

ECS 2: Basic Felling

ASSESSMENT ACTIVITIES	ASSESSMENT CRITERIA	
<p><b>What the chainsaw operator must be able to do:</b></p>		
<p>1. safeguard and maintain your own health and safety and that of those likely to be affected by your work</p>	<p>i.</p>	<p>PPE in accordance with health and safety requirements and Risk Assessment:</p> <ul style="list-style-type: none"> <li>- Chainsaw safety trousers</li> <li>- Chainsaw safety boots</li> <li>- Safety helmet</li> <li>- Eye &amp; ear protection</li> <li>- Chainsaw gloves</li> <li>- Non-snag outer clothing</li> <li>- Personal First Aid Kit</li> <li>- Whistle</li> </ul>
	<p>ii.</p>	<ul style="list-style-type: none"> <li>- The conditions of the site, including terrain, soil and weather must be considered.</li> <li>- Identify the correct trees to be felled by agreed method</li> <li>- A safe working distance of at least two tree lengths between workers must be maintained.</li> <li>- No unauthorised person within two tree lengths, or directly below on steep slopes.</li> <li>- Working in a 'pairing system' so that regular contact with partner is maintained.</li> <li>- No felling if wind conditions are such that control over the felling direction will be lost.</li> <li>- Ensure that all underground and overhead way-leaves have been accurately identified before felling commences.</li> <li>- Ensure a clearance zone of two tree lengths is established each side of an overhead power line.</li> <li>- Use of natural felling bench where available to aid ergonomic working.</li> <li>- Signs must be erected warning others of the work carried out.</li> <li>- Additional measures taken if public likely to enter the two tree length exclusion zone, e.g. banks-man (look-out) near paths etc.</li> </ul>
<p>2. maintain the safety and security of equipment</p>	<p>i. Check and prepare chainsaw for felling work</p>	<ul style="list-style-type: none"> <li>- Chain tension and condition checked for safe and effective use</li> <li>- Safety features checked for condition and function</li> <li>- External nuts and bolts checked for security</li> <li>- Chainsaw contains sufficient fuel and chain oil for operations</li> </ul>
<p>3. maintain effective teamwork</p>	<p>i.</p>	<p>Appropriate steps should be taken to maintain effective teamwork in respect of other persons on site during the assessment. This may include taking steps to ensure effective communication and safety precautions.</p> <ul style="list-style-type: none"> <li>-</li> </ul>
<p>4. take appropriate action in the event of unforeseen circumstances</p>	<p>i. Summarise emergency planning and procedures for the site using the actual emergency plan for that site</p>	<p><b>EMERGENCY PLANNING</b>            Emergency Planning information should include:</p> <ul style="list-style-type: none"> <li>- Location name (Site location name, Street name/district)</li> <li>- Map reference</li> <li>- Designated meeting place (useful in remote areas to guide the emergency services to the worksite)</li> <li>- Nearest access point</li> <li>- Type of access (public road/light vehicles, four-wheel drive)</li> <li>- Suitable helicopter landing area</li> <li>- Phone number of nearest doctor</li> <li>- Location of nearest Accident and Emergency hospital and Phone number</li> <li>- Manager contact details (Radio call sign / Phone number / Mobile number)</li> <li>- Your own contact number / Mobile number</li> <li>-</li> </ul>

<p>5. brash trees and remove buttresses to the given specification</p>	<p>i. Prepare the tree for felling by safe brashing</p>	<p>Remove low branches taking into account:</p> <ul style="list-style-type: none"> <li>- Correct "break-in"</li> <li>- Position of the saw in relation to the operator, bar on opposite side of stem</li> <li>- Height to which branches are removed</li> <li>- Saw body not above shoulder height</li> <li>- Operating technique</li> <li>- Brashing close to the stem</li> </ul>
	<p>ii. Demonstrate knowledge of the dangers of using a pushing chain</p>	<ul style="list-style-type: none"> <li>- The saw can run back on the chain towards the operator pushing him/her off balance, contacting body with blade or causing kickback injury</li> <li>- The saw must be pushed in close to the tree and out of line of the body to prevent this happening, avoiding using pushing chain on heavier branches</li> </ul>
