

PART NINE

TRENCH REINSTATEMENT

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9.1 KEY PRINCIPLES

9.1.1 Summary

For all trench reinstatement there are certain criteria to be met, irrespective of the work being carried out in the carriageway, footpath or berm.

The overriding principle for all surface reinstatement is to match the existing surface. Permanent resurfacing shall match the type, quality, texture, colour, skid- resistance and strength of the surrounding material. These key principles are summarised as follows.

- a) Catchpits must be protected during the course of works to prevent migration of contaminants and sediment into the stormwater system.
- b) Channels must be kept clean and swept.
- c) Footpath reinstatement shall extend the full width where the width is 1.5m or less.
- d) Kerb, channel and subsoil drain reinstatement shall meet the RCA's approval.
- e) Resurfacing that has been completed within one year shall be reinstated to the same standard. The whole area shall be reinstated so that no trench line is visible. Note requirements for special paving areas.
- f) Saw cuts must be done prior to excavation to minimise additional damage to surface. Two saw cuts are recommended in carriageway areas, to control overbreak.
- g) Shoulders with a minimum width of 150mm are required on all trenches in carriageways, except in concrete carriageways where 300mm shoulders are required. In any event, it may be necessary to increase the shoulder width to ensure the integrity of the final trench reinstatement.
- h) Special paving surfaces are to improve the appearance and the amenity of the pavement asset. The surface reinstatement shall be required to match that standard. Refer Section 8.7.3 of this Code.
- i) Surfaces of trenches must be flush with surrounding area. Surface irregularities cannot exceed more than 3mm on footpaths and 5mm in carriageways, above or below the original surface over a length of 5m straightedge.
- j) The **"1m Rule"** applies to all asphalt surfaces in the carriageway and all footpath surfaces Refer Section 8.7.1(e) of this Code.
- k) The Traffic Management Plan shall be adhered to until all road marking and signs have been reinstated.
- l) Tracked vehicles with metal cleats are likely to damage the berm, footpath or carriageway. Adequate protection is therefore required. Reinstatement of all damage caused by such vehicles, is the responsibility of the Principal Provider.
- m) Vehicle crossings made redundant as the result of building or development work shall be removed.

9.1.2 Variations

If any difficulties arise with meeting specified requirements, the following methodology may be applied:

- a) Minor matters are considered in accordance with rules set out in this Code.
- b) Major matters may involve cost sharing arrangements with each case treated on its merits, subject to the approval of the RCA.
- c) Joint programming of works to minimise costs of compliance
- d) The carriageway corridor will be utilised for bulk services only. Any variances may be agreed to by the RCA through the Resource Consent process (Manukau City Council) or the Road Opening Notice process.
- e) In particular circumstances, RCA's reserve the right to impose more stringent conditions than those specified in this Code.
- f) Part 8 of this Code deals with Construction, and should be read in conjunction with Part 9 of this Code.

9.2 ASPHALT CARRIAGEWAYS

Surface Reinstatement

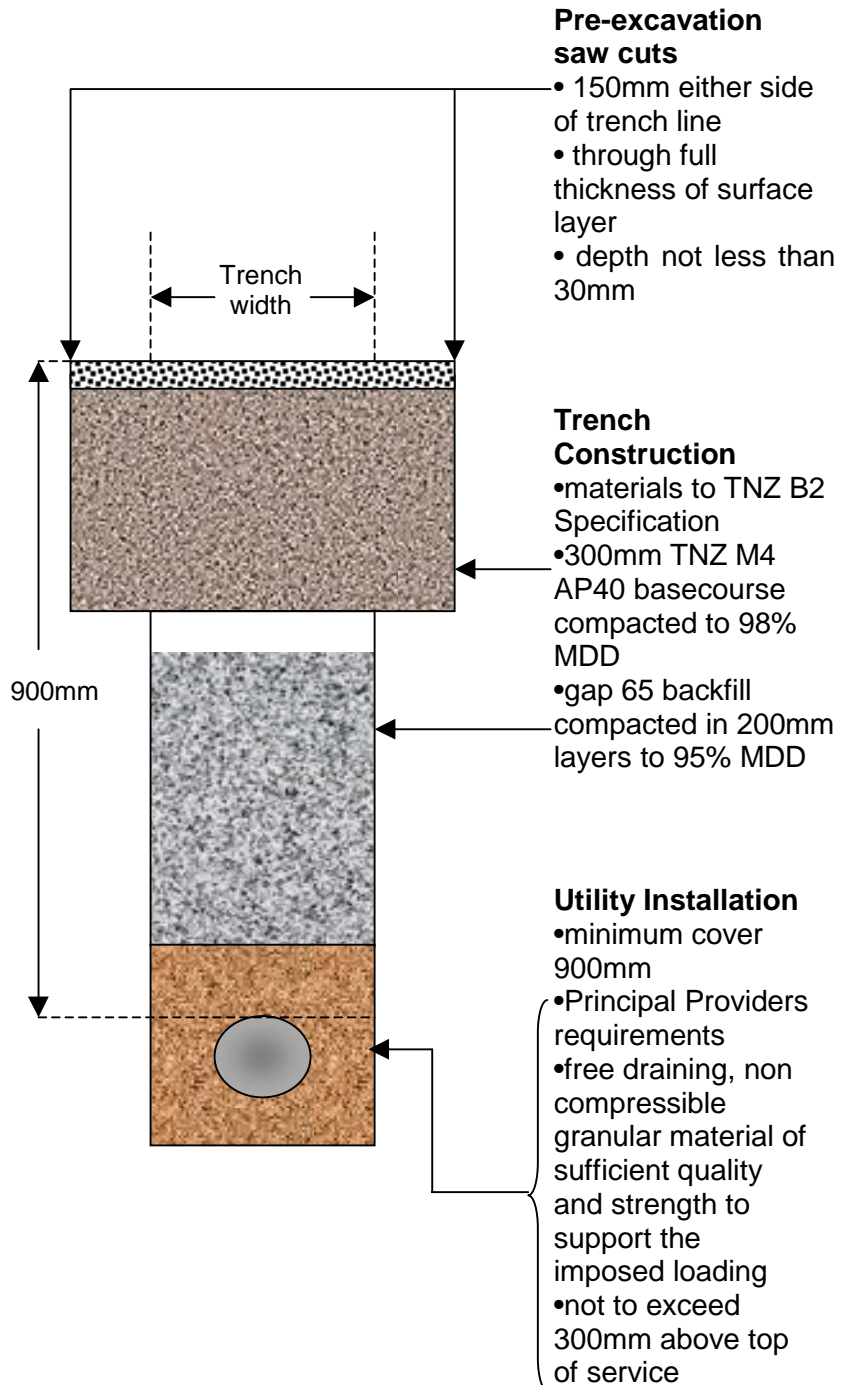
The overriding principle for all surface reinstatement is:

- to match the existing surface in type, quality, texture, colour, skid resistance and strength
- areas designated by the RCA as special paving areas additionally shall have no visible evidence of trench reinstatement.
- under-breaks shall be re-cut within the limits of 8.4.4, excavated, backfilled and compacted
- over-breaks shall be re-cut to provide clean, straight, parallel lines within the limits of 8.4.4
- the 1 metre rule applies in all circumstances
- all parts of the surface damaged during or as a result of the work shall be repaired.

