

Overview

This standard covers the activities that may be required to carry out tree surveys, assessments, inspections and investigations of tree health and risk, in either a forest, woodland or an amenity/arboriculture context, together with the core requirements and responsibilities.

NB The terms tree survey and inspection describe different processes (See Glossary for definitions) though they are often used interchangeably. For the purpose of this standard the term survey/inspection will be used.

This standard is for those who carry out occupational tree surveys/inspections as part of their job role.

There are several types of occupational tree surveys and inspections needed to meet the requirements of the statutes and regulations involving the management of trees, timber and associated protected species. The primary focus of this standard is related to tree health, risk and arboricultural management of trees, and covers individual and multiple tree data collection. It does not cover forestry and woodland tree inventory data collection which is covered in LANTw35 Compile a forest or woodland inventory.

Landowners have a duty of care for the safety of trees growing on their property to ensure that they do not cause injury. This is especially relevant in urban related contexts. For risk purposes surveys/inspections are usually carried out with reference to a particular risk that may be posed by a tree (sometimes referred to as a risk zone or target) e.g. highways, railways, powerlines, built structures, public pathways or amenity areas. Following a visual inspection there may be a need for further investigation in order to ascertain the risk.

You may be required to draw conclusions and make recommendations for action in response to findings, depending on the type of survey/inspection being carried out. It may be for the management of one tree or many. The results of the data collection should be analysed together in order to make an appropriate decision. A balanced and proportionate approach to tree safety management should be taken and a single item of data should not, ideally, be the sole basis for a decision, especially when tree removal is a consideration. A disproportionate response to the actual risks posed by trees may lead to unnecessary intervention and loss of trees. Such a response gives rise to losing the benefits provided by trees, such as, to the amenity of a site, the

Carry out tree surveys and inspections

environment, the general landscape and society as a whole. This approach does not exclude the need to deal with trees appropriately to avoid reasonably foreseeable harm.

Types of occupational survey/inspection:

Formal or visual tree inspections

Formal inspections are planned, specified and proactive, following a systematic process such as visual tree assessment (VTA) (see Glossary definition). These can include drive-by and walk-over inspections (see Glossary definitions).

Formal inspections should be carried out by a trained and competent person with a sound working knowledge of trees and tree management options, at a level of competency appropriate to the context. It involves observations of trees that take account of health and structural features and the ability to conclude whether a tree does, does not, or is suspected to, present a reasonably foreseeable risk of harm.

If concerns are noted related to the condition of a tree, then this may require a detailed inspection or investigation.

Detailed tree inspections or investigations

Detailed inspection or investigation is a more highly specialised assessment and is commonly prompted by concerns raised during a visual inspection. This may involve soil and root condition assessment, tree movement assessment, aerial inspections of upper trunk and crown for any features not observable from a ground level inspection, other procedures to evaluate the nature of suspected significant hazards and checking and collecting information on tree health, pests and diseases. Often the use of specialist diagnostic tools is necessary.

Detailed inspections and investigations require a competent and experienced practitioner trained in the type of investigation that is to be carried out and the diagnostic equipment required. They should also be sufficiently competent to make decisions and recommend any actions required as a result of the inspection.

Aerial Inspections

This type of inspection can be carried out by drone or by using a camera pole. However, where the inspector is required to access the tree, this should only be undertaken by those who are already competent in accessing trees by climbing and/or using a Mobile Elevated Working Platform (MEWP) with suitable aerial rescue

Carry out tree surveys and inspections

provision.

General notes

You could be working to a given specification that defines the methods to be used but you will be expected to determine how to carry out these methods on site.

You will need to take account of any restrictions affecting the survey/inspection work e.g. site ownership, biosecurity measures, presence of non-native invasive or protected animal and plant species etc.

You are required to avoid or minimise damage or disturbance to the site and surrounding area and to ensure that other site users are not put at risk by your work.

You must conform to all relevant legislation and codes of practice, industry standards and guidance, and adopt safe working practices when carrying out tree surveys and inspections.

