Wellington Park Hygiene Protocol

Risk Management Framework for Agencies Operating in Wellington Park

April 2007

Executive Summary

The spread of weeds and, to a lesser extent, the introduction of *Phytophthora cinnamomi*, within Wellington Park has the potential to significantly impact on the Park's natural values. Weed species are capable of out-competing native flora species, impacting upon threatened flora, increasing fire risk, reducing fauna habitat, and visually degrading the landscape. The introduction of Phytophthora can lead to the local decline of susceptible flora species, altering fauna habitat and reducing biodiversity.

Minimising the spread of weeds and the introduction of Phytophthora to the Park involves a consistent and coordinated approach by all relevant agencies. This protocol suggests actions that specific agencies can undertaken to minimise the spread of weeds and pathogens, such as adherence to washdown guidelines, the planning of routes through the Park, management of all capital works, and staff education.

No hygiene protocol can however ensure complete control of the spread of weeds and pathogens as there are many factors that influence the success of control measures. Events such as wild fires or other emergencies focus on the protection of life and assets, with hygiene assuming a lower priority. The adherence to a standard protocol does however enable agencies to be better prepared and therefore reduce the spread of weeds and pathogens. Illegal activities within the Park such as trail bike and ATV use present a high risk and are very difficult to control. Other permitted activities such as bike and horse riding and walking also have the potential to spread weeds and pathogens. Whilst these factors are not covered under this protocol they can be minimised by the continued education of Park users and the enforcement of Park Regulations.

The protocol makes the following recommendations to maximise the effectiveness of management procedures.

- Agencies should incorporate the listed Primary Actions into their Standard Operating Procedures and operational plans.
- All vehicle movements within the Park should be reviewed and, where possible, travel should be from low potential areas into high potential areas.
- Weed control efforts within the Park should be concentrated on the Goat hills area to reduce the opportunity for weeds to be spread to the west of the Park along the fire trails.
- This protocol should be included as part of induction procedures for all staff who will operate in the Park.
- The protocol should be integrated with other Park documents such as the fire management protocols which form part of the Wellington Park Fire Management Strategy 2006.
- All agencies that operate in areas outside the Park should consider the regional context of vehicle movements and washdown vehicles accordingly.

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1. Introduction

1.1. Wellington Park

Wellington Park and the Wellington Park Management Trust were established through the *Wellington Park Act 1993*. The Park, 18 250 hectares in size, includes most of the area of the Wellington Range (refer Figure 1). About one-third of the Park is Crown land, one-third is vested in the Glenorchy and Hobart City Councils and the remaining third is owned freehold by the Hobart and Glenorchy City Councils (Figure1).

Wellington Park was reserved for the following purposes:

(a) the provision of recreational and tourism uses and opportunities consistent with the purposes specified in paragraphs (b) to (e);
(b) the preservation or protection of the fauna or flora contained in or on the land;
(c) the preservation or protection of the natural beauty of the land or of any features of the land of natural beauty or scenic interest;
(d) the preservation or protection of any features of the land being features of historical, Aboriginal, archaeological, scientific, architectural or geomorphological interest; and
(e) the protection of the water catchment values of the land.

The Act not only establishes Wellington Park but provides for its "protection, use and management". Under the Act, the Trust has the responsibility, amongst other functions, to:

- provide for the management and maintenance of Wellington Park in a manner that is consistent with the purposes for which it is set aside; and
- give effect to any management plan in force for Wellington Park.

A number of other agencies are responsible for day to day management of the Park and its infrastructure. These agencies include: the Parks and Wildlife Service (for Crown land areas in the Park); Hobart City Council (for Mountain Park and other areas vested in the Council); Glenorchy City Council (for their freehold land); Hobart Water (for drinking water catchment management and storage critical to bulk water supply); Hydro Tasmania; Aurora Energy; Transend Networks; Telstra; and various telecommunications lessees and operators.

1.2. Aims of Hygiene Protocol

The aims of this hygiene protocol are to:

- Develop a practical framework for the management of weed and *Phytophthora cinnamomi* (Phytophthora) importation by agencies operating within the Park (based upon risk mapping and risk management approaches).
- Develop recommendations for the implementation of the risk management framework by agencies operating within the Park, including local and regional solutions within and outside of the Park.

To achieve the aims of the project maps have been produced that identify the following:

- areas within Wellington Park currently subject to the spread of Phytophthora and areas at risk of invasion of Phytophthora;
- the distribution of introduced species within Wellington Park
- access levels required by management agencies within above identified areas.

Current management approaches to reduce the importation and spread of weed seed, Phytophthora and other pathogens have also been researched. Weed seed and Phytophthora can also be spread by bikes, on footwear and by horses - the control of these vectors is beyond the scope of this protocol.

Funds for the development of the protocol have been provided through the Australian Government Envirofund program which is managed by the Department of the Environment and Heritage and the Department of Agriculture, Fisheries and Forestry.

1.3. Weed risk

There is a wide array of introduced plant species that occur in Wellington Park. Many of these species occur in isolated areas, are considered to be low risk of spread, or have low environmental impact. There are however a number of introduced species that are considered to be high risk as they can out-compete native species (including threatened species), degrade fauna habitat, and increase fire risk and intensity.

For the purposes of this protocol only high risk introduced species which are easily transported or spread by vehicles and machinery have been considered. These species are shown in Table 1, whilst Appendix 1 provides a list all known introduced species that occur in the Park. Figure 2 indicates the broad distribution of the weed species listed in Table 1.

