**PART CH50

ENVIRONMENTAL PROTECTION ISSUES**

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Attachment A: Example Recycled Materials Record

### GENERAL

* + 1. This part specifies the minimum environmental protection requirements that the Contractor must comply with and are in addition to the protection measures specified in Parts 6 and 7 of the DPTI Environmental Code of Practice for Construction, Road, Rail and Marine Facilities.
		2. Additional requirements and/or environmental protective measures may be included in the **Contract Specific Requirements**.
		3. Where appropriate to the work being undertaken, the Contractor must comply with the following:

SA Environment Protection Authority (EPA) Stormwater Pollution Prevention Code of Practice for Local, State and Federal Government, available from [http://www.epa.sa.gov.au/pdfs/govcop1.pdf](%20http%3A//www.epa.sa.gov.au/pdfs/govcop1.pdf);

SA EPA Guidelines for Environmental Management of On-site Remediation;

DPTI Environmental Code of Practice for Construction, Road, Rail and Marine Facilities;

DPTI Protecting Waterways Manual;

DPTI Water Quality Monitoring Manual for Construction;

DPTI: Vegetation Removal Policy;

DPTI Environmental Instruction 21.7 “Management of Noise and Vibration: Construction and Maintenance Activities”;

DPTI Cultural Heritage Guidelines;

AS 1940 “The storage and handling of flammable and combustible liquids”;

AS 4373 “Pruning of Amenity Trees”;

AS 4970 "Protection of Trees on Development Sites"; and

any applicable environmental legislation.

* + 1. DPTI publications are available from: <http://www.dpti.sa.gov.au/standards/environment>.
		2. The Contractor must implement and maintain all applicable control measures until the Contractor’s work on Site is complete.

### FLORA PROTECTION

#### Vegetation Clearing and Pruning

* + 1. The Contractor must:
			- 1. not remove, disturb or damage any vegetation or strip any topsoil beyond the Contractor's Activity Zone;
				2. comply with any applicable requirement in the DPTI Vegetation Removal Policy;
				3. not stockpile material against trees, under the drip line of trees, or on native grasses, shrubs and groundcover plants;
				4. ensure that site staff and subcontractors have received appropriate instruction in the identification of fauna, native vegetation and weeds;
				5. mark the boundaries for the clearing of any vegetation prior to the commencement of clearing and identify any trees to be removed with a tag or marking;
				6. provide 10 working days notice prior to removing or pruning any vegetation to:
1. enable confirmation that the vegetation identified in the field as requiring removal corresponds to that indicated on the drawings;
2. enable verification that all necessary approvals required under this Contract have been obtained; and
3. allow sufficient time for the Principal to undertake any Stakeholder engagement necessary; and
	* + - 1. on the completion of site work, restore areas such as compound sites, stockpile sites and access and haul roads to conditions similar to their original condition.
		1. Provision of the notice prior to removing or pruning any vegetation in 2.1 (f) above shall constitute a **HOLD POINT**.
		2. Where vegetation removal has been approved, the vegetation removal must be undertaken by a DPTI pre-qualified arborist, unless the vegetation removal:
			+ 1. is limited to clearing and grubbing and can be wholly undertaken by machinery such as a bulldozer, front end loader or grader;
				2. does not require the use of elevated work platforms, chain saws or any type of hand operated machinery;
				3. does not involve pruning;
				4. does not involve the clearing of undisturbed Native Vegetation as defined under the Native Vegetation Act; and
				5. is completely clear of services, buildings, fences or any other structures.
		3. All pruning must be undertaken by a DPTI pre-qualified arborist and in accordance with AS 4373. Refer to <http://www.dpti.sa.gov.au/documents/contractsandtenders/prequalification> for a list of prequalified arborists.

