

<b>SWMS number:</b> SMS-06-SW-1093	<b>SWMS Name:</b> OHW - OHW Construction Note: Process Steps Depend on Tension Length			<b>SWMS Team:</b> Electrical Distribution Review Team
<b>Custodian (Position):</b> Electrical Services Manager, Commercial Renewal	<b>Assumptions:</b> Site specific risks are addressed and assessed in pre- work briefing			
<b>Approving Authority (Position):</b> Safety and Quality Manager Commercial Renewals	<b>Equipment/Plant/Tools:</b> <ul style="list-style-type: none"><li>Rail Mount Vehicle (OHW Consist)</li><li>RFW (HiRail Truck)</li><li>Truck/Hiab, Cherry Picker</li><li>Hand Tools</li><li>Fittings, cantilevers, droppers, back anchors, contact &amp; catenary drums</li><li>Lever Blocks, Rigging Chains, Fibre and Rope strops</li><li>Pantograph Gauge, Heel Height Stick, String Line &amp; Level, Non-conducting Measuring Tapes</li><li>Voltmeter Live Line(VLL Tester), Rail Connections, LR Tester</li><li>Split pins, bolts, swing restrictors are installed</li></ul>	<b>Records/Reporting:</b> <ul style="list-style-type: none"><li>Worksite Protection Plan</li><li>Pre-work Brief</li><li>Electrical Test Tags</li><li>Electrical Safety Rules &amp; Procedures</li><li>STN or safeworking telegram</li><li>Electrical Permit</li><li>Test tags on rigging gear</li><li>Design/Handover Documentation &amp; Standard Drawings Dictated in Design</li><li>CCON Installation Book</li><li>Daily Plant Checklist</li></ul>	<b>Permits/licences required:</b> <ul style="list-style-type: none"><li>Electrical Permit Holder</li><li>Accredited Rail Corp Linesperson</li><li>Vehicle Loading Crane / Cherry Picker Accreditation</li></ul>	<b>Content reviewed by Technical expert (SME) and RailCorp safety professional</b> (position including Div/Group) Electrical Services Manager & SEQ Coordinator Asset Management Group Commercial Renewals
<b>Applicable Standards, Codes of Practice and guidance:</b> <ul style="list-style-type: none"><li>OH&amp;S Act 2000</li><li>OH&amp;S Regulation 2001</li><li>Rail Safety Regulation 2003</li><li>RailCorp Network Rules &amp; Procedures</li><li>RailCorp Safety Management System.</li><li>MSDS for all chemicals and hazardous Substances used on site</li><li>Electrical Safety Instructions</li><li>SAA Wiring Rules</li><li>EP 08 00 00 01 ST - OHW standards for the electrification of new routes, section 1.9 / section 4.1/ section 4.2 / section 4.6</li></ul>				<b>Personal Protective Equipment required:</b> <ul style="list-style-type: none"><li>Safety Boots</li><li>High Visibility Vests</li><li>Hardhats</li><li>Protective Clothing</li><li>Safety Glasses</li><li></li></ul> <p>And as specified below.</p> <ul style="list-style-type: none"><li>Fall Arrest Devices / Parachute type fall protectors</li><li>Gloves</li><li>Wet weather gear.</li></ul>