Table 1 Introduced plants in Wellington Park that are easily transported by vehicles and equipment.

Species name	Common name	Declared weed *
Carduus nutans	Nodding thistle	Y
Carduus pycnocephalus & tenuiflorus	Slender thistle	Y
Carthamus lanatus	Saffron thistle	Y
Cirsium arvense	Californian thistle	Y
Cirsium vulgare	Spear thistle	
Conium maculatum	Hemlock	
Cortaderia all species	Pampas grass	Y
Crocosmia X crocosmiiflora	Montbretia	
Cytisus scoparius	English broom	Y
Digitalis purpurea	Foxglove	
Echium plantagineum	Patersons curse	
Erica lusitanica	Spanish heath	Y
Foeniculum vulgare	Fennel	Y
Genista monspessulana	Canary broom	Y
Hieracium aurantiacum	Orange Hawkweed	Y
Senecio jacobaea *Silybum marianum* *Ulex europaeus* *Verbascum thapsus*	Ragwort Variegated thistle Gorse Mullein	Y Y

* Weed declared under the *Weed Management Act 1999*.

Note: The distribution of weed species in Wellington Park has been collated by Peter Franklin of the Wellington Park Bushcare Group.

The most significant weed infestations generally occur in areas of high disturbance such as along fire trails and infrastructure easements. Many of these weeds are likely to have been introduced to the Park as seed on vehicles or machinery from external areas. Once established, weeds such as Spanish heath have spread along fire trails and down slope where seeds are transported by machinery, water and animals.

1.4. Phytophthora risk

Phytophthora cinnamomi is an introduced plant pathogen that causes 'root rot' disease in plants. It invades the roots and blocks their uptake of water and nutrients, often resulting in the death of the host plant.

Open vegetation communities such as heathlands, moorland and dry forests are most susceptible to the spread of this disease. There are over 120 native Tasmanian plants that have a known susceptibility to the disease and at least 35 of these are listed as a threatened species. The most susceptible plants are woody shrubs in the heath, pea and protea families.

The pathogen is spread by root-to-root contact and through microscopic spores present in soil. Human activities often facilitate its spread by transporting contaminated soil between areas via boots, vehicles and machinery.

There is currently no known infestation of Phytophthora in Wellington Park, however there are a number of records from the surrounding area. The Park is considered to be a lower risk of contamination as much of the area is above the 700-800m altitude limit for Phytophthora occurrence, and the dominant geology is dolerite which is not conducive to the spread of the pathogen (*Rudman, pers. comm*). There are however some small areas of the Park at lower altitudes that contain sand or peat soils that are a higher risk or that contain populations of threatened *Epacris* species which are highly susceptible to Phytophthora.

Figure 3 indicates areas of the Park that are at high risk and also shows known records of contaminated areas adjacent to the Park.

2. Operational Works in Wellington Park

2.1. Agencies using Park and works undertaken.

There are a number of agencies that have management responsibilities within Wellington Park.

The Hobart City Council (HCC) and Glenorchy City Council (GCC) and the Tasmanian Parks and Wildlife Service (PWS) are responsible for large areas of the Park (Figure 1). These agencies manage the fire trails, walking tracks and other infrastructure.

In addition to these agencies Transend, Aurora and Hobart Water maintain infrastructure within the Park and the Tasmania Fire Service (TFS) conduct occasional training exercises in the Park. A number of tracks are also used by recreational 4WD vehicles under a permit system operated by PWS. Tasmanian Police and TFS respond to emergencies within the Park such as search and rescue and the control of wildfires.

Permitted vehicular access to the Park by the public is restricted to Pinnacle Road and various fire trails for recreation and events. Illegal access by trail bikes and ATV's (quad bikes) does however occur primarily along the more remote trails to the west of the Park and via various access points within the GCC management area. These activities are very difficult to control and whilst a potentially significant vector for weed and Phytophthora spread their effects and management are not discussed here.

Other permitted recreational activities such as walking, bike riding and horse riding also have the potential to spread weeds and Phytophthora however their control is beyond the scope of this protocol.

Table 2 contains names for all fire trails referred to in the following section, whilst Appendix 2 indicates the type and frequency of visits to the Park by all agencies.

2.1.1. Hobart City Council

HCC staff and associated works crews require vehicle assess to the Park to perform the following tasks:

- Fire trail inspections and maintenance
- Service of public huts

- Weed control works
- Fire management burns
- Emergency events
- Enforcement of Park Regulations
- Walking track management

The following trails are utilised within Wellington Park:
W12, W13, W21 - W27, W36, W37, W40 - W43, W45.

Table 2 Fire trails in Wellington Park.

Trail No.	Fire Trail Name
W1	East West Trail
W2	Jefferys Track
W3	Ringwood Trail
W4	Collins Cap Trail
W5	Mount Hull Trail
W6	Zig Zag Trail
W7	Montrose Trail
W8	Chapel Trail
W9	Knights Creek Trail
W10	Tolosa Fire Trail
W11	Priest Fire Trail
W12	Main Fire Trail
W13	Bracken Lane Fire Trail
W14	White Timber Trail
W15	Big Bend Trail
W16	Jackson Street Fire Trail
W17	Park Fire Trail
W18	Knights Creek Trail
W19	No name
W20	Kalang Fire Trail
W21	*Lenah Valley Fire Trail*
W22	Old Farm Fire Trail
W23	Old Farm Fire Trail
W24	Inglewood Fire Trail
W25	Rivulet Track - O'Gradys Falls Track
W26	Grays Fire Trail
W27	Pipeline Track
W28	Goat Fire Trail
W29	Wall Fire Trail
W30	Quarry Fire Trail
W31	Water Fire Trail
W32	Ruins Fire Trail
W33	Merton Fire Trail
W34	Merton Fire Trail
W35	Lime Kiln Trail
W36	Kangaroo Fire Trail
W37	No name
W38	Lumeah Fire Trail
W39	Unnamed
W40	Unnamed
W41	Middle Island Fire Trail
W42	Fingerpost Track
W43	Reservoir Fire Trail
W44	Unnamed
W45	Unnamed
W46	Unnamed

