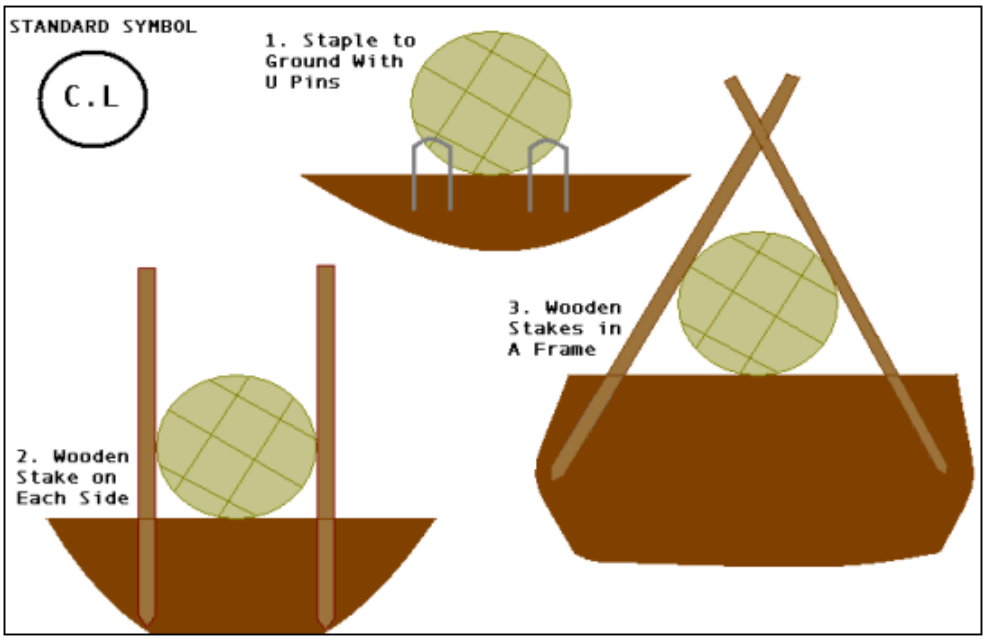
Figure 13: Silt Fence (VSAP Building Construction Sites Project Group, 2003)



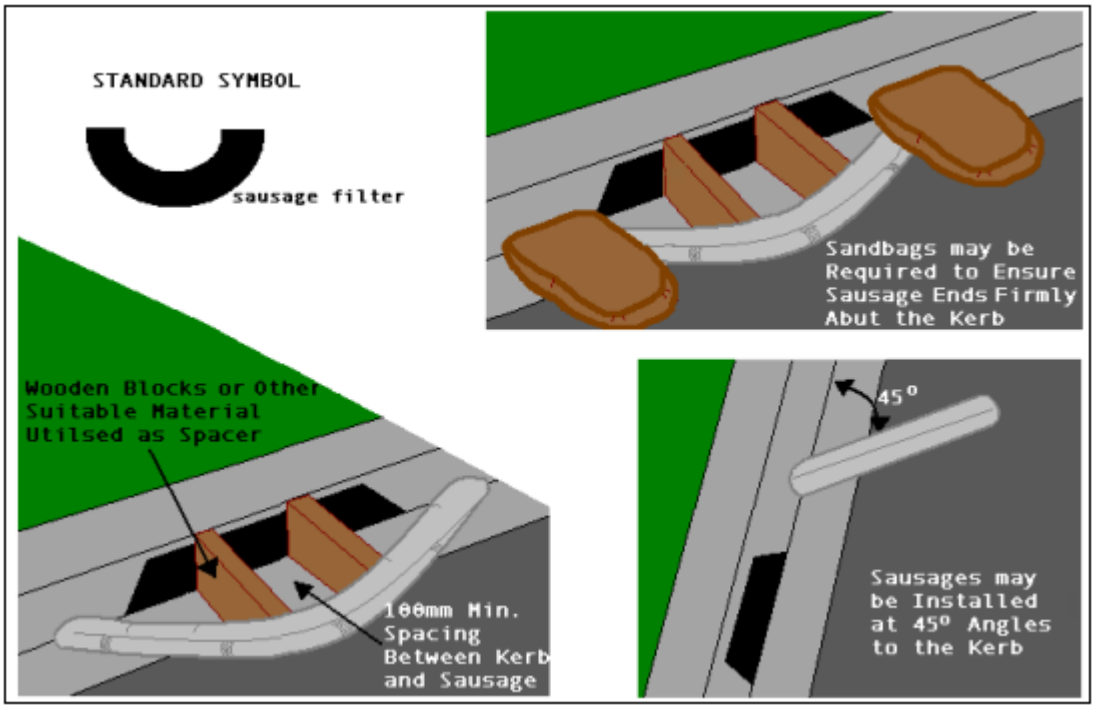
Silt Fence (EPA Publication 960)



