



AUS-SPEC

Infrastructure Specifications

1111 Clearing and grubbing

1111 CLEARING AND GRUBBING

IMPORTANT: This document has been adapted from the NATSPEC suite of specification templates for use in the Cessnock City Council area by both Council and industry. NATSPEC regularly updates the base templates (currently in April and October each year), and Council may incorporate changes into its version of AUS-SPEC from time to time. To assist in highlighting any changes made by Council to the NATSPEC templates, the following conventions are used.

- See ANNEXURE M at the end of this document which contains (where practical) Cessnock City Council customisations (also known as ‘office master’ text). References to the Annexure are to also be inserted at relevant clauses in the main body of the document.
- Where content is added to the main body of the document, it is to be shown **in brown text like this**.
- Where content is deleted or excluded from the main body of the document, it is to be shown ~~struck through like this~~. Such clauses are to have no effect.

Where there is a conflict between main body text and Cessnock City Council specific clauses, Council’s specific clauses shall prevail.

1 GENERAL

1.1 RESPONSIBILITIES

General

Requirement: Provide clearing, grubbing and removal of vegetation, debris and minor built structures for site works, as documented..

1.2 CROSS REFERENCES

General

Requirement: This worksection is not a self-contained specification. In addition to the requirements of this worksection, conform to the following:

- 0136 *General requirements (Construction)*.
- ~~0152 *Schedule of rates (Construction)*.~~
- 0161 *Quality management (Construction)*.
- 0257 *Landscape - road reserve and street trees*.
- 1101 *Traffic management*.
- 1102 *Control of erosion and sedimentation (Construction)*.

1.3 STANDARDS

General

Pruning of amenity trees: To AS 4373 (2007).

1.4 INTERPRETATION

Abbreviations

General: For the purposes of this worksection the following abbreviation applies:

- CTPO: Council’s Tree Preservation Officer.
- **TPZ: Tree Protection Zone (see definition)**

Definitions

General: For the purposes of this worksection the following definitions apply:

- Dripline: The most outer reach of a tree’s branches.
- **Tree Protection Zone: in accordance with AS4970, a specified area above and below ground and at a given distance from the trunk set aside for the protection of a tree’s roots and crown to provide for the viability and stability of a tree to be retained where it is potentially subject to damage by development. The radius of the TPZ is generally calculated for each tree by multiplying its Diameter at Breast Height (measured at 1.4m above ground level) by 12, and should not be less than 2m or greater than 15m (except where crown protection is required).**

- Weed: An invasive plant that degrades natural areas, reduces the sustainability or affects the health of people and animals.

1.5 SUBMISSIONS

Design documentation

Survey: Submit a survey plan with area proposed for clearing.

Execution details

Clearing and grubbing plan: Submit a clearing and grubbing plan in conformance to **PRE-CONSTRUCTION PLANNING, CLEARING AND GRUBBING PLAN.**

Weed management plan: Submit a Weed management plan in conformance to **PRE-CONSTRUCTION PLANNING, WEED MANAGEMENT PLAN, Weed control.**

Establishment: Submit a method statement in conformance to **PRE-CONSTRUCTION PLANNING, ESTABLISHMENT, Method statement.**

Areas to be cleared outside the limits: If proposed, state the purpose for clearing and submit plan for approval.

Weed control: Submit herbicide operator's licence for personnel engaged in herbicide spraying.

Unsound trees in road reserve: Submit a proposal to clear unsound trees remaining within the road reserve, but outside the limits of clearing.

Disposal of material: If burning is proposed, submit for approval.

Records

Owners consent: Submit a copy of the owner's written consent to enter property to remove timber for disposal, or for fallen timber to remain on private property.

Reports

Clearing report: Before clearing, submit a clearing report in conformance to **PRE-CONSTRUCTION PLANNING, WEED MANAGEMENT PLAN, Clearing report.**

Variations

Trees within proposed embankment areas: Submit details if a tree marked for preservation is located within an area proposed for embankment construction.

1.6 INSPECTIONS

Notice

General: Give notice so that inspection may be made of the following:

- Weed control: Determine if additional areas require weed control.
- Trees within proposed embankment areas: Trees to be protected.
- Tagging: Tagging of protected trees.
- Limits of clearing: Peg out area for clearing.
- Unsound trees in road reserve: Trees marked outside the limits of clearing.