Asphalt

Construction shall be carried out as follows:

- all asphaltic concrete surfaces mix design to be undertaken in accordance with TNZ M10 specification.
- approved surfacing materials generally will be but not limited to, Mix 10 x 30mm, Mix 14 x 40mm, Mix 20 x 50mm, compacted and laid on a bitumen waterproof membrane.
- areas exceeding 10 lineal metres or 10 square metres shall be paver laid and compacted to meet TNZ P9 specifications.
- where the surface is hand laid, then the following requirements apply:
 - the mix produced complies with the approved mix design
 - the mix laid to acceptable roughness requirements and construction tolerances
- all asphaltic concrete surfaces shall be laid to provide adequate skid resistance.
- insitu air voids of the laid mix shall be between 3% and 6% as measured by a Nuclear Densimeter. All edges are to be saw-cut.
- trimming allowance is to be a minimum of 150mm on either side of the trench.
- the basecourse layer shall be swept free of all loose material before a tack coat is applied.
- joint sealing to be completed within 1 week of final reinstatement, refer 8.7.9.



9.3 CHIPSEAL CARRIAGEWAYS

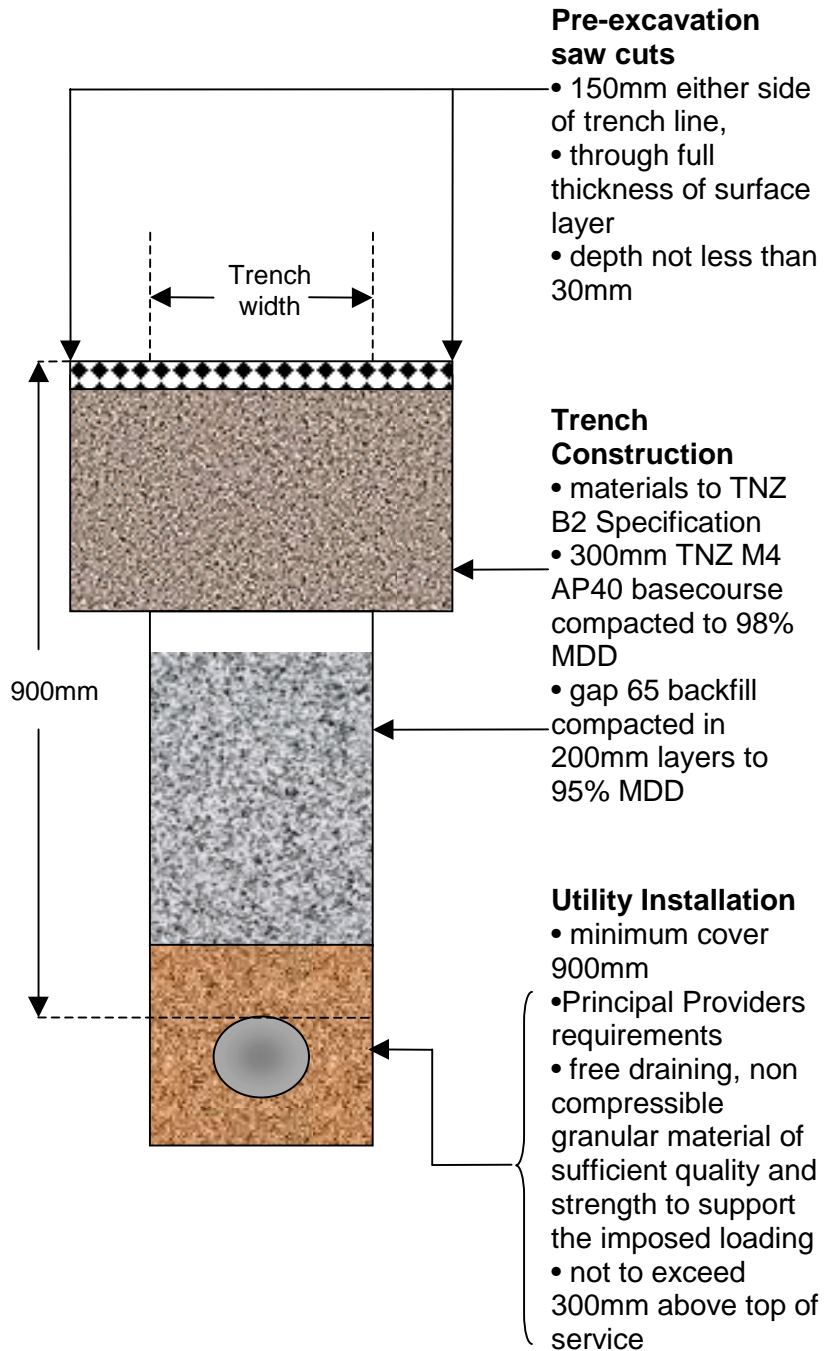
Surface Reinstatement

The overriding principle for all surface reinstatement is:

- to match the existing surface in type, quality, texture, colour, skid resistance and strength
- areas designated by the RCA as special paving areas additionally shall have no visible evidence of trench reinstatement.
- under-breaks shall be re-cut within the limits of 8.4.4, excavated, backfilled and compacted
- over-breaks shall be re-cut to provide clean, straight, parallel lines within the limits of 8.4.4
- the 1 metre rule applies in all circumstances
- all parts of the surface damaged during or as a result of the work shall be repaired.

