

SYDNEY TRAMWAY MUSEUM

**RAIL SAFETY WATCHER AND TRACK AWARENESS
COURSE**

~~FEBRUARY 2018~~ MARCH 2020

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Document Control Record

1. Document Details:

Name: Rail Safety Watcher and Track Awareness Course

Number STM 6036

Version Number: 1.89

Document Status: Working Draft

Approved for Issue

Archived

Next Scheduled Review Date:

2. Version History:

Version Number	Date	Reason/Comments
1.0	31/01/2010	Initial issue
1.1	31/07/2010	Changes to correct errors and amend some wording.
1.2	31/10/2010	Changes to correct errors and amend some wording
1.3	31/12/2010	Changes to correct errors after feedback from participants.
1.4	28/01/2011	Amended the document for the spelling of PEA whistle.
1.5	28/12/2012	Added the reference to the Assessment form
1.6	31/03/2016	Amended Distribution List format and STM6161 merged with STM6156 and Document number changed document number
1.7	7/11/2017	Amend the locations of the Yard Limits
1.8	2/12/2017	Amended the Hand signals and Point Hooks/Bars
1.9	25/03/2020	Added details about walking between or close to stationary vehicles in yards.

Approved by **Signature & Date**

3. Distribution List

Position	Date	Location of Documents
Rail Safety Manager		Original held on GOOGLE secure Website
STM WEB SITE		Updated regularly and put onto the STM Web site.
STM Office		STM Office Computer
STM Office		STM Office cupboard

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RAIL SAFETY WATCHER AND TRACK AWARENESS TRAINING NOTES

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1. GENERAL

1.1 PURPOSE

Working on and near tram lines can be extremely hazardous and the risks of severe injury and death are high. Trams are the major hazard but there is also the danger of electrocution from electrical wiring. The dangers of slipping, tripping and falling when moving around the tramway environment are ever present.

The purpose of this document is to provide the user with the knowledge and skills required to be responsible for their own and others safety on or about the entire Museum's running lines. Also to provide the basic knowledge of track systems that will help you work safely.

1.2 SCOPE

This procedure applies to all tram lines operated by the Sydney Tramway Museum.

The training provides certification and authority for the participants to undertake any form of track worksite protection or any other work within the Museum without additional certification and/or supervision.

1.3 RESPONSIBILITIES

It is the responsibility of all STM members and contractors to ensure that they have the relevant knowledge to operate on the Museum's tracks.

1.4 REFERENCES

STM6005 – Corporate and Rail Safety Policy, Security Policy, Fatigue Policy and Alcohol and Other Drugs Policy

STM6017 – General Safety Induction

STM5014 – Orientation Program

STM6034 – Emergency Evacuation Procedure

1.5 DEFINITIONS

STM Sydney Tramway Museum: the trading name of South Pacific Electric Railway Co-Operative Society Limited for tram activities, therefore references to STM

RNP Royal National Park.

2. PREVIEW

On successful completion of the Track Awareness Course, you are competent to:

- a) Be responsible for your own safety when working on or about the track outside a protected worksite;
- b) Keep a lookout and move to a safe place in sufficient time on the approach of a tram or track vehicle; and
- c) Work on or about the track within a protected worksite.

2.1 LEARNING OUTCOMES

By the end of this course, you will be able to:

- Identify the basic types of track construction;
- Understand the requirements and duties of a Rail Safety Watcher;
- Are able to carry out the duties a Rail Safety Watcher in the workplace;
- Can safely work around moving trams;
- Use the relevant terminology regarding track infrastructure and tramway safeworking;
- Identify and follow relevant safe working requirements;

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- Monitor risks and respond to hazards, incidents and emergency situations;
- Use appropriate communications methods.; and
- Complete the Rail Safety Watcher and Track Awareness Assessment Form (see attached at the end of this document).

2.2 PRE-REQUISITES

Before embarking on this course, all participants must have read and fully understood the following policies and procedures:

- STM6005 – Corporate and Rail Safety Policy, Security Policy, Fatigue Policy, Alcohol and Other Drugs Policy
- STM6017 – General Safety Induction
- STM5014 – Orientation Program
- STM6034 – Emergency Evacuation Procedure.

3. INTRODUCTION

3.1 RAIL SAFETY MANAGEMENT

The safety of all members, contractors and visitors to the Museum is of the highest importance to the Sydney Tramway Museum. You are required to complete this mandatory Track awareness training before accessing the Museum's running lines.

It is the policy of the Sydney Tramway Museum to comply with the **Rail Safety Act** and other acts that require:

- a) The Museum site be operated safely; and
- b) Personnel and plant working near, on, above or under rail tracks be suitably protected from trams.

STM has determined that certain activities around the Museum will require the use of a competent Rail Safety Watcher to keep a lookout for trams to protect personnel and/or equipment from injury/damage, or coming in contact with trams.

The purpose of this course is to provide you with the knowledge and skills which will enable you to be responsible for your own and others safety when on or about the running lines anywhere within the Museum's tramway system.

Slips and falls can cause severe injuries. The ground around open tram tracks is often uneven and/or broken surfaces with can have odd sized materials and objects.

**REMEMBER: DO NOT RUN – KEEP AN EYE WHERE YOU ARE
WALKING**

3.2 AIMS

The aims of this course are to ensure that all participants:-

- a) Understand the requirements and duties of a Rail Safety Watcher;
- b) Are able to carry out the duties in the workplace;
- c) Can safely work around moving trams;
- d) Use the relevant terminology regarding track infrastructure and tramway safeworking;
- e) Identify and follow relevant safe working requirements;
- f) Monitor risks and respond to hazards, incidents and emergency situations; and

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- g) Use appropriate communications methods.

3.3 ON SUCCESSFUL COMPLETION OF THE COURSE

You will complete the requirements of Rail Safety Watcher and Track Safety Awareness training when you have achieved the learning outcomes for this course, satisfied the assessment criteria which will be to assess your ability to perform the required tasks of this course.

It is a STM policy that only those persons who have attended this course and successfully completed the assessment can be used as a Rail Safety Watcher and Track Awareness and to verify isolations.