<p>6. select a felling method which is relevant to the tree size and condition</p> <p>7. fell trees using appropriate felling aids in a safe and ergonomic way</p>	<p>i. Fell a tree <i>as near to upright as possible</i> in the required direction accurately.</p>	<ul style="list-style-type: none"> <li>- Choice of felling direction made</li> <li>- Escape route(s) prepared and selected</li> <li>- Tree Inspected for signs of rot or decay e.g. Fungal growth <ul style="list-style-type: none"> <li>Cavities</li> <li>Die back</li> </ul> </li> <li>- Explain methods of felling unsafe trees</li> </ul> <p>A sink is cut to determine felling direction, using:</p> <ul style="list-style-type: none"> <li>- Safe stance</li> <li>- Top sink cut at an appropriate angle and height</li> <li>- Bottom sink cut as near to ground level as practicable</li> <li>- Cuts of appropriate depth</li> <li>- Sink cuts meet accurately</li> <li>- Sink facing in the chosen direction of fall</li> <li>- Chain brake used appropriately</li> </ul> <p>The main felling cut/s made using:</p> <ul style="list-style-type: none"> <li>- Safe stance</li> <li>- "Ears" cut at appropriate depth and height to avoid tearing</li> <li>- Level cut(s) at appropriate height at or above level of sink</li> <li>- "Pushing chain" or "pulling" chain</li> <li>- Safe withdrawal of the saw</li> <li>- Chain brake as appropriate</li> </ul> <ul style="list-style-type: none"> <li>- A hinge is retained of adequate dimensions</li> <li>- Appropriate aid tools are used safely if required to fell tree</li> <li>- A prepared escape route is used as soon as the tree begins to fall</li> <li>- Site checked for safety once tree has fallen</li> </ul>
	<p>iii. Fell a tree which is slightly weighted <u>against</u> the intended felling direction</p>	<ul style="list-style-type: none"> <li>- Determine felling method and safe working zones</li> <li>- Select and prepare escape route(s)</li> <li>- Prepare a sink of the correct dimensions</li> <li>- Felling cuts made and felling aid employed using a safe and effective felling method (e.g. a "step cut" technique using a felling lever)</li> <li>- A hinge is retained of adequate dimensions</li> <li>- Appropriate aid tools are used safely if required to fell tree</li> <li>- A prepared escape route is used as soon as the tree begins to fall</li> <li>- Site checked for safety once tree has fallen</li> </ul>
<p>8. delimb trees to the given specification in a safe and ergonomic way</p>	<p>i. Branches are removed from the tree using the lever and/or pendulum method</p>	<p>Safe Working Practice will include:</p> <ul style="list-style-type: none"> <li>- Correct stance and support of the saw on tree or right leg</li> <li>- Left thumb around the front handle</li> <li>- Neither handle released while the chain is moving</li> <li>- Apply chain brake if reaching across bar</li> <li>- Apply chain brake when negotiating obstacles</li> </ul> <p>Avoid:</p> <ul style="list-style-type: none"> <li>- Walking when saw is on same side of tree as operator</li> <li>- Reaching too far round with saw on far side of tree</li> <li>- Cutting towards legs or body</li> <li>- Using tip of guide bar</li> <li>- Overreaching with chainsaw</li> <li>- Straddling the stem</li> <li>- Working on lower side of tree on side slopes</li> </ul>

	ii.	Choice of work method: <ul style="list-style-type: none"> <li>- Systematic Sequence of cuts and position of the saw to remove branches as appropriate for the branching habit</li> <li>- All branches removed flush with the stem.</li> </ul>
	iii. Remove the top of the tree.	<ul style="list-style-type: none"> <li>- Cut top at appropriate diameter</li> <li>- Remove top with a safe method of cutting</li> <li>- Dispose of top according to Job Specification</li> </ul>
	iv. Remove remaining branches	<ul style="list-style-type: none"> <li>- Turn stem using appropriate aid tools/techniques</li> <li>- Use stem for protection when removing remaining branches</li> <li>- Use a safe and effective method to sever remaining branches</li> <li>- Use under-sweep technique if applicable</li> <li>- All branches removed flush with the stem.</li> </ul>

ASSESSMENT ACTIVITIES	ASSESSMENT CRITERIA	
