# Installation - Renewal - Upgrade Level – Crossings (Passive or Active)

Issue date: 11/04/08
Review date: 19/02/11

**SWMS number:**
SMS-06-SW-1021

**SWMS Name:**
Installation - Renewal - Upgrade Level – Crossings (Passive or Active)

**SWMS Team :**
Signal Review Team

**Custodian (Position):**
Signal Services & External Resources Manager

**Assumptions:**
Site specific risks are addressed and assessed in pre- work briefing

**Approving Authority (Position):**
Safety and Quality Manager Commercial / Renewals

**Content reviewed by Technical expert (SME) and RailCorp safety professional** (position including Div/Group)
Signal Services & External Resources Manager & SEQ Coordinator Asset Management Group Commercial / Renewals

**Applicable Standards, Codes of Practice and guidance:**

- OH&S Act 2000
- OH&S Regulation 2001
- Rail Safety Regulation 2003
- RailCorp Network Rules & Procedures
- Signalling Maintenance Procedures
- Technical Maintenance Plan
- Signal Engineering Standards Level Crossings SC 07 60 00 00 SP
- RailCorp Safety Management System.
- MSDS for all chemicals and Hazardous substance used on site
- EC14 – Guide to Electrical Workers' Safety Equipment
- National Code of Practice for Manual Handling [NOHSC:2005
- AS/NZS 1891.4 – 2000 "Industrial fall arrest systems and devices – Selection, use and maintenance

**Equipment/Plant/Tools:**

- Vehicle Crane, guide ropes, Concrete Truck
- Lighting Towers for Night Works
- Shovels, Picks, Bars, Wheelbarrow, Concrete Mix, Hammers
- Ladders
- Generator, RCD Unit
- Power Tools, Spanners, Wrenches
- Fuels
- Barriers, Fencing
- GRN Radios

**Records/Reporting:**

- Worksite Protection Plan
- Pre-work Brief
- Electrical Test Tags
- Services searches diagrams
- Signalling Design/ Construction Standards
- Electrical Tool Test Tags
- Electrical Permits

**Permits/Licences required:**

- Vehicle Crane certificate
- Road Traffic Controller

**Inspection requirements**
Nil

**Service schedule:**
Nil

**MIMS or METRE Ref:**
Nil

**Training/Qualification required:**

- Construction Industry Induction
- Track Safety Awareness

or
RISI (Rail Industry Safety Induction)

And as specified below.

- Road Traffic Controllers

**Personal Protective Equipment required:**

- Safety Boots
- High Visibility Vests
- Hardhats
- Protective Clothing
- Safety Glasses

And as specified below.

- Gloves
- Fall Arrest Device.
- During all Site Works a FIRST AIDER MUST be Present

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|---|---|---|---|---|---|---|---|
| 1 | Supervisor undertakes site pre-work briefing and gives local induction. | Staff not Listening to Pre-Work Brief | B - | Identify all hazards, Staff to ensure they are properly Briefed as to risks involving Worksite. | D | Team Leader / Work Group Leader / All Staff | Pre-Work Briefing SMS-06-FM-0163 |
| 2 | Supervisor verifies competence of personnel doing the task and currency of permits for work. | Expired Competency Cards & Permits, Unqualified type of Personnel for the Task. | B - | Visual Inspection of Personnel Competency Cards & Currency of Permits | D | Team Leader / Work Group Leader | Safety Training & Competence SMS-11-SR-0128 |
| 3 | Review SWMS and confirm it is current. | Use of a SWMS that is out of date | C - | Ensure SWMS is current and up to date. | D | Team Leader / Work Group Leader | SWMS & SWI's SMS-06-PR-0023 |
| 4 | Verify that plant and equipment for the task is fit-for-purpose. | Plant & Equipment kept in poor working condition | C + | Conduct a Daily Plant Checklist | D | All Staff | Plant SMS-06-GD-0225 |
| | WARNING | *The Following Precautions are to be undertaken for when using Plant under Overhead Power Lines as in Activity 5 & 8 :*<br>• The Operator or other person in control of the Worksite must take reasonable care to inspect the workplace to identify Potential Hazards with Live Overhead Power Lines<br>• All Overhead Power Lines are to be treated as Live unless the Plant Operator has received an Access Authority from the Electrical Operator<br>• All Plant whose Design envelope is within the Approach Distances must be controlled by Safe Systems of Work. i.e. : Height Restrictors / LCR32 Observer<br>• Relevant Information can be obtained from the Plant SMS-06-GD-0225 or on the WorkCover Website : Work Near Overhead Power Lines Code of Practice 2006 | | | | | |
| 5 | • Access, Egress and Working on site.<br>• Use of Vehicle Lifting Crane<br>• Setting up of Lighting Towers during Night Works | General | | | | | |
| | | Hit by Train | A | Pre-work Brief including Worksite Protection Plan, Site Induction and Inspection | C+ | Worksite Protection Officer | Network Rules & Procedures, Safety Knowledge Management SMS-18-SR-0098 |
| | | Injury from vehicles and plant / equipment | B+ | Provide a Site Plan detailing safe access paths, Traffic Management Plan, Workers to be briefed on Safe areas of Vehicle Crane | C- | Team Leader / Work Group | Plant SMS-06-GD-0225 Work-on/near Roads SMS-06-GD-0372<br>Worksite Traffic Management SMS-06-GD-0333 |