On successful completion of the assessment, you will be certified in Rail Safety Watching and Track Safety Awareness. This is an introductory, mandatory certification required before you are permitted to be on or about the running lines with the prescribed distances and without supervision.

3.4 RETRAINING

To maintain the competency as a Rail Safety Watcher, The Rail Safety Watcher must complete a five year refresher course.

3.5 SAFETY

Your safety is important to the Sydney Tramway Museum. When on or about the running lines please remember the three B's:

- Be Bright
- Be Seen
- Be Alert.

3.6 HIGH VISIBILITY CLOTHING (SAFETY VESTS)

All personnel on or about the running lines **MUST** wear high visibility safety clothing (safety vests or safety shirt), which has been approved by the Board. The exception will be the Traffic staff when operating trams on recognised operating days at the STM.

There are currently some differences in the approved colours. The approved colour for safety clothing on or about the tracks in most areas is **YELLOW** or **ORANGE** for both wet and dry conditions.

The safety vest or safety shirt shall be maintained in a clean condition; faded or dirty vests or shirts cannot be easily seen.

The only exceptions to this policy are State and Federal Emergency Services officers when called to assist in an emergency which requires them to work on or about the track. These officers wear the approved clothing appropriate for their occupations.

3.7 PERSONAL PROTECTION EQUIPMENT (PPE)

The types of personal protection equipment that may be required include:

- a) Safety footwear;
- b) Hat or helmet;
- c) Eye protection;
- d) Hearing protection;
- e) Gloves;
- f) High visibility clothing; and
- g) Sun protection.

The signs which must be observed are:

- a) Approved safety footwear must be worn when in designated areas – see sign below.

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- b) Approved safety helmets must be worn by persons:
- **When in the immediate vicinity beneath persons working aloft;**
 - Where there may be danger from falling objects; or
 - When in designated hard hat areas – see sign below.



- c) Approved eye protection must be worn by persons:
- When in designated eye protection areas.



- d) Approved hearing protection must be worn by persons:
- When in designated hearing protection areas.



4. DUTIES OF THE RAIL SAFETY WATCHER

4.1 RAIL SAFETY ACT DEFINITIONS

The relevant definitions from the *Rail Safety Act 2008* are:

RAILWAY SAFETY WORKER, means a natural person who has carried out, is carrying out or is about to carry out rail safety work.

RAILWAY SAFETY WORK means any of the following classes of work carried out by a railway (*tramway*) volunteer:

- a) driving or despatching rolling stock or any other activity which is capable of controlling or affecting the movement of rolling stock,
- b) signalling (and signalling operations), receiving or relaying communications or any other activity which is capable of controlling or affecting the movement of rolling stock,
- c) coupling or uncoupling rolling stock,
- d) maintaining, repairing, modifying, monitoring, inspecting or testing:
 - i. rolling stock, including checking that the rolling stock is working properly before being used, or
 - ii. rail infrastructure,
- e) installation of components in relation to rolling stock,
- f) work on or about rail infrastructure relating to the design, construction, repair, modification, maintenance, monitoring, upgrading, inspection or testing of the rail infrastructure or associated works or equipment, including checking that the rail infrastructure is working properly before being used,
- g) installation or maintenance of:
 - i. a telecommunications system relating to rail infrastructure or used in connection with rail infrastructure, or
 - ii. the means of supplying electricity directly to rail infrastructure or to any rolling stock using rail infrastructure or to a telecommunications system,
- h) work involving certification as to the safety of rail infrastructure or rolling stock or any part or component of rail infrastructure or rolling stock,
- i) work involving the decommissioning of rail infrastructure or rolling stock or any part or component of rail infrastructure or rolling stock,
- j) work involving the development, management or monitoring of safe working systems for railways,
- k) work involving the management or monitoring of passenger safety on, in or at any railway,
- l) any other work that is prescribed by the regulations to be rail safety work.

4.2 RAIL SAFETY WATCHER MANDATORY DUTIES

The following lists the basic and mandatory duties of a Rail Safety Watcher.

- a) To act as Rail Safety Watcher when required, and have no other duties when engaged as a watcher;
- b) To use verbal, visual or physical signals for the safe movement of work site personnel with trams: i.e. by ensuring tracks are clear of personnel and their equipment to allow the safe passage of trams;
- c) To be in a physical position that will allow adequate observations of the total work area and at the same time signal tram movements in sufficient time to move personnel and equipment to a safe area away from the tram. This may require more than one watcher.
- d) To report to their immediate supervisor and site responsible person any non-adherence to rules, directions, etc. including any incidents in regard to rail safety.
- e) To remain in position until directed or informed by the site responsible person that the Rail Safety Watcher is no longer required.

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Remember, the lives of those in your group could be at risk if you are NOT keeping a sharp lookout. You must:

- ✓ Stay alert at all times
- ✓ Not allow yourself to be distracted
- ✓ Not take part in any work
- ✓ Have no other responsibilities

4.3 PRIME TASK

The prime function of a Rail Safety Watcher is:

“To communicate with personnel so personnel can move themselves and equipment out of ‘Harms Way’.”

REMEMBER

TRAMS CANNOT TURN AWAY

RAIL SAFETY WATCHERS MAY NOT BE IN A POSITION TO STOP TRAMS BUT TO ENSURE PERSONNEL ARE SAFE FROM MOVING TRAMS

4.4 SAFETY EQUIPMENT

The Rail Safety Watcher will have the following hand held safety equipment available when on-site:

- a) 1 (one) approved ‘Pea’ type whistle with lanyard to secure around the wearers neck.
- b) 1 (one) approved hand held flag for day use.
- c) 1 (one) approved hand held lantern for night use.

4.5 COMMUNICATIONS

When on-site the Rail Safety Watcher will have to communicate and signal to the on-site personnel.

This must be done clearly so that everyone knows exactly what the communication or signal mean and what to do when they hear or see them

Where the Rail Safety Watcher is not within hearing range of the other personnel on track signals must be used.

