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NR/L2/OTK/5201

Module 02

Lineside vegetation management requirements

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Red requirements – *no variations permitted*

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- Red requirements are monitored for compliance.
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NOTE 2: *The relationship of this standard/control document with legislation and/or external standards is described in the purpose of this standard.*

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[1] *This can include gross proportionate project costs with the agreement of the Network Rail Assurance Panel (NRAP).*

Contents

1 Scope

In scope for this module are the requirements for the management of lineside vegetation.

The extents of the intervention zones, including actions required, form the core of this module.

The module considers the impact of management of vegetation on other assets.

Not included within this module are:

a) management of vegetation to protect against damage to structures;

b) management of vegetation to directly assure or improve earthworks integrity and stability; and

c) environmental and community requirements for vegetation management.

2 Principles of vegetation management

2.1 General principles

Plants including weeds and woody vegetation are able, each year, to produce new shoots. They incrementally increase stem, branch and root growth and expand in size and structural form. They are able to spread and re-colonise areas where previously they have been restricted or removed.

Interventions will disrupt the growth process but not fully eradicate it. Cyclical vegetation maintenance tasks are required to restrict vegetation growth and to limit any negative impact it may have.

Vegetation management should encourage the establishment of desirable lineside conditions that add value not only to the lineside but also to the surrounding environment through:

a) connecting environments;

b) promoting and providing biodiversity;

c) protecting areas of ecological and historical importance; and

d) improving the resilience of the vegetation.

To effectively manage vegetation the following needs to be known:

a) the habitat type so that any design requirements align to this;

b) species that require specific controls due to legislation;

c) species that require specific management plans due to their vulnerability to pests and disease;

d) species that require specific management plans due to the potential risks to the railway during autumn leaf fall; and

e) locations of trees and vegetation that have specific preservation or protection status due to ecological or historic importance.

Where management operations are proposed the impact of such work is assessed and information is gathered regarding:

a) environmental restrictions that prohibit or limit the extent of work;

NOTE 1: *Consult with environmental specialists to establish these locations*

b) negative impacts on the public as a result of the vegetation removal;

c) value provided by trees and vegetation as a visual amenity to the surrounding environment; and

d) effects on biodiversity.

Consideration is given to the impact on other assets where management or maintenance activities are carried out.

NOTE 2: *An example of this is clearance of lineside vegetation on earthworks.*

Consult other asset groups regarding how management of lineside vegetation will help with optimal performance for their respective areas.

NOTE 3: *An example of this is to establish a cyclical vegetation maintenance regime to assure the performance of drainage assets.*

2.2 Safe working

Work on vegetation is undertaken so that it does not compromise the safety of railway operations or affect those who work or live next to the railway.

A safety assessment is required to protect those carrying out the activities and the environment. There is guidance available produced by organisations outside of Network Rail which inform on the safest working methods.

NOTE 1: *Work Activity Risk Assessments (WARA) will inform on risk presented by carrying out these tasks.*

NOTE 2: *Guidance on work site checklists is available from FISA and AFAG.*

A specific competence is required for cutting vegetation within close proximity to overhead line equipment when it is live.

NOTE 3: *Competence for working close to OLE is defined in NR/L2/CTM/014.*

2.3 Analysis of vegetation information

Information received from inspection and reactive reports shall be analysed and the work required shall be determined.

Review immediate and corrective action timeframes assigned by the Inspector to allow for the work to be scheduled in Ellipse.

NOTE 1: *NR/L3/MTC/PL0175 contains guidance for maintenance planning.*

A site visit may be arranged to establish the work required.

NOTE 2: *Legal requirements will influence vegetation management.*

The intervention shall be managed in accordance with Figure 1 and Table 1.

