



**TARONG ENERGY CORPORATION LIMITED**  
**OCCUPATIONAL HEALTH & SAFETY PROCEDURE FOR**  
**WORKING WITH LADDERS**  
**OHS-PROC-107**

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**THIS DOCUMENT IS UNCONTROLLED IN HARD COPY FORMAT**

## 1.0 Purpose:

The purpose of this procedure is to ensure that all employees have basic knowledge on the selection and safe use of ladders in the workplace. Portable ladders used on site shall comply with the requirements of the AS1892 series of Australian standards. Ladders are to be used as a means of getting to and from a work area rather than being used as a work platform. If using a ladder is the only practical means of performing the task, then it shall be used in a safe manner and shall be correctly secured before use. A second person may be required to assist in securing the ladder.

The types of tasks which can be performed safely from a ladder are limited. A second system of control, (such as using a harness attached to a suitable anchor point), shall be used if there is any potential for overbalancing leading to a fall.

## 2.0 Scope:

This procedure shall apply to all Tarong Energy employees, visitors, contractors and their employees.

## 3.0 Procedure:

Before using a ladder, ensure the following general principles are observed:


- Portable ladders shall only be used to gain access or when doing simple operations.
- Mobile platforms or scaffolding shall be used for lengthy or heavy work.
- Persons shall maintain continuous three (3) point contact whilst on a single or extension ladder.
- Persons shall climb no higher than the third rung from the top of a ladder. The top two rungs shall not be used.
- The surface on which the ladder is placed shall be firm and level.
- Choose the type and length of ladder appropriate to the task. (metal ladders are not to be used by workers where an electrical hazard exists)
- Ladders used at TEC sites must have a load rating of at least 120kg and be manufactured for industrial use.
- Ensure the ladder is in good working condition.
- That the ladder is placed in a safe working position.
- That the ladder is used in a correct manner.
- That the ladder is secure and lashed (or held if being used temporarily) in position.
- Do not leave unsecured ladders erected and unattended.
- Only one person to access the ladder at any one time unless specifically designed for more than one person.
- Tools, materials etc. are not to be carried in the person's hands while climbing

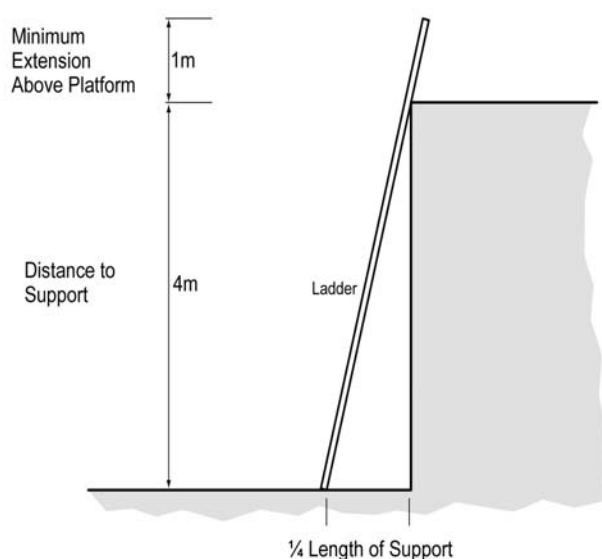
## 4.0 Safe use of Ladders

### 4.1. Ladder Positioning Key Points

Portable ladders shall be positioned on a substantial base and the following requirements shall be met:

- Wooden blocks, bricks or off-cuts shall not be used to level the feet of any ladder.
- A pitch ratio of 4 in 1 is required (the base of the ladder shall be 25% of its length from the vertical surface you are accessing).
- The ladder shall be positioned in such a manner as to have clear access top and bottom with the top of the ladder extending at least one metre above the landing you wish to access.
- The ladder shall be secured correctly at the top or footed.

 **Note:** If you put your toes against the feet of the ladder and grip a rung at shoulder height with your arms straight the pitch of the ladder will be approximately **4 in 1**.