Synthetic Log (and anchoring) (EPA Publication 960)



Coir Log utilised for inlet protection (EPA Publication 960)

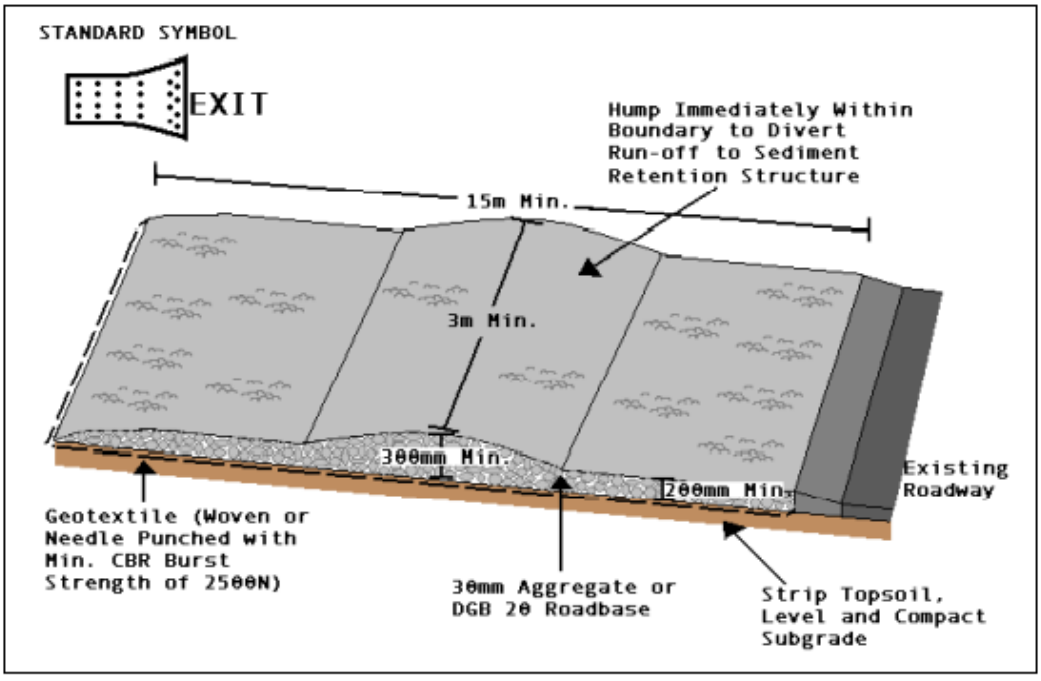


Gravel Sausage (EPA Publication 960)

Filter socks (Filter Socks, FS-1.doc (austieca.com.au))