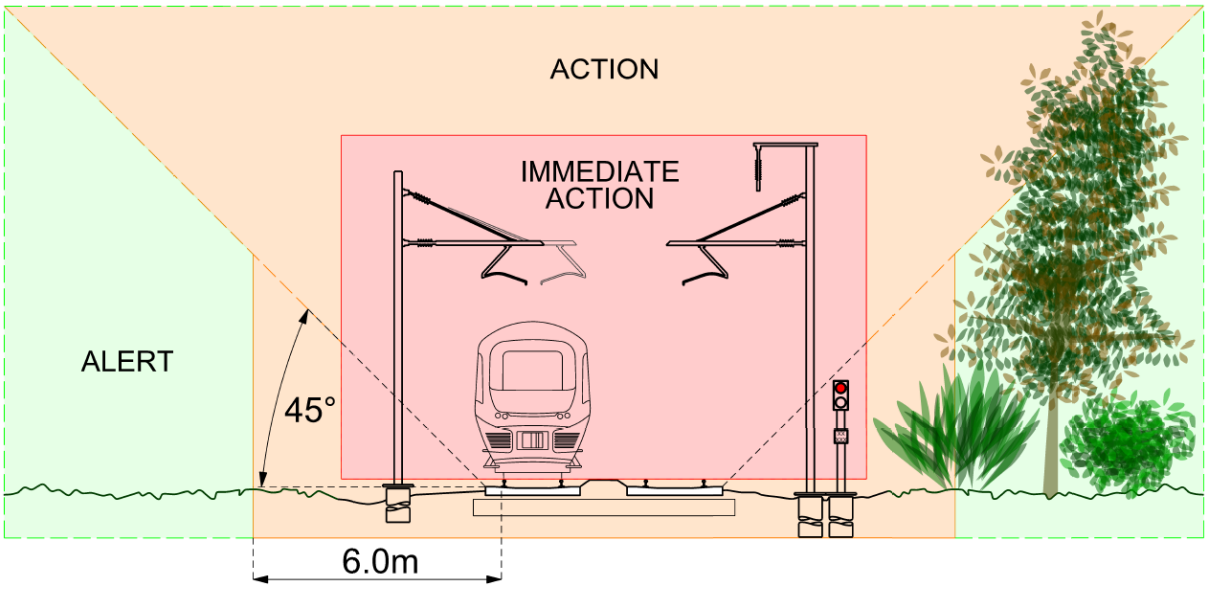


Figure 1 – Principles and requirements of the intervention zone

Intervention Zone	Requirement
Immediate Action	a) Remove vegetation to, at least, the action zone
Action	a) Intervene where inspection identifies that action is required. b) Prevent growth towards the immediate action zone. c) Manage potentially hazardous trees d) Prevent trees growing large enough that they would pose a derailment risk. e) treat vegetation on a cyclic basis to control growth. f) Prevent the establishment of trees within 6metres where they do not already exist.
Alert	a) Manage vegetation to protect against specific safety or performance issues to NR or third parties. b) Control INNS requiring intervention.

Table 1 – Required activity within each zone

2.4 Before commencing any vegetation work

Prior to undertaking any vegetation management activities check:

a) the proposed method of treatment can be carried out at that location;

b) the proposed work does not create new risks including material left on site;

c) any site restrictions or hazards that might impact on the work;

d) proposed treatments are not prohibited or restricted;

e) any negative impact on biodiversity due to the proposed treatment or timing is mitigated entirely or kept to minimum to satisfy the mitigation of risk;

f) that the proposed work does not impact on the function of drainage assets or the stability and security of structures, earthworks and rock faces: and

g) that the proposed work has been subject to a risk assessment in relation to the dangers from live parts of the OLE in accordance with Network Rail standard NR/L3/ELP/29987.

An environmental and social appraisal shall be carried out for scheduled vegetation clearance work. Requirements from the assessment shall be adhered to.

NOTE 2: *The hazard directory and environmental specialists can provide information on environmentally sensitive areas.*

NOTE 3**:** *NR/L3/MTC/EN0099 describes the process to be followed for the assessment.*

Before any work commences, consider the impact of the removal of vegetation on internal stakeholders and third parties.