Chipseal

- lay 30mm mix 10 on a waterproof membrane and texturise with a one or two coat chip to match existing
- design in accordance with TNZ M6 specs.
- construction in accordance with TNZ P17 specs.
- sweeping and basecourse surface preparation
- binder sprayed at approved rate and condition
- spread and roll appropriate grade of chip
- sweep and remove excess and loose chip



9.4 CONCRETE CARRIAGEWAYS

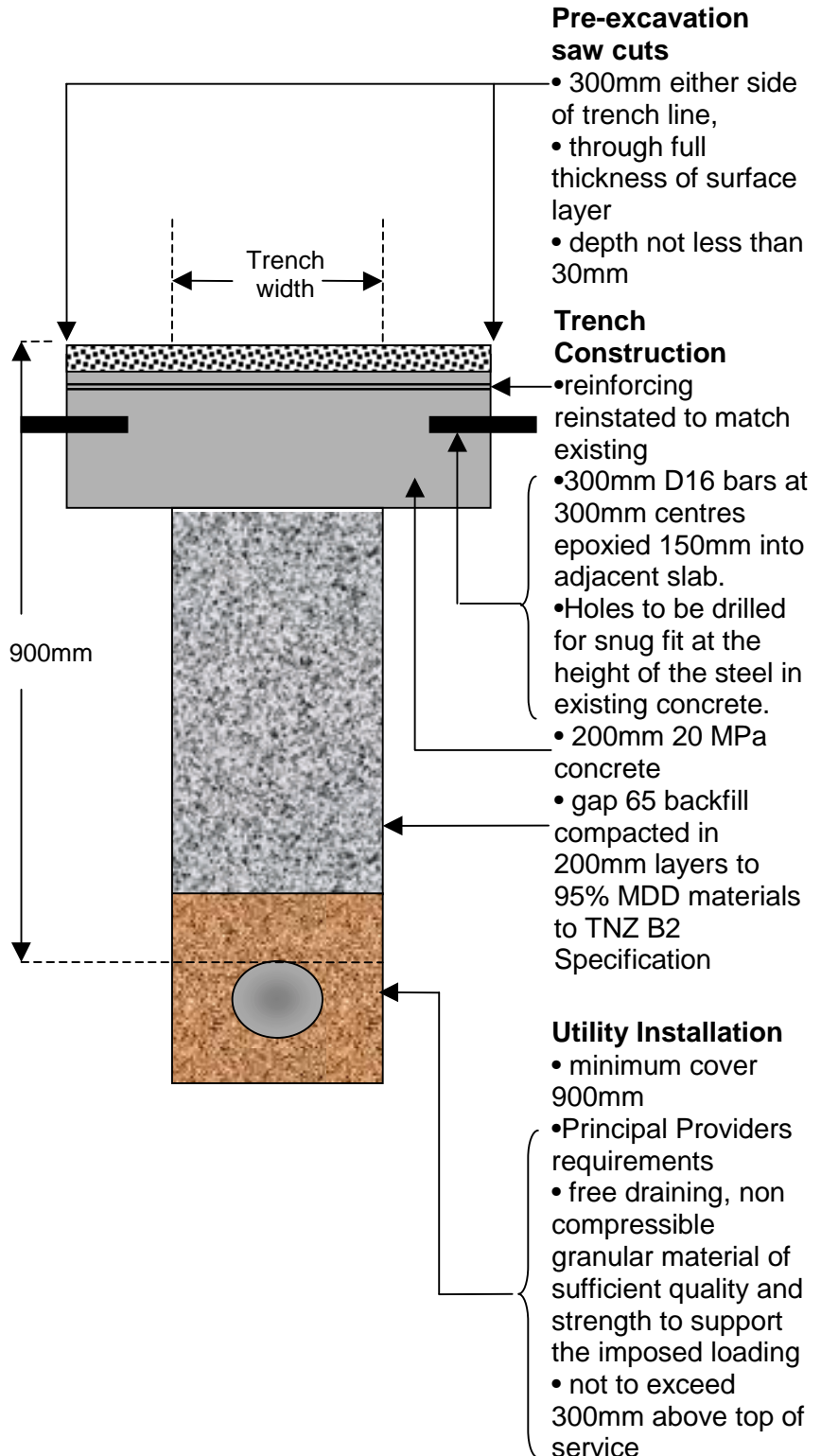
Surface Reinstatement

The overriding principle for all surface reinstatement is:

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- over-breaks shall be re-cut to provide clean, straight, parallel lines within the limits of 8.4.4
- the 1 metre rule applies in all circumstances
- all parts of the surface damaged during or as a result of the work shall be repaired.

Concrete

- the concrete will need a minimum compressive strength of 20MPa after 28 days, or before full traffic loading is applied, whichever is sooner in accordance with NZS 3104 or NZS 3108.
- use of admixtures is permitted to gain the required concrete strength before 28 days.
- expansion and or construction joints shall be formed to match existing surface. Alternatively expansion joints are to be installed at 4m centres.
- the line and level of the reconstructed surface shall match the crossfall and level of the adjacent undamaged surface.
- asphalt overlay shall be flush with channel and no lip shall be evident.
- concrete surfaces to be broom finished, if no overlay is required.
- when an overlay of asphalt is required, it is necessary to ensure that the concrete surface is made rough prior to overlay, to facilitate bonding between the asphalt and the concrete.
- overlays to be layed on a bitumen waterproof membrane.