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|---|---|---|---|---|---|---|---|
| | | Slips, trips and falls | C- | Pre-work Brief to identify potential hazards | D | Team Leader / Work Group Leader / All Staff | Workplace Risk Management SMS-06-PR-0104 |
| | | Injury from striking Overhead Wiring. | A | Ensure Permit to Work has been obtained. | C+ | Authorised OH Line Worker | Electrical Permits SMS-06-EN-0577 |
| | | Tripping Hazards in Darkened Areas (During Night Works) | C- | Ensure Work Area is well lit up by Lighting Towers | D | Team Leader / Work Group Leader / All Staff | Workplace Risk Management SMS-06-PR-0104 |
| 6 | All Job Steps | Falling from Heights | B+ | Use of Fall Arrest Device. Safety checked and inspected device. Height Safety Training Card | C- | Team Leader / Work Group | Working at Heights SMS-06-GD-0240 PPE SMS-06-GD-0323 |
| 7 | Install / Renew Signal Base | Injury to Back from use of Shovels, Picks, Bars etc | B- | Use of PPE – Gloves Ensure tools are in good condition Do not overexert. | D | All Staff | PPE SMS-06-GD-0323 |
| 8 | • Install / Renew Signal Post & Fittings for Level Crossings into place<br>• Assemble Light Assemblies<br>• Install / Renew Mechanisms & F Type Flashing Light Assemblies<br>• Transport Equipment<br>• Securing Signal Post to Signal Base, Adjustments of Signal Post Fittings<br>• Install / Renew Level Crossing Booms<br>• Adjusting Counter Weights on Mechanisms<br>• Install / Renew Pedestrian | General Process Hazards | | | | | |
| | | Pinch / Crush Injury to Hand from placing Signal Post onto Signal Base & Signage | B- | Keep Hands away from Mechanisms, Moving parts. Use of PPE – Gloves | C- | All Staff, | PPE SMS-06-GD-0323 |
| | | Electric Shock from rails / equipment / plant due to difference in potential | A | Ensure signalling equipment is electrically isolated. Signal Electrician to isolate. | C+ | Signal Electrician / Authorised Officer | Safety Issues for Signalling Personnel TMG J042 |
| | | Injury while Load / unload Equipment | B+ | Ensure workers are kept well clear of lift path. Use competent crane operators Maintain control using guide wires/ropes | C- | Vehicle Crane certificate Holders | Lifting Equipment Inspection SMS-16-FM-0089 |
| | | Lifting / Manual Handling | B- | Use Team Lift for Heavy Equipment | C- | All staff | Backsafe Training Manual |
| | | Eye/ Hand Injury | C+ | Use of PPE – Eye protection, Gloves | D | | PPE SMS-06-GD-0323 |
| | | Cuts and Abrasions | C- | Use of PPE – Gloves | D | | |
| | | Road Vehicle & Pedestrian Traffic | B- | Road Traffic & Pedestrian Traffic Control Plan | C- | Team Leader / Work Group | Work-on/near Roads SMS-06-GD-0372 |
| | | Concrete Mixing and Pouring | | | | | |