IMPORTANT

**ALL
RAIL SAFETY WATCHERS
MUST USE THE SAME SIGNALS**

NOTE: It is the requirement of the site responsible person to ensure that all personnel understand the signals of the Rail Safety Watcher.

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4.6 SIGNALS

Giving hand signals to tram drivers

Hand signals *must* be given:

- in a clear and timely manner, and
- ensure that they will be received and acted upon only by those who are being signalled.

Responding to hand signals

If the meaning of a hand signal is not understood, Drivers must stop to find out the meaning.

Drivers must:

- obey hand signals, and
- acknowledge hand signals.

Hand Signalling

Hand signals must be given using:

- flags or hands during daylight or
- hand lamps during darkness and *low visibility*.

A hand signal must be continued:

- for PROCEED and CAUTION hand signals, until the last tram has passed the Hand Signaller, and
- for STOP hand signals, until the *rail traffic* has stopped.

The signals to on-site personnel will always be given in two forms at the same time:

- 1) AUDIBLE - VIA 'PEA' WHISTLE; and
- 2) VISUAL - VIA HAND FLAGS OR HAND LIGHTS

A) The signals to REMOVE personnel from tracks or harm from trams are as follows:-

RAPID SHORT AND REPEATED BLASTS ON THE 'PEA' WHISTLE.

AT THE SAME TIME WAVING HAND HELD FLAG OR LIGHT IN FULL EXTENDED ARM OUT FROM THE SIDE OF THE BODY-MOVED UPWARDS OVER THE HEAD TO THE OTHER SIDE OF THE BODY.

N.B. FACE THE PERSONNEL YOU WANT TO RECEIVE THE MESSAGE WHEN SIGNALLING

This will ensure maximum travel of sound from the whistle and present the widest vision of the flag or light.

Continue signalling until you are satisfied that all personnel have received and understood the signal and have moved to a safe area.

B) The signals to indicate ALL CLEAR and those personnel can come back to the work area are as follows:-

LONG REPEATED BLASTS ON THE 'PEA' WHISTLE.

AT THE SAME TIME WAVING HAND HELD FLAG OR LIGHT IN FULL EXTENDED ARM OUT FROM THE SIDE OF THE BODY-MOVED UPWARDS OVER THE HEAD TO THE OTHER SIDE OF THE BODY.

4.7 RADIOS

In some cases two-way radios may be issued to Rail Safety Workers.

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N.B. Ensure that you receive adequate training on the physical use of the individual radio issued to you.

These radios may be used when two or more Rail Safety Watchers are involved on the one site.

RADIOS should not be used to ‘have a chat’ or waste ‘air time’ in long winded conversations.

Rail Safety Watchers would normally use radios to receive information and when transmitting, keep messages short and to the point.

4.8 REPORTING

As a Rail Safety Watcher you will be responsible to report on matters of safety to immediate supervisor.

If someone on site is not following instructions, it must be reported to the on-site responsible person to have the situation rectified.

If it is not corrected, make a report to your immediate supervisor or the Rail Safety Manager as soon as possible.

4.9 ON-SITE POSITION

A critical task for the Rail Safety Watcher is where to position yourself at the site to be able to carry out your duties.

The chosen position will be influenced by many factors and remember that most work sites are different, with varying physical conditions.

The **main points** to consider when choosing your site position are:-

- a) Physical lay-out of the site;
- b) Is the track you are observing straight or curved?
- c) Do buildings or other obstructions hamper your vision?
- d) Can all the on-site personnel see and hear you?
- e) Is the work in day or night time and what are the weather conditions – poor visibility from rain or dusts?
- f) Will there be more than one Rail Safety Watcher and how will you communicate with each other?
- g) What is the basic work being carried out on the site?
- h) Is the area single or double track – is there any danger from other moving objects (cranes, vehicles, etc.)?
- i) Will you have to signal to someone operating a machine (enclosed backhoe, etc.) and how will they see or hear you?

REMEMBER

THE RAIL SAFETY WATCHER MUST BE ABLE TO ADEQUATELY SEE APPROACHING TRAMS AND AT THE SAME TIME ALL PERSONNEL ON SITE MUST BE ABLE TO SEE AND HEAR YOU

4.10 HAZARDS

There are a number of hazards when working around the work sites and the Rail Safety Watcher must stay alert and keep a watchful look out for potential dangers. Some of these are:-

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- a) Slips and falls could cause severe injuries – often the work area will not have defined or designated walkways. The ground around all open rail tracks is often uneven, broken surfaces with odd sized materials and objects.

REMEMBER

DO NOT RUN
KEEP AN EYE WHERE YOU ARE WALKING

- b) Trucks, backhoes and other machinery are often noisy and the operators sometimes have difficulty seeing or hearing you.
- c) Stay clear of the actual tracks and do not walk along the top of the steel railway line itself. If you have to cross lines, step over the tracks and pick a clear path.
- d) Parallel sets of tracks are particularly hazardous. Trams can approach from both directions and often be observed by each other.
One track can be safe by isolation, etc. but a parallel track may be live.
Workers can feel safe working in one area and not realise that by stepping back they may be in the path of a tram on the parallel track.
- e) Rail Safety Watching for Point and Track greasers, track inspections, etc. creates unique hazards. These activities require the work team to move along tracks and not stay in one position.

If the track has not been isolated:

- You must keep a watch on the changing surroundings which will make it more difficult to see or hear approaching trams; You may have to move out in front of the worker or move behind him/her to keep the area under observation; and When working with these individuals do not engage in idle conversation and become distracted by their work or discussions. This is a time when you must:-

KEEP OBSERVING
STAY ALERT

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5. TRACK AWARENESS

Below are some of the things that a person needs to know when working on or around the tramlines.

5.1 BEFORE ENTERING ON OR NEAR A RUNNING LINE

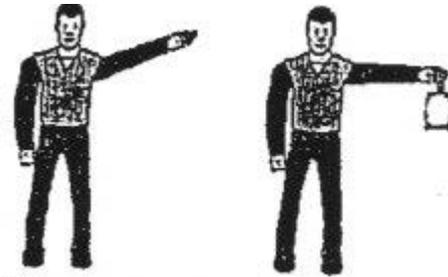
Before entering onto or near a running line, decide where you will take refuge if a tram approaches and make sure you know the distance of trams running on all tracks in the area. You may not make the best decision if rushed by the unexpected approach of a tram.