Third parties shall be notified where they are affected by the removal of vegetation.

NOTE 4*: Permissions will need to be obtained from outside parties or adjacent landowners before work can commence.*

NOTE 5: *NR/L3/MTC/PL0215 describes the process to be followed for notification.*

Where an immediate response is required to remove vegetation, assess specific safety risks which might arise during the work.

2.5 Managing vegetation within the immediate action zone.

Table 2 below shall be complied with where vegetation is within the immediate action zone. The timescales for removal shall be according to Table 2 of NR/L2/OTK/5201/MOD01.

Condition	**Action**
Vegetation in contact with trains	Manage vegetation back to the action zone (as a minimum)
Vegetation obstructing places of safety or refuges	Manage vegetation so that places of safety and refuges are unobstructed
Sighting requirements – level crossings	Return to minimum sighting requirements detailed in the ALCRM risk assessments completed by Level Crossing Managers
Sighting requirements – signals	Return to minimum sighting requirements as detailed by route Signal Sighting Engineers.

Sighting requirements – lineside operational signs	Manage vegetation back to the action zone (as a minimum)
Overhead Line Equipment (OLE)	Clear vegetation back to 2.75 metres ***NOTE**: Where this cannot be achieved remove the immediate risk and prioritise corrective action work as detailed in Table 2 NR/L2/OTK/5201 MOD01*
Tree at imminent risk of failure (including identified threat category 6 or 7 on NR/L2/OTK/5201/F3077 and 3245)	Follow actions as detailed by the THREATS process contained within NR/L2/OTK/5201/F3077 and 3245

Table 2 - Responses required where vegetation is growing in the immediate action zone

Contact Network Operations to start the required mitigation if immediate action to make the railway safe cannot be carried out.

On receipt of reports of encroachment towards OLE requiring immediate action, removal shall only be undertaken:

a) With the OLE isolated and earthed, with an Overhead Line Permit; or

b) By equipment competent staff using approved live line tools under an approved method of working.

Notify the RAM responsible where immediate action has been identified for vegetation growing out of structures.

***NOTE 1:** Consulting with the RAM responsible for structures will help avoid damage occurring to the structure when vegetation is removed.*

Agree on the extent and method of the immediate work prior to it being carried out.

On receipt of a report of a hazardous tree categorised as 6 or 7 using the THREATS process within NR/L2/OTK/5201/F3077 or NR/L2/OTK/5201/F3245, arrange for the removal of the tree within the timeframes detailed within the inspection report.

Emergency and late notice work shall be managed in accordance with 5.5.3 of NR/L3/MTC/PL0215.

Identify additional activity required and raise a WAIF where:

a) work has not been effective in removing the risk; or

b) the work addressed the immediate risk only and corrective action is required.

***NOTE 2**: Corrective action timeframes are detailed within Table 2 NR/L2/OTK/5201MOD02.*

2.6 Management within the action zone

Manage vegetation within the action zone where it presents a risk.

Vegetation remaining within the action zone shall be subject to a plan to assure that that the risk from its presence is mitigated.

Upon completion of any vegetation management the person responsible for the work shall confirm:

a) the required profile has been created;

b) the work has been effective in removing the risk;

c) the site is left safe so that the work has not created a further risk to the railway or third parties;

d) the earthwork or structure upon which the vegetation exists has not been affected by the activity; and

e) the surrounding environment and protected areas have not been affected by the work.

NOTE: *Site Management Statements are available for sites within SSSI. These can be provided by Route Environmental Specialist.*

2.7 Planning maintenance within the action zone

Undertake cyclical maintenance activities to prevent growth towards immediate action.

Activity to maintain vegetation within the action zone shall be assessed to check it has been effective.