2 PRE-CONSTRUCTION PLANNING

2.1 CLEARING AND GRUBBING PLAN

General

Requirement: Prepare a clearing and grubbing plan including the following details:

- Areas to be cleared and grubbed.
- Areas of weed removal.
- Threatened flora species and trees marked for preservation.

2.2 WEED MANAGEMENT PLAN

Weed control

Requirement: Prepare a weed management plan including the following details:

- Identification of weeds and infestation zones within the work site and investigation date.
- Method of cleaning vehicles and machinery, and cleaning date.
- Cleaning bay location and treatment date.

- Contaminated fill stockpile, treatment type and treatment date.

Clearing report

General: Prepare a clearing report including the following:

- Statement from an ecologist identifying species and location of any weeds in the areas to be cleared and grubbed.
- Locations of threatened flora species and trees identified for preservation.
- List of any trees outside limits of clearing which are unsound and likely to fall on roadways or into neighbouring property.

2.3 ESTABLISHMENT

Survey

Requirement: Survey the proposed area for clearing and prepare site plans showing the clearing perimeters.

Pegging: Peg out the site area including recovery pegs.

Erosion control

Rivers, creeks and watercourses: Retain existing trees and ground cover within 15 m of rivers, creeks and watercourses and in drainage lines until directly before construction begins to minimise erosion.

Do not remove vegetation except in accordance with DA consent conditions.

Method statement

Requirement: Document the proposed methods, equipment and materials to be used for works within the exclusion zone, including the following:

- Protection methods.
- Excavation methods.
- Cutting of tree roots more than 50 mm diameter.
- Proposal for elevated platforms for earthwork machinery.
- Rehabilitation of damaged areas.
- If proposed, work within the dripline of trees within the exclusion zone.

Planning and programming

Requirement: Progressively carry out clearing with only the minimum area of land being disturbed at any time. Make sure that the absolute minimum area for construction is cleared.

3 EXECUTION

3.1 LIMITS OF CLEARING

General

Extent of clearing: As documented and areas occupied by the following, **but only in accordance with approved DA plans and consent conditions:**

- The completed Works.
- Erosion and sedimentation measures.
- Stockpile sites and borrow areas.
- If the natural fall of the ground is towards the roadway, a clearance zone of 4 m beyond tops of cuts and toes of embankments.
- If the natural fall of the ground either slopes away from the roadway or is level, a clearance zone of 2 m beyond the tops of cuts and toes of embankments.

3.2 AREAS TO BE CLEARED OUTSIDE THE LIMITS

General

Extent: If areas outside the limits are proposed to be cleared, clear the area to the extent defined in approved plans.

Requirement: Avoid danger to personnel, traffic, other trees, shrubs and structures.

Natural landscape features: Protect natural rock outcrops, natural vegetation, soil and water courses against disturbance.

3.3 WEED CONTROL

Procedures

Requirement: Tag areas documented in the **approved WEED MANAGEMENT PLAN**.

Implementation: Do not spread weeds during the clearing operations and remove all identified weeds as a separate operation.

Qualification: Use personnel with current pesticide operators' licence issued by the local authority.

3.4 VEGETATION PRESERVATION

Tagging

Requirement: Mark all trees documented for preservation or transplanting with ribbon markers. **This is a HOLD POINT to be released by both the Superintendent and Council's Tree Management Officer or their delegate.**

Signage

Warning sign: Display a sign in a prominent position at each entrance to the site, warning that trees and other plants are to be protected during the contract.

Lettering: Road sign type sans serif letters, 100 mm high, in red on a white background, to AS 1744 (2015).

Work near trees noted for protection

Exclusion zone: Do not carry out the following activities within ~~4 m of the trunks of the~~ **Tree Protection Zone (TPZ)** for protected trees, **in accordance with AS 4970 Protection of trees on development sites:**

- Erection of structures.
- Filling.
- Changes to soil profiles.
- Stockpiling of spoil.
- Storage of other materials.
- Driving or parking of any vehicle or machinery.

