

# Model Answers

**Domain** Forestry > Forest Operations

**Unit** 17772 v6 Demonstrate knowledge of environmental requirements in forestry operations Level 3 Credits 5

## Entry information

There are no pre-requisite requirements for this unit.

# Assessment instructions

## You will need to be able to show you can:

- Describe environmental considerations for forestry.
- Demonstrate knowledge of legislation that impacts on environmental management of commercial forestry.
- Describe the environmental requirements for a specific forestry operation in terms of the job prescription.

## Important information

- Carefully read through the rest of this Assessment so you know exactly what is expected.
- All evidence you provide for this assessment must be your own work.
- Clearly name and label all attached evidence.

## What you need to do



**Question Set 1 – Environmental Considerations**



**Question Set 2 – Legislation**



**Question Set 3 – Environmental Requirements**

You can also attach additional evidence which shows you have the required skills and knowledge, e.g. photos, worksite documents, checklists, work samples, videos.

# Unit standard information

## Definitions

- *Accepted industry practice* – approved codes of practice and standardised procedures accepted by the wider forestry industry as examples of best practice.
- *Forestry operations* - include forest establishment, silviculture, harvesting, forest inventory, and forest and crew management.
- *Job prescription* - refers to any written instructions for the operation and may include maps, harvest plans or cut plans.
- *Worksite procedures* - refer to documented procedures used by the organisation carrying out the work and applicable to the tasks being carried out. They may include but are not limited to – standard operating procedures, site safety procedures, equipment operating procedures, quality assurance procedures, housekeeping standards, procedures to comply with legislative and local body requirements.

## References

- New Zealand Forest Owners Association, *Forest Practice Guides* (2019), and any subsequent amendments, available from <http://www.nzfoa.org.nz>. (**Note** – these guides support the NES-PF and have replaced the *New Zealand Environmental Code of Practice* for Plantation Forestry referenced in the unit, which is now out-of-date).
- *Approved Code of Practice (ACOP) for Safety and Health in Forestry Operations*, December 2012, available from <http://www.worksafe.govt.nz>.

## Legislation

The following legislation (law) applies to this unit standard:

- Resource Management Act 1991.
- Resource Management (National Environmental Standards for Plantation Forestry) Amendment Regulations 2018.
- Heritage New Zealand Pouhere Taonga Act 2014; and any subsequent amendments.

# Unit standard evidence map

Unit 17772 v6		Demonstrate knowledge of environmental requirements in forestry operations	Level 3	Credits 5
Outcomes and Performance Criteria		Evidence	No.	
<b>Outcome 1:</b> Describe environmental considerations for forestry.				
1.1	Natural and physical resources associated with commercial forestry are identified.	Question Set 1	1	
1.2	The positive environmental effects of plantation forestry are described. Range: clean water and air, wildlife habitat, land stability, recreation, flood mitigation, employment.	Question Set 1	2	
1.3	The potential adverse environmental effects of forestry operations are described. Range: may include but is not limited to – erosion, soil displacement, reduced water quality, reduced air quality, negative impacts on aquatic life, compaction, damage to historic sites, damage to neighbouring properties, damage to physical resources, public impressions, over spray, chemical spray, debris in the water table; evidence is required of three effects related to the operation the candidate is working in.	Question Set 3	1a,c	
<b>Outcome 2:</b> Demonstrate knowledge of legislation that impacts on environmental management of commercial forestry.				
2.1	The main purpose of the Resource Management Act is described.	Question Set 2	1	
2.2	Plantation forestry activities the candidate is undertaking, that are covered by NES-PF are identified. Range: three activities.	Question Set 2	3a-c	
2.3	The main purpose of the Heritage New Zealand Pouhere Taonga Act 2014 is described.	Question Set 2	2	
2.4	Consequences of failing to meet the environmental requirements of the job prescription are explained. Range: re-work, fines, imprisonment, loss of contract.	Question Set 2	4	