NOTE: *This might involve re-assessment after a period of time by checking that clearance zones have been achieved and the preferred habitat type is being maintained.*

2.8 Undertaking maintenance activity within the alert zone

Maintenance work within the alert zone will include works to prevent:

a) establishment of invasive plants;

b) spread of Invasive Non native plants including where it is presenting a nuisance to lineside neighbours; and

c) re-growth from stumps causing risk to earthworks.

Maintenance work within the alert zone will include removal of undesirable species and replacement with more suitable species.

3 Vegetation management methods

3.1 Chemical treatments of vegetation

A person with BASIS certification shall specify the method of application of the chosen herbicide for the type of vegetation to be treated.

NOTE 1: *Prior to selecting a chemical application alternative treatments should be considered.*

A competent person shall select the herbicide and dosage rates before work commences.

NOTE 2: *Competency is satisfied by holding NPTC PA1 'Safe Use of Pesticides' and NPTC PA6 'Handheld Application'.*

NOTE 3: *Biological methods for controlling the spread of specific plants are not part of this standard control framework.*

The extent of the areas to be sprayed and any restrictions on use shall be provided to the operator in advance of the works.

Vegetation above 2 metres in height shall not be treated by the weed spraying train.

Complete NR/L2/OTK/5100/F3069 when applying chemicals.

3.2 Mechanised methods of vegetation removal

The selected mechanised methods shall be capable of:

a) clearing the size of vegetation to be removed;

b) undertaking its intended operation on site and at access and egress points; and

c) operating within machine clearance zones;

The use of flail machines shall be limited to;

a) maintaining areas that have been previously cleared of trees and planned cutting has restricted the size and height of woody re–growth; and

b) maintaining hedge lines, where planned cutting has established a hedge.

3.3 Manual methods of vegetation removal

The safest method of undertaking the manual activity of work shall be adopted having considered and discounted other methods.

4 Protecting other assets when undertaking vegetation management

4.1 Lineside assets

The ground area around lineside assets shall be maintained free of vegetation to a distance of 1 metre.

NOTE: *This is to enable, for example, access, inspection and fire prevention.*

4.2 Rock cuttings, soil cuttings and embankments

The RAM who has responsibility for geotechnics shall be consulted where vegetation management will take place on rock cuttings, soil cutting and embankment slopes.

Prior to work commencing consultation with the RAM who has responsibility for geotechnics shall establish:

a) access onto the site, removal of trees, roots and other vegetation does not compromise the stability of the slope or rock face;

b) current stability condition of the slope proposed for vegetation removal;

c) locations of embankments vulnerable to desiccation;

d) agreement on the extent of work and any restrictions; and

e) remediation required to manage stumps identified at risk of failing and presenting a hazard.

Consultation shall review the effects of tree felling and establish;

a) phases of clearance;

b) any planting requirements;

c) any coppicing or pollarding requirements;

d) stump treatment requirements;

e) the preferred extent of vegetation following the works; and

f) requirements for review one year after operations by a geotechnical engineer.

Consultation is not required where individual trees are being managed on slopes or where cyclical grass cutting, scrub cutting and tree pruning operations are planned.

Stumps remaining shall be assessed. Any categorised as 'at risk' shall have remedial action assigned in accordance with Figure A-1 (Appendix A).

Agree who owns and will carry out the work with the RAM responsible for geotechnics.

NOTE 1: *High water demand tree species combined with long dry periods can result in clay shrinkage for susceptible geologies (high plasticity clays). Where trees are close to the track this might result in poor track geometry.*

NOTE 2: *Tree roots might assist in reinforcing soils on clay embankments, which assists the stability of the slope.*

NOTE 3: *Further information can be found in NR/L3/CIV/152.*

4.3 Specific considerations for rock cuttings

The face of rock cuttings shall be maintained to prevent the establishment of woody vegetation.