Requirement: If work is required within the TPZ, undertake only in accordance with the approved DA consent, or otherwise obtain approval from Council's Tree Management Officer. This is a WITNESS POINT.

Dripline: Conform to the following:

- Area within dripline: Free of sheds and paths, construction material and debris.
- Bulk materials: Do not place bulk material and harmful materials under or near trees.
- Spoil: Do not place spoil from excavations against tree trunks.
- Wind-blown material: Prevent wind-blown materials such as cement from harming trees and plants.

Tree enclosures

General: Provide temporary protective enclosures consisting of wire, mesh or chainwire material.

Size: 10 times the trunk diameter measured at 1500 mm above ground, as a radius from the trunk.

Wire enclosures: Four strands of fencing wire, or plastic mesh barrier, supported on plastic capped star pickets spaced at not more than 4 m.

Mesh enclosures: SL 62 to AS/NZS 4671 (2019) reinforcing mesh 1800 mm high wired to 2400 mm long star pickets, driven 600 mm into the ground, spaced 1800 mm apart at a minimum distance of 1 m from the tree trunk.

Chain wire enclosures: 1800 mm high chainwire panels fixed to 40 mm diameter galvanized steel posts.

Tree protection

Program: Install protection measures before starting clearing, **in accordance with AS 4970 Protection of trees on development sites.**

Trunk protection: If space is not available for tree enclosures, construct trunk protection comprising 2000 mm long planks of 100 mm x 50 hardwood stacked vertically around the trunk and secured with 10 gauge wire over hessian protective padding.

Sheeting to excavations: If excavating near trees, provide continuous 900 mm high corrugated galvanized steel sheeting, bedded 150 mm into the ground, and wired to the enclosure.

Damage: Prevent damage to tree bark and root system. Do not attach stays and guys to trees.

Tree removal: Minimise damage to protected trees by felling trees towards the centre of the area to be cleared. Cut tree in sections from top downward.

Roots: **Do not cut the roots of protected trees without prior approval under the DA consent or otherwise from Council's Tree Management Officer. This is a WITNESS POINT.** If tree roots less than 50 mm are cut, use cutting method that does not unduly disturb the remaining root system. Water the tree and apply a liquid rooting hormone immediately after cutting to stimulate the growth of new roots.

Compacted ground: Do not compact the ground or use skid-~~steel~~steer vehicles within the dripline.

Compaction protection: If earthwork machinery is required to operate within the dripline install an elevated platform.

Mulching: Spread 100 mm thick organic mulch to the whole of the area within the dripline of all protected trees.

Transplanting of trees

Method: Lift and temporarily store the documented vegetation for transplanting to **TRANSPLANTING STREET TREES** in *0257 Landscape - road reserve and street trees*.

Protection of other vegetation

Existing shrubs, native grasses and ground covers: Protect areas by temporary fencing.

3.5 CLEARING OPERATIONS

General

Requirement: Remove items including vegetation both living and dead, minor structures, redundant kerbs and gutters, bitumen surfacing, footpaths and driveways, rubbish and any other materials located within the limits of clearing.

Excavation near tree trunks

Open excavations: Minimise the time period an excavation is left open under tree canopies.

Topsoil: Do not remove or add topsoil to the area within the dripline.

Clearing machines: Fit machines used for pushing and heaping operations with appropriate attachments and operate to limit the amount of soil removed and heaped with the cleared vegetative material.

Working near tree roots

Hand excavation methods: If excavation is required within the dripline, use hand methods to preserve root systems intact and undamaged. Use hand methods to locate, expose and cleanly cut the roots on the line of the excavation.

Backfill material: A mixture of three parts by volume of topsoil and one part of well-rotted compost with a neutral pH value and free from weed growth and harmful materials.

Maximum backfill depth: 300 mm.

Compaction of backfill: Place layers of backfill and compact to a dry density similar to the original or surrounding soil.

Backfill height: Do not backfill around tree trunks to a height greater than 200 mm above the original ground surface.

Watering: Water trees as required, including where roots are exposed, at ambient temperature greater than 35°C. Thoroughly water the root zone immediately after backfilling.