<b>What the chainsaw operator must know and understand:</b>		
(a) how to identify hazards and comply with the control procedures of risk assessments	i. Explain how to identify hazards and comply with the control procedures of risk assessments	<p>Risk Assessment should cover the following:</p> <ul style="list-style-type: none"> <li>- Sites (information from walking the site and Site Specific Risk Assessment documentation)</li> <li>- Tasks (information from job specification / method statements, safety guides)</li> <li>- Machines (information from manufacturer's guidance / industry guidance notes)</li> </ul> <p>Risk Assessment should:</p> <ul style="list-style-type: none"> <li>- Identify significant hazards</li> <li>- Evaluate the risks and to whom</li> <li>- Indicate control measures required</li> <li>- Be written down</li> <li>- Be communicated to all other operators and reviewed / monitored</li> </ul>
(b) Electrical emergency procedures		
	ii.	<p><b>ELECTRICAL EMERGENCY PLANNING</b></p> <p>Current guidelines on safety clearances from overhead and underground services:</p> <ul style="list-style-type: none"> <li>- As per national guidelines for Electricity at Work</li> <li>- Safety distances must be observed</li> <li>- Safety distances depend on task undertaken and voltage concerned</li> <li>- Identify hazardous overhead or underground services at the worksite</li> </ul> <p>What to do in the event of contact with e.g. overhead / underground power lines, gas mains etc.</p> <ul style="list-style-type: none"> <li>- Give electric company or emergency services contact details</li> <li>- Site evacuation procedures may be necessary ('Bunny-hop' away from power cables, do not walk)</li> <li>- Power may be restored to the line automatically</li> <li>- Do not go near or touch any person or tree that is touching or very near a power line</li> <li>- Warn others to keep away.</li> </ul>

(c) how and why to initiate and maintain effective communication	i. Explain why it is important to initiate and maintain effective communication with others	<p>When working as a member of a team:</p> <ul style="list-style-type: none"> <li>- obey safety distance guidelines</li> <li>- wear high-visibility clothing</li> <li>- warn and prevent access to others who may approach working area</li> <li>- All operators to carry something, eg; whistle to raise the alarm in the event of an accident</li> </ul> <p>Other precautions on a work site would include:</p> <ul style="list-style-type: none"> <li>- Relevant authorities informed about work</li> <li>- Warning signs erected</li> <li>- Exclusion zones / barriers set up if appropriate</li> <li>- Suitable additional controls to protect users of roads, paths and tracks (e.g. stop/go boards)</li> <li>- 'Banks-man' / lookout posted if appropriate</li> </ul>
(d) how to recognise signs of disease and decay in trees and the effects of these on safety		<ul style="list-style-type: none"> <li>- Fungal fruiting bodies</li> <li>- Loose bark</li> <li>- Dying or no foliage</li> <li>- Old, damaged bark</li> <li>- Rotting</li> <li>- Ground cracks</li> <li>- Insect damage</li> <li>- Nest holes</li> </ul> <p>Effects on safety</p> <ul style="list-style-type: none"> <li>- Weakens timber</li> </ul>
(e) how to take down hung up trees safely and in line with industry guidelines	i. Partially sever the hinge with the chainsaw	<ul style="list-style-type: none"> <li>- Correct stance</li> <li>- Safe position to side of tree</li> <li>- Position and angle of cuts</li> <li>- Cutting technique for removal of appropriate part of the hinge</li> <li>- Safe withdrawal of the saw</li> <li>- Part(s) of hinge are left attached appropriate to take down method utilised</li> <li>- Safe placement of the saw on completion of cuts</li> </ul>
	ii. Take down the tree using hand tools	<ul style="list-style-type: none"> <li>- Aid tool positioned and attached safely &amp; effectively</li> </ul> <p>Aid tool operated using:</p> <ul style="list-style-type: none"> <li>- Straight back</li> <li>- Correct pushing technique</li> <li>- Correct lifting technique</li> <li>- Correct grip</li> <li>- Repositioning aid tool</li> <li>- Not working in danger areas</li> <li>- Releasing aid tool as tree falls</li> <li>- Use escape route(s).</li> </ul> <ul style="list-style-type: none"> <li>- If tree does not fall through roll out technique, remnant of hinge removed by safe method (if still attached) &amp; tree is "walked" down with e.g. a wooden pole</li> </ul> <ul style="list-style-type: none"> <li>- Tree in a stable condition on the ground</li> </ul>