<p><b>Outcome 3:</b> Describe the environmental requirements for a specific forestry operation in terms of the job prescription.</p> <p>Range one of the following operations – land preparation, forest harvesting, forest establishment and silviculture, forest roading.</p>			
3.1	<p>The job prescription for the forest operation is described in terms of the environmental constraints on the operation.</p> <p>Range: three constraints related to the candidate's operation.</p>	Question Set 3	1a,b,c
3.2	<p>The environmental values that may be at risk from the forestry operation are identified.</p>	Question Set 3	1a,c
3.3	<p>The person who has overall responsibility for ensuring compliance with environmental legislation, and worksite procedures, at a worksite is identified.</p>	Question Set 3	2
3.4	<p>Methods of communication to make workers aware of environmental requirements specific to their operation are explained.</p> <p>Range: methods of communication specific to the candidate's role and operation; may include but is not limited to – job prescription, harvest plan, verbal instructions, daily meetings.</p>	Question Set 3	3
3.5	<p>The terms <i>environmental incident</i> and <i>environmental emergency</i> are explained in accordance with accepted industry practice and worksite procedures.</p>	Question Set 3	4
3.6	<p>Reporting of an environmental incident or emergency is described in accordance with accepted industry practice or worksite procedures.</p>	Question Set 3	5a-c



## Question Set 1 – Environmental Considerations

These questions are about natural and physical resources, and the positive and negative effects of forestry operations.

Use your own words. Your assessor may ask you more questions to check your understanding.

1. Give **four** examples of physical, and **three** examples of natural resources associated with commercial forestry. 

### Assessor

This question supports PC 1.1.

### Judgement statement

- The candidate correctly identifies **three** natural and **four** physical resources associated with commercial forestry.

### Example answers

Physical examples may include:

- Powerline/cable
- Roads
- Bridges
- Boundary farm fences

Natural examples may include:

- Water way (as in stream or river)
- Native trees/bush
- Soil

2. Describe the positive environmental effect plantation forestry has on each factor.

### Assessor

This question supports PC 1.2.

### Judgement statement

- The candidate correctly describes the positive environmental effects of plantation forestry on each of the **seven** factors listed.

### Example answers

Factors	Positive environmental effect
<b>Air quality</b>	<ul style="list-style-type: none"> <li>Planting trees which absorb harmful carbon dioxide and give off oxygen.</li> </ul>
<b>Water quality</b>	<ul style="list-style-type: none"> <li>Aerating the soil which rain water passes through before it returns to the streams, lakes and river.</li> <li>Reducing soil run-off into streams and rivers.</li> </ul>
<b>Wildlife habitat</b>	<ul style="list-style-type: none"> <li>Providing shelter and food for animals.</li> </ul>
<b>Land stability</b>	<ul style="list-style-type: none"> <li>Planting trees. The tree roots help to stop slips and bind stream banks.</li> </ul>
<b>Recreation</b>	<ul style="list-style-type: none"> <li>Providing facilities for walking, fishing, horse riding, mountain biking etc.</li> </ul>
<b>Flood control</b>	<ul style="list-style-type: none"> <li>Slowing down the rate rain hits the forest floor. This reduces the risk of flooding.</li> </ul>
<b>Employment</b>	<ul style="list-style-type: none"> <li>Providing jobs for forestry workers, other people who work in forestry companies, contractors and transport companies. They also can help to create jobs at sawmills, pulp mills and ports.</li> </ul>

**Assessor** – record key points from candidate’s verbal answers as accurately and fully as possible.

**These answers were written by:**


Candidate

Assessor

## Question Set 2 – Legislation

These questions are about legislation that impacts on environmental management of commercial forestry.

Use your own words. Your assessor may ask you more questions to check your understanding.

1. What is the main purpose of the Resource Management Act? 

### Assessor


This question supports PC 2.1.

### Judgement statement

- The candidate clearly understands the main purpose of the Resource Management Act.
- The candidate's answer can be in their own words.