#### Care of Remaining Vegetation

* + 1. The Contractor must ensure that any remaining vegetation is protected from potential damage from construction activities by adhering to the following vegetation protection measures:
			- 1. prior to commencing work, protect any areas of vegetation identified in the **Contract Specific Requirements** as being of high value. The Contractor must determine the Tree Protection Zone (TPZ) in accordance with AS4970, and must comply with the relevant tree protection measures set out in AS4970, including:
1. installing protective fencing to prevent machinery accessing the TPZ;
2. installing signage identifying the TPZ;
3. installing protection to the trunk and branches of the tree(s);
4. installing ground protection measures within the TPZ to prevent root damage and soil compaction;
	* + - 1. not allowing parking of vehicles under the drip lines of trees;
				2. not allowing storage of equipment or material under or against trees, or on native grasses, shrubs and groundcover plants;
				3. not placing fill under the drip line of trees unless indicated in the design drawings; and
				4. minimise root damage of any excavations (including trenching and grading) undertaken within the drip lines of trees.
		1. Any roots exposed in excavations must be trimmed with a clean saw cut in accordance with AS 4373.
		2. Where branches intrude onto the working area and are likely to be damaged during the construction of the works, the branches must be trimmed to the branch collar with a clean saw cut in accordance with AS 4373. If necessary, work close to trees must be carried out by hand to avoid damage by equipment.

#### Mulching

* + 1. Any vegetation resulting from clearing and grubbing operations must be mulched, using a mechanical mulching machine, except:
			- 1. weeds/pest plants; and
				2. vegetation within a phytophthora infested area (unless the mulch is to be re-used in same area).
		2. If the Works includes earthworks batters, the mulch must be stockpiled prior to being spread over the batters at the completion of earthworks.

### FAUNA PROTECTION

* + 1. The Contractor must:
			- 1. implement all reasonably practicable measures to prevent injury to fauna;
				2. contact Fauna Rescue SA, the RSPCA or a veterinarian for advice if any injured fauna is found on the Site;
				3. under the supervision of a suitably qualified person, relocate any native fauna to a similar habitat if that fauna’s habit will be destroyed by the Contractor’s work, and
				4. notify the Principal if any injured or dead native fauna is found on the Site.
		2. Any suitable felled logs or trees must be retained as fauna habitat.

### WEED, PEST AND DISEASE CONTROL

#### General

* + 1. The disposal or movement of topsoil may result in the spread of invasive weed species or plant disease. The Contractor must prepare and implement a Weed Control Plan for the duration of the Contract. The plan shall be subject to the approval of the Principal, and must ensure that the condition of the Contract site for the duration of the Contract is no worse than that which existed prior to the commencement of work.
		2. In the event of any outbreak of weeds prior to the issue of the Final Certificate in the Contractor’s Activity Zone or in adjoining land where the outbreak is directly attributable to the works, the Contractor must provide immediate notification of the outbreak and reinstate the affected area to the condition that existed prior to the commencement of work.
		3. The Contractor must:
			- 1. ensure that weed propagules or weed infested topsoil material are not imported into the Site;
				2. ensure that any pests and weeds existing at the Site prior to construction commencing are not spread any further by construction activities;
				3. clean all earth moving machinery of soil and vegetation prior to entering and prior to leaving the Site;
				4. ensure that pests and weeds are not introduced to the area through construction activities;
				5. ensure all declared and environmental weed species are disposed of at a licensed waste depot or a suitable recycling facility in line with Natural Resources Management Board guidelines; and
				6. if transporting declared plants on a public road, obtain authorisation from the Natural Resources Management Board in accordance with Section 175 and 188 of the *Natural Resources Management Act*.

#### Phytophthora

* + 1. The overall management of Phytophthora must comply with the Phytophthora control principles outlined in the DPTI Environmental Instruction 21.3 Phytophthora (Dieback) Control.
		2. Any special Phytophthora requirements, if required, are stated in the **Contract Specific Requirements.**

### WATER QUALITY PROTECTION

* + 1. The Contractor must ensure that any water entering the natural watercourse system or stormwater drainage system from areas disturbed by the Contractor complies with the Environment Protection (Water Quality) Policy 2003.
		2. The Contractor must prevent solid waste, oils, chemicals, bitumen spray waste, pavement marking scrubbing waste and waste water from brick, concrete and asphalt cutting from leaving the site or entering existing waterways. These must be collected and disposed of or recycled at a licensed waste depot.