(f) how to use a hand-powered winch and hand tools for the take-down of hung up trees	i. Take down a hung up tree using a hand winch	<ul style="list-style-type: none"> <li>- Stump Shaped (if applicable) e.g. by cutting a ramp</li> <li>- Supporting remnants of hinge is taken off with e.g. small angled cuts from side of tree</li> <li>- Winch setup taking into consideration: <ul style="list-style-type: none"> <li>- Position of strop on the butt</li> <li>- Attachment of winch cable to strop</li> <li>- Position and anchorage of winch</li> </ul> </li> <li>- Communication with winch operator is clearly established (if applicable)</li> <li>- Appropriate PPE is used to handle cable</li> </ul>
(g) how to recognise situations where a powered winch is appropriate	i. Demonstrate knowledge of correct procedures to be adopted when a hung up tree cannot be taken down by the use of hand tools	<ul style="list-style-type: none"> <li>- Tree is taken down with a winch</li> <li>- Tree is taken down through use of machinery e.g. Forwarder/lift truck</li> <li>- Tree is marked off with warning tape and a supervisor informed</li> </ul>

(h) the implications of terrain, ground conditions, season, weather and species	i. Describe the implications of terrain, ground conditions, season, weather and timber type and condition	<p>Appropriate PPE / additional clothing may be required for:</p> <ul style="list-style-type: none"> <li>- Dry or fungus infested timber produces dust</li> <li>- Thorny / shattered timber that can cause injury</li> <li>- Tree saps that may be toxic material</li> <li>- Contamination of ground or timber by harmful material e.g. sewage / waste / rat urine</li> <li>- Weather becomes very cold or very wet</li> </ul> <p>Additional precautions may be required if:</p> <ul style="list-style-type: none"> <li>- Weather becomes windy (eg force 6)</li> <li>- Dry conditions create a Fire hazard</li> <li>- Working above, below or on slopes / steep ground</li> <li>- Working in very hot or dry conditions</li> <li>- Ground frozen or obscured by snow</li> <li>- Harmful insects are present</li> <li>- Presence of harmful biological materials, eg as specified in EU legislation</li> <li>- Working near waterway lakes / ponds / boggy ground</li> <li>- Branches / crown overhead is dead / brittle /storm damaged / squirrel damaged / snow laden</li> </ul>
(i) causes of, and how to prevent, potential pollution and environmental damage	i. Describe the causes of, and how to prevent potential pollution and environmental damage	<p>Spillage of environmentally hazardous liquids eg: petrol, diesel, urea can:</p> <ul style="list-style-type: none"> <li>- Cause harm to the environment (particularly aquatic plants and animals)</li> <li>- Contaminate drinking water supplies.</li> <li>- Cause hazards to human health</li> </ul> <p>Plan and set up and use fuelling and maintenance points in secure areas</p> <ul style="list-style-type: none"> <li>- All debris resulting from cleaning operations is correctly disposed of</li> <li>- pollution control equipment should be available on site (e.g. spill kit)</li> <li>- Vegetable chain oils are not toxic to the operator or plants and pose less of a hazard to the environment</li> </ul> <p>An appropriate fuelling site would be:</p> <ul style="list-style-type: none"> <li>- A safe distance from buildings</li> <li>- In a shaded area away from work and equipment</li> <li>- A safe distance from any source of ignition</li> <li>- Away from a main fuel store</li> <li>- A position selected to minimise damage to the environment</li> </ul> <p>Emergency procedures should be put in place and followed if there is a spill.</p> <ul style="list-style-type: none"> <li>- minimise any pollution incident</li> <li>- Any major incidents should be reported to the relevant environmental agency or Emergency Services</li> </ul>