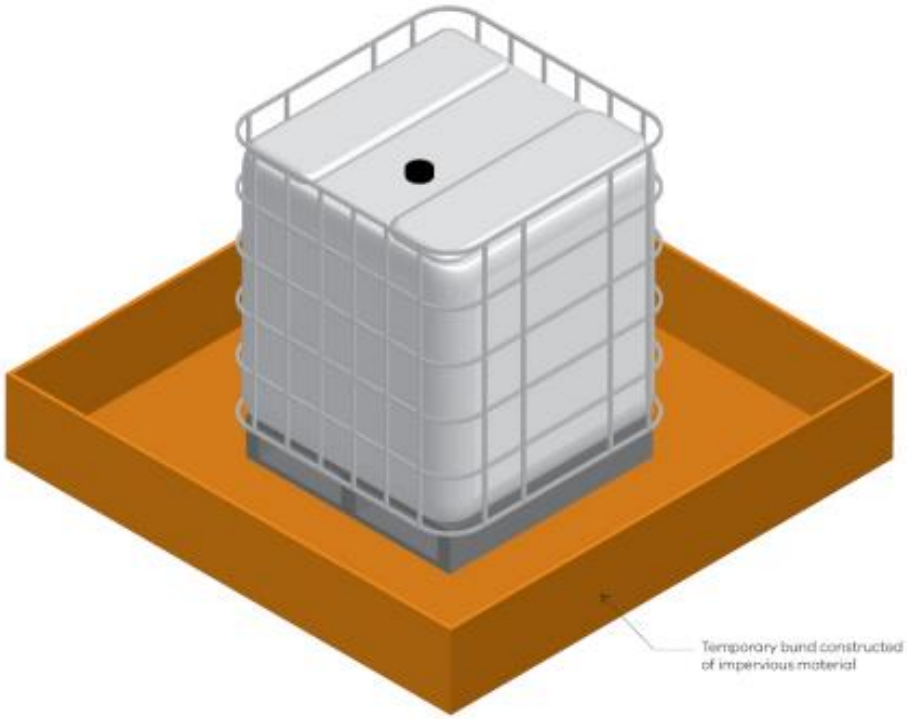
Silt sock (EPA Pub 1834)

Sand filtering bung (EPA Pub 960)



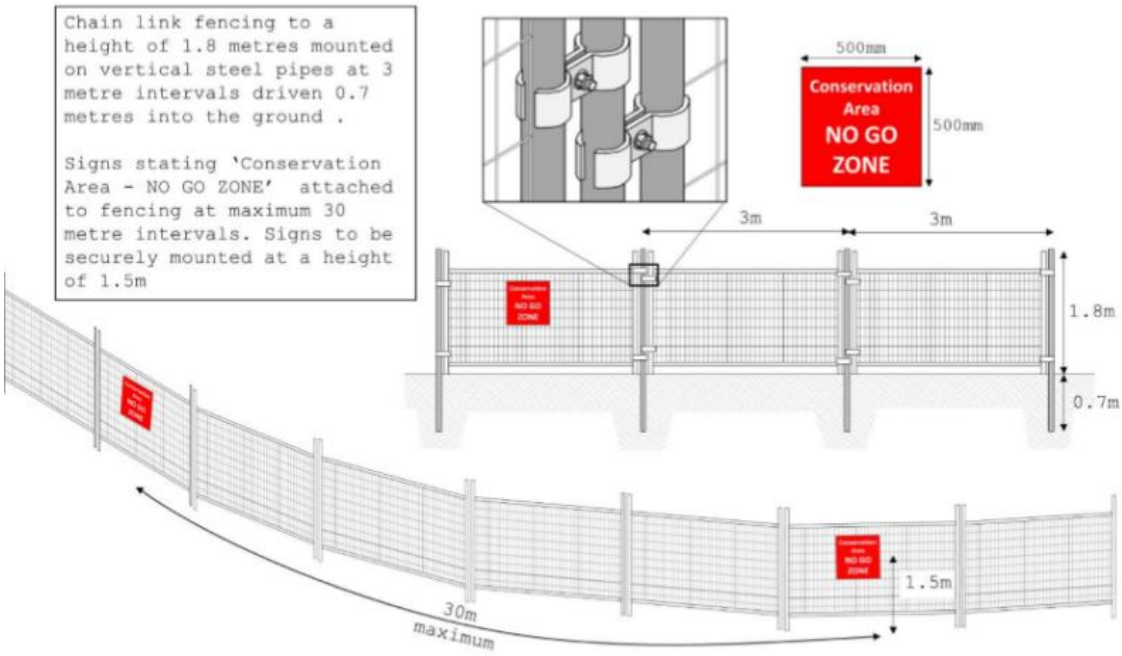
Stabilised Access Point / Rumble Grid (EPA Publication 960

Designated Concrete Washout Area



Bunded area with impervious surface (EPA Publication 1834)

Site Spill kits (EPA Pub 1834)



Tree Protection Zone requirements (DELP)