2.1.2. Glenorchy City Council

GCC staff and associated works crews require vehicle assess to the Park to perform the following tasks:

- Fire trail inspections and maintenance
- Weed control works
- Fire management burns
- Emergency events
- Enforcement of Park Regulations

The following trails are utilised within Wellington Park:

W6 - W11, W16, W17, W19, W28 - W37.

2.1.3. Transend and Aurora

Transend and Aurora staff and associated works crews require vehicle assess to the Park to perform the following tasks:

- Infrastructure inspections and maintenance
- Weed control works

The following trails are utilised within Wellington Park:

W6, W7, W8, W12, W16, W40 (off W12).

2.1.4. Hobart Water

Hobart Water staff and associated works crews require vehicle assess to the Park to perform the following tasks:

- Infrastructure inspections and maintenance
- Capital works (repair of infrastructure)
- Limited weed control
- Catchment inspections and improvements i.e. bank erosion
- Emergency access i.e. pipeline breaks, landslips

The following trails are utilised within Wellington Park:

W9, W10, W17, W18, W27, W29, W31

2.1.5. Parks and Wildlife Service

The PWS is responsible for managing the western half of the Park (Figure 1) to perform the following tasks:

- Fire trail inspections and maintenance
- Weed control
- Walking track management
- Management of recreational 4WD users
- Search and Rescue
- Enforcement of Park Regulations

The following trails are utilised within Wellington Park:

W1 - W7, W14, W15

2.1.6. Tasmania Fire Service

The TFS has a limited role in the ongoing management of the Park. The TFS conducts some training and familiarisation exercises within the Park, carries out controlled burns and attends wildfires. Non-emergency access must be approved by the relevant land management agency.

3. Risk Classification

Areas of the Park and respective fire trails have been designated according to their potential for assisting the spread weed seed and Phytophthora. The level of risk has been determined by the following criteria:

- Weedy nature of species

How easily is the weed spread, and what are the effects of its spread on the natural values of the Park?

- Density of weed species
  How large are the infestations, and therefore how substantial is the seed bank?
- Association to threatened species
  Where are the known populations of threatened plants that can be impacted by weed species or Phytophthora?
- Location of species
  Are weed infestations along a fire trail, access road or infrastructure easement where likelihood of contact with vehicles is higher?
- Level of usage of road or trail
  How many vehicles utilise each trail and in which direction do they travel, and how often is each track used?
- Soil type
  Where do the soils that are associated with the spread of Phytophthora occur in the Park (predominantly sandstone and peaty soils)?

High Potential Fire Trails (high risk of spreading weed seed) (Refer Figure 5)

W1: eastern end of the trail due to infestations of Spanish heath and as trail is accessed from other weed infested trails. Rest of trail also considered to be high potential due to use by recreational 4WD vehicles through the permit system.
W5: trail crosses private land that is heavily infested with Spanish heath. This trail should only be used to exit the Park.
W6: high usage trail with Spanish heath infestation. Can be accessed from a number of trails from Goat Hill.
W7: centre portion of trail around power line easements due to Spanish heath infestations.
W8: high usage trail with Spanish heath infestation. Trail bisects a significant threatened species population.
W10: weed infestation along trail and at the entrance to trail. High usage trail and bisects a threatened species population.
W11, W34 & W35: soil type – susceptible to Phytophthora.
W12: weed infestations and high usage.
W16: Spanish heath and canary broom infestation and high usage.
W24: weed infestations and high usage.
W25: southern end off Bracken Road Fire trail is high potential due to weed infestations.
W28: Spanish heath infestation.
W31 & W33: weed infestations and high usage. W31 has soils susceptible to Phytophthora.
W40: soil type – susceptible to Phytophthora.
W41: southern end of trail high potential due to weed infestation.

High Potential Phytophthora spread areas (Refer Figure 3)
Areas of the Park that are below 700m and contain siliceous soils such as sandstone, mudstone or peaty soils are susceptible to Phytophthora spread.

There are only a small number of areas that contain Phytophthora prone soils and only three of these areas are considered high potential given they contain existing vehicle trails. These areas are marked on Figure 3.

Whilst the majority of the Park is above the altitudinal range considered to be at risk for Phytophthora, any increase in mean temperatures in the future may result in increased susceptibility for larger areas of the Park.

High Potential Activities

- Vegetation management works – along easements and fire trails.
- Weed control works – along easements and fire trails.
- Maintenance of fire trails which involve earthworks.
- Recreational 4WD use where previous movements of vehicles is unknown.
- Inspection of transmission towers where vehicles move off formed tracks.
- Emergency situations where high vehicle usage is required i.e. emergency situations such as fighting wild fires.

Low Potential Activities

- Inspections of trail conditions when vehicles remain on formed trails.
- Inspection of transmission towers when vehicles remain on formed trails.
- Servicing infrastructure e.g. huts (HCC) & water intakes (Hobart Water).
- Enforcement of Park Regulations i.e. monitoring of illegal vehicle use.
- Staff inductions and guided tours.