### EROSION AND SEDIMENT CONTROL

#### Soil Erosion and Drainage Management Plan

* + 1. The Contractor must develop, implement and maintain a Soil Erosion and Drainage Management Plan (SEDMP) as part of its CEMP. The SEDMP must be developed in accordance with:
			- 1. SA EPA Stormwater Pollution Prevention Code of Practice for Local, State and Federal Government; and
				2. DPTI Protecting Waterways Manual.
		2. The SEDMP may include the following, as required:
			- 1. Water Affecting Activities Risk Assessment (in accordance with the DPTI Water Affecting Activities Permits Standard Operating Procedure);
				2. any management requirements from a Water Affecting Activities Permit; and
				3. Water Quality Monitoring Plan (in accordance with the DPTI Water Quality Monitoring Manual for Construction Sites),
		3. The SEDMP must be updated prior to any changes to construction processes that may impact upon erosion or sedimentation. The Contractor must provide the SEDMP at least 5 working days prior to works that may disturb the natural surface.
		4. Provision of the SEDMP or any amendment to the SEDMP shall constitute a **HOLD POINT**.

#### Protection of Watercourse and Drainage Systems

* + 1. The Contractor must not obstruct or divert any waterway, stream or channel, unless authorised by the Principal. The Contractor is responsible for assessing and developing effective control measures for the Works. Control measures must be suitable for any rainfall event that may result in surface runoff and must be fully operational prior to commencing work.
		2. The Contractor is responsible for the design, construction, operation and maintenance of drainage and temporary erosion control measures.
		3. The Contractor must:
			- 1. plan and carry out the whole of works to minimise the effects of runoff and erosion on the site and downstream areas;
				2. avoid unnecessary ground disturbance and provide for the proper control of stormwater runoff at every stage;
				3. ensure that all required runoff, erosion and sediment control measures are in place and comply with its SEDMP prior to the commencement of earthworks;
				4. establish sediment control structures around all areas prone to erosion including stockpiles, batters and drainage lines;
				5. locate any stockpiles away from drainage lines and in locations with minimal susceptibility to wind;
				6. utilise any existing stockpile sites where practicable; and
				7. treat any stormwater retained in a basin or treatment device prior to discharge (including discharge to groundwater).
		4. Works undertaken within a watercourse must comply with the following requirements:
			- 1. works must not cause destabilisation of the bed and banks of the watercourse;
				2. all excavated material must be removed from the watercourse and securely stored away from the watercourse to ensure that it does not return to the watercourse; and
				3. any material placed in and around the bed and banks of the watercourse must be compacted to prevent the movement of loose material and downstream sedimentation.
				4. Immediately after the completion of earthworks areas (including batters, drains, cut and fill areas), or if earthworks areas are to remain essentially the same for 2 days or more, the Contractor must install temporary measures to prevent erosion and/or control sediment. All proposed temporary erosion and sediment control measures must be documented in the SEDMP.

#### Inspection and Reporting

* + 1. The Contractor must inspect any temporary and permanent siltation and erosion control devices:
			- 1. before, during and immediately after a rain period; and
				2. once per week during dry weather.
		2. The Contractor must maintain a register documenting all relevant information, recording inspection dates, names of personnel performing the inspections, corrective actions, and performance of siltation control devices. The register must include:
			- 1. the location and description of all sediment control structures and all in-stream devices on scale diagrams;
				2. the time and date on which the sediment control structures and in-stream devices are inspected, and record observations made as to their operating effectiveness;
				3. the time and date on which the sediment control structures and in-stream devices are cleaned, repaired, maintained or altered and record the action taken;
				4. any corrective actions required; and
				5. the name and signature of the person making each entry.
		3. The register must be made available for viewing when requested by the Principal or Environment Protection Authority representatives.
		4. Results of water quality monitoring must be made available to the Principal upon request, within 24 hours of collection of data.
		5. The Contractor must rectify any defects revealed during an inspection immediately and these erosion control measures and sediment collection structures must be cleaned, repaired and augmented as required to ensure effective control thereafter.