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<ul style="list-style-type: none"> <li>• EC14 – Guide to Electrical Workers' Safety Equipment</li> <li>• WorkCover NSW Plant Guide</li> <li>• National Code of Practice for Manual Handling [NOHSC:2005]</li> <li>• AS/NZS 1891.3 – 1997 "Industrial fall arrest systems and devices - Fall arrest devices"</li> <li>• AS 2550.11-2004 Cranes, hoists and winches - Safe use - Vehicle-loading cranes</li> </ul>	<p><b>Inspection requirements:</b> Nil</p>	<p><b>Service schedule:</b> Nil</p> <div data-bbox="996 598 1375 865"> <p><b>MIMS or METRE Ref:</b> Nil</p> </div>	<p><b>Training/Qualification required:</b></p> <ul style="list-style-type: none"> <li>• Construction Industry Induction</li> <li>• Track Safety Awareness or RISI (Rail Industry Safety Induction)</li> </ul> <p>And as specified below.</p> <ul style="list-style-type: none"> <li>• Authorised Electrical Person</li> <li>• Accredited Rail Corp Linesperson</li> <li>• Track Vehicle Operator</li> <li>• Traffic Officer</li> </ul>	<ul style="list-style-type: none"> <li>• During all Site Works a FIRST AIDER MUST be Present</li> </ul>
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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
5	Generic Hazards to be read with all steps of this SWMS.	Muscle strains and Damages to due incorrect or heavy lifting.	B+	Correct lifting practices to be used. If to heavy gang lifts or mechanical assistants to be used	D	All site inducted persons	Back & Muscle Injury SMS-17-PR-0313 Manual Handling SMS-06-GD-0001 Lifting Equipment SMS-16-FM-0089
		Struck by falling or moving objects during the loading unloading process	C+	All staff to be clear of drop zones and swing arcs during this task.	D	All site inducted persons	
		Fall from heights	B-	All staff working aloft to comply with the following Be Competent to work aloft Machinery with gates or fencing eg MVE fall arresters not required.	C	Accredited Rail Corp Linesperson and persons under training.	Plant & Equipment Safety SMS-11-GD-0243 Elev. Work Platform's SMS-06-SW-0310
			B+	If gates or fences lowered for any reason fall arresters are to be attached in the approved manner.	C-		Working at Heights SMS-06-GD-0240 Full Body Harness SMS-06-GD-0241
			B+	All other vehicles approved fall arresters to be worn in the approved manner	D	Competent persons Accredited Rail Corp Linesperson and persons under training.	

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		Struck by falling objects	B+	All ground staff to stay clear of drop zones. If required to enter drop zones Work to cease until clear of drop zone ensure work ceases	D	All site inducted persons	PPE- SMS-06-GD-0323
6	Generic Hazards for this task to be read in all steps	Struck by train or track vehicles.	A	Correct Safe Working to be employed prior to any staff commencing any work. Hi-visibility vest to be worn at all times. Staff to remain within protected areas at all times. If staff required to work out side protected area additional safe working to be implemented	D	All site inducted persons	Network Rules & Procedures, Plant & Equipment Safety SMS-11-GD-0243
6	Generic Hazards for this task to be read in all steps (Cont.....)	Electric shock or contact with electrical apparatus	B+	Ensure Electrical Permit is in force and it covers all aspects of tasks in hand. Electrical Safeworking Clearances to be maintained at all times Electrical Permit to Work Limits of Work Signage to be installed at all extremities of the Electrical Permit to Work. These signs shall be installed either in the 6 foot or the 4 foot, which ever is applicable	C-	Accredited Rail Corp Linesperson and persons under training.	Electrical Equipment SMS-06-GD-0268 Electrical Permits SMS-06-EN-0577
		Exposure to elements eg sunburn, sunstroke and inclement weather	C+	Correct PPE to be worn long sleeve shirts, long trousers with correct UV rating Sun screen to be available	D	All site inducted persons	Working Outdoors SMS-06-PR-0104 PPE- SMS-06-GD-0323
			C-	Adequate fresh drinking water to be available at all times through site office. All personal to ensure availability of person issue of approved wet weather gear. All work to cease when lightning activity in near vicinity, work not to recommence to lightning has passed.	D	Accredited Rail Corp Linesperson and persons under training.	
		Bites & Stings Sharps	C-	Insect repellent to be available Visual inspection of area and clean up	D	All persons	Needle Sticks SMS-06-FM-0163
7	Set up Worksite Protection Obtain Authority & Permit to Work	Struck by train or track vehicles.	A	Correct Safe Working to be employed prior to any staff commencing any work. Hi-visibility vest to be worn at all times	C+	Qualified Safeworking officer	Network rules & Procedures