(j) your own role in work systems and procedures	i. Summarise your own role in company working practices and industry good practice	<p><b>PPE</b> should be:</p> <ul style="list-style-type: none"> <li>- Identified and worn appropriately in accordance with current best practice guidance</li> <li>- Other PPE worn as highlighted by a Risk Assessment</li> <li>- Marked with an EN number</li> <li>- Within any date limits and undamaged</li> <li>- Maintained / cleaned / stored / transported correctly</li> </ul>
	ii.	<p><b>NOISE</b></p> <p>Possible hazards include:</p> <ul style="list-style-type: none"> <li>- Noise pollution (public nuisance)</li> <li>- Noise hazard to other workers</li> <li>- Noise hazard to operators</li> </ul> <p>Possible control methods:</p> <ul style="list-style-type: none"> <li>- Avoid operation in enclosed spaces</li> <li>- All operators wear suitable ear protection</li> <li>- Rotate work with other workers or other operations</li> <li>- Avoid working in close proximity to machinery</li> <li>- Have an adequate exclusion zone for bystanders</li> </ul>

	iii.	<p><b>VIBRATION</b></p> <p>Vibration is transmitted</p> <ul style="list-style-type: none"> <li>- Into your hands and arms from hand-held powered tools (e.g. chainsaw!)</li> </ul> <p>Regular exposure to vibration can cause Hand Arm Vibration Syndrome (HAVS):</p> <ul style="list-style-type: none"> <li>- Vibration white finger</li> <li>- Carpal tunnel syndrome</li> </ul> <p>HAVS</p> <ul style="list-style-type: none"> <li>- Affects the nerves, blood vessels, muscles and joints of the hand, wrist and arm.</li> <li>- May involve pain, tingling, numbness and weakness in parts of the hand</li> <li>- It can become severely disabling if ignored.</li> </ul> <p>The effect is reduced by:</p> <ul style="list-style-type: none"> <li>- Checking tools before use that properly maintained and repaired</li> <li>- Make sure cutting chain is kept sharp so that the saw works efficiently.</li> <li>- Reduce the amount of time you use a saw in one go, by doing other jobs in between</li> </ul>
	iv.	<p><b>MANUAL HANDLING</b></p> <p>Reduce the risk of muscular/ skeletal injury when manually handling machinery, equipment, timber or arisings:</p> <ul style="list-style-type: none"> <li>- Use aid tools such as timber tongs</li> <li>- Use safe lifting techniques (bend knees and keep back straight, etc.)</li> <li>- Pivot loads rather than carry them</li> <li>- Move the lightest pieces to the heavy pieces</li> <li>- Drag, roll, move end over end</li> <li>- Maintain correct stance when using tools (e.g. chainsaw)</li> <li>- Do not handle items that are too heavy or awkward</li> <li>- Prepare material to reduce length and/or weight if possible</li> </ul>
	v.	<p><b>FIRST AID</b></p> <ul style="list-style-type: none"> <li>- Ideally a person qualified in First Aid at Work should be present as per national guidelines</li> <li>- A regulation First Aid Kit must be immediately available to a work team</li> <li>- A vehicle should always be available on site</li> <li>- A pairing ( 'buddy' ) system should be used</li> <li>- A personal First Aid Kit should be carried</li> </ul>
(k) the legal requirements for felling trees in different circumstances	<p>i. Demonstrate knowledge of the legal constraints in relation to proposed tree felling.</p> <p>ii. Demonstrate knowledge of the environmental considerations which may affect tree felling.</p>	<ul style="list-style-type: none"> <li>- A Felling Licence may be required</li> <li>- Legally protected trees</li> <li>- Conservation areas</li> <li>- Legal protection for species and habitats</li> </ul> <ul style="list-style-type: none"> <li>- Environmental protection guidelines recommended for sites eg: Water Guidelines</li> <li>- Protection of wildlife</li> <li>- Legally protected sites, Nature reserves etc</li> <li>- Archaeological and historic features</li> <li>- Amenity or Landscape considerations</li> </ul>
(l) difference between delimiting conifers and broadleaves	<p>i. Explain principles of snedding conifers</p> <p>ii Explain techniques of delimiting broadleaves</p>	<ul style="list-style-type: none"> <li>- systematic structure</li> <li>- repetitive sequence of cuts</li> <li>- ergonomic movements</li> <li>-</li> <li>- careful assessment of individual branches</li> <li>- tension &amp; compression</li> <li>- primary and secondary cuts</li> <li>- danger of splitting and cracking</li> </ul>