

Guideline on Tree Stump Treatment

Introduction

This serves as a general guideline in handling tree stumps as a part of tree management work.

Purpose

2. This Guideline on stump treatment aims to identify various options and works involved, and recommends precautionary measures and operational practices.

Background

3. A **stump** is the remaining portion of a tree after it has been cut and felled with a small part of its trunk above ground and most of the roots still in the ground. It is made up of three parts: the stem base, the root collar and structural roots. The size and mass of a tree stump in particular of a mature one requires special skills and equipment to remove in a controlled and safe manner. Removal of a tree stump with its extensive root system is difficult as it is usually a labour intensive work and may require the use of machinery. From an ecological perspective, as tree stumps disintegrate and decompose naturally over time and recycle nutrient so leaving stumps on-site is common in a countryside or woodland setting.

4. Stumps of invasive species, for example *Leucaena leucocephala*, resprout quickly thus causing maintenance concerns if left unattended. Remaining tree stumps may take up valuable space.

5. From an urban tree management perspective, there are concerns over the unsightly appearance and the potential hazards caused to pedestrians tripping over the stumps. Besides, tree stumps may become nesting sites or food source to pests and diseases when left untreated.

General consideration

6. The parties responsible for tree management need to assess the necessity of stump removal, the extent of work, and select, plan and implement the appropriate arrangement for the work.

6.1 The necessity of stump removal

On deciding whether the tree stump should be removed, it is essential to consider the location, impact to users and site, need for replanting, ecological and environment factors, cost-effectiveness, etc. In general, it is necessary to remove a stump in an urban setting where the stump is both visible and accessible by pedestrians so as to prevent tripping hazards and release space for appropriate replanting. For a countryside or woodland location where there is no impact to visitors/users, leaving the stump on-site is an option. For considering the removal of a stump on a slope, it is also necessary to consider the impact on the slope stability.

6.2 Methods of stump treatment

There are various methods of stump treatment which include –

- Hand or machine digging
- Mechanically pushing or pulling
- Trenching and use of soil saws
- Use of grinders and chippers
- Water and air excavation
- Accelerating chemical degradation
- Accelerating ecological decay
- Do nothing

Some methods such as burning, blasting, use of chemicals to accelerate degradation are not recommended due to environmental and ecological reasons.



Photo 1

Removal of tree stump by hand digging



Photo 2

Removal of tree stump by mechanical lifting

Appropriate stump removal method should be selected to suit the particular situation, having regard to the following factors: appropriateness of the method to the location, cost effectiveness, site constraints, impact to users, impact on the site, e.g. on a slope, availability of expertise and equipment, environmental and ecological impact, etc.

The extent of stump removal should also be considered taking into account of the site situations, impact to the site, etc. In general, a location where the original tree was affected by pests and diseases, the stump should be properly removed and the remaining soil should be properly treated. For a slope where complete removal of the stump may affect the stability of the site, the stump may be left on-site or the extent of stump removal may be minimised. The stump left on-site may be treated with herbicide to prevent resprouting of broadleaf species.

6.3 Safety

Safety measures should be properly planned and implemented for the operation of stump removal to prevent hazards to pedestrians/users/workers/adjacent traffic/facilities/infrastructure by making reference to the 'Guidelines on Arboriculture Occupational Safety and Health' published by the Development Bureau and other relevant publications. Precautionary measures should be carefully planned and implemented to avoid causing any damage to adjacent facilities in the stump removal process.

6.4 Planning and implementing the work

After selecting an appropriate method of stump removal, it is necessary to plan and implement the work with suitable procedures and safety measures by personnel with the required expertise and equipment under proper supervision. In particular, a tree with a long and sprawling root system may usually intertwine with the adjacent vegetation. To minimise the impact to the root system of the vegetation in the vicinity, the removal of a tree stump should in general be localised around the trunk base.

Removal of a tree stump in an urban setting with heavy patronage of pedestrians and vehicular traffic should be arranged in a suitable time slot to minimise possible nuisance.

6.5 Disposal of tree stumps

While the methods of disposing of the removed tree stumps as a source of garden waste will not be covered in this guideline, it is generally desirable that the tree stumps together with other parts removed could be recycled for further use, e.g. in the form of mulch provided that they are free from pest and disease infection.