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		Electric shock or contact with electrical apparatus	B+	Ensure Electrical Permit is in force and it covers all aspects of tasks in hand. Ensure relevant Safe working Distances maintained at all times	C-	Accredited Rail Corp Linesperson and persons under training.	Electrical Permits SMS-06-EN-0577
8	Transfer OHW Train or Plant to Site	Damage to infrastructure and plant	B-	Only competent personal to operate OHW train and plant	C-	TVO Traffic Officer Relevant Safeworking Officers	STN or safeworking telegram Incident Reporting / Notification
		Struck by Hi-Rail during the tasks of on-railing and off-railing hi-rails	C+	Only competent staff involved in this task to be in the near vicinity of hi-rails	D	Accredited Rail Corp Linesperson and persons under training.	SMS-17-SR-0099 Plant & Equipment Safety
		Struck by train or plant on site	C+	Correct Safe Working to be employed prior to any staff commencing any work. Hi-visibility vest to be worn at all times	C+	Accredited Rail Corp Linesperson and persons under training.	SMS-11-GD-0243
9	Loading/Unloading of materials(fittings, cantilevers, droppers, back anchors, contact & catenary drums...etc) from Vehicle(s)	Crushing injuries (limbs)	B+	Ensure that limbs/digits are clear while loading and unloading vehicles	C-	All site inducted persons	Manual Handling SMS-06-GD-0001
9	Loading/Unloading of materials(fittings, cantilevers, droppers, back anchors, contact & catenary drums...etc) from Vehicle(s) (Cont.....)	Lifting injuries ( Strains/sprains)	C+	As per generic hazards (Refer to Number 5)	D	Accredited Rail Corp Linesperson and persons under training. Accredited permit holder	Back & Muscle Injury SMS-17-PR-0313
		Struck by falling objects	B-	As per generic hazards (Refer to Number 5)	D	All site inducted persons	PPE- SMS-06-GD-0323
		Fall from heights	B+	As per generic hazards (Refer to Number 5)	D	Accredited Rail Corp Linesperson and persons under training.	Working at Heights SMS-06-GD-0240 Full Body Harness SMS-06-GD-0241

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		Caught between (between vehicles)	A	All staff to be aware of movements of vehicles. Operators to sound warning and visually check prior to movements	C+	All site inducted persons	Incident Reporting / Notification SMS-17-SR-0099
10	Stack Weights on a temporary weight platform and secure to mast	Hazards as per RMELE 06	B+	Hazards as per RMELE 06	C-	Accredited Rail Corp Linesperson and persons under training.	RMELE 06- OHW - Stacking Weights
11	Install Cantilever and Contact Arrangements, Mid Point Bridles, Swing Restriction Devices, Ginny Wheels and Temporary Registration. Including OHW bridge/tunnel attachments	Crushing Injuries (hands & fingers)	B+	Ensure that limbs/digits are clear while loading and unloading vehicles.	C-	Accredited Rail Corp Linesperson and persons under training.	Design, CCON, Ccalc Workshop Manual Handling SMS-06-GD-0001 Plant & Equipment Safety SMS-11-GD-0243
			B+	Ensure that all correct cantilever restraints (crickets stumps) are in place and secured	C-		
		Injuries due to lifting	B-	As per generic hazards (Refer to Number 9.2) Loading/Unloading of Materials	D	All site inducted persons	Manual Handling SMS-06-GD-0001
		Fall from heights	B-	As per generic hazards (Refer to Number 5)	C-	Accredited Rail Corp Linesperson and persons under training.	Working at Heights SMS-06-GD-0240
		Struck by falling objects	B-	As per generic hazards (Refer to Number 5)	C-	All site inducted persons	PPE- SMS-06-GD-0323
		Damage to the environment due to fluid leak.	C+	Turn off machinery clean with spill kits on board MVE And report incident. Have fluid leak repaired	D		Environmental Protection Authority, relevant Authorities
12	Removal of OHW	As per SMS -06-SW-1135 Removal OHW	B+	As per SMS -06-SW-1135 Removal OHW	C-	Accredited Rail Corp Linesperson and persons under training.	As per SMS -06-SW-1135 Removal OHW
13	Cantilever safe to accept catenary / contact wire	Struck by falling objects	B+	Site manager or competent RailCorp person, to walk tension length to make sure split pins, bolts, swing restrictors are installed correctly Ensure that all correct cantilever restraints (crickets stumps) are in place and secured	C-	Site manager or competent RailCorp	Plant & Equipment Safety SMS-11-GD-0243 PPE- SMS-06-GD-0323