9.5 CONCRETE VEHICLE CROSSINGS

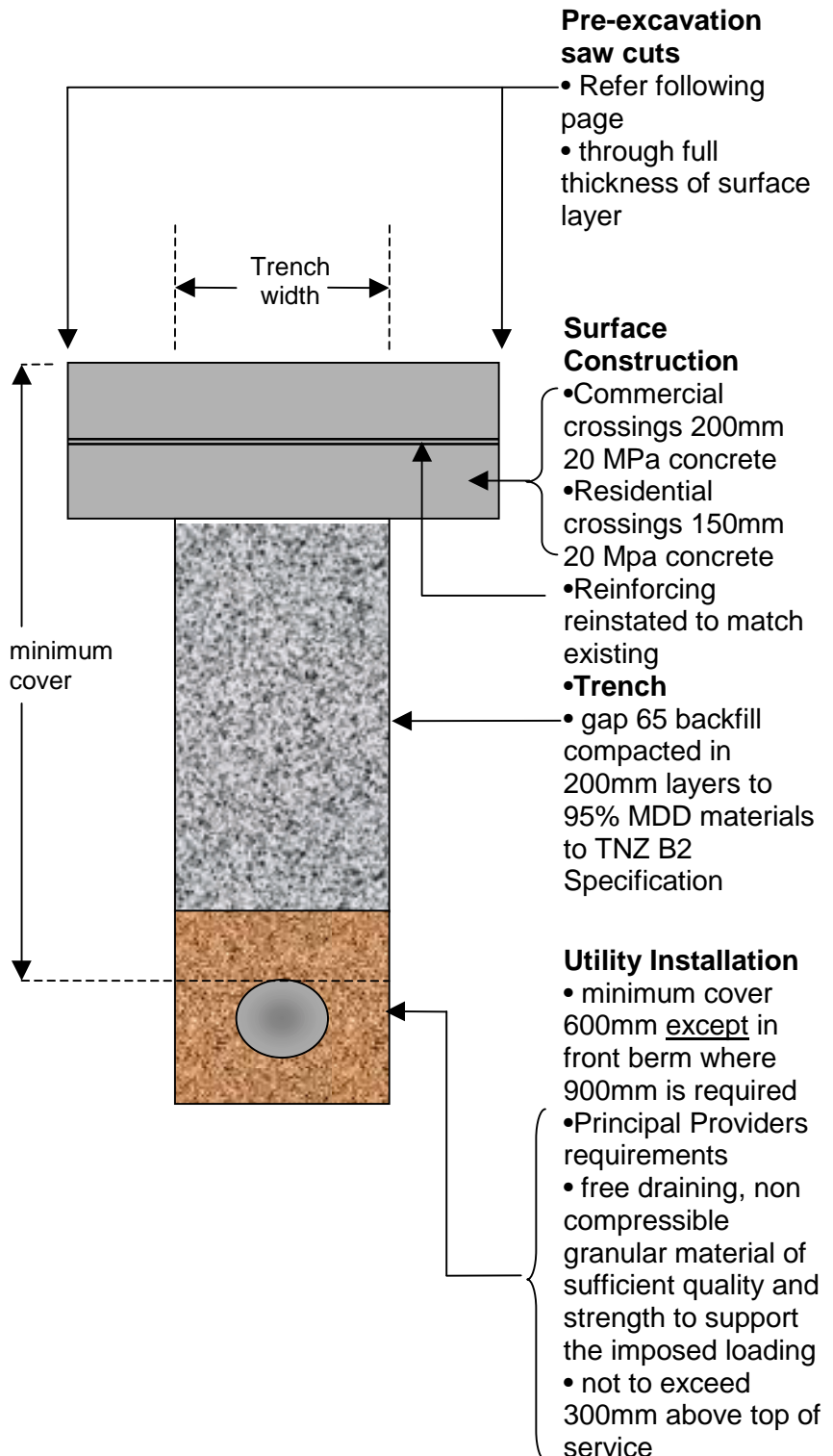
Surface Reinstatement

The overriding principle for all surface reinstatement is:

- to match the existing surface in type, quality, texture, colour, skid resistance and strength
- areas designated by the RCA as special paving areas additionally shall have no visible evidence of trench reinstatement.
- under-breaks shall be re-cut within the limits of 8.4.4, excavated, backfilled and compacted
- over-breaks shall be re-cut to provide clean, straight, parallel lines within the limits of 8.4.4
- the 1 metre rule applies in all circumstances
- all parts of the surface damaged during or as a result of the work shall be repaired.

Concrete

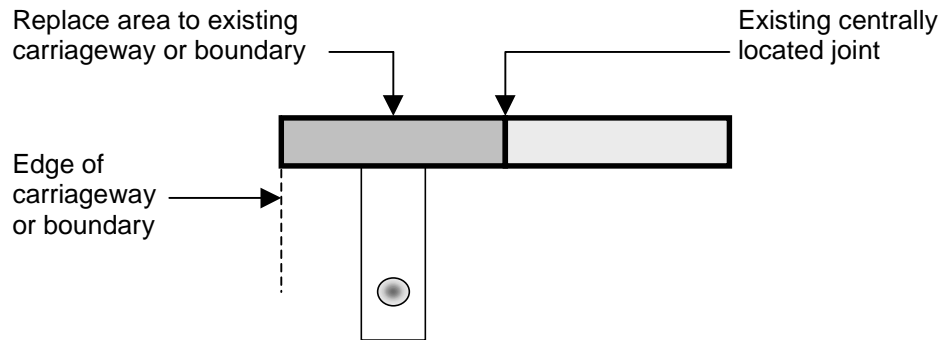
- the concrete will need a minimum compressive strength of 20MPa after 28 days, or before full traffic loading is applied, whichever is sooner in accordance with NZS 3104 or NZS 3108.
- use of admixtures is permitted to gain the required concrete strength before 28 days.
- expansion and or construction joints shall be formed to match existing surface. Alternatively expansion joints are to be installed at 4m centres.
- the line and level of the reconstructed surface shall match the crossfall and level of the adjacent undamaged surface.
- asphalt overlay shall be flush with channel and no lip shall be evident.
- concrete surfaces to be broom finished, if no overlay is required.
- when an overlay of asphalt is required, it is necessary to ensure that the concrete surface is made rough prior to overlay, to facilitate bonding between the asphalt and the concrete.
- overlays to be laid on a bitumen waterproof membrane.



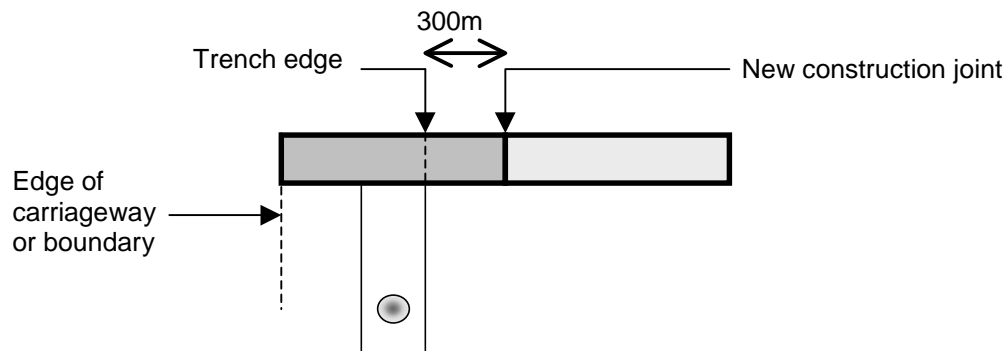
9.5 CONCRETE VEHICLE CROSSINGS (cont)

Concrete vehicle crossings shall be reinstated to comply with each RCA's current design standards.