4. Management Framework

Broad Management Principles

The following broad management principles aim to reduce the spread of weeds and the introduction of Phytophthora into Wellington Park.

- Entry to the Park should be via low risk trails and departure along high risk trails, where possible.
- Minimise vehicle movements from areas of high risk into areas of low risk. Where movement from high to low risk is unavoidable, secondary level of hygiene actions are required (refer below).
- Entry, travel and exit along a high risk trail is permitted providing the vehicle remains on that trail.
- All vehicles that enter the Park must be in a clean state i.e. free from any clumped dirt or mud. All vehicles that enter low risk areas of the Park i.e. areas that do not have weed infestations, must be washed down prior to entry (as per '*Washdown Guidelines for Disease and Weed Control*' – Appendix 3), particularly if they have been in a known Phytophthora area or area that contains weed infestations.
- All vehicles should carry a hard bristle brush to enable loose dirt and mud to be removed from footwear and equipment.
    - Footwear and equipment should be cleaned if they have been worn or used in a weed infested area particularly during wet conditions when mud is easily gathered.
    - All footwear and equipment should be cleaned at the source of the weed infestation prior to re-entering a vehicle to move to another area.
- All contractors that undertake works within the Park must conduct a risk assessment which will include the following:
    - *Route planning* – plan vehicle movements to work site. Access should be along low risk trails when possible or from low risk to high risk trails and not visa versa.
    - *Identify issues involved with the work site and proposed activity* – are weeds present, is work area in phytophthora risk area, are earthworks involved?
    - *Seasonal use* – can management activities be conducted outside seeding times of major weed species?
    - *Vehicle wash down* – where will vehicles be washed down if required? Is washdown of equipment and footwear required after works?

Depending upon the risks involved with the activity, a management plan may be required following the risk assessment. The complexity of such a management plan will be

governed by the scope of the works and the risks involved. Management plans should follow agency protocols where they exist. Where weeds occur in the works area the DPIW 'Code of Practice' worksheets should be followed (Appendix 3). A generalised flow chart for working where weed infestation occur is provide in Appendix 4.

It is recognised that most agencies operating within the Park already have standard procedures and that these often include procedures to reduce the spread of weeds and pathogens. Some agencies maintain their own datasets and require contractors to conduct risk assessments and in some cases develop management plans prior to carrying out any capital works. Existing written procedures and protocols should be updated to include reference to this protocol for works within Wellington Park.

Area Specific Management Practices

Specific management actions for each management area within the Park are provided below. Each section contains Primary and Secondary actions, and largely relate to the agency with management responsibility in that area, however, Hobart Water, Transend, TFS etc. have access to numerous management areas.

Primary actions are those actions that need to be followed in day-to-day management to significantly reduce the opportunity for weeds and pathogens to spread into and through the Park. Secondary actions are those actions which will further prevent the spread of weeds but which may not always be possible to adhere to.

Hobart Management Area

Primary Actions

- Access to Junction Cabin via **W12** and **W23** only.
- Vehicles to be washed down prior to entering the Park if they are not in a clean state i.e. free from any clumped dirt or mud.
- All contractors undertaking works in the Park to undertake a risk assessment prior to commencement of works as per Appendix 4.
- All vehicles to carry hard bristle brush for cleaning footwear and equipment.
- Travel from high potential trails (such as **W12**) to low potential trails is to be minimised (refer Figure 5).
- Vehicles to remain on formed tracks when travelling in the Park and avoid parking on the verge and/or driving on verge when turning (particularly in areas that contain weed infestations).
- Hygiene protocol to be included as part of agency's Standard Operating Procedures.

Secondary Actions

- All vehicles to be washed down prior to entering the Park along a low potential trail.
- Hygiene protocol to be included as part of the induction of all new staff that will operate within Wellington Park.

Glenorchy Management Area

Primary Actions

- Travel from high potential trails or areas to low potential trails or areas is to be minimised (refer Figure 5).
- Vehicles to be washed down prior to entering the Park if they are not in a clean state.
- The Goats Hills area of the Park is to be accessed via **W6**, **W7**, **W8** or **W16** only.

- Exit of the Park along **W7** is to be avoided when vehicles have travelled along trails **W6, W8,** or **W16**.
- All vehicles to carry hard bristle brush for cleaning footwear and equipment.
- All contractors undertaking works in the Park to undertake a risk assessment prior to commencement of works as per Appendix 4.
- Vehicles to remain on formed tracks when travelling in Park.
- Hygiene protocol to be included as part of agency's Standard Operating Procedures.

Secondary Actions

- All vehicles to be washed down prior to entering the Park along a low potential trail.
- Vehicles to avoid parking on the verge and/or drive on verge when turning.

Parks & Wildlife Service Management Area

Primary Actions

- Vehicles to remain on formed tracks when travelling in the Park.
- Vehicles to be washed down prior to entering the Park if they are not in a clean state.
- Access to the Park along **W5** is to be limited to essential travel only. This trail should only be utilised to exit the Park from **W1**.
- Include washdown requirements in permit for 4WD vehicles.
- Include information sheet that provides basic information on Phytophthora, its effects and ways to minimise its spread as part of 4WD permit.
- All vehicles to carry hard bristle brush for cleaning footwear and equipment.
- Hygiene protocol to be included as part of agency's Standard Operating Procedures.