### 4.2. Platform Steps:

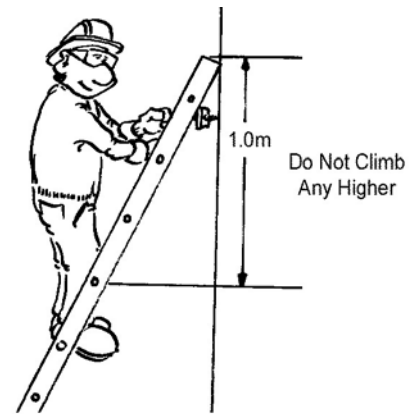
Only an approved safety step should be used to gain the required height. Items such as chairs, filing cabinets, tool boxes, milk crates, and old disused drums shall not be used as steps, as they create a hazard rather than prevent them.


### 4.3. Selecting a ladder:

Where possible and practical, alternative options should be considered first. Alternative options may include the use of ladder steps (hand railed platforms), scaffolding or elevated work platforms etc.

Any ladder selected shall be of sufficient length to ensure the following conditions are met:

- The ladder can be used at a slope no greater than 4 in 1.
- The ladder extends at least 1 metre above the platform to be reached.
- A person can stand at least 1 metre/ no higher than 3 rungs from the top of the ladder when in the working position.



 **Note:** The points listed below shall also be taken into consideration when making your selection.

- Self supporting step ladders are considered suitable for use in places where there is no support adjacent to the working point.
- There shall be sufficient space to use the step ladder in a fully spread position.
- Metal ladders and timber ladders with wire reinforcing shall not be used where an electrical hazard exists.
- Timber ladders should not be placed where they are subject to prolonged exposure to high temperatures.
- Consider the environment which aluminium ladders are to be used for chemical interaction as aluminium is highly reactive e.g. around caustic tanks etc.
- If a ladder cannot meet the above conditions, then some form of mobile platform or scaffold shall be used.
- The use of rope ladders is considered a last resort and their use requires a specific risk assessment.

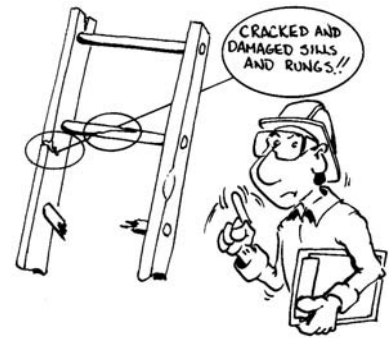
#### 4.4. Maximum Ladder Lengths:

The maximum lengths for ladders used on Tarong Energy sites are listed in the table below.

<b>MAXIMUM SAFE LENGTHS OF LADDERS</b>	
<b>Step Ladders</b>	<b>3 M.</b>
<b>Single Ladders</b>	<b>6.1 M</b>
<b>Extension Ladder</b>	<b>7.5 M.</b>
<b>Extension Ladder (only for electrical work)</b>	<b>9.2 M</b>


#### 4.5. Inspection of ladders:

Ladders shall be maintained in a good condition, clean and free from splinters. Rung and tread joints should be tight and fittings should be securely attached. Pulleys should be lubricated and all moving parts should operate freely without bending or undue play. Frayed or worn ropes shall be replaced. All ladders shall be fitted with anti slip footings.



Inspections of ladders shall be undertaken at the following frequencies:

- Before the first use by each person – informal / visual inspection.
- Formal inspection at intervals determined by the operating conditions, **Scheduled MST** (6 monthly) or as per Australian Standards.
- As soon as is practicable and prior to further use following an occurrence that could have affected the stability or adequacy of the work platforms or access equipment e.g. fire, earthquake, collision, overloading, and cyclone.

 **Note:** For formal inspections, it is recommended that the **Ladder Inspection Form T-1276** be used as a guide & record for inspection of ladders.

Before any ladder is used it shall be checked to ensure it is free from defects as follows:

- Loose steps or rungs that can be moved by hand;
- Slippery steps or rungs;
- Cracks or splits in steps, rungs or stiles;
- Splinters or burns on steps, rungs or stiles;
- Loose nails, bolts or other metal parts;
- Damaged or missing ties;
- Uneven footings or damaged or worn non-slip bases.

All TEC ladders will have a inspection tag attached to indicate the date for re-inspection.

**Step ladders** shall be checked before use for the following:

- Loose hinges;
- Ineffective spreaders;
- Wobbly ladder from side strain.




**Extension ladders** shall be checked before use for the

same possible defects as fixed ladders and also for the following:

- Defective clutches, stops, guide irons or pulleys.
- Deterioration of rope from wear or exposure to acid or other destructive materials.

Ladders may be treated with a protective coat of clear finish. They shall never be painted as this may hide defects. Any damaged or defective ladders shall be taken out of service and tagged - pending repair or destruction.