### CONSTRUCTION NOISE AND VIBRATION CONTROL

#### General

* + 1. If specified in the **Contract Specific Requirements**, the Contractor must prepare and implement a Construction Noise and Vibration Management Plan (CNVMP) in accordance with DPTI Environmental Instruction 21.7.
		2. Submission of the CNVMP shall constitute a **HOLD POINT**.

#### Construction Noise

* + 1. Where there are noise sensitive receptors (such as developed residential areas, educational institutions, hospitals, child care centres, nursing homes) potentially impacted by the works, the following shall apply:
			- 1. Work must be programmed to avoid noise generating activities outside:
	1. 7.00 a.m. to 7.00 p.m. Monday to Saturday inclusive; and
	2. 9.00 a.m. to 7.00 p.m. on Sundays and public holidays.
		+ - 1. The Contractor must use its best endeavours to minimise noise and vibration impacts of construction works, including:
	3. selecting low noise plant and ensuring that equipment has appropriate measures fitted and effectively maintained to minimise noise and vibration;
	4. locating noisy plant, site access roads and site compounds as far away as possible from noise sensitive receptors;
	5. orienting plant known to emit noise strongly in one direction so that noise is directed away from noise sensitive areas;
	6. limiting truck movements on streets with sensitive receptors where possible;
	7. ensuring that staff adopt noise mitigation practices, such as ensuring that tailgates are cleared and locked at the point of unloading, shutting down or throttling down machines that are used intermittently in the intervening periods between works; and
	8. using noise attenuating enclosures for stationary items of plant normally operating continuously, such as generators and compressors.
		+ - 1. Any work outside times specified in clause 6.2 (a) must be undertaken in accordance with DPTI Environmental Instruction 21.7 “Management of Noise and Vibration: Construction and Maintenance Activities” and requires approval from the Principal. If required, the Contractor must prepare and submit a Night Works Management Plan within the timeframes specified in the Environmental Instruction.
				2. For work outside times specified in clause 6.2 the Contractor must adopt noise mitigation measures additional to those listed in clause 6.2(b), as specified in the Environmental Instruction 21.7, including the use of broadband reversing alarms in place of tonal reversing alarms.

#### Vibration Induced Damage

* + 1. The Contractor must ensure that construction activities do not cause vibration induced damage to any structure or building as a result of construction activities. DPTI Environmental Instruction 21.7 “Management of Noise and Vibration: Construction and Maintenance Activities” provides guidance on determining whether construction activities are likely to cause damage to structures and recommended management measures.
		2. The Contractor is responsible for responding to any claims of vibration induced damage, which may involve providing evidence that vibration levels associated with construction activities were insufficient to cause damage. All costs associated with damage caused to existing structures, buildings and services as a result of any construction activity shall be borne by the Contractor.

### AIR QUALITY CONTROLS

* + 1. The Contractor must suppress nuisance dust from disturbed sites within the construction area including access tracks, haul roads and stockpile sites and ensure that effective dust control measures are in place, particularly where the safety and convenience of people are affected.
		2. Where applicable to the work under the Contract, the Contractor must implement the following measures to minimise air pollution from the construction works:
			- 1. limiting on-site vehicle speeds;
				2. selecting appropriate surface materials for haul roads to minimise dust generation, e.g. gravel, bitumen seal;
				3. removing dirt and mud from construction equipment before it leaves the Site (this can be achieved through the use of shaker ramps, truck wash downs and wheel washes);
				4. locating stockpiles away from areas susceptible to disturbance by wind;
				5. covering loads carried by trucks;
				6. promptly removing any material that is spilt on to public roads or other sealed pavements;
				7. stabilise materials to be stockpiled for longer than a period of 1 month by grass seeding, covering or other appropriate means to prevent generation of dust;
				8. the progressive revegetation of the Site as work proceeds where this forms part of the Contract;
				9. watering of the Works areas and temporary paving of haul roads to suppress dust;
				10. avoid or minimise dust-generating activities during dry and windy conditions; and
				11. minimise the extent of exposed, stripped surface until covered with appropriate fill material.
		3. The Contractor must:
			- 1. cease any activity where that activity create a dust hazard of nuisance to the public, personnel working on the Site or properties in the vicinity of the Works;
				2. where dust is likely to be raised, ensure that an adequate number of water carts are on site at all times during the Contract and that they are used appropriately (separate payment will not be made for the use of the water cart);
				3. not permit the emission of odorous substances or particulates, which create or are likely to create objectionable conditions for the public; and
				4. maintain all construction plant and equipment such that they do not emit to the atmosphere visible smoke for any period greater than:
	1. 15 consecutive seconds (in the case of plant not being registered for the use on public roads), and
	2. 10 consecutive seconds (in the case of plant registered for use on public roads).
		1. If specified in the **Contract Specific Requirements**, the Contractor must prepare and implement a dust monitoring program.