Stumps at various locations

7.1 On pavements

Tree stumps on pavements should be removed as far as practicable, preferably close to the ground level without causing any tripping hazards. Before a stump is removed, proper safety measures should be implemented. For example, an appropriate sign in the form of a warning tape should be wrapped around the trunk to denote the possible tripping hazard and all branching shoots attached on the remaining tree stump should be removed.

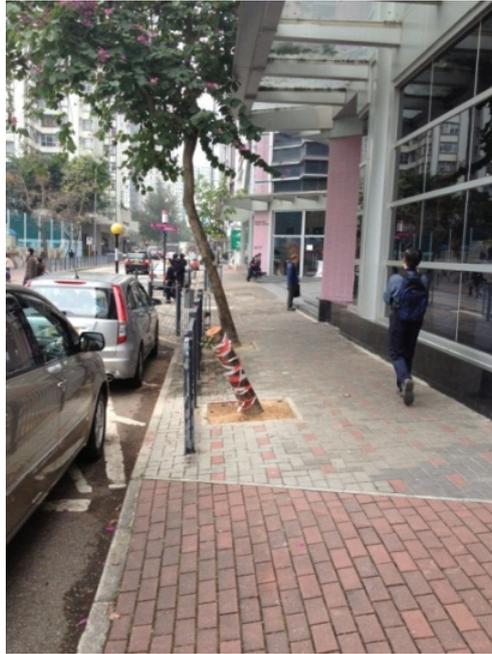


Photo 3

A remaining tree trunk is wrapped with warning tapes before stump removal



Photo 4



Photo 5



Remaining tree stumps left on the pavements should be cut to the grade level

7.2 On slopes

It is necessary to ascertain the impact of stump removal before undertaking the work. To minimise the impact on the slope, it would be advisable to remove the part above ground instead of the root system.

However in case that the retention of a tree stump may lead to subsequent

maintenance problems of the slope, removal of the stump would be appropriate only after assessing and ascertaining the impact of stump removal on the slope stability.



Photo 6
Remaining tree stumps on slope

7.3 Inaccessible areas and natural habitats

If a tree stump is located in an area inaccessible to the general public or machinery, it would be recommendable to leave the stump on-site to facilitate natural decomposition. For a stump in a natural habitat, such as countryside or woodland, it is suitable to be retained for ecological purposes. Tree stumps are important components of a properly functioning forest ecosystem and play a key role in sustaining biodiversity, soil fertility and energy flow.



Photo 7
A tree stump left in a woodland



Photo 8
A tree stump has become home for wildlife

7.4 Marginal areas

If a tree stump of invasive species is located at the margin of the urban area where its complete removal may not be necessary, it may require the application of appropriate herbicide to prevent it from resprouting.

Pests and diseases associated with the remaining stump

8. For trees infected with diseases or pests, such as *Ganoderma* spp. and termites, the stump should be removed in a timely manner with appropriate aftercare treatment. Stumps infected with *Phellinus noxius* (Brown Root Rot Disease), in particular, should be removed entirely right after the tree felling according to the ‘Guidelines on Brown Root Rot Disease’ issued by the Development Bureau so as to control the spread of disease.



Photo 9

Application of disinfectant on stump infected with Brown Root Rot Disease



Photo 10

Stump covered by a canvas



Photo 11
Stump removal in progress



Photo 12
Application of disinfectant on the tree stump



Photo 13
Application of disinfectant on root debris



Photo 14
Application of disinfectant on the soil inside tree pit



Photo 15
The planter was backfilled with new soil

After stump removal

9.1 Replacement planting

It is recommendable to carry out replacement planting after the stump removal where space and site conditions are suitable. Selection of tree species and size for replacement planting should match the site conditions under the principle of 'right tree right place'. The soil where the original tree was affected by pests and diseases should be properly treated before replanting.

During operation, the area should be cordoned off to minimise the possible hazards to pedestrians or vehicular traffic or facilities/infrastructure nearby.

9.2 Backfilling

The hole after the stump removal should be appropriately backfilled to suit the future site usage.

Tree Management Office
Greening, Landscape and Tree Management Section
Development Bureau
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