 **Note:** Under No circumstances shall any temporary repairs be made to a ladder.

#### 4.6. Storing Ladders:

Tarong Energy ladders will be secured (e.g. locked up or kept in a compound) by the various maintenance teams to prevent unauthorised use.

Ladders shall be maintained regularly to ensure their structural integrity. The following points are vital in achieving this situation.

- Ladders should be kept clean and dry and stored in cool well ventilated areas protected from the weather.
- Ladders should be stored so that they are easily accessible for use.
- Ladders stored in a horizontal position should be supported at a sufficient number of points throughout their length to prevent sagging or warping.
- Ladder locks, wheels and pulleys should be lubricated periodically.

#### 4.7. Carrying Loads on Ladders:

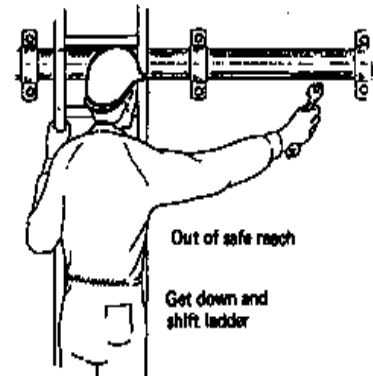
Awkward or heavy loads which prevent both hands being used on the ladder shall not be carried up or down the ladder. Any load shall be carried in such a way as to leave both hands free to enable a minimum of three points to remain in contact with the ladder at all times.



#### 4.8. Ladder Use - Key Points:

- Before climbing, clean any mud or grease from boots.
- Whether standing or moving on either a straight ladder or extension ladder, face the ladder end and be sure to have at least one hand free to grip the ladder at all times.
- When ascending or descending the ladder:
  - Move with a smooth careful action to avoid swaying or bouncing the ladder.
  - Hold on with both hands.
- Ensure any tools carried in pockets or pouches are secure.

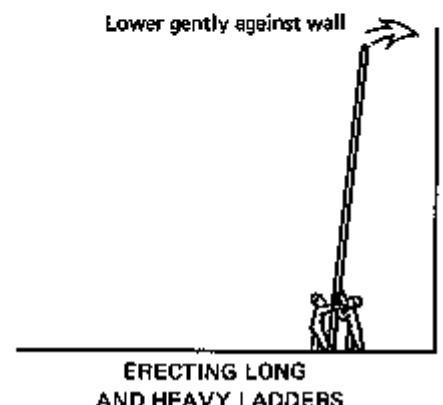
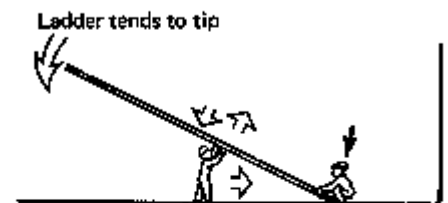
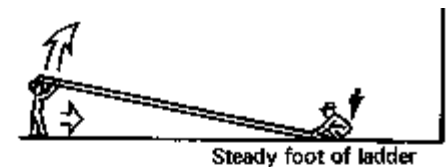
- Do not leave small tools or equipment on the top of step ladders (use a tool pouch instead).
- Use a rope to haul up tools and material required.
- Do not attempt to haul up heavy parts that could excessively load the ladder.
- Lash the top of the ladders to prevent the ladder slipping and overbalancing when hauling up heavy objects.
- The person's body shall remain in a stable position and within the stiles.
- Work that may restrict vision, such as welding, oxy cutting or drilling overhead, shall first be investigated using a *JSEA* (Job Safety and Environmental Analysis). If this work must be done from a ladder, control measures shall be put in place to prevent injury or a fall. A safety harness with a lanyard attached to an appropriate anchorage point must be worn.
- Do not reach too far from a ladder as this could cause the top of the ladder to slip, resulting in a fall.
- If **work is to be performed on a ladder** and the person's feet are to be more than 2 metres off of the ground – appropriate fall protection must be provided and used. If work is to occur under 2 metres off of the ground – the risk of injury from a fall must still be assessed and fall protection measures implemented if required.
- In certain instances, the **ascending or descending** of a ladder will expose a person to a fall risk and will require fall protection to be used (e.g. Chimney ladders, ladders located near the edges of platforms where fall risks over the handrail exist etc). Persons shall assess the risk of such situations and implement appropriate controls, (eg. Extend the height of the handrail).
- Where a ladder is used to provide access to a scaffold, it shall be done in accordance with OHS-PROC-105 Scaffolding Procedure.



