Environmental Guideline - Managing Contaminated Material during Ground Penetration and Excavation

1. BACKGROUND

In many cases the entire footprint of TasPorts owned, operated or managed land and/or berths ("facilities") will have a moderate to high risk of containing contaminated material (soil, fill or spoil) and groundwater immediately below surface. This is due to a long history of industrial land-use, reclamation using hazardous fill material and other industrial activities.

Exposing contaminated materials has the potential to:

- represent a risk to human health and/or the environment if not managed appropriately;
- represent a regulatory breach if excavated material is not stored, transported, treated or disposed of appropriately; and
- have significant financial impact to TasPorts due to ongoing and escalating treatment and disposal costs.

Before planning works that involve ground penetration, excavation or dredging, it should be assumed that any material generated will be contaminated.

WARNING:

1. **All TasPorts land and berths MUST BE ASSUMED to contain contaminated material and groundwater. Any requirement to conduct ground penetration, excavation or dredging on ANY AREA of a site triggers this Guideline**
2. **Excavated or dredged material (e.g. soil, fill, spoil) MUST NOT BE REMOVED or TRANSPORTED from any TasPorts site without prior testing and appropriate written approvals in place.**
3. **Excavated or dredged materials classified as Level 2, 3 or 4 contaminated material MUST NOT BE STOCKPILED or STORED at a TasPorts site for a period longer than 30 days without written approval from EPA or TasPorts' Manager Environment & Sustainability.**
4. **Failure to comply with the above may result in regulatory action including prosecution/fines.**

2. PURPOSE

The purpose of this Environmental Guideline is to provide guidance when planning and undertaking works requiring ground penetration, excavation or dredging at any TasPorts owned facility.

3. SCOPE

This Environmental Guideline applies to all TasPorts staff, contractors and customers and tenants planning to or undertaking:

- ground penetration or excavation; and
- dredging where spoil is to be disposed of or re-used on land.

Activities with the potential to present a risk of contamination exposure / management include:

- underground utility maintenance, installation and up-grading (i.e. trenching, horizontal drilling, hydro vacuum excavation, non-destructive digging (NDD) etc.);
- resurfacing (i.e. bitumen and concrete);
- foundation excavation (i.e. light-poles, fence posts, building footing etc.);
- where excavations are sufficiently deep to encounter groundwater (>2 metres) and/or require de-watering, there is a high risk of exposure to contaminated water; and
- dredging where spoil is to be disposed of or re-used on land.

The steps detailed in this guideline are summarised in the Flowchart – Managing Contaminated Material during Ground Penetration and Excavation [Ref.1].

4. LEGAL AND OTHER REQUIREMENTS

Legal and other requirements that may be applicable to the management of contaminated material include:

- *Environmental Management and Pollution Control Act 1994* (Tas) ("EMPCA")
    - it is an offence to cause environmental harm or an environmental nuisance
    - a person has a General Environmental Duty to take such steps as are practicable or reasonable to prevent or minimise environmental harm or environmental nuisance caused, or likely to be caused by an activity (i.e. disturbance to contaminated material)
    - defines clean fill type 1 and 2
- *Environmental Management and Pollution Control (Waste Management) Regulations 2020* (Tas)
    - also known as the "Waste Management Regulations"
    - regulates the management of controlled waste (which includes potentially contaminated materials) and some aspects of the disposal of general waste within Tasmania
    - Regulation 21 enables a person to apply for environmental approval for the handling, storage, reuse, recycling, reprocessing, treatment or disposal of controlled waste.
- *Information Bulletin 105 Classification and Management of Contaminated Soil for Disposal* EPA (Tas)[Ref.2]:
    - defines the criteria to be used for the classification of contaminated material that requires treatment and/or off-site disposal
    - outlines the management of each soil classification in accordance with the Waste Management Regulations
- *Approved Management Method for the disposal of Clean Fill Type 1 and Type 2,* March 2024 (TAS)
    - sets out the regulatory requirements for the management of Clean Fill including disposal limits, persons responsible, suspected controlled waste and record keeping
- *Clean Fill Type 1 and Type 2 – Declaration of Pollutant Levels 2022* (Tas) [Ref.3]
    - Specifies that maximum pollutant concentrations permissible in clean fill
- *National Environment Protection (Assessment of Site Contamination) Measure 1999* (Cth) (the "Site Contamination NEPM") [Ref.4]
    - sets out framework for assessment of contamination and the risk to human health and the environment, and the methods for managing contamination
    - has effect as a State Policy in Tasmania under Section 12A of the *State Policies and Projects Act 1993*
- *National Environment Protection (Movement of Controlled Waste between States and Territories) Measure (the "Controlled Waste NEPM")* (Cth) [Ref.5].
    - sets out framework for the interstate movement of controlled waste;
    - separate systems of applications and approvals apply to interstate movements, as opposed to intrastate movements (i.e. movements originating and ending within Tasmania).

