

## 9 Utilities

### Description/background

Unless correctly planned and managed, the installation of services and utilities such as electricity, gas, water, sewer and telecommunications can result in significant disturbance to the ground surface. Soil erosion and sedimentation are common environmental impacts of trenching and dewatering of trenches.

Installation of these utilities and services in a residential subdivision generally takes place towards the end of the bulk earthworks phase. Trenching works may, therefore, traverse areas that have already been stabilised, and, in some cases, areas where sediment control measures have already been decommissioned. The trenches are often long and can cut across different water catchments. The earthworks are usually fairly minor in any one area, but have a cumulative effect. The works are often undertaken along roads and close to stormwater inlets.

Pumping groundwater and rain water out of trenches generates sediment-laden water that can be difficult to treat in the roadway where these works are usually done. Refer to section 7.2.3 for advice on dewatering.

### Planning and design requirements

Consider the following points when planning for installation of utilities:

- Install reticulation systems for water supply, stormwater and sanitary services and for other services and utilities at the same time as the road works.
- Co-ordinate installation of services and utilities with all relevant service providers and authorities, and, where possible, use common trenching.
- Make sure that trenching operators working in a larger site are aware of the erosion and sediment control plan for the site over all and understand that they must comply with its provisions as well as with any specific erosion and sediment control requirements for their work.
- Do not trench across flowing streams or watercourses. Use an alternative methodology such as directional boring or aqueducts in these situations.
- In areas where ephemeral water is likely to concentrate, create a dam above the site with sandbags or similar, carry out the works and reinstate the surface with a stabilised surface.
- Plan the works so as to minimise both the extent and duration of site disturbance, particularly in high-risk areas such as areas close to watercourses and on slopes steeper than 10 percent.
- When trenching has been completed independent of other activities onsite, plan for progressive stabilisation and/or restoration of disturbed areas.
- Trenches should not be open for any longer than three days; complete the stabilisation of all disturbance in high-risk areas within two days of backfilling, and within five days in all other areas.

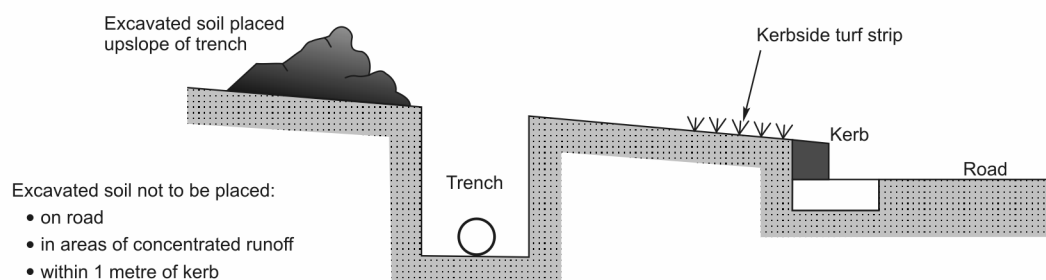
### Construction requirements

Address the aspects below when planning and undertaking installation of utilities:

- If trenching works affect pre-existing erosion and sediment control measures, those measures must be carefully removed and then immediately reinstated at completion of works.
- Additional erosion and sediment control contingency measures will usually be needed for the duration of trenching activities, and until the original measures are reinstated or replaced.
- Where practicable, plan and undertake works in appropriately sized stages so that trenching is not open for a period longer than three days, and can be stabilised within the range specified above.
- Avoid opening trenches when there is a risk of high rainfall.
- Divert above-site water away from work areas with temporary contour drains (section 6.3.2); don't allow the trench excavation to concentrate or convey runoff.
- Topsoil and spoil should be stockpiled separately on the upslope side of the trench.
- Do not put stockpiles of topsoil, spoil or bedding material in overland flow paths or within 1m of a hazard area such as kerb and channels, stormwater inlets, paved footpaths or driveways.
- Minimise soil loss by protecting all stockpiles with covers such as geotextile fabric.
- On loess soils such as those on Banks Peninsula, consider stabilising trenches with lime or cement so as to prevent them becoming entry points into tunnel gullies (underrunners). Take care with all use of lime and cement to avoid discharges into stormwater or water bodies (see section 10).
- Remove excess spoil and/or bedding material from the site as soon as work is completed, or immediately incorporate into other works onsite.
- Backfill and compact trenches within three days.
- Leave the final level slightly above that of the adjacent ground to allow for subsequent settlement, but make sure this does not cause concentration of overland flow.
- Dewatering of trenches must not pollute any stormwater system or downstream watercourse; pump sediment-laden water to a tanker for appropriate offsite disposal. Refer to section 7.2.3 for more information on dewatering.
- Grassed vegetative buffer strips (section 7.1.1) do not usually provide good treatment of pumped water because of the concentrated nature of the flow. It will have positive effects only if the flow is dispersed and directed through a long and densely vegetated filter strip.

**Figure 9.1 Typical trenching methodology**

Source: Hawkesbury-Nepean Catchment Management Trust, 2000



### Useful tips



- ✓ Pipe being dewatered to decanting earth bund (section 7.2.2).
- ✓ Good straw mulch and fabric stabilisation of surrounding work area.