#### 4.9. Step ladders:

The points listed above also apply to step ladders. Additionally:

- Ensure any step ladder has its legs in the fully spread position before climbing it.
- Always face the ladder.
- When working at maximum height (standing on the 3rd step from top), keep feet well spaced and brace legs against the ladder.
- Make all movement slow and careful.
- Only one person should be on a ladder at any time. Unless stated by the manufacturer that it is acceptable to have 2 people, one on each side



The procedure for lifting ladders is covered in Section 4.7 Transporting Ladders:

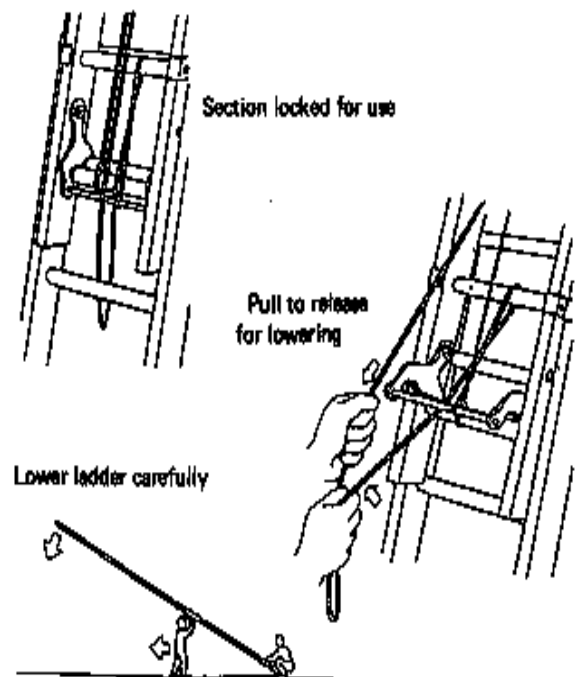
Before lifting any ladder into position it is important to stop and check that no personnel, overhead electrical wires or equipment will be contacted and that there is a safe, firm footing for the ladder. Short, light ladders can be lifted directly into position. Long and heavy ladders shall be erected as follows:

- Place ladder on ground at right angles to the wall or support.
- The feet should be about one quarter of the length of the ladder from the wall.
- Ensure that any reinforcing wire along the stile is on the side facing up and that any metal reinforcing rod is closer to the wall than its adjacent rung. Reinforcing shall end-up below the reinforced member when the ladder is erected.
- Check that the ladder can be raised without striking any obstruction.
- Assess how many people are required to safely manoeuvre the ladder.
- One person shall hold the ladder by the stiles with their feet against the feet of the ladder (to prevent the ladder from slipping).
- The other person lifts the far end of the ladder above their head and walks slowly forward — lifting hand by hand.
- The person at the foot of the ladder shall hold the foot down firmly to stop it lifting as the other person passes the centre of gravity of the ladder.
- Both steady the ladder as it becomes vertical and lower it gently against the wall.
- Carefully adjust the position of the ladder in small careful movements until it is correctly positioned.
- Check that the footing is firm and level.
- One person shall hold the foot firmly while the other climbs.
- The top should be lashed in position; otherwise the person at the bottom shall remain to secure the ladder until the job is completed.

### 5.1. Erecting Extension Ladders:

Extension ladders should be kept closed until they are vertical. Raise them to this position in the manner described above. To extend the ladder proceed as follows:

- The person behind the ladder holds it upright taking care to keep their hands clear of the upper section as it moves.
- The other uses rope to haul the upper section to the required height.
- Ensure that the clutch or extension lock is securely in position.
- Lower the ladder gently against the wall.
- Check that the position is correct, the footing is sound and that the slope is no greater than 4 in 1.