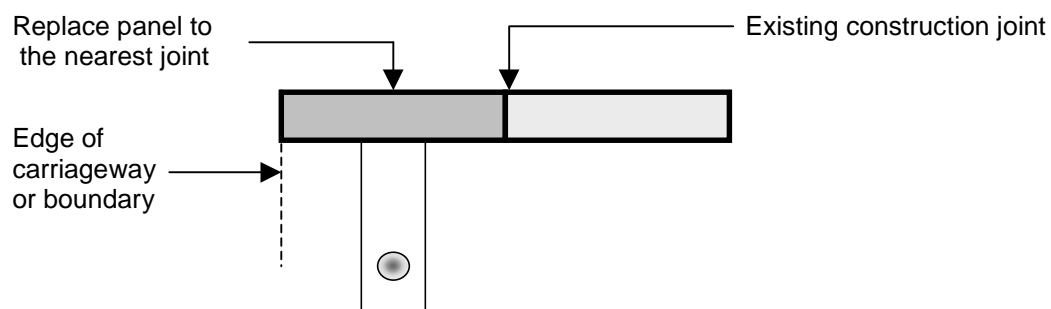
1. If there is one existing expansion joint and/or construction joint then the affected panel will be completely replaced.



2. If no expansion and/or construction joint exists then one new expansion joint must be constructed providing it is no less than 300mm from trench edge. The affected panel will then be completely replaced.



3. Where existing trenches are evident then the affected panel will be completely replaced.



9.6 ASPHALT VEHICLE CROSSINGS

Surface Reinstatement

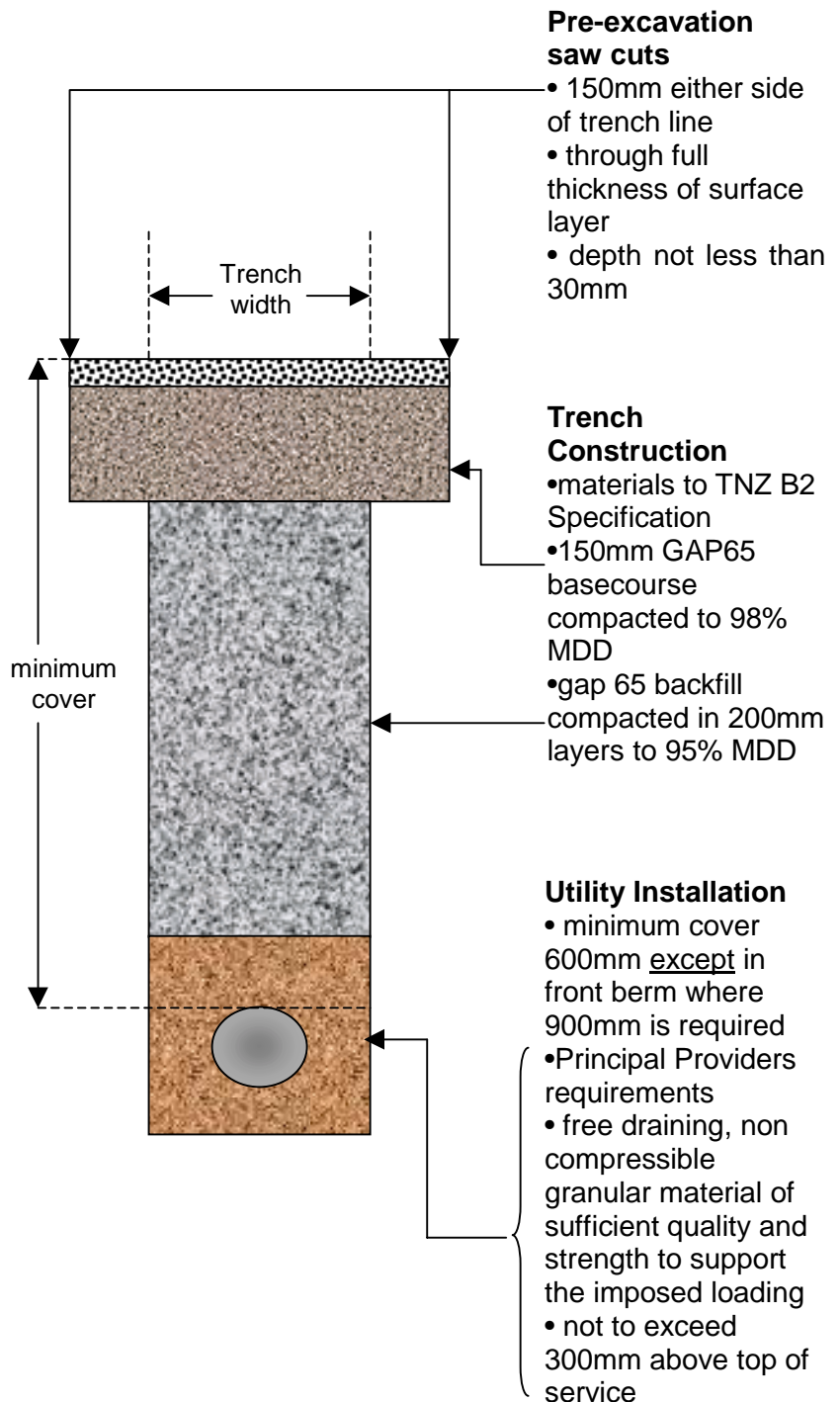
The overriding principle for all surface reinstatement is:

- to match the existing surface in type, quality, texture, colour, skid resistance and strength
- areas designated by the RCA as special paving areas additionally shall have no visible evidence of trench reinstatement.
- under-breaks shall be re-cut within the limits of 8.4.4, excavated, backfilled and compacted
- over-breaks shall be re-cut to provide clean, straight, parallel lines within the limits of 8.4.4
- the 1 metre rule applies in all circumstances
- all parts of the surface damaged during or as a result of the work shall be repaired.

Asphalt

Construction shall be carried out as follows:

- final surface to be flush with existing and surface irregularities not to exceed 3mm over the length of a 3 metre straight edge.
- all asphaltic concrete surfaces mix design to be undertaken in accordance with TNZ M10 specification.
- 30mm Mix 10 laid on a bitumen waterproof membrane.
- where the surface is hand laid, then the following requirements apply:
 - the mix produced complies with the approved mix design
 - the mix laid to acceptable roughness requirements and construction tolerances
- all asphaltic concrete surfaces shall be laid to provide adequate skid resistance.
- insitu air voids of the laid mix shall be between 3% and 6% as measured by a Nuclear Densimeter. All edges are to be saw-cut.
- trimming allowance is to be a minimum of 150mm on either side of the trench.
- the basecourse layer shall be swept free of all loose material before a tack coat is applied.