Secondary Actions

- **W1** is to be accessed by **W7** as a priority, use of **W6** or other fire trails in the Goat Hills region to enter **W1** is to be minimised.
- Provide weed and phytophthora information to staff in relation to the identification of weed species, their control and lifecycles i.e. identify times when species are seeding, and the effects and spread of Phytophthora.

Additional Agency Specific Practices

These practices are additional to those requirements of respective Management Areas.

Transend / Aurora

Primary Actions

- Transmission towers that do not have vehicular access to the base to be accessed by foot only.
- Hygiene protocol to be included as part of agency's Standard Operating Procedures.

Secondary Actions

- Inspection of transmission towers and line along **W12** & **W40** should be conducted prior to inspection of the Goat Hills towers as they have a lower weed risk status (Spanish heath has been largely controlled along W12).

Hobart Water

Primary Actions

- Visit Knights Creek reservoir along **W9**, **W18** and **W29** prior to other water assets in the GCC area.
- Visit Pipeline Track (**W27**) prior to the reminder of the water sites if same field staff check all points.

- Hygiene protocol to be included as part of agency's Standard Operating Procedures.

Secondary Actions

- Vehicles are to remain parked on the formed roads when at inspection stations and not on the verge where weeds species may occur and seed is more likely to be picked up.
- Vehicles to be washed down prior to entering the Park along a low potential trail.
- Provide weed information to staff in relation to the identification of weed species, their control and lifecycles i.e. identify times when species are seeding.

Tasmania Fire Service

Primary Actions

- Hygiene protocol to be included as part of agency's Standard Operating Procedures.

Secondary Actions

- Hygiene protocol to be included as part of the induction of all new staff that will operate within Wellington Park.
- All vehicles that have previously been on land that contains weed species should be washed down prior to entering the Park.
- Provide weed and phytophthora information in relation to the identification of weed species, their control and lifecycles i.e. identify times when species are seeding, and the effects and spread of Phytophthora.

Regional Context

Agencies including Hobart Water, Transend, TFS and the PWS operate across the south of the state and there is potential for weed species that occur outside the Park to be transported into the Park and *vice versa*. There is also potential for vehicles that have operated in areas that contain Phytophthora to also operate in the Park therefore possibly spreading this pathogen into susceptible areas.

To minimise the opportunity for weed seed and Phytophthora to spread all agencies that operate on a regional basis should consider where vehicles have been prior to entering the Park and what the weed and Phytophthora status of these areas is. Conversely, it should also be considered where vehicles go once leaving the Park, and the weed species present in the areas of the Park where the vehicle operated.

Any vehicle moving from a high risk area i.e. weed infested, to a low risk area i.e. weed-free, should be washed down between locations as per the washdown guidelines contained in Appendix 3.

Monitoring and Review

The protocol will be reviewed and updated on an annual basis at the September Management Co-ordinating Committee, facilitated by the Trust, and attended by all management agencies, including the TFS and Transend Networks.

5. Summary & Recommendations

The spread of weeds and, to a lesser extent, the introduction of Phytophthora within Wellington Park has the potential to significantly impact on its natural values. Weeds species are capable of out-competing native flora species, impacting on threatened flora species, increasing fire risk, reducing fauna habitat, and visually degrading the Park. The introduction of Phytophthora can lead to the local decline of susceptible flora species, altering fauna habitat and reducing biodiversity.

Minimising the spread of weeds and the introduction of Phytophthora to the Park involves a consistent and coordinated approach by all relevant agencies. This protocol suggests actions that specific agencies can undertaken to minimise the spread of weeds and pathogens, such as adherence to washdown guidelines, the planning of routes through the Park, management of all capital works, and staff education.

No hygiene protocol can however ensure complete control of the spread of weeds and pathogens as there are many factors that influence the success of control measures. Events such as wild fires or other emergencies focus on the protection of life and assets, with hygiene assuming a lower priority. The adherence to a standard protocol does however enable agencies to be better prepared and therefore reduce the spread of weeds and pathogens. Illegal activities within the Park such as trail bike and ATV use present a high risk and are very difficult to control. Other permitted activities such as bike and horse riding and walking also have the potential to spread weeds and pathogens. Whilst these factors are not covered under this protocol they can be minimised by the continued education of Park users and the enforcement of Park Regulations.

The following recommendations are provided to maximise the effectiveness of this protocol.

- Agencies should incorporate the listed Primary Actions into their Standard Operating Procedures and operational plans.
- All vehicle movements within the Park should be reviewed and, where possible, travel should be from low potential areas into high potential areas.
- Weed control efforts within the Park should be concentrated on the Goat hills area to reduce the opportunity for weeds to be spread to the west of the Park along the fire trails.
- This protocol should be included as part of induction procedures for all staff who will operate in the Park.
- The protocol should be integrated with other Park documents such as the fire management protocols which form part of the Wellington Park Fire Management Strategy 2006.
- All agencies that operate in areas outside the Park should consider the regional context of vehicle movements and washdown vehicles accordingly.

Appendix 1 Weed Species Occurring in the Park.