**To close extension ladders:**

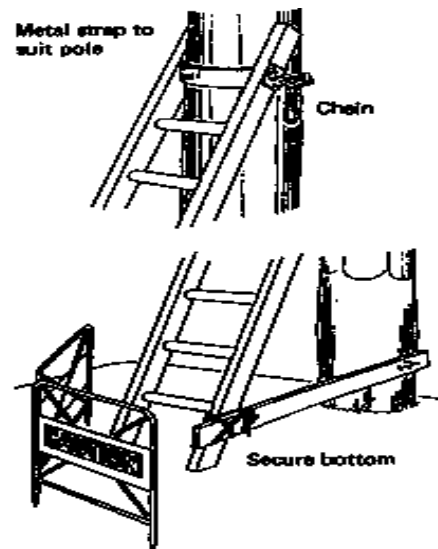
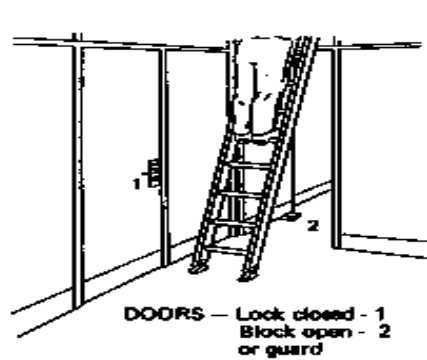
- Pull the ladder almost vertical.
- Use the rope to release the extension lock.
- Lower the upper part of the ladder.

**To lower ladders:**

- Check that the area is clear for lowering - warn others nearby.
- Lower the ladder carefully in the reverse of the raising procedure.
- Never drop the ladder

**5.2. Placing the Ladder in a Safe Working Position:**

- Do not erect ladders on wet or oily floors.
- A ladder shall not be placed in front of a doorway, unless the door is blocked open or locked closed or a person is standing guard at the foot of the ladder. Suitable barricades and signs should also be installed to restrict access and protect people from potential drop zones.
- Check that the footing is secure.
- Makeshift foundations, such as drums, boxes, or blocks to gain extra height shall not be used.
- Lash or cleat the foot of the ladder in position if there is no one to hold it.
- Step ladders less than 2.4 metres need not to be lashed or held. – unless a specific hazard exists.
- Check that the support for the top of the ladder is secure.
- Do not place the top of the ladder within the defined exclusion zone (as defined by the Electrical Safety Regulations 2004) of live electrical wires or against any operational equipment where injury to personnel or damage to ladder or equipment could occur.
- If a ladder is to be placed against framing or against brittle material such as plasterboard, cement, secure a board across the top of the stiles to distribute the load.
- If a ladder is to be placed against a pole it should have suitable strap or chain at the top.
- Do not leave ladders unattended, especially outdoors, unless they are secured at top and bottom.
- Where practicable, the top of the ladder should be secured in position by hooks, chains or rope.



### 5.3. Use of fixed, step or rung ladders:

Access to ladders shall be unobstructed at all times. Where a ladder climb system is provided, Personal Fall Protection Equipment shall be used.

When ascending or descending ladders the following should be considered:

- Ladders are primarily designed as a means of access to or egress from a work area, not as a working platform.
- The limitations of using ladders (including SWL, height, supporting surface condition and strength).
- The condition of the ladder.
- The possible requirement for using additional fall protection while on the ladder.

## 6.0 Responsibilities

### 6.1. Manager Operations shall ensure:

- Systems are in place to keep ladders, in a good state of repair.

### 6.2. All Employees' are accountable for:

- Ensuring that no ladders with defects are used.
- Notifying their manager / supervisor in the event defects are identified and tag the ladder indicating that the ladder is defective. Raise a Work Order in the Maintenance Management System (Ellipse) to ensure repairs are completed or the ladder is withdrawn from use.

### 6.3. Training and Competency:


No separate formal training is required for the safe use of ladders but it is a requirement that prior to any work being carried out from a ladder, that:

- Personnel be familiar with the requirements of this procedure;
- An appropriate risk assessment is carried out; and
- All controls identified in the risk assessment are in place before commencement of the task.

Familiarity with the procedure will be via (as a minimum) awareness level training conducted at the time of the site induction. OHS-PROC-100 Safe Working with Heights details the specific levels of training for any Work at Heights – working with ladders will be a component of this training.

#### 6.4. Records:

Training Records –The People Services Department is responsible for managing & maintaining all training records. All hard copy training documentation shall be forwarded to the training coordinator for data entry and filing.

 **Note:** Record Keeping shall be in compliance with Archival of Records **Gov- Proc-07**.

### 7.0 Statutory and Legal Considerations:

- Workplace Health and Safety Act 1995.
- Workplace Health and Safety Regulation (2008).
- Workplace Health and Safety Code of Practice Scaffolding 2004 (Formally Advisory Standard).