When on or about the track and a tram approaches on the line you are on, you must immediately move clear of the track.

5.2 ALL CLEAR HAND SIGNAL

By day face the oncoming movement and when the driver of the tram sounds his warning device, raise your left hand to head height.

By night face the oncoming movement and when the driver of the tram sounds his warning device, raise your left hand to shoulder height with a white flag or white light.



5.3 GANG SITUATION

In a gang or work group situation the person in charge should ensure that each person in the gang or work group knows where to go in order to get clear of an approaching tram. A nominated person and only that person may then give the all clear hand signal for the whole group.

5.4 DO NOT WALK ON OR ACROSS TRACKS

Do not walk on or across tracks except in the performance of your duty. If possible, walk clear of the tracks.

WARNING: Take extreme care when crossing over ballasted tracks, especially in wet weather to avoid slipping on the sleepers and to avoid injuries to the uneven surfaces.

If available, public access must be utilised.

5.5 ALWAYS WALK FACING THE ONCOMING TRAFFIC

If it is necessary to walk along the track, always walk facing the oncoming traffic keeping a constant lookout for trams.

NOTE: On single tracks, find out which way trams may be running on the tracks. It **MUST** also be assumed that more than one tram may be operating on the track at the same time with sufficient separation between trams that all the trams may not be in sight at the same time (e.g. around a curve) when the first tram passes the worksite.

Rail traffic can approach quicker than expected and be silent in operation. If your attention is diverted or you are not facing the oncoming rail traffic your safety is placed in risk.

5.6 DO NOT WALK ON THE TOP OF THE RUNNING RAILS

Do not walk on top of the rails. The railhead may be wet or greasy. You may lose your footing and slip in the path of an oncoming rail movement or cause injury to yourself.

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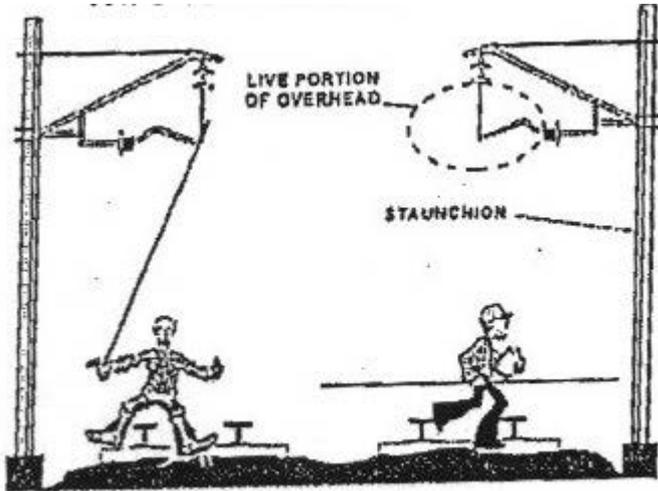
5.7 WARNING

Before being on or around the track, find out which way trams are running on the tracks.

5.8 TRACK AWARENESS AND ELECTRIFIED AREAS

This course enables you only to be on or about the track and when in electrified areas:

- Not to be within 1 metre of 600 volt live equipment;
- Metallic measuring tapes should not be used in the electrified area; and
- All ladders used in any electrified area must not be aluminium or wire reinforced.



5.9 ELECTROCUTION

Consider the following points about monitoring the occurrence of electricity and applying all agreed O.H. & S. Requirements:

- Materials such as flesh, metal, tree branches, clothing, wet ropes, flames, water, etc. are all capable of conducting electrical current;
- The human body is a conductor and severe injury or death will result if a conducting path is formed allowing current to pass through the body. A conducting path may be formed by:
 - Touching the exposed electrical equipment with any portion of the body; or
 - Bringing any portion of the body close to the exposed electrical equipment that an arc occurs between the equipment and the body; or
 - Bringing close or touching the exposed electrical equipment with tools or materials, which are in contact with, or close to the body.

5.10 CONDUCTING ELECTRICITY

All tools and material must be regarded as conducting unless there is definite knowledge that the item concerned is suitable (and approved if appropriate) for use at the voltage concerned.

5.11 DANGER OF ELECTRIC SHOCK

A danger of electric shock exists wherever a person could make contact between:

- Live conductors, or a live conductor and earth;
- Overhead wiring and rail;
- Different overhead wiring sections; or
- Overhead wiring and earth.

Remember that electric shock is possible when working on any electrical equipment. In each state current and voltage around the track varies. Extreme caution is required when near any of these supplies.

5.12 MATERIALS THAT CONDUCT ELECTRICITY

All materials including liquids and gases must be regarded as conducting materials unless there is definite knowledge to the contrary.

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Other hazardous articles include:

- Long metal objects such as:
 - Ladders;
 - long tools;
 - Scaffolding lengths of conduit;
 - Guttering, metal roof or wall sheeting;
 - Wire; and
 - Portable radio telephone units with telescopic aerials.

5.13 METALLIC TAPES

Steel tapes, metal reinforced linen tapes and long steel rulers can be very dangerous and must not be used when taking measurements near live exposed electrical equipment. Non-conducting tapes and sticks, which have been electrically tested, approved and branded, must be used.

5.14 NON METALILIC ARTICLES

Long non-metallic articles including ropes, tree branches and other similar long articles can also be a hazard if not handled with care to keep them away from electrical equipment. Care must be taken to ensure that these types of items are not placed or used in positions where they are likely to fall, come in contact with, or be blown across live equipment.

5.15 FALLEN WIRES

All persons must protect themselves and others from the danger of making contact with or approaching fallen conductors.