9.8 ASPHALT FOOTPATH (BACK BERM)

Surface Reinstatement

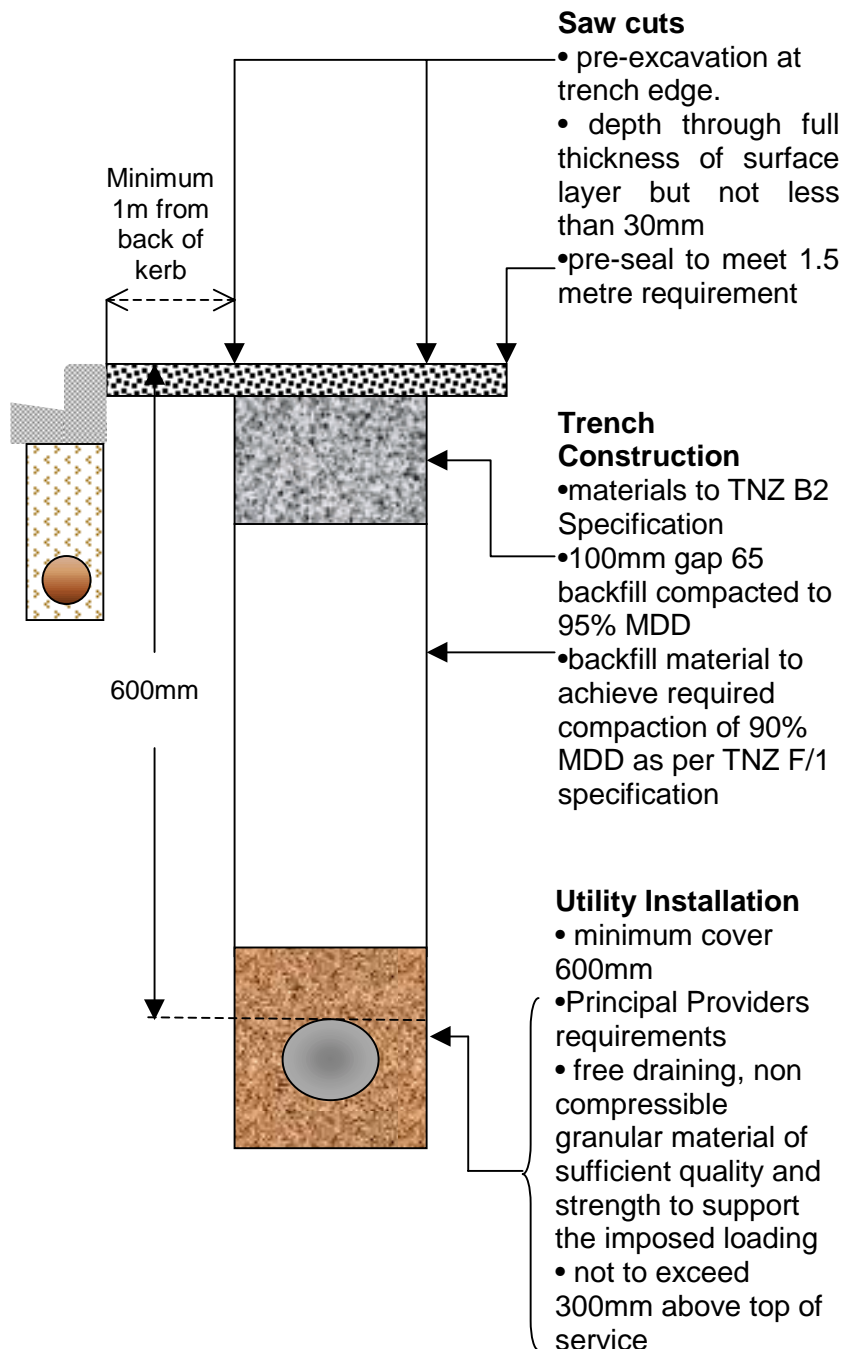
The overriding principle for all surface reinstatement is:

- to match the existing surface in type, quality, texture, colour, skid resistance and strength
- areas designated by the RCA as special paving areas additionally shall have no visible evidence of trench reinstatement.
- under-breaks shall be re-cut within the limits of 8.4.4, excavated, backfilled and compacted
- over-breaks shall be re-cut to provide clean, straight, parallel lines within the limits of 8.4.4
- the 1 metre rule applies in all circumstances
- all parts of the surface damaged during or as a result of the work shall be repaired.

Asphalt

Construction shall be carried out as follows:

- minimum reinstatement width shall be 1.5 m or the full width of the footpath if that width is 1.5 m or less.
- finished trench surface is to be flush with existing and never greater than a 3mm deflection.
- all asphaltic concrete surfaces mix design to be undertaken in accordance with TNZ M10 specification.
- 30mm compacted Mix 10 laid on a bitumen waterproof membrane.
- where the surface is hand laid, then the following requirements apply:
 - the mix produced complies with the approved mix design
 - the mix laid to acceptable roughness requirements and construction tolerances
- all asphaltic concrete surfaces shall be laid to provide adequate skid resistance.
- insitu air voids of the laid mix shall be between 3% and 6% as measured by a Nuclear Densimeter. All edges are to be saw-cut.
- the basecourse layer shall be swept free of all loose material before a tack coat is applied.