Damage

Restoration: Rectify damage to vegetation, landforms, fauna habitat, and fencing that occurs during the clearing operations. Restore all damage to pre-construction conditions in the shortest period of time using the following methods:

- Deep ripping or hand scarifying and raking of wheel tracks and compacted soil.
- Reinstatement of rocks or stones.
- Planting of seeds or seedlings together with subsequent nurturing.
- Repairs to foliage or root systems of trees and shrubs and reinstatement of fauna habitat.

Unsound trees in road reserve

Marking of unsound trees: Tag unsound trees outside the limits of clearing.

Pruning: To AS 4373 (2007).

Disposal: Dispose of any unsound trees and overhanging branches to **TREATMENT OF CLEARED VEGETATION**.

Timber falling on private property: Prevent timber from falling on private property at all times.

3.6 GRUBBING

General

Extent: All trees and stumps on, or within the limits of clearing which can not be felled and removed.

Depth of grubbing: Carry out grubbing operations to a depth of 0.5 m below the natural surface or 1.5 m below the top of the selected material zone.

Backfill

Holes and depressions: Immediately backfill holes or depressions remaining after grubbing trees and stumps to prevent the infiltration and ponding of water. Fill with soil material similar to the adjacent ground and compact the backfill material to at least the relative compaction of the material existing in the adjacent ground.

Areas outside the limits of clearing: Final backfill with 50 mm topsoil and vegetate within 7 days of removal of stump.

3.7 TREATMENT OF CLEARED VEGETATION

Milling

Timber species documented for milling: Trim branches and stack in neat manageable stockpiles in approved locations.

Fauna habitat

Large tree trunks: Cut into transportable logs not less than 3.4 m in length any tree trunks nominated for salvage as fauna habitat logs and stockpile clear of construction.

Woodchip mulch

Prepare: Cut or split to a size to facilitate chipping or incorporation into the existing topsoil, as documented. All remaining timber that is not for milling, use as fauna habitat logs or for disposal offsite.

Woodchip mulch: Produce a woodchip mulch from crowns of shrubs and maximum 100 mm diameter branches of trees cleared under this worksection.

Dimensions of woodchip mulch: Two orthogonal dimensions less than 75 mm and 50 mm.

Timing: Chip cleared vegetation within 7 days of clearing to avoid excessive drying out of the vegetation and loss of seed stock.

Stockpiling of chipped vegetation

Landscaping: Stockpile the woodchip mulch for subsequent use in landscaping to the **Management of stockpiles and batters** in *0257 Landscape - road reserve and street trees* or for use at other locations if required.

Mixing: Mix the chipped vegetation into the existing topsoil during topsoil operations, as documented.

Avoid degradation: Carry out stockpiling operations so that chipped vegetation is suitable for use in the revegetation works.

Avoid contamination: Provide vegetation stockpiles free from stones, soil, rubbish and other materials and make sure stockpiles are not contaminated with matter toxic to plant growth.

Shape of stockpile: 5 m bottom width, 1.5 m high, batter 1H:1.5V.

Weed free: Keep vegetation stockpile sites free of weeds for the duration of the stockpiling period. Treat as necessary to control the weed species in conformance with requirements of local council.

Location: Locate stockpile sites away from drainage lines and position to allow ease of transport of materials at any time. Make sure stockpiles do not influence driver's sight lines or affect road safety.

Rehabilitation: Rehabilitate stockpile sites to **Grassing** in *0257 Landscape - road reserve and street trees*.

3.8 DISPOSAL OF MATERIALS

General

Re-use: Wherever possible re-use material.

Removal from site: Remove from site any material that cannot be re-used, in conformance with the Waste management plan.

Hazard minimisation: If burning is permitted by relevant authorities, conform to the following:

- Apply for relevant permits.

- Prevent damage to protected trees or trees outside the limits of clearing.
- Make sure that smoke resulting from such burning off does not cause a traffic hazard or nuisance to other properties.
- Give notice of the intention to burn to neighbours and to the Fire Warden of the Fire Brigade.

3.9 COMPLETION

General

Requirement: At completion of clearing and grubbing, do not drive machinery or equipment over or disturb areas where there is no construction works proposed.

Warning signs on protected trees: Remove all tags.

4 ANNEXURE A

4.1 ANNEXURE - SUMMARY OF HOLD AND WITNESS POINTS

For private developments, certain Hold and Witness Points where specifically noted below require representatives of both the Superintendent and the Principal Certifier (e.g. Council) to authorise release.