5. ENVIRONMENTAL GUIDELINE

5.1. Early notification

As soon as ground penetration, excavation works or dredging is first planned an Environmental Advisor should be contacted, advised of the basic scope of works and invited to attend a Planning Meeting to assist with identifying and assessing contamination risk. Design detail is not required, only a broad concept of what is planned. This allows the program to take into consideration any potential constraints at the earliest stage.

The TasPorts *Excavation and Earthworks Permit* [Ref.6]:

- contains a check to confirm the potential for contamination has been considered for the planned task; and
- requires Manager Environment & Sustainability sign-off before material can be removed or transported from site.

Confirming the potential for contamination usually requires a number of weeks or months advance notification to allow informed advice to be given (i.e. to design and complete contaminant testing in proposed areas). Considering the potential for contamination only at the time of completing the Excavation and Earthworks Permit is too late as this normally occurs immediately prior to works commencing.

5.2. Planning meeting

The planning meeting should be a relatively high-level review of the sub-surface works planned in order to identify risks that may have to be addressed, whether risks can be avoided and if not, provide the best controls to minimise impacts to the program. Points to consider include:

- the nature and extent of works (indicative area to be exposed and volumes to be excavated);
- proposed location(s), relative to known areas of contamination;
- change of land use such as construction of office space over contaminated land will require prior assessment to ensure contaminant risks are acceptable;
- methods of cutting sealed surfaces and excavation (eg. hot work in a potentially hazardous area?);
- options to reuse excavated material within the program;
- timing of program to account for lead times to allow prior contamination testing of the area or provision for temporary on-site stockpiling of excavated soil;
- where EPA approval may be required, program to account for lead times needed to classify the material and obtain EPA approval (min. 2-4 weeks);
- potential for activities to expose workers to contaminated soil and/or hazardous vapours (in potentially confined spaces such as trenches);
- the need for vapour monitoring equipment and additional PPE, and the extent these need to be incorporated into the task health and safety planning;
- if excavated material needs to be temporary stockpiled;
    - have sufficient controls been considered to manage dust, vapour emissions, leachate generation and erosion; and
    - is EPA approval required?;
- if excavated material may need to be treated to meet disposal requirements; and
- is contaminant testing of proposed excavation areas needed.

5.3. Contamination assessment and classification

A contaminated land specialist consultant should be engaged to undertake the following key tasks:

- prepare a Sampling and Analysis Plan (SAP) with reference to EPA Information Bulletin 105 [Ref.2];
- collect samples in accordance with the SAP (this can be undertaken by a person nominated by the specialist);
- classify the material;
- prepare a Waste Management Plan for material classified as Level 2 or above (refer to section 5.4.1);
- obtain the required EPA approvals to store, pre-treat, remove, transport, reuse, treat or dispose of the material (refer to section 5.4.2).

Before a specialist consultant is engaged for a TasPorts ground penetration, excavation or dredging task the Manager Environment & Sustainability or an Environmental Advisor must be consulted. In addition, the consultant should be selected from a company listed in the TasPorts Environmental Services Standing Offer Agreement (SOA) – (or contact Procurement).

In addition, the consultant may be, but does not need to be, a *Certified Site Contamination Specialist* listed on the Certified Environmental Practitioner Scheme (CEnvP) directory of Certified Site Contamination Specialists (Link: Find a CEnvP - CEnvP Scheme).

The SAP must consider a suitable suite of analytes typically expected for that location, the likely sampling density (i.e. generally 1 sample per 25 m3) taking into account statistical principals, and consider not only total concentrations but also leach test concentrations (TCLP & ASLP), depending on the likely disposal option.