9.9 CONCRETE FOOTPATH (FRONT BERM)

Surface Reinstatement

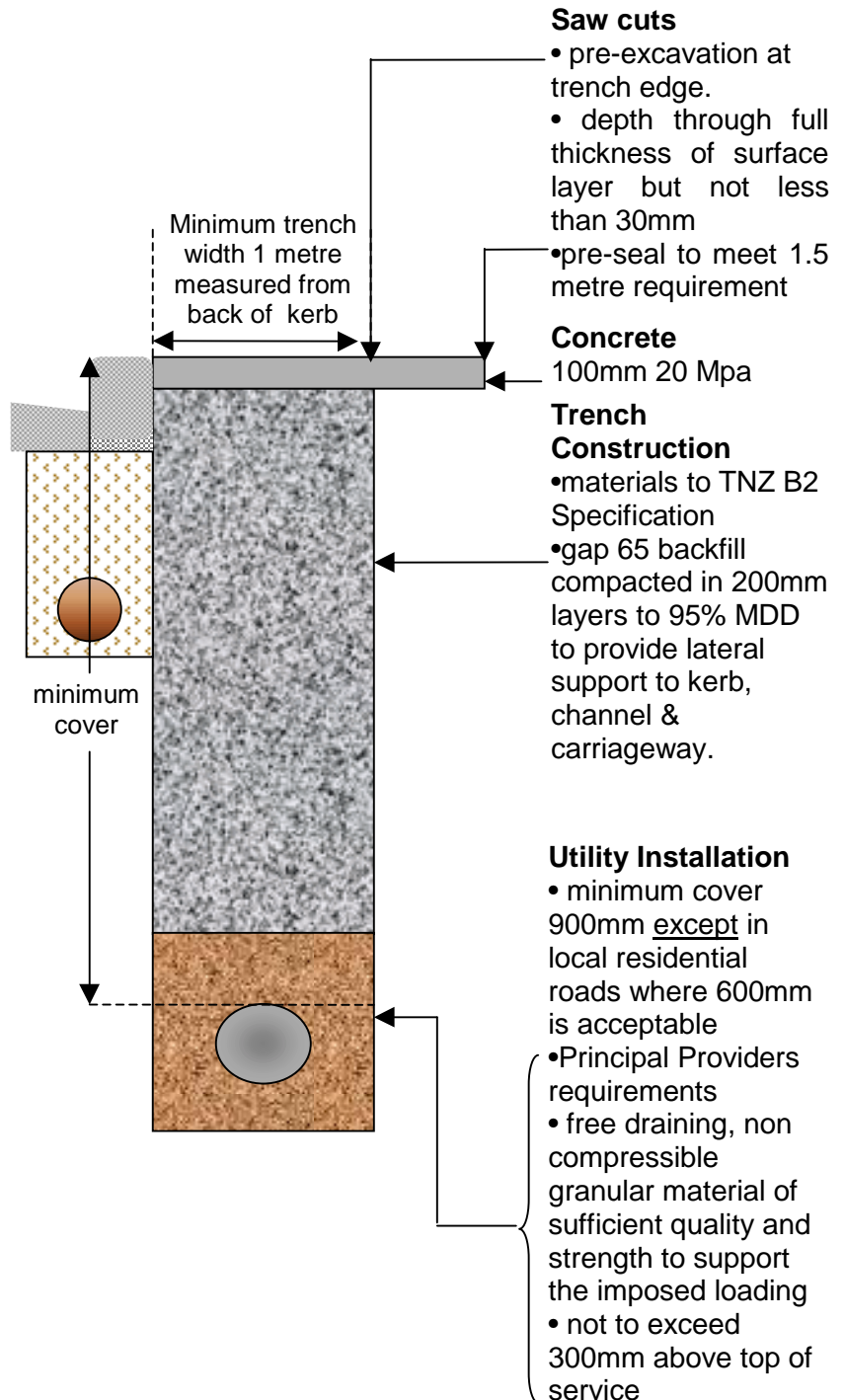
The overriding principle for all surface reinstatement is:

- to match the existing surface in type, quality, texture, colour, skid resistance and strength
- areas designated by the RCA as special paving areas additionally shall have no visible evidence of trench reinstatement.
- under-breaks shall be re-cut within the limits of 8.4.4, excavated, backfilled and compacted
- over-breaks shall be re-cut to provide clean, straight, parallel lines within the limits of 8.4.4
- the 1 metre rule applies in all circumstances
- all parts of the surface damaged during or as a result of the work shall be repaired.

Concrete

Construction shall be carried out as follows:

- minimum reinstatement width shall be 1.5 m or the full width of the footpath if that width is 1.5 m or less.
- finished trench surface is to be flush with existing and never greater than a 3mm deflection.
- surface is to be broom finished.
- expansion joints constructed to match spacing of existing or at 4m centres.
- where the surface is hand laid, then the following requirements apply:
 - the mix produced complies with the approved mix design
 - the mix laid to acceptable roughness requirements and construction tolerances



9.10 CONCRETE FOOTPATH (BACK BERM)

Surface Reinstatement

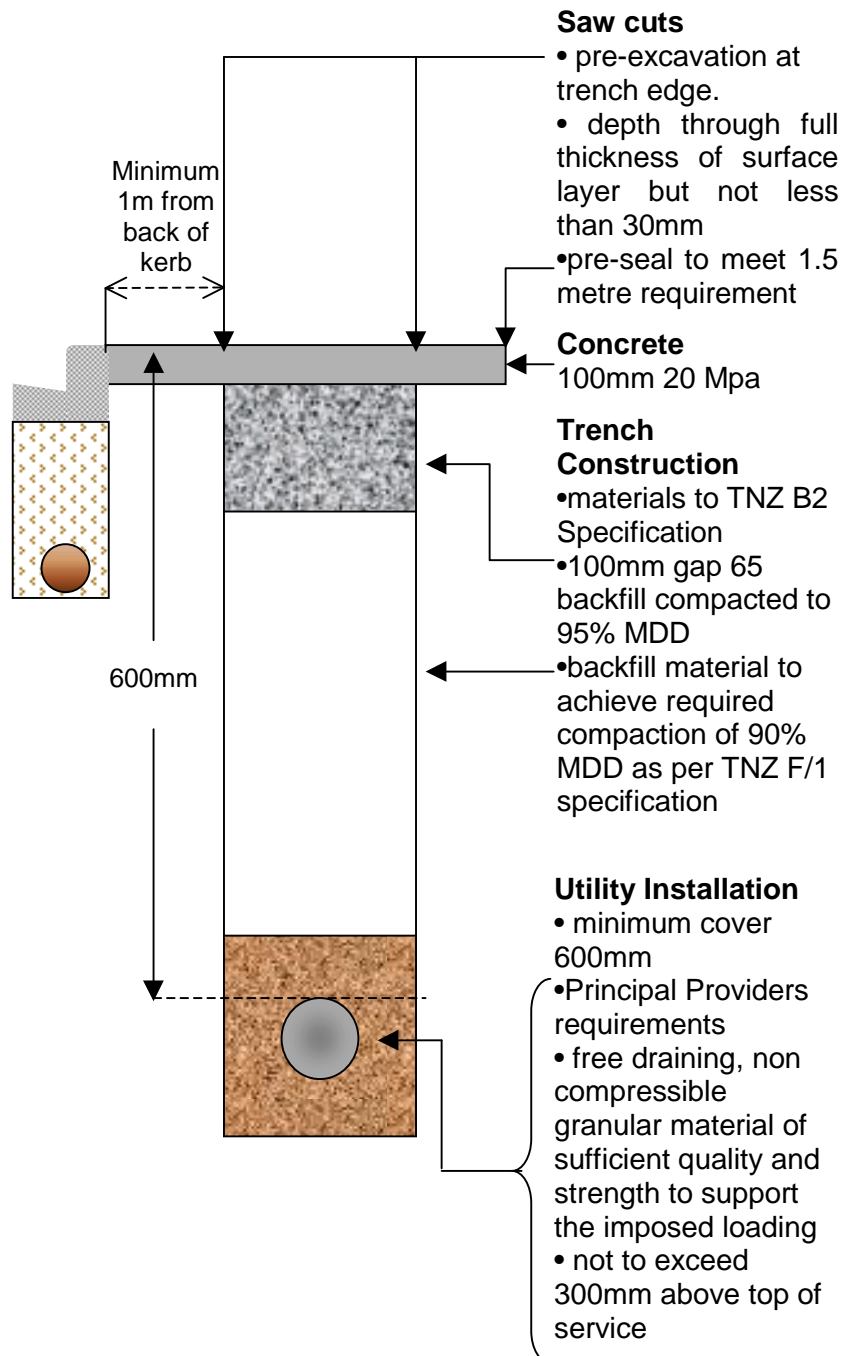
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Concrete