Performance criteria

You must be able to:

Core requirements and responsibilities

1. confirm the purpose, requirements and type of survey/inspection to be carried out
2. obtain and use the relevant information and equipment to carry out the work in accordance with the purpose and requirements of the survey/inspection
3. check any statutory requirements that might be in place that may prohibit or place conditions on the work to be carried out, and confirm that all required permissions and licences have been obtained
4. confirm access arrangements for the survey/inspection with the relevant parties
5. confirm that relevant training, experience and certification is in place to undertake the work to be carried out and recognise your own competence limitations
6. assess the risks associated with the site and the type of survey/inspection to be carried out, before starting work and throughout the activity, checking and confirming the findings of any existing risk assessments, including working at height where aerial tree inspections are to be carried out, and implement control measures
7. maintain the health and safety of yourself and others at all times, in accordance with the relevant legislation and industry codes of practice
8. select, use and take care of personal protective equipment (PPE) when required for surveying/inspecting trees, especially when close to highways
9. maintain biosecurity in accordance with the relevant legal requirements, industry guidance and organisational procedures
10. use appropriate methods to maintain effective communication with other workers and anyone else involved in, or affected by the work, in accordance with industry guidance and organisational procedures
11. minimise damage or disturbance to the site, wildlife, habitats and the surrounding area while carrying out this work
12. take the required action where issues in carrying out the survey/inspection are identified in accordance with organisational procedures
13. complete and store all relevant documentation safely and securely in accordance with the relevant legal requirements and organisational procedures

Carry out ground level tree surveys/inspections

1. use maps, plans, GPS, fixed features or other methods to locate and confirm the trees to be surveyed/inspected in accordance with the survey/inspection purpose and requirements
2. identify tree species using appropriate aids to identification in accordance with the survey/inspection requirements
3. identify relevant methods to be used to meet the survey/inspection purpose and requirements
4. select suitable techniques and equipment and adopt a systematic and consistent methodology to the collection of data in accordance with the survey/inspection purpose and requirements
5. identify when it is appropriate to use decay detecting or measuring equipment
6. identify biomechanical and biological features of trees that raise a safety concern in accordance with the survey/inspection requirements
7. identify the presence of pests and diseases in accordance with the survey/inspection requirements
8. identify areas of decay and fungus growth, and the type of fungus responsible where possible
9. when using a drone confirm that all legal requirements have been met
10. record information gathered from tree surveys/inspections in accordance with legislation, survey/inspection requirements and organisational procedures
11. take the required action where notifiable pests and diseases are identified
12. assess all information gathered from tree surveys/inspections to make recommendations for actions, where required, in a timely manner, in accordance with legislation, survey/inspection requirements and organisational procedures
13. produce a report of findings and recommendations as required by the type of survey/inspection carried out

Carry out aerial tree surveys/inspections

1. carry out aerial tree inspections trees safely, using appropriate access methods and equipment, in accordance with tree hazard and working at height assessments, legal requirements and industry guidance
2. confirm that all equipment has been checked, tested where required, and is fit for purpose in accordance with the relevant legal requirements and manufacturer's instructions, and that evidence of this is available
3. confirm aerial rescue provision and arrangements are in place

Knowledge and understanding

You need to know and understand:

Core requirements and responsibilities

1. the particular type of survey/inspection that is applicable to meet the task purpose and requirements
2. the relevant information and equipment that is required to carry out the work in accordance with the purpose of the survey/inspection
3. how to use the relevant information and equipment to carry out the purpose and requirements of the survey/inspection
4. the statutory requirements, including risk assessment, in place that may prohibit or place conditions on the work to be carried out
5. the permissions and licences that may be required and how these can be obtained
6. how to agree access arrangements with the relevant parties and why this is essential
7. how to identify hazards and assess the risks associated with the site and the work to be carried out, and the importance of site-specific risk assessment and relevant control measures
8. the relevant health and safety procedures and Safe Systems of Work (SSoW), including lone working where appropriate
9. why the selection, use and care of personal protective equipment (PPE) is important and the need for high visibility clothing when surveying/inspecting trees close to highways
10. why it is important to maintain effective communication with other workers and anyone else involved in, or affected by, the work and the methods of communication that should be used
11. the types of difficult behaviour that members of the public may demonstrate and how to respond appropriately to defuse any situation
12. current legislation and codes of practice, industry standards and guidance, organisational policies, procedures and protocols, business and professional ethics that are relevant to your area of work, and to which you must adhere
13. the legal, industry and organisational requirements for training, experience and certification to undertake the work activities required, the importance of acknowledging your competence limitations and when additional assistance is required