Material must be classified using the criteria in EPA's *Information Bulletin No. 105* [Ref.2] and *Clean Fill Type 1 and Type 2 – Declaration of Pollutant Levels* [Ref. 3] to determine its suitability for reuse, landfill disposal or pre-treatment prior to landfill disposal.

5.3.1. Material classification report

The contaminated land specialist consultant should provide the classification report in PDF format and also provide the sampling results in GIS compatible format as specified in Appendix 1.

5.3.2. Material classifications

Table 1 contains the five (5) categories used by EPA to classify potentially contaminated material.

Table 1: Soil Contamination Classification

Classification	Controlled waste?
Clean Fill (type 1 or 2)	No
Level 1 - Fill Material	Unlikely
Level 2 - Low Level Contaminated Soil	Likely
Level 3 - Contaminated Soil	Yes
Level 4 - Contaminated Soil for Remediation	Yes

Clean Fill is classified by EPA as either Clean Fill type 1 or Clean Fill type 2:

- Clean Fill type 1 means natural materials in a raw unaltered form that does not contain concentrations of pollutants specified by EPA;
- Clean Fill type 2 means a mixture of any one or more of:
    - bricks, masonry, paving blocks, concrete, mortar, bituminised or rubble pavement; and
    - does not contain set concentrations of pollutants specified by EPA

5.4. Assess reuse and disposal options

Contaminated material should be assessed for potential reuse on-site.

An assessment needs to consider the guidelines contained in the "Site Contamination NEPM" [Ref.4]. Where NEPM guideline criteria is exceeded reuse may still be feasible if a risk assessment determines that reuse presents an acceptable risk to human health and the environment. Regulatory approval may be required.

Where contaminated material cannot be reused on-site, potential reuse off-site should be explored with consideration of the "Site Contamination NEPM" [Ref.4] guidelines. Regulatory approval will be required.

5.4.1. Waste Management Plan

A Waste Management Plan should be developed for material classified as Level 2 or above and include the following:

- classification of the material;
- consideration as to whether the material can be reused or remediated instead of, or prior to, disposal;
- selected management option including justification;
- preferred location of reuse, remediation and/or disposal; and
- method of transport (via an approved waste transporter).

Waste Management Plans should be prepared, or at least endorsed, by the contaminated land specialist engaged to assess the material.

5.4.2. Regulatory and other approvals

Clean Fill or material classified as Level 1 contaminated soil:

- may only be reused or disposed of on land where:
    - the landowner has obtained approval by a relevant authority such as EPA or a planning authority (such as a licenced landfill); or
    - disposal meets the requirements of an EPA Approved Management Method

Material classified as Level 2, 3 or 4 contaminated soil: requires written EPA approval before it can be:

- stored at the site, or any other site, for a period exceeding 30 days (unless otherwise approved in writing by TasPorts' Manager Environment & Sustainability);
- re-used or pretreated on-site (with possible exceptions);
- removed from the site;
- transported or removed from the TasPorts site (e.g. land and/or berths) where it was excavated; or
- deposited at another site for storage, reuse, treatment or disposal.

The contaminated land specialist engaged to assess and classify the material should be used to obtain the required EPA approvals to store, pre-treat, remove, transport, reuse, treat or dispose of the material.

Written approval from the Manager Environment & Sustainability is also required before contaminated material can be transported or removed from the TasPorts site (e.g. land and/or berth) where it was excavated.

Once written EPA & Manager Environment & Sustainability approval has been obtained to remove material from a site it must be transported by an EPA registered controlled waste transporter.

5.5. Develop management controls

During ground penetration and excavation a range of controls are available to manage associated risks. Typical examples include:

- controlling work area to exclude potential ignition sources (e.g. sparks, naked flames etc.) and provide controls such as fire extinguishers;
- ensuring project staff understand the contaminant type and extent likely to be encountered (some contaminants such as metals cannot be identified easily and do not have strong odours or sheens metals);
- identifying task specific JSEAs/SWMs that specify controls required, appropriate PPE, monitoring equipment (e.g. explosive and/or human health risk);
- minimising, where possible, the need to excavate material (does the excavation need to be that deep/wide?), and where suitable, review options to re-use on-site;
- can tasks be conducted in a manner that minimises exposure to contaminants (i.e. handling soil, groundwater, minimising or eliminating periods working in excavations);
- do aesthetic impacts such as odour need to be controlled to avoid effects on adjacent land users and other stakeholders (i.e. via tarpaulins and covers);
- is the temporary storage location suitable (i.e. take account for erosion controls, proximity to site boundaries and sensitive receptors, rainfall recharge and leachate generation) - lined covered drums, skips & containers can be suitable temporary storage options for small volumes;
- preventing dust, vapour emissions, leachate or erosion from temporary stockpiles (i.e. via tarpaulins, covers, bunding, silt fences); and
- documenting the excavation program, assessment findings and the associated approvals and providing this information back to a TasPorts Environmental Advisor to allow contamination information/knowledge to be shared across the broader TasPorts team.