### Example answer

The main purpose of the RMA is to promote the natural and physical resources of New Zealand.

2. What is the main purpose of the Heritage New Zealand Pouhere Taonga Act 2014? 

### Assessor

This question supports PC 2.3.


### Judgement statement

- The candidate clearly describes the main purpose of the Heritage New Zealand Pouhere Taonga Act 2014.

### Example answer

The main purpose of the Heritage New Zealand Pouhere Taonga Act 2014 is to promote and protect the historical and cultural heritage of New Zealand.



3. Name your current operation and **three** activities you carry out that are covered by the requirements of the Natural Environmental Standards for Plantation Forestry (NES-PF). 

### Assessor

This question supports PC 2.2.

### Judgement statement

- The candidate correctly identifies their current operation and **three** activities covered by the NES-PF.

### Example answers

#### Pruning operation

- Management of pruned slash near waterways.
- Removal of crew waste and rubbish.
- Management of work near protected sites/areas.

#### Planting operation

- Removal of empty tree boxes or bags.
- Management of crew waste and rubbish.
- Management of work near protected sites/areas.

#### Thinning operation

- Management of felled trees near waterways
- Management of felled trees near physical resources and protected sites
- Removal of crew waste and rubbish

#### Releasing operation

- Storage of chemicals.
- Management of chemical waste and containers.
- Management of chemical use near waterways and protected areas.
- Removal of crew waste and rubbish.

#### Harvesting operation

- Management of machine use and felling near waterways and protected areas.
- Management of slash and waste.
- Control of runoff.
- Removal of waste and rubbish.
- Management of extraction to reduce environmental harm.

4. Explain what happens for each consequence when you fail to meet the environmental requirements of the job prescription.



### Assessor

This question supports PC 2.4.

### Judgement statement

- The candidate correctly explains what happens for each consequence when they fail to meet the environmental requirements of the job prescription.

### Example answers

Consequence	Explanation
Re-work	The operation could be asked to fix any damage.
Fines	The employer could face a fine of up to \$600,000.00. Employees could face a fine of up to \$300,000.00.
Imprisonment	Employees could go to prison for up to 2 years.
Loss of contract	The operation could be shut down.

**Assessor** – record key points from candidate's verbal answers as accurately and fully as possible.


**These answers were written by:**

Candidate

Assessor

## Question Set 3 – Environmental Requirements

These questions are about the environmental requirements of your current operation.  
Use your own words. Your assessor may ask you more questions to check your understanding.

1. Check the job prescription for your current operation and answer the following questions. 

### Assessor

This question supports PC 1.3, 3.1 and 3.2.

### Judgement statements

- The candidate identifies the correct type of operation covered by the job prescription.
- The candidate clearly describes the environment constraints that must be met for the operation.
- It is clear that the candidate understands the environmental values at risk from the operation.
- The candidate correctly describes **three** potential adverse environmental effects and their causes.
- Adverse effects may include but are not limited to - erosion, soil displacement, reduced water quality, reduced air quality, negative impacts on aquatic life, compaction, damage to historic sites, damage to neighbouring properties, damage to physical resources, public impressions, over spray, chemical spray, debris in the water table.

### Example answers

- a. What type of operation is it?

- Land preparation
- Harvesting
- Establishment and silviculture
- Roding

**One** box must be ticked.

- b. What are the environmental constraints and/or specific requirements that must be met?

Give at least **three**.

Answer will be specific to the candidate's operation.

- c. Describe **three** potential negative effects your current operation could have on the environment.

For each:

- Describe what could cause it.
- Tick the values at risk.