Species Name	Common name	Declared weed *
Acer pseudoplatanus		
Ammophila arenaria	Marram grass	
Anredera cordifolia	Madeira vine	
Anthoxanthum odoratum	Sweet vernal grass	
Arctotheca calendula	Cape weed	
Berberis darwinii	Darwin's barberry	
Carduus nutans	Nodding thistle	Y
Carduus pycnocephalus & tenuiflorus	Slender thistle	Y
Carthamus lanatus	Saffron thistle	Y
Cedronella canariensis	Balm of Gilead	
Centaurium erythraea	Centaury	
Chrysanthemoides monilifera ssp monilifera.	Boneseed	Y
Cirsium arvense	Californian thistle	Y
Cirsium vulgare	Spear thistle	
Clematis vitalba	Old Mans Beard	
Coloneaster spp.	Cotoneaster	
Conium maculatum	Hemlock	
Coprosma robusta	Karamu	
Cortaderia all species	Pampas grass	Y
Crataegus monogyna	Hawthorn	
Crocosmia crocosmifiiflora	Montbretia	
Cytisus scoparius	English broom	Y
Dactylis glomerata	Cocksfoot	
Digitalis purpurea	Foxglove	
Dipsacus fullonum	Teasle	
Echium plantagineum	Patersons curse	Y
Erica lusitanica	Spanish heath	Y
Erodium cicutarium	Common storksbill	
Erythrina abyssinica		
Euphorbia lathyrus		
Foeniculum vulgare	Fennel	Y
Fuchsia magellanica	Fuchsia	
Genista monspessulana	Canary broom	Y
Hieracium aurantiacum	Orange hawkweed	Y
Hypericum androsaemum		
Ilex aquifolium	Holly	
Leycesteria Formosa	Himalayan honeysuckle	
Lonicera periclymenum	Honeysuckle	
Marrubium vulgare	Horehound	Y
Myosotis sylvatica		
Myriophyllum aquaticum	Parrots feather	Y
Onopordum acanthium	Cotton thistle	Y
Oxalis corniculata	Yellow wood sorrel	
Pinus radiata	Radiata pine	
Prunus laurocerasus		
Quercus robur		

Species Name	Common name	Declared weed *
Rosa rubiginosa	Briar rose	
Rubus fruticosus	Blackberry	Y
Rumex obtusifolius	Broad-leaved dock	
Salix fragilis	Willow	Y
Sambucus nigra	Elderberry tree	
Senecio jacobaea	Ragwort	Y
Silybum marianum	Variegated thistle	
Solanum nigrum	Deadly nightshade	
Sorbus aucuparia		
Symphoricarpos albus		
Typha latifolia	Cumbungi	
Ulex europaeus	Gorse	Y
Urtica urens	Nettle	
Verbascum thapsus	Mullein	
Vinca major	Periwinkle	

* Weed declared under the *Weed Management Act 1999.*
Data on weeds present in Wellington Park supplied by Peter Franklin, Wellington Bushcare Group.

Appendix 2 Fire Trail Use by Agencies

Access purpose	Fire trails	Route (general direction of travel)	Frequency (approx/average)	Timing	Comment
Hobart City Council					
Inspection of frequently used trails	W12, W21, W22 & W23	In along W12, up W21, down W22 or W23 and out W12	Once per week	All year	Undertaken by Works manager
Inspections of trail conditions (drains, surface)	All trails in HCC management area	Work through systematically with entry / exit shortest route	Annually.	Pre fire season to end of fire season (November to March)	
Inspection of trail conditions after heavy rain or snow.	All trails in HCC management area	Work through systematically with entry / exit shortest route	Reactively after high winds or heavy snowfall.	As required	
Enforcement	All fire trails	Depends on location of offender	Infrequent	As required	Mainly trails bikes.
Maintenance of Junction cabin	W12 & W23	In along W12 up W23 and return the same route.	3 times per week	All year	
Weed Maintenance	Varies as required.	Depends on location of weed infestation	As per weed management program	Spring/summer	Undertaken by Contractor
Fire Trail Maintenance	Varies as required.	Work through systematically with entry / exit shortest route	Varies as required	Generally Spring to Autumn	Undertaken by Contractor
Management burns	Dependant on fire	Entry / exit via shortest	One to two burns unit	Spring or Autumn	

Access purpose	Fire trails	Route (general direction of travel)	Frequency (approx/average)	Timing	Comment
	unit to be burnt	route	a year. Frequent vehicle access over a number of days	dependant on conditions	
Access by Bushcare Unit staff	All trails	Varies	Varies based on current projects	As required	Staff from Bushcare Unit undertake infrequent visit to the park for a variety of reasons ranging from track inspections, to Envirofund inspections and weed mapping.
Rehabilitation works by Bushcare Group	All trails	Varies	One working bee in Park per month	All year	Bushcare groups with support from Bushcare crew undertake weed control and tree planting in park at various locations.
Wellington Trust Staff	All trails	Would vary	As required	As required	Staff from Wellington Trust may enter park along fire routes fro a variety of reasons.
Glenorchy City Council					
Inspection of frequently used trails	W10, W11, W31, W33, W34.	In along W10, up W11, or W34 down W31 or W33 out W10.	Once per month (approximately).	All year	Undertaken by Natural Areas Officer
	W6, W7, W8, W16	In W6, W7 or W8 out either of these trails.	Once per month (approximately)	All year	Undertaken by Natural Areas Officer
Inspections of trail	All trails in GCC	Work through	Annually.	Pre-fire season to end	