### MATERIALS, FUELS AND WASTE MANAGEMENT

#### Construction Water

* + 1. The water source(s) to be used for construction purposes (including dust control) must be identified in the CEMP.
		2. The Contractor must investigate, document and where possible, implement the use of sustainable water sources as an alternative to potable and prescribed water sources during construction. If the Contractor uses water from any source other than a SA Water mains supply, the Contractor must obtain all approvals, licences or permits that are required to extract the water or to construct a bore, prior to water extraction. Refer to Part CH10 Clause 14.3 "Water" for other requirements regarding water not sourced from a SA Water mains supply.
		3. The Contractor must comply with any permanent water conservation measures and current SA Water restrictions applicable to the Site.

#### Recycling and Reuse of Materials

* + 1. The Principal encourages the reuse and recycling of material in infrastructure projects. Recycled Pavement Materials must comply with Part R15 Clause 7 "Recycled Pavement Materials".
		2. The Contractor must maintain a record of the use of recycled materials on the project, including steel, concrete, fill and pavement material, using the form attached as Attachment CH50A. At a minimum, the record must display:
			- 1. recycled material which has been brought onto the Site,
				2. existing material which is recycled on the Site;
				3. material which is removed from the site to be recycled; and
				4. material which is removed from the site and placed in landfill.
		3. The record must be provided to the Principal upon request and at completion of work on Site.
		4. Where the Contractor proposes to reuse material or use recycled material for purposes other than pavement construction, the Contractor must ensure that an environmental risk assessment is undertaken and documented in the CEMP. This applies to material won from the site and imported material.
		5. For material won from the site, the risk assessment must include an assessment of potential site contamination from current and previous land uses, and the potential risks to human health or the environment resulting from the use of the material in the proposed location(s).
		6. For imported, recycled material, the risk assessment must include a report from a suitably qualified environmental consultant stating the material’s classification (as per the EPA Standard for the Production and Use of Waste Derived Fill) and suitability for use at the site. The Contractor must comply with any environmental management recommendations in the report, and the recommendations must be incorporated into the CEMP.
		7. The Contractor must provide a copy of the above documentation at least 7 days prior to the reuse of materials or use of recycled materials. Provision of this documentation shall constitute a **HOLD POINT**.
		8. The Contractor must identify the waste streams that will be generated by the Contract and must investigate opportunities to recycle these materials. Where feasible, the Contractor must ensure waste streams are kept separate and must dispose of surplus material to appropriate resource recovery facilities. This applies to soils, aggregate, asphalt planings, waste concrete and demolition materials.

#### Storage and Handling of Hydrocarbons and Hazardous Liquids

* + 1. The Contractor must ensure that any fuel, oil, lubricants and other chemicals stored on site:
			- 1. are stored in accordance with AS 1940;
				2. are stored within a bund with an impervious floor; and
				3. are not stored in an area which is subject to flooding or is within 20 metres of a natural or built drainage line.
		2. The Contractor must ensure that:
			- 1. fuel, oil or lubricants do not leak from machinery;
				2. appropriate methods during refuelling and maintenance are implemented to ensure that any spills/leaks are contained;
				3. a hydrocarbon spill kit(s) for the purpose of cleaning up oil and fuel spillage is accessible at all times and personnel trained in the efficient deployment of the spill kit are readily available in the event of a spill; and
				4. a responsible person is always in attendance while refuelling operations are in progress.
		3. In the event of a leak, the Contractor must immediately clean up the contaminated area, dispose of any affected material to the nearest licensed waste depot and if necessary, replace the contaminated soil with clean fill.
		4. Maintenance of vehicles and machinery must be carried out off site where practicable. If maintenance is to occur on site, the location and procedure must be documented in the CEMP.