NOTE: *Tree roots can cause root jacking of blocks of rock on rock cuttings where trees are left to establish root systems.*

4.4 Specific considerations for structures

Notify the RAM responsible for structures where vegetation is growing from a structure and needs specialists for removal or could cause damage.

NOTE: *This does not remove the need to carry out the immediate action although the scope may be reduced to avoid damaging brick and mortar structures.*

5 Leaving sites safe

5.1 Preventing wind-throw risk

Tree removal operations shall be planned so that the risk of wind-throw to the remaining trees is not increased by the work.

5.2 Lineside tidiness - disposing of cut material

5.2.1 Principle of tidiness

Vegetation work should be responsibly managed during the activity and once work has been completed.

Material or waste created shall not be left on site if it poses:

a) a safety or performance risk;

b) a risk to management or inspection of other assets;

c) a negative affect on biodiversity; or

d) a nuisance to third parties.

5.2.2 Specific tidiness considerations

Cut wood material shall be removed from site following work.

Approval shall be requested from the RAM responsible for the lineside vegetation where material is to be left on site when chipping or removal of cut material is not possible.

Cut material that has been stacked in short section piles shall not be left on slopes with a gradient steeper than or equal to 33 degrees.

NOTE 1: *Cut and stacked material can move over time and present a hazard.*

NOTE 2: *To encourage natural breakdown of cuttings, branch and stem material should be cut into short sections and stacked in piles (known as windrowing). Shorter lengths of branches and logs should be banded to prevent vandalism.*

Wood chippings shall not be left on site where there is a risk to property, assets or the operational railway. Any remaining chipped material shall be:

a) a minimum of three metres from any running rail; and

b) clear of any watercourses and drainage systems.

NOTE 3: *these include open ditches that may not be immediately visible at the top of a cutting slope..*

Chipped material shall be spread evenly to a depth no greater than 100mm.

5.3 Management of stumps

5.3.1 General principles

The type of management required for stumps will be dependent on their location and their effects on the earthwork, structure or drainage asset.

NOTE: *For example, cut stumps can be left untreated in areas where regrowth is not expected to negatively impact on safety or biodiversity.*

The removal or grinding of stumps on slopes, within drainage channels or on structures shall be done in consultation with the RAM responsible for the asset.

Use Table 3 when stumps have been created and cannot be removed or ground out.

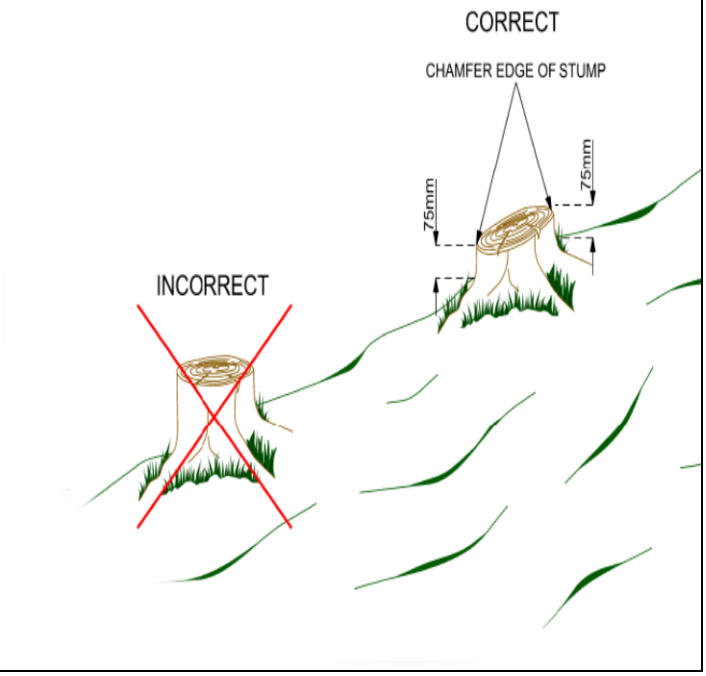
Stump treatments	Examples
1. Cut to a maximum height of 75mm above ground level. 2. Cut level to the ground or level to the angle of the slope when on earthworks. 3. Chamfer the edges to reduce risk of throwing tracks of tracked vehicles. 4. Treat using capsules containing slow release herbicide inserted directly into the cambium area. ***NOTE:*** *Where stump diameter is too small for capsule treatment advice shall be obtained from the lineside experts within the RAM teams*	