Access purpose	Fire trails	Route (general direction of travel)	Frequency (approx/average)	Timing	Comment
conditions (drains, surface)	management area	systematically with entry / exit shortest route		of fire season (November to March)	
Inspections of trail conditions and windfall trees	All trails in GCC management area	Work through systematically with entry / exit shortest route	Reactively after high winds.	As required	
Enforcement	All fire trails	Depends on location of offender	Infrequent	As required	Mainly trails bikes.
Weed Maintenance	Varies as required.	Depends on location of weed infestation	As per weed management program	Spring/summer	Undertaken by Contractor
Fire Trail Maintenance	Varies as required.	Work through systematically with entry / exit shortest route	Varies as required	Generally Spring to Autumn	Undertaken by Contractor
Management burns	Dependant on fire unit to be burnt	Entry / exit via shortest route	One to two burns unit a year. Frequent vehicle access over a number of days	Spring or Autumn dependant on conditions	
Transend / Aurora					
Inspection of infrastructure	W6, W7, W8, W16 W12, W40	Unknown	12 visits/year	All year	Access by 4WD vehicles
		In and along W12, along W40 and out via W12.	12 visits/year		Access by 4WD vehicles
Vegetation	W6, W7, W8, W16	Work through systematically with entry /	4 visits/year	All year	Along easements.

Access purpose	Fire trails	Route (general direction of travel)	Frequency (approx/average)	Timing	Comment
Management	W12, W40	exit shortest route			Access by light 3 tonne truck – Vegetation management contractor
Weed Management	W6, W7, W8, W16 W12, W40	Dependant of location of works	As required.	Generally Spring – Autumn.	Along easements. Weed Management Contractors – Vehicles vary.
Hobart Water					
Inspection of water infrastructure.	W27	In & out along W27	2 visits/week	All year	
	W26	In & out along W26	1 visit/week	All year	Includes some walking access
	W9, W29	In and out along W29 and then W9	5 visits per week	All year	To access Knights Creek Reservoir
	W10, W31	In Along W10, up & down W31 out W10	5 visits per week	All year	To access Limekiln Reservoir
	W9, W18	In along W9 onto W18 and return	3 visits /week	All year	Access to end of Knights Creek Reservoir
	W10, W17	In along W10 onto W17 and return	1 visit/week	All year	Access to intake points on Humphreys Rivulet
Catchment Inspections	All trails	Varies	2 inspections /year		Done on a sub catchment basis with a number sub catchment inspected annually. Inspections also undertaken on foot
Catchment	Via W9, W10, W17, W18, W26, W27,	Varies	As required	As required	Improvements as required such as control

Access purpose	Fire trails	Route (general direction of travel)	Frequency (approx/average)	Timing	Comment
improvements	W29 & W31.				of bank erosion.
Weed Management	Via W9, W10, W17, W18, W26, W27, W29 & W31.	Varies	As required	Generally Spring – Autumn.	Some weed management undertaken at edge of trails regularly used by Hobart Water or weeds around reservoirs.
Infrastructure maintenance	Via W9, W10, W17, W18, W26, W27, W29 & W31.	Varies	As required	As required	Maintenance such as repair of pipes of intakes is carried out as required.
Emergency	All relevant trails	Varies	As required	As required	Responding to landslips or pipeline breaks.
Parks and Wildlife Service					
Inspections of trail conditions and windfall trees for 4WD permit system management	Montrose Trail (W7) East West Trail (W1) Collins Cap Trail (W4) Jeffery's Track (W2)	In W7 along W1, down & back up W4 out W2.	Monthly during the open period. Also after storm (high wind and heavy rainfall) events (average monthly also)	September to April	Generally PWS close the permit access end of May through to September.
Fire Management inspections and works	W1, W2, W3, W4, W5, W7	In W7, along W1, to and down W3, up & back W2	Monthly Also after storm (high	Pre fire season to end of fire season	To ensure fire trails are trafficable during the

Access purpose	Fire trails	Route (general direction of travel)	Frequency (approx/average)	Timing	Comment
		then along W1 (easterly) down & out W4, to and up and down W5.	wind and heavy rainfall) events (average monthly also)	(November to March)	bushfire danger period (as per Fire Management Strategy MP2)
	W15	Always only down W15 and out W5 or W7	About 3 times per summer (generally only pre season and after very high wind event)		The general route does vary if required to undertake track clearing/maintenance therefore not sufficient time to do in one day
Fire trail maintenance a) fire trail verge vegetation management	Varies each year	Varies generally work through systematically with entry / exit shortest route	Average 20 vehicle passes per annum	Generally Spring to Autumn	This depends primarily on availability of fire crew.
b) major maintenance works/upgrade	Varies	Varies	Recent works truck, tractor & vehicles – 40 vehicle passes	Generally Spring to Autumn	This depends on budget and need
c) rehabilitation	W1	In W5 along W1 & out W4. Or in 7 out W4 & short section of W1	Average 5 vehicle per year	Generally Spring to Autumn	Progressively rehabilitating degraded verges or past sites not required for fire management.
Enforcement (mainly trail bikes)	W1 (east) generally W7, or W6, W5	Varies in W5, W6 or W7 and out W5, W6 or W7 and along section of W1 between	Average 6 per year	All year – generally weekends/PH	