Construction shall be carried out as follows:

- minimum reinstatement width shall be 1.5 m or the full width of the footpath if that width is 1.5 m or less.
- finished trench surface is to be flush with existing and never greater than a 3mm deflection.
- surface is to be broom finished.
- expansion joints constructed to match spacing of existing or at 4m centres.
- where the surface is hand laid, then the following requirements apply:
 - the mix produced complies with the approved mix design
 - the mix laid to acceptable roughness requirements and construction tolerances



9.11 FRONT BERM

Surface Reinstatement

The overriding principle for all surface reinstatement is:

- all parts of the surface damaged during or as a result of the work shall be repaired.

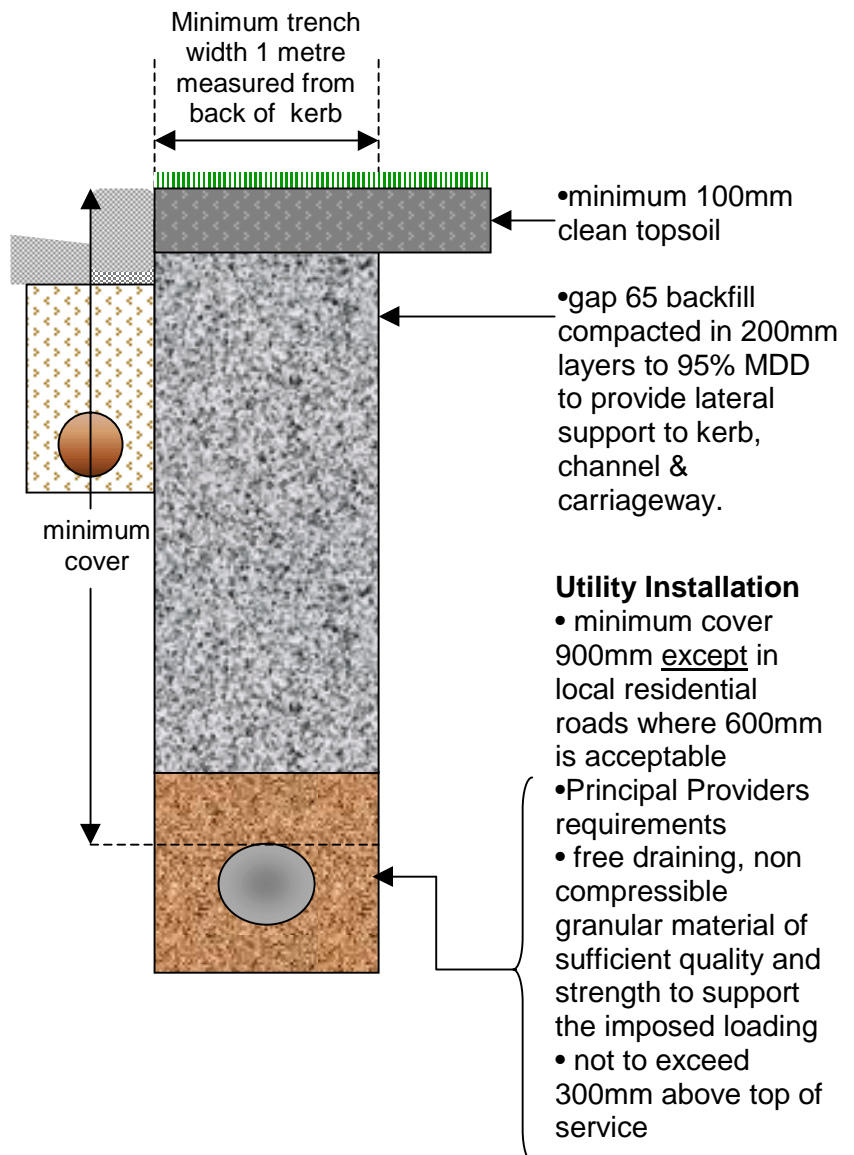
Grass berm

Construction shall be carried out as follows:

- relieve compaction by cultivation & ripping
- level with clean & weed free topsoil and cultivate to a minimum depth of 100mm, working earth to a fine tilth
- Roll lightly and tread to compact (do not use heavy rollers or vibrating compactors)
- broadcast **Amenity Rye** seed at the rate of 30gm / m²
- rake lightly to mix seed into top 20mm
- firm the soil and seed mix
- finished soil height to be flush with top of kerbstones
- berm to be initially maintained and mowed twice after grass strike has been established, ensuring a good seed strike, otherwise additional seed to be applied
- the standard warranty and maintenance period (Code reference 2.4 & 2.5) shall commence following satisfactory initial maintenance (above)

Trench Construction

- materials to TNZ B2 Specification



9.12 BACK BERM

Surface Reinstatement

The overriding principle for all surface reinstatement is:

- all parts of the surface damaged during or as a result of the work shall be repaired.

Grass berm

Construction shall be carried out as follows:

- relieve compaction by cultivation & ripping
- level with clean & weed free topsoil and cultivate to a minimum depth of 100mm, working earth to a fine tilth
- Roll lightly and tread to compact (do not use heavy rollers or vibrating compactors)
- broadcast **Amenity Rye** seed at the rate of 30gm / m²
- rake lightly to mix seed into top 20mm
- firm the soil and seed mix
- finished soil height to be flush with top of kerbstones
- berm to be initially maintained and mowed twice after grass strike has been established, ensuring a good seed strike, otherwise additional seed to be applied
- the standard warranty and maintenance period (Code reference 2.4 & 2.5) shall commence following satisfactory initial maintenance (above)

Trench Construction

- materials to TNZ B2 Specification