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|---|---|---|---|---|---|---|---|
| | Maze Fencing<br>• Concrete Cutting by Power Saw<br>• Install Bollards<br>• Concreting of Pedestrian Maze<br>• Mount / Adjust Pedestrian Gate Motors & Gates<br>• Installation / Renewal of Pedestrian "Red Man" Posts and Lamp Cases<br>• Install / Renew Level Crossing / Roadside & Trackside Signage | Injury from / around Concrete Truck | B+ | Keep Employees clear from Concrete Truck | C- | All staff | Plant SMS-06-GD-0225 |
| | | Strain Injuries from lifting / moving cement, concrete Bags | B- | Use of PPE – Eye protection<br>Backsafe techniques | C- | All staff | PPE SMS-06-GD-0323<br>Backsafe Training Manual |
| | | Back Injury / Splinters / Skin Irritation from Screeding & working Concrete | B- | Use of PPE – Gloves<br>Backsafe techniques | C- | | |
| | | Breathing difficulties from concrete dust | B- | Use of PPE-Dust Masks | C- | All staff | PPE SMS-06-GD-0323 |
| | | Generators / Power Tools / Hand Tools | | | | | |
| | | Injury from Electric Shock from Generators/Power tools | A | Inspect and check equipment parts, electrical cables (Valid Test and Tag Label),<br>RCD Units fitted (Honda Inverter Type Excluded) | C+ | All staff | Equipment Operating Manual,<br>Work Around Elect. Equip. SMS-06-GD-0268 |
| | | Injury from misuse of Hand Tools | B- | Appropriate care when tightening Bolts<br>Use of PPE – Gloves | C- | All staff | Safe Work Practices SMS-06-SR-0033<br>MSDS |
| 9 | Electrical, Sighting & Focus Test (non specific) | Work at Heights, using Handtools | B+ | Use of Fall Arrest Device.<br>Safety checked and inspected device. Height Safety Training Card | C- | Team Leader / Work Group | Working at Heights SMS-06-GD-0240<br>PPE SMS-06-GD-0323 |

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**NOTE: Each work group or team member must sign off on the SWMS to acknowledge they have been briefed about or instructed in the SWMS**

| Team member name (Please print) | Team Member signature | Instructor/ Briefer name | Date | Team member name (Please print) | Team Member signature | Instructor/ Briefer name | Date |
|---|---|---|---|---|---|---|---|
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# Installation - Renewal - Upgrade Level – Crossings (Passive or Active)

| RailCorp Level 2 Risk Matrix - Regional & Local (Workplace) | | Likelihood/Frequency | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | Event Frequency | Less than once every 1000 years | Once every 100 to 1,000 years | Once every 10 to 100 years | Once every 1 to 10 years | More than once per year up to and including 10 times per year | More than 10 times per year |
| | | Historical (Likelihood) | Unheard of in the rail industry | Has occurred once or twice in the rail industry | Has occurred many times in the rail industry, but not in NSW | Has occurred once or twice in NSW | Has occurred frequently in NSW | Has occurred frequently at specific locations |
| | | Workplace Predictive (Likelihood) | Not expected to occur | May occur only in exceptional circumstances | Could occur at some time but not likely | You would expect it to occur at least once in the next 10 years performing similar activities | You would expect it to occur at least once this year performing similar activities | You would expect it to occur at least once this month performing similar activities |
| | | | F1 | F2 | F3 | F4 | F5 | F6 |
| Consequence | | | Incredible | Improbable | Remote | Occasional | Probable | Frequent |
| >10 Fatalities | C6 | Disastrous | B- | B+ | A | A | A | A |
| 2-10 Fatalities | C5 | Catastrophic | C+ | B- | B+ | A | A | A |
| 1 Fatality (2-10 Major Injuries) | C4 | Critical | C- | C+ | B- | B+ | A | A |
| 1 Major Injury | C3 | Major | D | C- | C+ | B- | B+ | A |
| 1 or more Minor Injuries | C2 | Minor | D | D | C- | C+ | B- | B+ |
| First aid treatment, or illness/injury not requiring treatment | C1 | Negligible | D | D | D | C- | C+ | B- |

Extreme
High
Medium
Low

**Definition for Use - Regional & Local level (Workplace)**

Used for workplace hazards and safety risks that do not consider the whole of the network. Indicatively this matrix is appropriate for use where the hazards under consideration are up to 10% of the total network exposure. This includes regional and local workplace risk assessments.

As an example, the Level 2 scale would be used when examining the risk of slips, trips and falls on specific RailCorp platforms within a region or at a particular station, or the risk of fire within a depot.

There are 3 options for descriptors which can be used to determine the frequency category. One set of descriptors is provided for frequency, one for historical likelihood, and one for predictive liklihood in the workplace. Choose the most appropriate.

To score the risk, follow the steps:

1. Identify the magnitude of the credible consequence if the risk were to occur. If applicable, risks should be considered in terms of the safety (this matrix), commercial and environmental impact (using other matricies).

2. Identify the likelihood of this level of consequence occurring. (This is done after considering the effectiveness of the current controls in place)

3. Score the risk using the combination of likelihood and consequence ranking.

Note: Where there are a range of credible consequences which may lead to a different level or risks and/or where the controls may be different. It may be useful to score the risk more than once.