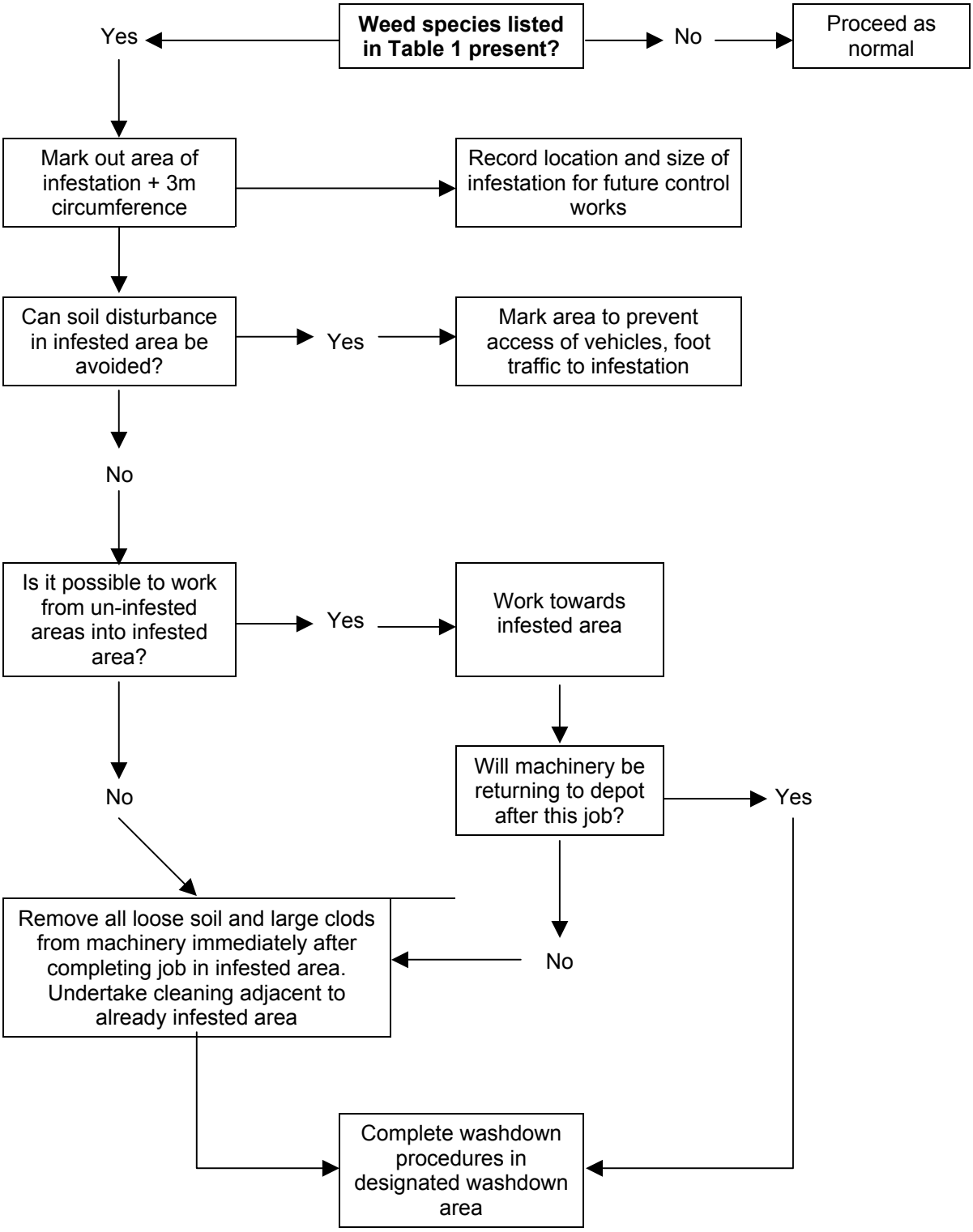
Access purpose	Fire trails	Route (general direction of travel)	Frequency (approx/average)	Timing	Comment
	W1 (all), W4 & occasional W3	Varies but generally in W7 along W1, up & down W4 – out W3 or W2	Average 2 per year	Not winter (closed period) – generally weekends/PH	
	W1 (west), W2, W4	In W2 varies from north or south. Mainly out W2 but occasionally along W1 & out W4	Average 6 per year	All year – generally weekends/PH	This trip often substitutes the fire management inspection as undertake both functions. Also the occasional planned 'sting' involving other vehicles covering all areas
Walking track management	W15, W5, W1, W4	Down only W15 & out W5 In W15 west along W1 & out W4 In W4 west along W1 (to Trestle Mt or Mt Marion) back & out W4	Varies – 1 trip to 5 per year Varies – min 2 but this year approx 25 Varies – min 2 but last year approx 20	Summer Spring to Autumn Spring to Autumn	At a minimum undertake average 3 inspections of walking track with these routes to get to the higher altitude tracks. Other relates to works with PWS now programming annual works
Weed management	W5, W1 mainly	In and out W5 and east – west along W1	Average 3 per year	Spring to Autumn	Treating Erica Mount Hull trail and short distance both ways from Mt Hull trail along East West trail

Access purpose	Fire trails	Route (general direction of travel)	Frequency (approx/average)	Timing	Comment
Other – Staff induction, guided tour (new manager, dignitary or issues based such as horse riding)	all	Generally east to west	Average 3 per year	Spring to Autumn	
Search & Rescue	Varies				Tasmania Police responsibility
Tasmania Fire Service					
Fire training for new recruits	May access any trail dependant on type of training	Varies	Varies	Varies	
Fighting wildfires	All trails	Varies	As required	Varies	Use of fire trails will be as required to combat fire risk.

Appendix 3 Guidelines for Weed and Disease Control – Machinery, Vehicles & Equipment – Edition 1

Appendix 4 General Actions for Working in Weed Infested Areas.

Adapted from the DPIW 'Code of Practice' work sheets.



These actions are to be implemented in conjunction with the *Tasmanian Washdown Guidelines for Weed and Disease Control: Machinery, Vehicles and Equipment* (DPIW).