All such wires and objects must be regarded as live and the precaution must not be relaxed until the appropriate Lockout has been done. Do not assume that the overhead wire touching the ground is dead. The infrastructure worker must ensure that the area has been locked out by the appropriate officer

Following a derailment or collision, care must be taken when approaching trams that may be in contact with the overhead wiring, as separation from the rails could cause the tram to become live.

5.16 REPORTING UNSAFE SITUATIONS AND/OR INCIDENTS

Any unsafe situation noticed must, if possible be made safe then promptly reported to the Officer in charge.

Any person on or about the tram lines who notices any problem on a tram passing their location must immediately report the situation to the tram crew and to the Officer in charge at the Museum.

5.17 REPORTING PROBLEMS WITH TRAMS

When reporting a problem with a tram, the following information must be provided:

- The tram number;
- The time the tram passed the location where the situation was noticed;
- The direction in which the tram was travelling;
- The nature of the problem; and
- Your name and exact location.

5.18 WALKING AROUND YARDS AND SIDINGS

When walking around the depot yard or sidings, between or close to the end of stationary rail vehicles caution must be taken to ensure that the rail vehicle may move at any time without any warnings and the driver may not have seen you.

6 EMERGENCIES

If an emergency situation happens, there are a number of things to remember:-

- a) Firstly check for any further danger and do not rush in and put yourself at risk;
- b) You are not being trained as a rescue worker or medical person. You could do more harm trying to move victims;
- c) In the event of an emergency contact either the On-site Responsible person or call 000.
- d) If possible do not leave the site – send someone else for help or to make the emergency call.
- e) Co-operate with emergency personnel as directed.

IMPORTANT

**MAKE SURE OTHER PERSONNEL
ARE NOT IN DANGER FROM
TRAMS DURING AN EMERGENCY**

6.1 IF IN A EMERGENCY SITUATION

If in any emergency you cannot step clear of the track as the tram approaches, lie face down in the 6 foot (that is the area outside the running rails) keeping all parts of your body as low as possible and as far away as possible from the running rails..

Be ready at all times to deal with emergencies by knowing the procedures (STM6034) for dealing with any accident or irregularity that may arise. This means that you will need to revise these details frequently.

Immediately report any potential danger or emergency to the Officer in Charge.

As soon as you become aware that an emergency exists, cease all telephone conversations so that any emergency messages can be clearly received, understood and acted upon by the members concerned.

6.2 IF AN EMERGENCY ARISES

If an emergency arises, such as finding a broken rail or some other obstruction dangerous to the safe passage of trams, stop a tram before the proper protection has been arranged by:

- Holding a red flag or red light so that the driver can see it.

If these are not available, then by:

- Violently waving any flag, piece of material, or any light waved violently; or
- Raising both hands as demonstrated by the facilitator.



In circumstances where you do not have a flag, your safety vest (if you have one) should be waved violently to attract the attention of the driver. Once the driver has acknowledged your signal by sounding the gong, you could then give the stop signal by raising both hands.

Drivers must stop their trams immediately if they, or other crew members, receive a DANGER signal.

7. VERIFY CORRECT OPERATION OF RAIL POINTS FOR ISOLATION PURPOSE

7.1 PURPOSE:

The purpose of this section is to describe the steps and define the responsibilities that an Accredited Isolating Person (otherwise known as an Isolating Person) should follow to verify that Rail Points are correctly “set away” from Worksites before commencing isolation of Rail Points.

Before isolation of rail points (Throwover lever or Ball lever) can take place, **the Isolating Person MUST ensure that the rail points are “set away” from the intended worksite.**

“Set Away” meaning that when the tram travels through the facing rail points, it will proceed on the opposite rail track to where the worksite is located.

7.2 PROCEDURE

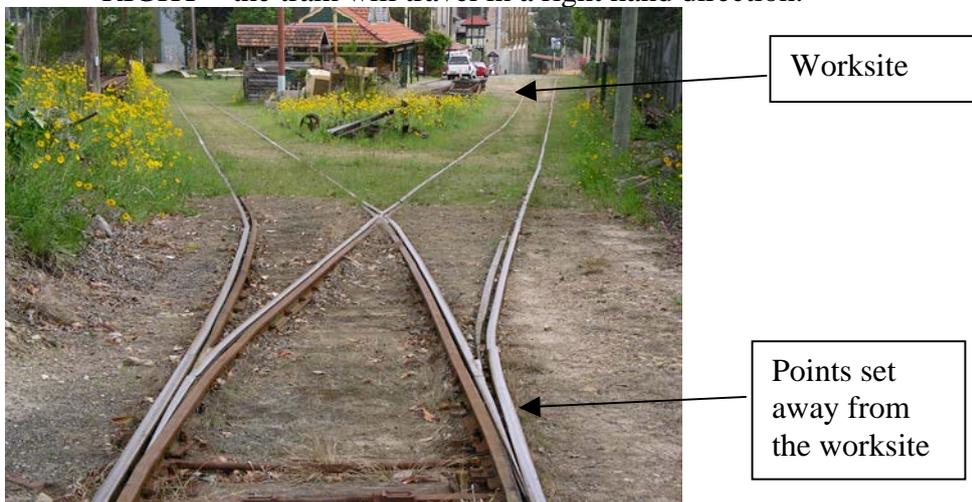
The following procedure MUST be followed:

- a) To commence isolation of rail points the Isolating Person MUST first ascertain the direction that the rail points are “set for”. **Depending on each given situation the rail points may or may not be required to be operated** so that the rail points are “set away” from the intended worksite.
- b) To ascertain if the rail points need to be operated so that they will be “set away” from the intended worksite, the Isolating Person must view the switchblades from the “facing” direction. If the left “facing” switchblade is hard against the stock rail (outside rail) and the right “facing” switchblade has a 10cm (approximately) space between it and the stock rail, the tram will travel through the rail points and head in a right hand direction. In a vice versa situation, if the 10cm space is on the left “facing” switchblade to the stock rail, the tram will travel through the rail points and head in a left hand direction.
- c) When the Isolating Person has set the rail points away from the intended worksite **a second competent person MUST verify that the points are set correctly**, i.e. “set away” from the work site.