Environmental effect	Cause	Values at risk
Soil erosion and run-off	Erosion is caused by the removal of the protective vegetation cover.	<input checked="" type="checkbox"/> Soil and Water <input checked="" type="checkbox"/> Scenic and Landscape <input type="checkbox"/> Historic and Heritage <input type="checkbox"/> Scientific Values <input checked="" type="checkbox"/> Ecological <input type="checkbox"/> Recreational
Soil displacement or soil movement	Soil displacement is caused by the movement of large quantities of earth to form roads, landings, tracks, and other earthworks in the forest by machine operations.	<input checked="" type="checkbox"/> Soil and Water <input checked="" type="checkbox"/> Scenic and Landscape <input type="checkbox"/> Historic and Heritage <input type="checkbox"/> Scientific Values <input checked="" type="checkbox"/> Ecological <input type="checkbox"/> Recreational
Reduced water quality	Reduced water quality is caused by sediment run-off.	<input checked="" type="checkbox"/> Soil and Water <input type="checkbox"/> Scenic and Landscape <input type="checkbox"/> Historic and Heritage <input type="checkbox"/> Scientific Values <input type="checkbox"/> Ecological <input type="checkbox"/> Recreational
Reduced air quality	Reduced air quality is caused by machine operations, burning to clear land, tree pollen, dust, spray drift from agrichemicals.	<input type="checkbox"/> Soil and Water <input type="checkbox"/> Scenic and Landscape <input type="checkbox"/> Historic and Heritage <input type="checkbox"/> Scientific Values <input checked="" type="checkbox"/> Ecological <input type="checkbox"/> Recreational

Negative impact on aquatic life	Negative impact on aquatic life is caused by smothering of stream beds due to sediment run-off.	<input checked="" type="checkbox"/> Soil and Water <input type="checkbox"/> Scenic and Landscape <input type="checkbox"/> Historic and Heritage <input type="checkbox"/> Scientific Values <input checked="" type="checkbox"/> Ecological <input type="checkbox"/> Recreational
Damage to public impressions	Damage to public impressions is caused by discarded waste, and excessive earthworks.	<input type="checkbox"/> Soil and Water <input checked="" type="checkbox"/> Scenic and Landscape <input type="checkbox"/> Historic and Heritage <input type="checkbox"/> Scientific Values <input type="checkbox"/> Ecological <input checked="" type="checkbox"/> Recreational

2. Who on your worksite is responsible for making sure everyone complies with environmental legislation and worksite procedures?

Give the person's name and job title.

#### Assessor

This question supports PC 3.3.

#### Judgement statement

- The candidate provides the name and job title of the person responsible for ensuring compliance with environmental legislation and worksite procedures.

#### Example answer

Answer will be specific to the candidate's operation.

3. Give **three** ways environmental requirements specific to your operation are communicated to you at your worksite.

#### Assessor

This question supports PC 3.4.

#### Judgement statement

- The candidate provides **three** ways environmental requirements specific to their operation are communicated to them at their worksite.

#### Example answers

Answer may include but is not limited to:

- Job prescription.
- Harvest plan.
- Verbal instructions.
- Daily meetings.

4. Explain the following **two** terms.

### Assessor

This question supports PC 3.5.

### Judgement statements

- The candidate correctly describes the meaning of each term.
- Answers are in accordance with accepted industry practice and worksite procedures.

### Example answers

Term	Meaning
<b>Environmental incident</b>	<ul style="list-style-type: none"><li>• Incidents are events that may have resulted from non-compliance with regulatory requirements and/or may have caused adverse effects to the environment.</li></ul>
<b>Environmental emergency</b>	<ul style="list-style-type: none"><li>• An incident which has to be fixed immediately because of how quickly or greatly it could harm the natural environment, people or property.</li></ul>

5. Answer questions 5a – 5c about how you would report an environmental incident or emergency at your worksite?

### Assessor

This question supports PC 3.6.

### Judgement statements

- The candidate clearly describes the process for reporting an environmental incident or emergency at their worksite.
- Answers are in accordance with accepted industry practice and worksite procedures.

### Example answers

a. Who would you report to?

My supervisor.



b. How would you report it?

I would talk to them as soon as possible.

c. What documentation must be completed?

I would complete an incident report.

**Assessor** – record key points from candidate's verbal answers as accurately and fully as possible.

**These answers were written by:**

Candidate

Assessor