Carry out tree surveys and inspections

14. the importance of biosecurity measures and how to apply these
15. the issues that can occur when surveying/inspecting trees, the actions to take and the organisational procedures for reporting issues that cannot be resolved
16. the duty of care owed to those who instructed the work
17. the legal and organisational requirements for the completion and storage of documentation

Carry out ground level tree surveys/inspections

1. how different species of trees grow and function at their various life stages
2. how to prioritise surveys/inspections based on risk to persons, property and infrastructure, and the age and type of tree e.g. by using zoning
3. how to interpret maps, plans, GPS systems and fixed features to locate and plot trees
4. the techniques and equipment that are available when surveying/inspecting trees and the importance of adopting a systematic and consistent methodology
5. how to use paper templates and digital data collection systems such as on hand-held devices
6. the benefits and limitations of proprietary methods for tree risk assessments and methods that seek to quantify or qualify risk
7. the importance of following industry best practice and where this can be obtained
8. how to identify tree genera and species by the use of their features/characteristics/form as appropriate, and simple botanical keys
9. why the principles of botanical classification and nomenclature for trees is important when naming trees
10. how to measure and record tree dimensions and why forestry measurement requirements may differ from amenity/arboricultural measurements
11. how to assess the biomechanical and biological features of trees and identify and how to identify, record and report any concerns
12. how to identify fungi, pests and diseases that affect trees, the implications of their presence, what is notifiable, who needs to be notified and why it is essential that this is done
13. the benefits and limitations of using drones for tree surveys/inspections
14. why non-invasive or invasive investigation methods can be used as an aid to decision-making and what are the implications of using these methods e.g. benefits, limitations and implications for tree health
15. the procedures to be followed when handling/storing/packaging specimens for future identification

Carry out tree surveys and inspections

16. why it is important to obtain and record sufficient data to meet the objectives of the survey/inspection
17. how to analyse the data generated by the processes and specialised equipment
18. how to present data and produce reports that provide concise, clear and informative information to aid decision making
19. the basis of assessing tree risk, how this is calculated and the use of available propriety methods
20. why it is important to present conclusions and recommendations in a timely manner, based on and supported by the findings, and when action is required
21. why it is important to balance the value of trees against identified risks to persons, property and infrastructure, and how a proportionate approach is achieved
22. how a tree system functions and what the implications on the health of a tree might be of any work recommendations specified
23. why it is important to prioritise work and how this can be done

Carry out aerial tree surveys/inspections

1. how to access trees safely, using appropriate methods and equipment, in accordance with tree hazard and working at height risk assessments
2. the tools, equipment and personal protective equipment (PPE) required for accessing trees and how to safely, prepare, use, carry out operator maintenance, and store these, in accordance with the relevant legal requirements, codes of practice, manufacturer's instructions, and organisational procedures
3. the legal requirements for the inspection of all climbing and lowering equipment and the evidence that is required to show that this has been done
4. the provisions for aerial rescue that need to be in place

Carry out tree surveys and inspections

Scope/range

Survey/inspect:

- individual trees
- multiple numbers of trees
- areas/zones of trees

Scope/range related to performance criteria

Data that could be required:

- tree number/location/geographical location
- species – scientific and or common name
- height
- stem diameter or diameter at breast height
- crown spread e.g. 4 compass points
- age class or life stage
- tree form
- findings/observations
- physiological condition
- structural condition
- frequently used zone rating (target) – people, property, infrastructure
- management recommendations
- hazard rating
- risk rating
- work priority
- inspection frequency/next inspection
- pruning history
- protected status e.g. TPO or conservation designation
- ownership
- site features/street furniture
- tree value – amenity, Helliwell, CAVAT etc
- tree status
- potential wildlife value

How to measure tree and site dimensions:

- tree height
- crown spread and in the 4 compass directions
- stem diameter at breast height 1.3m (forestry)
- stem diameter at 1.5m (arboriculture)
- distance from a frequently used zone (target) – people, property, infrastructure

Glossary

Additional equipment may include but is not limited to:

- spade or trowel
- decay detection and measuring devices, increment corer, fractometer
- tagging equipment
- soil testing kit
- soil auger, soil compaction meter
- ladder
- climbing equipment
- sample collection bags

Aids to identification of trees:

- identification keys e.g. pictorial or dichotomous
- tree characteristics e.g. bud shape, colour and arrangement, leaf size and shape, bark patterns and colour, flowers, fruits, seed and form etc

Data recording: (see Inventory) - the data recording of trees must be sufficient to meet the purpose and requirements of the inspection/survey. It may require the survey/inspection and recording of all trees within a tree survey zone (e.g. street tree locations or arboretum survey) or may be a targeted survey/inspection of specific trees or tree types and should specify which trees are to be recorded in the inventory (e.g. only those trees found to require risk controls).