REMEMBER: The direction of travel is governed by the side that the switchblade is “OPEN” on. That is;

LEFT – the tram will travel in a left hand direction; and

RIGHT – the tram will travel in a right hand direction.



8. TERMINOLOGY AND DEFINITIONS

The following definitions cover the common names or terminology that a Rail Safety Watcher needs to understand.

Diagrams 1 and 2 in Section 9 identifies some of the basic terminology that a Rail Safety Watcher needs to know.

8.1 ACCREDITED ISOLATING PERSON

A STM employee or STM member who has completed this training course and is assessed as competent to isolate a section of track using point clips and who has carried out an isolation during the last 12 months.

8.2 BALL LEVER POINT

These are counterweight type set under the pavement surface and are operated by a point hook inserted in a slot between the blades. The ball lever operating lug is trawled through this slot and the lever lifted towards the direction the blades are to move.

8.3 BALLAST

This is crushed blue metal which is laid under and between the sleepers to provide a stable and level base.

8.4 BI DIRECTIONAL LINES

Trams can run in either direction on any of the Museum lines.

8.5 CESS AREA

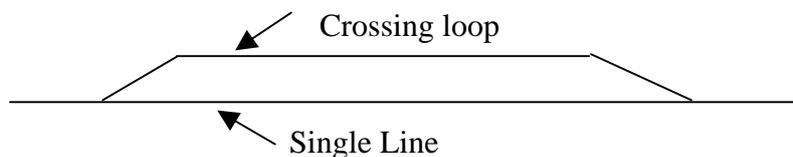
The area between the outer most rail and the adjacent boundary (edge of the cleared area in most places) or fence line.

8.6 CHECK RAIL(S)

A rail(s) fastened to the inside of the running rail(s) to assist in the guidance of the tram wheels through medium to sharp curves. The top surface of the check rail is higher than that of the running rail and can be a trip hazard on both open and street trackage.

8.7 CROSSING LOOPS

A section of the line provided for the crossing and passing of trams.



8.8 CROSSOVER

Crossovers are two turnouts linked together to let trams cross from one track to another.

8.9 DEPOT

Trams are serviced, maintained and stored in this area. Trams can operate on both directions and may change tracks without warning.

Trams are often stored over the pit that forms falling or tripping hazards.

The tram depot has extensive overhead wire networks. Contact with tramway overhead wiring may cause injury or death.

SYDNEY TRAMWAY MUSEUM

8.10 DEPOT YARD

An area used for marshalling, storing, maintaining and cleaning trams. In general this the area bounded by the gate at the southern end of the Restoration Building and the Southern end of Running Shed.

8.11 DIRECTION OF TRAMS

The tram line travelling towards Sydney is the UP line and the line travelling away from Sydney is the DOWN line.

8.12 FIXED SIGNALS

A fixed signal is a signal located permanently in a specific location near tram lines to control traffic.

The only fixed signals at the Museum are located on the Royal National Park line at the Princes Highway level crossing. They indicate to the tram driver when it may be safe for the tram to cross the highway. However the tram driver must still ensure that the traffic has stopped and/or it is safe to cross the highway. Also the tram crew must be in possession of staff / ticket (or other form of authority for emergency working).

8.13 FOUR FOOT

The space between the two rails of a track.

8.14 INJURIES AND FATALITIES

If you arrive at a scene of an accident that involves an injury or fatality you must endeavour to make the situation safe if the potential for further danger exists. In doing so you must ensure that your own safety is not compromised.

When arriving on the scene assess and deal with the situation and ensure:

- Your own safety. DO not proceed with any action if in doing so you endanger yourself;
- Ensure the protection of the casualty; and
- Protect the site, stop any trams if necessary and inform the Officer in Charge of the situation.

8.15 LOOK BOTH WAYS

Before being on or around the track, find out which way trams are running on the tracks. But please note the comments in section 5.5 above.

8.16 MECHANICAL TRACK EQUIPMENT

Care is necessary when in the vicinity of mechanical track equipment.

8.17 MELBOURNE STYLE CAST UNITS

These are operated by a Melbourne type point bar inserted in the control box cast which is between the running rails. The bar is used to move the blades against an over-centre spring to either side.

8.18 MULTIPLE LINES

Trams do not always run in opposite directions on adjacent tracks.

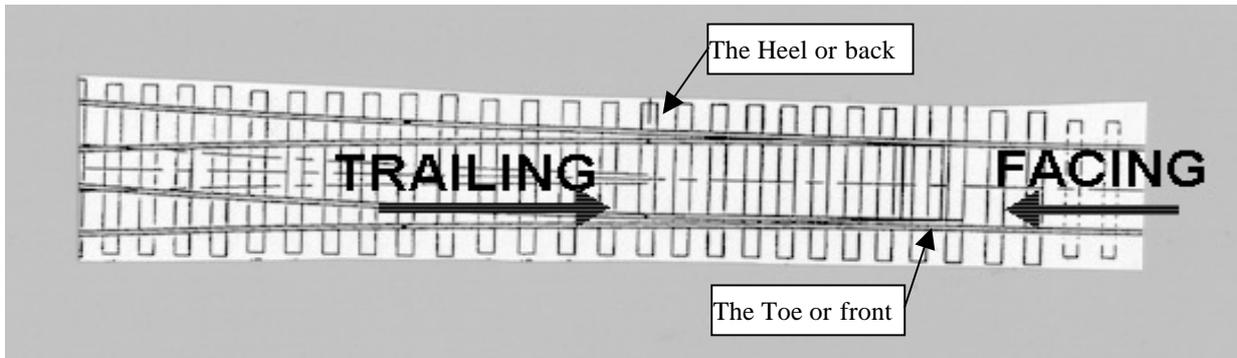
8.19 POINTS

A device used to divert a tram movement from one line to another.

The points can be termed as follows:

- a) **Facing**: Any points where the switch rail blades face towards the approaching tram. That is, the tram travels over the toe or front end of the points first.
- b) **Trailing**: Any points where the switch rail blades do not face the approaching tram. That is, the tram travels over the heel or back end of the points first.