Table 3 – Stump treatment

5.3.2 Coppicing / pollarding

Trees / stools to be coppiced or should be cut no lower than 150mm above ground level with a sloping face to allow water runoff

NOTE*: For previously coppiced stools retain one stem on the stool as long as its retention does not affect any other part of this standard****.***

Pollarding of trees should be cut at heights that will not restrict the undertaking of future management.

6 Invasive Non Native Species (INNS)

6.1 Principles

INNS shall be managed (including entry in Ellipse) where:

a) there is a risk posed to the safe operation of the railway;

b) their presence inhibits other railway activities being carried out;

c) they might impact on lineside neighbours; and

d) their presence or growth poses an environmental risk.

6.2 Managing sites where INNS have been identified

A register of INNS shall be kept in Ellipse.

A schedule of works shall be contained in Ellipse for the management of INNS plants on Network Rail land.

Remediation works should be undertaken using guidance detailed in Table 3.

Consult with the MPC where encroachment is likely to occur from third party land.

Action shall be taken to control the spread and prevent further invasion where a notice has been served.

Follow up visits shall be carried out to check the effectiveness of any treatment.

6.3 Removing INNS material

INNS shall be treated as hazardous/special waste and disposed of through a Network Rail approved method where removal is required.

NOTE: *NR/GN/ENV/004 describes the approved method for waste disposal.*

Priority	Descriptors	Action	Why
1	INNS within seven metres of the outside running rail	Treatment cycle to begin at timescales defined by BASIS advice.	To reduce impact on track renewals.
2	INNS within seven metres of third party land	Treatment cycle to begin at timescales defined by BASIS advice.	To prevent the need for a *Species Control Agreement* or a *Species Control Order.*
3	INNS present on both sides of the boundary	Contact adjacent land owner to agree management plan.	Proactive approach to prevent a *Species Control Order* being imposed on Network rail and/or the third party landowner.
4	INNS on third party land, within seven metres of the boundary	Contact adjacent land owner to agree management plan.	Proactive approach to prevent a *Species Control Order* being imposed on the third party landowner.
5	INNS on third party land, more than seven metres from the boundary	Contact adjacent land owner to inform presence of injurious and invasive plants.	Proactive approach to assist with the control of an invasive non-native species.
6	INNS on Network Rail land more than seven metres from	Treatment cycle to begin at timescales	Proactive approach to assist

	the outside running rail and seven metres from the boundary	defined by BASIS advice.	with the control of an invasive non-native species

Table 4 – Prioritising INNS control

7 Grazing for vegetation management

Grazing of livestock on the lineside might be permitted where special arrangements are in place with a specific management objective and where site conditions and security measures allow.

8 Planting and re-seeding

Planting shall be taken into account where planned clearance work will result in a loss of connected woodland or scrubland habitats.

Planting and re-seeding should be considered where:

a) the establishment of suitable species enhances the stability of earthworks;

b) trees would be replaced in urban environments; and

c) opportunity exists to enhance biodiversity.

NOTE: *Lineside experts within RAM teams or the Environment and Sustainability department can provide advice on the species to be used.*

9 Updating records

The planner shall update the asset records in Ellipse within 28 days of work completion with:

a) work that has been undertaken; and

b) any changes in the risk score of leaf fall and assessed trees arising from the work.

The forms identified in this process should be completed electronically.