Defect: in this context a defect in a tree is a structural, health or environmental condition that presents a risk of reasonably foreseeable harm

Drive-by inspection - involves a driver accompanied by an observer who checks trees within falling distance of a highway looking at trees that may be a cause of concern. A judgement is then made to determine the requirement for closer inspection.

Equipment required but not limited to:

- digital hand-held recording equipment
- plans, maps

Carry out tree surveys and inspections

- paper system, writing instrument, clip board
- binoculars
- sounding mallet
- probe
- compass
- measuring devices
- camera/camera pole
- identification books trees, fungi
- gloves

Formal inspection: a formal visual assessment and recording of the health, condition and status of trees and making recommendations for arboricultural care of trees.

Information required to carry out work activities could include but is not limited to:

- site details
- access details
- drawings
- plans
- identification books/Apps
- previous data collection
- site history
- pruning history
- schedules
- specifications
- method statements
- Standard Operating Procedures (SOPs)
- manufacturer's instructions
- customer requirements/instructions

Carry out tree surveys and inspections

- quality assurance requirements
- industry standards (e.g. British Standards)
- verbal or written instructions
- industry guidance (e.g. FISA, NTSG)
- proprietary risk assessment methodologies

Inventory: (see Data recording) - a schedule listing of all data required to meet the purpose and requirements of the survey/inspection e.g. facts of tree species and size to aid identification, tree location GPS and mapping co-ordinates, plus opinions including conclusions, recommendations and priorities. Spreadsheets are often used to aid the sorting and filtering of data.

Organisational procedures refer to procedures set by the organisation you are employed by or the organisation that you are doing the work on behalf of (the client or customer)

Pests and diseases

A full list of UK tree pests and diseases can be found at <https://www.gov.uk/guidance/find-a-specific-tree-pest-or-disease>

A list of notifiable tree pests and diseases can be found at <https://planthealthportal.defra.gov.uk/pests-and-diseases/pest-and-disease-alerts/notifiable-diseases/#>

Safe System of Work (SSoW) - is a method of work that puts in place control measures arising from a risk assessment, in order to manage identified hazards, which are broken down into four elements: safe person; safe equipment; safe place; and safe practice.

Survey: recording (and where appropriate mapping) the presence, position and condition of trees within a defined area

Tree survey zone: (see Data recording) – the clearly defined area to be subject to tree inspections and limit the extent of the survey. It may be described in a written specification for a few trees over a small area (e.g. a residential garden), or by referencing a visually defined area on a map (e.g. within the red line on a referenced map).

Value of trees such as an amenity, wildlife, habitat, historical, ancient, veteran, rarity or monetary value

Visual tree assessment (VTA) - provides a systematic and consistent approach to tree risk assessment.

The process has three stages, starting with visual inspection of tree health and biomechanical form to identify symptoms of significant abnormalities. Where these are identified further investigation is carried out, usually involving less invasive equipment such as sound waves, micro-drilling, collection of unidentified fungi, pests and diseases or leaf vitality equipment. If the abnormality is confirmed, it may require more invasive investigation by taking samples to determine strength loss, such as by using increment cores. Or it may involve follow-up off-site analysis to confirm tree pest, fungi or disease type and significance.

Additionally, the assessment should address the surrounding environment in which the trees are growing to include tree and site history.

Walk-over inspection – undertaken on foot, checking trees over a wide area such as with highway trees. It may not be possible to observe each tree from every aspect due to boundaries and undergrowth. A judgement is then made to determine the requirement for closer inspection.

Links to other NOS

LANTw35 Compile a forest or woodland inventory.

Carry out tree surveys and inspections

Developed by Lantra

Version Number 3

Date Approved 30 Apr 2024

Indicative Review Date 30 Apr 2029

Validity Current

Status Original

Originating Organisation Lantra

Original URN LANTw65

Relevant Occupations Horticulture, Arboriculture and forestry

Suite Horticulture, Treework

Keywords trees; surveys; inspections; species; condition; risk, safety; data collection; recommendations; reporting