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There are two types of points used at STM – *Ball Lever* which operates by a point hook inserted in a slot between the blades and *Throwover Lever* which is operated by a point lever.

8.20 POINT CLIP

A device used to lock off a set of rail points to stop a tram from going down a particular line. The device clamps the switchblade to the stock rail.

8.21 POLE NUMBERING

Each pole is numbered so as to identify the pole and the location when reporting a problem with the track. The pole numbers are cast numbers nailed to the pole on the side facing the track. They are usually about 3 metres above the track.

8.22 POINT BLADES

Are the tapered, moveable ends of the rails which can be moved (or set) to divert a tram movement from one track to another.

8.23 RESTRICTED LOCATION

Never go into a restricted location where there is no safe place for refuge, without first finding out the movements of all trams in the area.

8.24 RUNNING LINES

A running line is a line used for the THROUGH movement of trams (e.g. Pitt Street to Waratah Loop, Princes Highway level crossing to Royal National Park station).

8.25 SAFETY CLEARANCE AT PLATFORMS

At platforms a safety clearance of 0.5 metre from the track edge of the platform is required.

8.26 SAFETY CLEARANCES FROM RUNNING LINES

For the purpose of this track safety awareness program, “on or about the line” refers to any work situation where people, plant, equipment or material are located within, or have the potential of coming within, 2 metres horizontally from the nearest rail and any distance above or below this 2 metres mark.

Additionally a clearance of 1 metre from the overhead wiring and equipment.

8.27 SAFE DISTANCE

The definition of safe distance depends on the track network. For the Sydney Tramway Museum it is **2 metres**. When you are clear of the line an ALL CLEAR hand signal must be displayed to oncoming rail traffic. At night, a steady white light must be displayed to indicate all clear to the driver.

8.28 SAFE PLACE

A place where you and equipment cannot be struck by a tram.

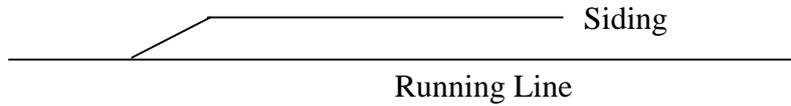
SYDNEY TRAMWAY MUSEUM

8.29 SET AWAY

Occurs when a tram, travelling through the facing rail points, will proceed on the opposite rail track to where the worksite is located.

8.30 SIDING

A siding is where vehicles can be placed clear of the running line and stored.



8.31 SINGLE LINES

A single line is a line which trams can travel in either direction

8.32 SIX FOOT

The space between two adjacent tracks.

WARNING: There is NOT sufficient room to stand in the 6 foot while trams are passing.

8.33 SLEEPERS

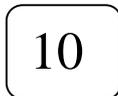
Lengths of hardwood, steel or concrete used to support and secure the rails.

8.34 STAFF SECTION

The portion between the yard limit and the end of the section which is under the control of the Staff. For example the portion from Pitt Street gate to the Waratah Loop.

8.35 TEMPORARY SPEED RESTRICTION SIGNS

These indicate to the driver the maximum permissible speed over a section of the line.



10 KPH speed restriction sign



End of speed restriction

8.36 THROWOVER LEVER POINT

These are open type lever mechanisms set beside the track to be operated as required to move the blades.



8.37 TRACK

The track is a structure which is used for the purpose of carrying to trams

SYDNEY TRAMWAY MUSEUM

8.38 TURNOUT

Is another name for a set of points and is used to change trams running from one track to another.

8.39 UP AND DOWN LINES

This is only applicable to tramlines where there is more than a single line (e.g. the two tracks near Pitt Street and the tracks in Tramway Avenue). The tram line travelling towards Sydney is the UP line and the line travelling away from Sydney is the DOWN line.

8.40 YARD

The area defined within the Museum complex where a tram may operate without a Staff. Currently the yard limits are:

SOUTH (RNP end): the southern end of the South Shed.

NORTH: the northern end of the double track beside the TAFE..