The example controls listed above are not designed to replace task specific health and safety plans and safe work procedures. These are to be subsequently developed by contactors using this document as a high-level guidance and need to be task and condition specific.

5.6. Records management (internal process)

The following environmental records shall be maintained in TRIM:

- Environmental monitoring results;
- Waste Management Plans;
- EPA approvals and notifications received by regulators;
- Waste tracking certificates.

6. DEFINITIONS

Controlled Waste	As defined in the *Environment Management and Pollution Control Act 1994*, **controlled waste** means: (a) a substance that is **controlled waste** within the meaning of – (i) the National Environment Protection Measure entitled the Movement of Controlled Waste Between States and Territories made by the National Environment Protection Council on 26 June 1998, as amended from time to time; or (ii) any National Environment Protection Measure substituted for the Measure referred to in paragraph (a) , as amended from time to time; and (b) a substance that is prescribed by the regulations to be controlled waste;
Controlled Waste NEPM	*National Environment Protection (Movement of Controlled Waste between States and Territories) Measure 2004*
EMPCA	*Environmental Management and Pollution Control Act 1994* (Tas)
Environmental Harm	As defined in the *Environment Management and Pollution Control Act 1994*, **environmental harm** means: (1) any adverse effect on the environment (of whatever degree or duration) and includes an **environmental nuisance.**
Environmental Nuisance	As defined in the *Environment Management and Pollution Control Act 1994*, **environmental nuisance** means: (a) the emission, discharge, depositing or disturbance of a pollutant that unreasonably interferes with, or is likely to unreasonably interfere with, a person's enjoyment of the environment; and (b) any emission, discharge, depositing or disturbance specified in an environment protection policy to be an environmental nuisance;
EPA	Environment Protection Authority
Facilities	TasPorts' owned, operated or managed land and/or berths
General Environmental Duty	As defined in the *Environment Management and Pollution Control Act 1994,* a person must take such steps as are practicable or reasonable to prevent or minimise environmental harm or environmental nuisance caused, or likely to be caused, by an activity conducted by that person
Information Bulletin 105	Information Bulletin 105 Classification and Management of Contaminated Soil for Disposal
Site Contamination NEPM	*National Environment Protection (Assessment of Site Contamination) Measure 1999* (Cth)
TasPorts	Tasmanian Ports Corporation Pty Ltd
Waste Management Regulations	*Environmental Management and Pollution Control (Waste Management) Regulations 2020* (Tas)

8. REFERENCES

1. TasPorts *Flowchart - Managing Contaminated Material during Ground Penetration and Excavation*
2. EPA Tasmanian *Information Bulletin No. 105 Classification and Management of Contaminated Soil for Disposal*
3. *Clean Fill Type 1 and Type 2 – Declaration of Pollutant Levels 2022*
4. *National Environment Protection (Assessment of Site Contamination) Measure*. National Environment Protection Council.
5. *National Environment Protection (Movement of Controlled Waste between States and Territories) Measure*. National Environment Protection Council.
6. TasPorts *Excavation and Earthworks Permit*

9. APPENDICES

1. Soil Sampling Results in GIS compatible format

APPENDIX 1

Soil Sampling Results in GIS compatible format

The contaminated land specialist consultant should provide the classification report in PDF format and also provide the sampling results in GIS compatible format as follows:

- xls, csv or ESRI file/table containing site coordinates and corresponding data similar to the layout of this table (this is an example only).

Site	Sub site	easting	northing	datum	Attribute name and unit	value	Soil profile description	depth
1	1a	5 digits	6 digits	GDA2020 zone 55	Electrical Conductivity (SPC) µS/cm	60	Pebbles and gravel	1-5cm
1	1b							
2	2a							
2	2b							
3								

For stockpiled excavated material the site coordinates should be for the excavation location if this is known.