Clause and description	Type	Submission/Inspection details	Submission/Notice times	Process held
SUBMISSIONS, Design documentation Survey	H	Submit a survey plan showing the proposed area for clearing to confirm the clearing perimeters	7 days before commencement of clearing	Commencement of clearing
SUBMISSIONS, Execution details Clearing and grubbing plan	H	Submit a clearing and grubbing plan	7 days before commencement of clearing	Commencement of clearing
SUBMISSIONS, Report Clearing report	H	Clearing report	7 days before commencement of clearing	Commencement of clearing
SUBMISSIONS, Execution details Establishment	H	Submit a method statement including proposed methods, equipment and materials	7 days before commencement of clearing	Commencement of clearing
INSPECTION, Notice Limits of clearing	H – Superintendent and Principal Certifier	Peg out area for clearing	7 days before commencement of clearing	Commencement of clearing
INSPECTIONS, Notice Tagging	H – Superintendent and Principal Certifier	Trees marked for preservation and transplanting are tagged	7 days before commencement of clearing	Commencement of clearing
INSPECTIONS, Notice Trees within proposed embankment areas	H	Trees to be protected	7 days before commencement of clearing	Commencement of clearing
INSPECTIONS,	W –	Marking of trees outside	3 days before site	-

Clause and description	Type	Submission/Inspection details	Submission/Notice times	Process held
Notice Unsound trees in road reserve	Superintendent and Council's Tree Management Officer	the limits of clearing	clearing	
INSPECTIONS, Notice Weed control	W	Identify any additional areas that require weed control	1 day after tagging of areas to be weed controlled	-
SUBMISSIONS, Execution details Work within exclusion zone and dripline	H – Superintendent and Principal Certifier	Submit a method statement. Works in accordance with DA consent conditions or are otherwise approved by Council's Tree Management Officer	7 days before work within exclusion zone and dripline	Work within exclusion zone, Tree Protection Zone and/or dripline

Note: H = Hold Point, W = Witness Point

4.2 ANNEXURE - PAY ITEMS

This schedule applies to Council projects. For private development works use of this schedule is optional, at the Superintendent's discretion.

Pay items	Unit of measurement	Schedule rate inclusions
1111.1 Clearing and grubbing	Hectare	All costs associated with documentation, survey, clearing and grubbing.
1111.2 Removal of trees outside limits of clearing	Each tree	All costs associated with removal of trees outside the area bounded by the limits of clearing in LIMITS OF CLEARING . The schedule quantity is a provisional quantity.
1111.3 Woodchipping and stockpiling	m ³ in stockpile.	All costs associated with wood-chipping and stock piling. The schedule quantity is a provisional quantity.
Traffic management	Lump sum	To the <i>1101 Traffic management</i> worksection.
Control of erosion and sedimentation	Lump sum	To the <i>1102 Control of erosion and sedimentation (Construction)</i> worksection.
Boundary fencing	Lin.m	To the <i>1196 Boundary fencing for road reserves</i> worksection.

4.3 ANNEXURE - REFERENCED DOCUMENTS

The following documents are incorporated into this worksection by reference:

AS 1744	2015	Standard alphabets for road signs
AS 4373	2007	Pruning of amenity trees
AS/NZS 4671	2019	Steel for the reinforcement of concrete
AS 4970	2009	Protection of trees on development sites

5 ANNEXURE M – CESSNOCK CITY COUNCIL SPECIFIC CLAUSES

M1.	Variations to or non-conformances with Council's AUS-SPEC are to be evaluated with reference to the procedure in Council's <i>Development Engineering Handbook</i> . Acceptance is to be obtained in writing from: an authorised representative of Council's Director of Infrastructure and Engineering Services.	Variation procedure
M2.	This specification applies in addition to any development consent (DA) conditions. If there is any inconsistency, the conditions of consent shall prevail.	DA Conditions
M3.	Refer to the Cessnock City Council <i>Development Engineering Handbook</i> for final inspection, works-as-executed and handover requirements.	Completion

6 AMENDMENT HISTORY

0	15/01/2024	First Published
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