SYDNEY TRAMWAY MUSEUM

9. BASIC TERMINOLOGY

DIAGRAM 1

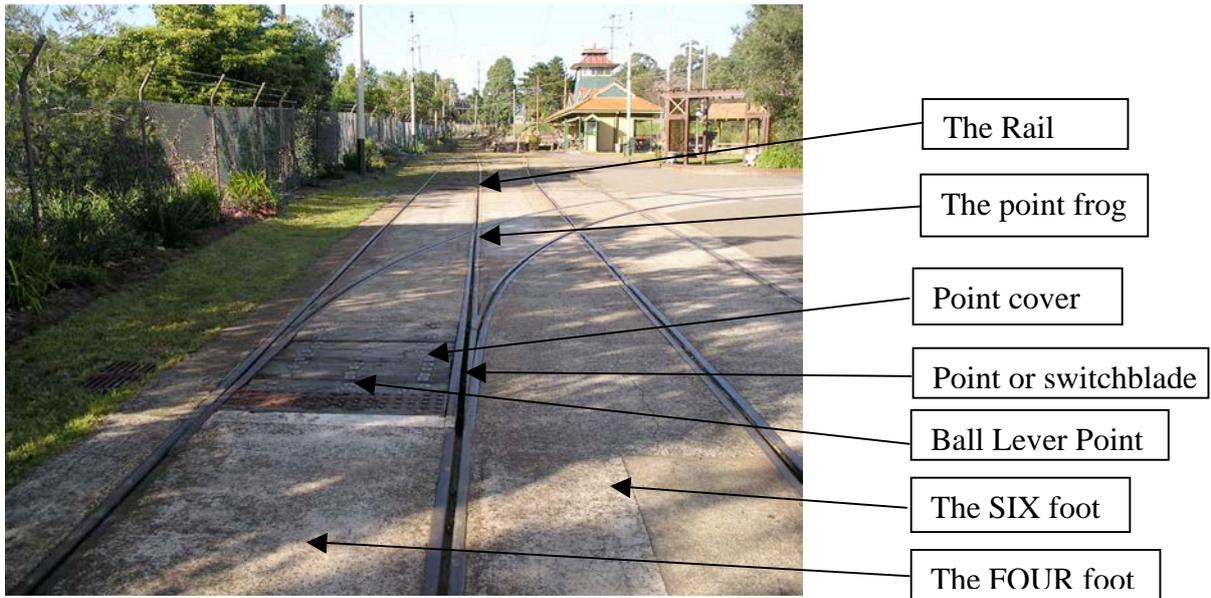
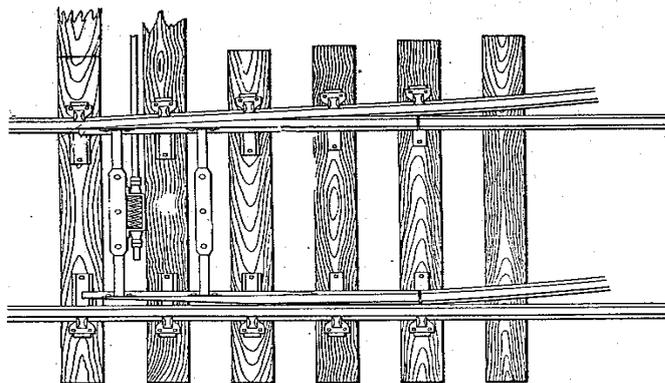
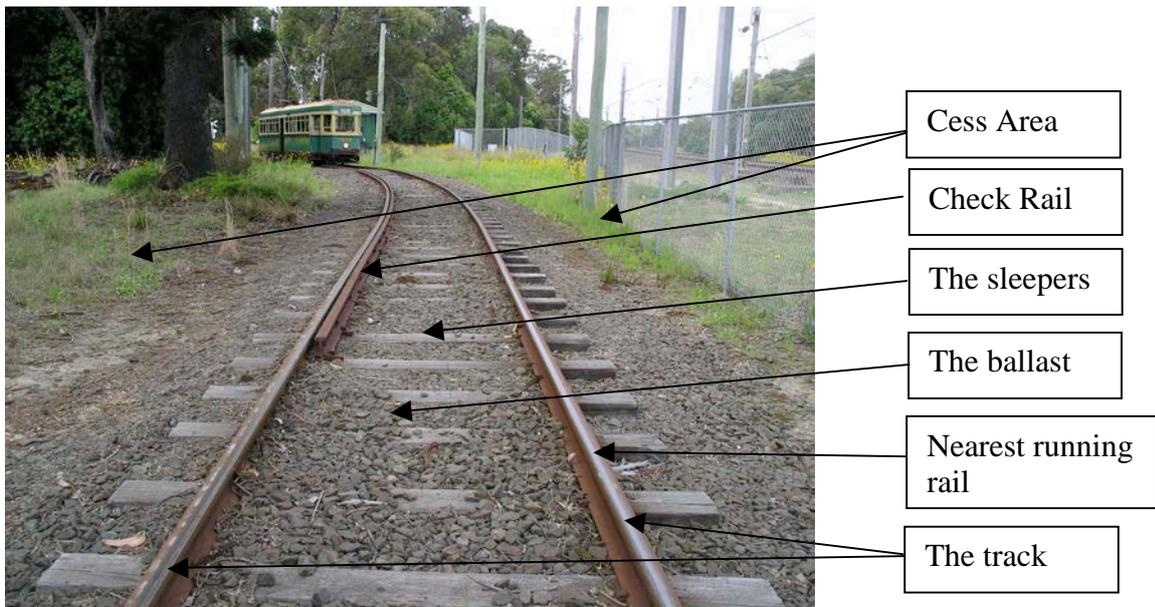


DIAGRAM 2



SYDNEY TRAMWAY MUSEUM

Assessment Paper

Name:
Member No.
Date:
Mark: (Maximum 20)
Assessment Conducted by

Section 1 – Pre-course Activity

I have read and understand the following seven (7) Sydney Tramway Museum documents – Circle **Yes** or **No** as applicable

STM6005 – Corporate and Rail Safety Policy, – **Yes/No**

STM6013 - Security Policy – **Yes/No**

STM6039 - Fatigue Policy – **Yes/No**

STM6130 - Alcohol and Other Drugs Policy – **Yes/No**

STM6017 – General Safety Induction– **Yes/No**

STM5014 – Orientation Program– **Yes/No**

STM6034 – Emergency Evacuation Procedure– **Yes/No**

Section 2 – Written Questions

1. With SAFETY what are the three B's?

- a.
- b.
- c.

2. What are the 2 type of signals used by site personnel?

- a.
- b.

3. What is the signal to REMOVE personnel from tracks or harm from trams?

- a.
- b.

4. What is the signal to indicate ALL CLEAR to personnel after the passage of a tram?

- a.
- b.

5. Name 5 main points to consider when choosing your site position as a Rail Safety Watcher?

- a.
- b.
- c.

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- d.
- e.
6. Name 3 hazards when working around the work site
- a.
- b.
- c.
7. Do you walk ON or ACROSS the tracks except in the performance of your duties? Yes/No
8. What to remember as a Rail Safety Watcher?
- a.
- b.
9. When walking along the line, do you walk FACING the traffic or WITH the traffic? Yes/No
10. Should you walk ON TOP of the Running Rail? Yes/No
11. List 3 hazardous articles that can conduct electricity.
- a.
- b.
- c.
12. What is a safe distance from the track?
13. Define the "FOUR FOOT".
14. Define the "SIX FOOT".
15. Which is the UP line in Tramway Avenue.
16. Name the three items of equipment used by a Rail Safety Watcher to warn personnel who are on or near the track
- a.
- b.
- c.

Section 3 – Practical Demonstrations

When requested by the assessor demonstrate the

- 17 Signal given by a Rail Safety Watcher to REMOVE personnel from tracks or harm from trams
- 18 Signal given by a Rail Safety Watcher indicating ALL CLEAR for track workers to resume activities on or near the track after the passage of a tram
- 19 ALL CLEAR HAND SIGNAL given to a tram driver
- 20 STOP HAND SIGNAL given to a tram driver

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