Appendix A - Process for stump management

A.1 Cuttings

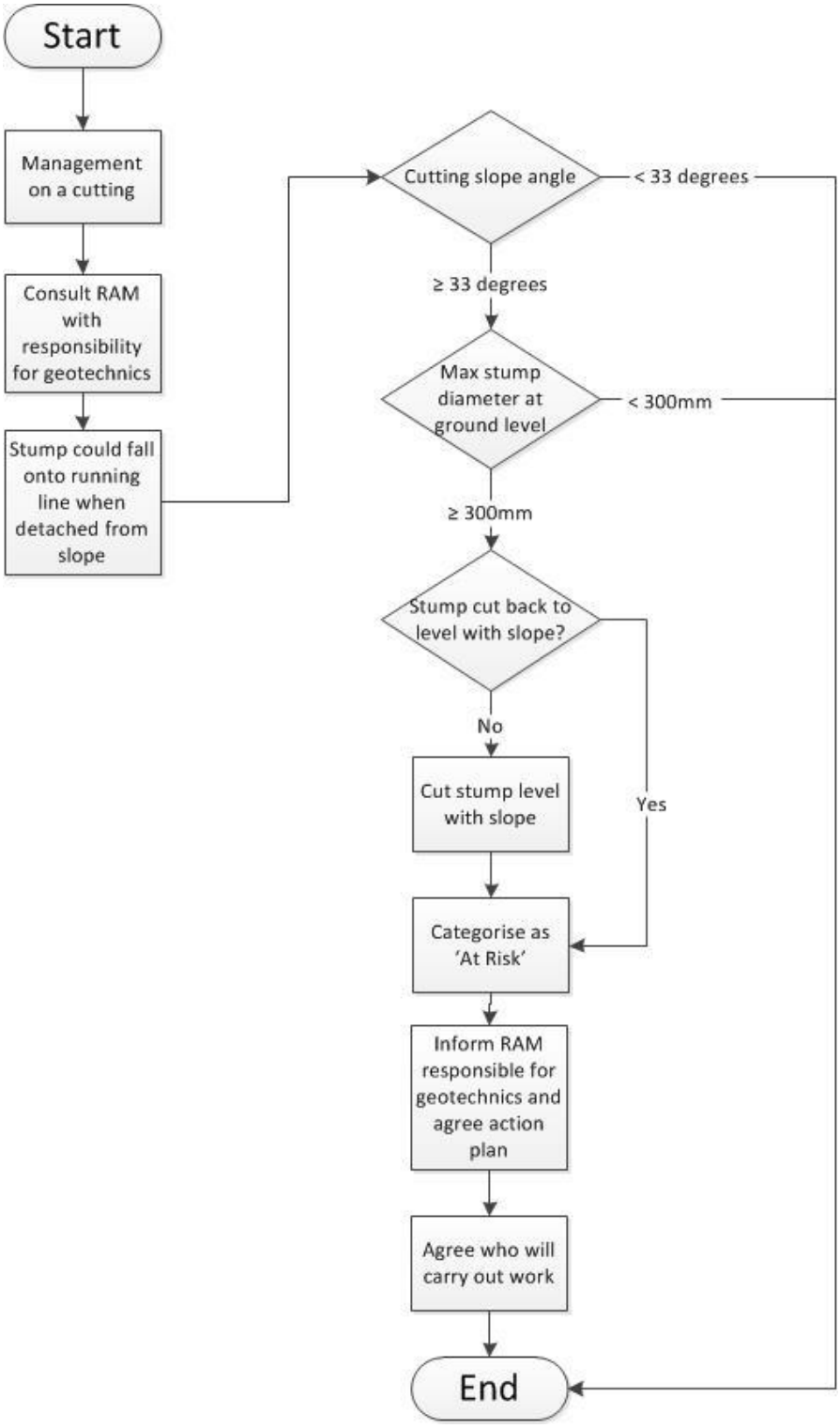


Figure A-1 – Consultation process for cuttings