### 8.0 Health, Safety and Environmental Considerations:

#### Definitions:

<b>Appropriate Anchorage Point</b>	A secure point above the user so as to prevent the user from falling to the ground. And rated to at least 12kN (limited free fall) as per standards
<b>Approved Safety Harness</b>	A full body harness in accordance with <b>AS1891</b> .
<b>Extension Ladder</b>	A non self supporting ladder consisting of two or more sections travelling in guides or brackets arranged in order to permit adjustment of working length. The maximum length is 7.5 metres and 9.2 metres for use to perform electrical work.
<b>Ladder</b>	A portable appliance consisting of timber, metal, fibreglass or reinforced plastic stiles joined at regular intervals by cross pieces called rungs on which a person may stand, ascend or descend.
<b>Lanyard</b>	A line fitted with an energy absorber, used to connect an approved safety harness to an anchorage point or static line in situations where there is a risk of a free fall.
<b>Rungs</b>	Cross pieces joining the stiles and used by a persons to stand on while ascending or descending a ladder (sometimes known as tread or step).
<b>Shall</b>	Indicates that a statement is mandatory

<b>Should</b>	Indicates a recommendation
<b>Single Ladder</b>	A non self supporting ladder consisting of one section. The maximum length is 6.1 metres.
<b>Site Supervisor</b>	The person who co-ordinates the work within an area and accredited to the requirements of this procedure by the Manager Operations and invites the Service Provider on site to do the work. This person would normally to be the maintenance plant owner for the area.
<b>Step Ladder</b>	A self supporting ladder of fixed length joined or hinged at the top to form equal angles at the base. The maximum length is 3 metres.
<b>Stile</b>	A side member of a ladder that supports the rungs (sometimes known as side rail, string or stringer).
<b>SWL / WLL</b>	Safe Working Load / Working Load Limit

## 9.0 Reference Documentation:

<b>AS 2626-1983</b>	Industrial Safety Belts and Harnesses Selection, Use and Maintenance
<b>AS/NZS 1891.1-1995</b>	Industrial Fall-Arrest Systems and Devices Part 1 - Safety Belts and Harnesses
<b>AS1657-1992</b>	Fixed platforms, Walkways, Stairways and Ladders – Design, Construction and Installation
<b>AS1892.1 – 1996</b>	Portable Ladders Part 1 - Metal.
<b>AS1892.2 – 1992</b>	Portable Ladders Part 2 – Timber
<b>BS5845-1991</b>	Permanent Anchors for Industrial Safety Belts and Harnesses
<b>Gov- Proc- 07</b>	Archival of Records
<b>OHS-PROC-100</b>	Safe Working with Heights
<b>T-1276</b>	Ladder Inspection Form

## 10.0 Revision History:

<b>Rev No.</b>	<b>Revision. Date:</b>	<b>Revision Description:</b>	<b>Author:</b>	<b>Approved. By:</b>
0	31.07.2007	New Procedure	M Joy	J Judge
0 <small>(Minor Change Only – Same Rev No and Date)</small>	17.11.2008	Changed reference section 7 to 2008 legislation  <small>(Minor Change only – Revision Number and Date remains the same)</small>	T Young	M Joy

## 11.0 Attachments

### 11.1. Management of Ladders at Wivenhoe Power Station

1. All ladders are to be marked with an identifying number.
2. All ladders are to be marked with a location.
3. All ladders are to be registered in file 353/20/26.
4. All ladders are to be certified as inspected on a 6 monthly basis (this is to be registered in file 353/20/26).
5. All certified ladders are to be tagged with the current height safety tag.
6. All ladders are to be visually inspected prior to use.
7. All ladders are to be returned to the location marked on them after use.
8. Any ladder found to be in a defective condition is to be labelled with WIV-F-501 (Red, Rejected Do Not Operate Tag) and taken to warehouse for repairs.

Designated locations for ladders will be:

1. EL 78 North West corner of station
2. EL 74 Outside Electrical Workshop
3. EL 58 Silo 2 South
4. EL 53 Silo 2 South
5. EL 33 Silo 2 South
6. EL 16 Silo 2 South

These locations will be signposted. Signage will state "Inspect ladder prior to use; Ensure ladder is tagged; Remove damaged ladders from service; Return ladder after use".