#### Waste Management

* + 1. Except for any material to be mulched, all waste material resulting from the work under the Contract is the property of the Contractor and must be removed from the site within 7 days or placed in a container with fitted lids for disposal at a later date. Refer to Part L40 Clause 5 “Disposal of Cut Material” for requirements relating to the disposal or retention of mulched material, available from <http://www.dpti.sa.gov.au/contractor_documents/specifications>.
		2. The Contractor must:
			- 1. keep the Site in a clean and tidy condition at all times;
				2. regularly remove and dispose all site rubbish and waste;
				3. provide bins with fitted lids to prevent windblown litter and attraction of pest animals;
				4. carry out the work in a manner which minimises the generation of waste materials;
				5. whenever practicable, re-use or recycle materials from the Works to prevent their inclusion on landfill; and
				6. dispose of rubbish, waste materials, hazardous wastes and contaminated material in accordance with Environment Protection Agency requirements.
		3. On completion of the work on Site, the Contractor must remove all construction plant, Temporary Works, surplus material, rubbish and waste and leave the site in a clean and tidy condition.

### CONTAMINATION

* + 1. This Clause applies if contaminants may be mobilised or contaminated soils are disturbed, relocated or moved off the site.
		2. The Contractor must:
			- 1. undertake the work in accordance with the Environmental Protection Act;
				2. include procedures for safe working contaminated materials in the Work Health and Safety Management Plan (refer Part G30 “Work Health and Safety”);
				3. maintain a register of the nature, type and location of contamination encountered on the site;
				4. immediately notify the Principal in writing if any potential soil or water contamination not previously identified becomes evident during construction; and
				5. as far as practicable, ensure that potentially contaminated material is not mixed with clean material.

### PROTECTION OF SITES OF CULTURAL AND NATURAL HERITAGE SIGNIFICANCE

* + 1. If a site of cultural or natural heritage significance has been identified or is encountered, the Contractor must:
			- 1. exercise due care and make necessary allowance for the preservation of the site;
				2. mark and / or place barriers around the site; and
				3. ensure that the site remains protected during the Contractor’s work.
		2. If, at any time, an Aboriginal site or a site containing items associated with Aboriginal occupation is uncovered, the Contractor must:
			- 1. stop work in the immediate area and redirect works to avoid further impact;
				2. provide notification in accordance with DPTI’s Aboriginal Objects, Sites and Remains Flow Chart available at: <http://www.dpti.sa.gov.au/standards/environment>; and
				3. not recommence work in the affected area until directed to do so by the Principal.

### HOLD POINTS

* + 1. The following is a summary of Hold Points referenced in this Part:

|  |  |  |
| --- | --- | --- |
| **CLAUSE REF.** | **HOLD POINT** | **RESPONSE TIME** |
| 2.1 | Commencement of clearing. | 5 working days |
| 6.1 | Submission of SEDMP | 5 working days |
| 7.1 | Submission of Construction Noise and Vibration Management Plan | 10 working days |
| 9.2 | Provision of Recycled Materials Documentation | 5 working days |

**ATTACHMENT CH50A**

**EXAMPLE RECYCLED MATERIALS RECORD**

**Contract Name:**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | **Type(s) of Material Recycled** | **Source of Material** | **Destination of Material** | **End use of Material (if known)** | **Volume of recyclable materials generated from project** | **Volume of recycled materials used by project** |
| *eg:* | *Ballast* | *Oaklands interchange* | *Northern Expressway interchange* | *Fill in bridge abutment* | *n/a* | *7,000m3* |
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