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14	Run Catenary & Supertension	Struck by work trains, plant on Worksite.	A B-	As per generic hazards (Refer to Number 6)	C-	All site inducted persons	Plant & Equipment Safety SMS-11-GD-0243
	Install Dropper Tops						
	Set tension in Catenary to No Load	Fall from heights	B+	As per generic hazards (Refer to Number 5)	C-	Accredited Rail Corp Linesperson and persons under training.	Working at Heights SMS-06-GD-0240 Elev. Work Platform's SMS-06-SW-0310 Full Body Harness SMS-06-GD-0241
	Run Contact & Supertension						
	Install Fixed Midpoint arrangement if required	Struck by falling objects	A	As per generic hazards (Refer to Number 5)	C-	All site inducted persons	PPE- SMS-06-GD-0323
	Release Tension in Contact to working/design load and terminate	Struck by wire in tension	C+	Ensure that Catenary remains contained correctly with in the boom.	C-	Accredited Rail Corp Linesperson and persons under training.	Plant & Equipment Safety SMS-11-GD-0243
	Terminate catenary & contact wires and adjust position of weight stack. Install weight guides.	Damage to the environment due to fluid leak.	B+	Turn off machinery clean with spill kits on board MVE And report incident. Have fluid leak repaired	D	All site inducted persons	Environmental Protection Authority, relevant Authorities
	Remove Ginny wheels & cricket stumps and clip up into Catenary envelopes	Struck by work trains, plant on Worksite.	B-	As per generic hazards (Refer to Number 6)	C-	All site inducted persons	Plant & Equipment Safety SMS-11-GD-0243
	Remove Twists in Contact wire(s) and secure pull off arm(s) to Contact via Contact clamp(s)	Fall from heights	B-	As per generic hazards (Refer to Number 5)	C-	Accredited Rail Corp Linesperson and persons under training.	Working at Heights SMS-06-GD-0240 Elev. Work Platform's SMS-06-SW-0310 Full Body Harness SMS-06-GD-0241
	Install Dropper Bottoms and Inspan Feeders	Struck by falling objects	B-	As per generic hazards (Refer to Number 5)	C-	All site inducted persons	PPE- SMS-06-GD-0323
	Install Section Insulators	Struck by wire in tension	A+	Ensure that Catenary remains contained correctly with in the boom.	C-	Accredited Rail Corp Linesperson and persons under training.	Plant & Equipment Safety SMS-11-GD-0243

SWMS Custodian: Electrical Services Manager Commercial Renewals

SWMS Approver: Safety Environment and Quality Manager Commercial Renewals

Number SMS-06-SW-1093

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	<ul style="list-style-type: none"><li>Install Manual Sectioning &amp; Rail Connection Switch</li><li>Conduct QA &amp; Handover</li></ul>	Damage to the environment due to fluid leak.	B-	Turn off machinery clean with spill kits on board MVE And report incident. Have fluid leak repaired	D	All site inducted persons	Environmental Protection Authority, relevant Authorities
15	Demobilisation of plant and Equipment	Damage to infrastructure and plant	B-	Only competent personal to operate OHW train and plant	C-	TVO Traffic Officer Relevant Safeworking Officers All site inducted persons	Network Rule & procedure Incident Reporting / Notification SMS-17-SR-0099 Plant & Equipment Safety SMS-11-GD-0243 Electrical volume
		Struck by Hi-Rail during the tasks of on-railing and off-railing hi-rails	C+	Only competent staff involved in this task to be in the near vicinity of hi-rails	D		
		Struck by train or plant on site	B+	Correct Safe Working to be employed prior to any staff commencing any work. Hi-visibility vest to be worn at all times	C+		
16	Removal Worksite Protection Return Authority & Permit to Work	Struck by train or track vehicles.	C-	Correct Safe Working to be employed prior to any staff commencing any work. Hi-visibility vest to be worn at all times	C+	TVO Traffic Officer Relevant Safeworking Officers	Network Rule & procedure Incident Reporting / Notification SMS-17-SR-0099 Electrical Equipment SMS-06-GD-0268
		Electric shock or contact with electrical apparatus	B+	Ensure Electrical Permit is signed of and all staff signed of and clear	C-	Accredited Rail Corp Linesperson and persons under training.	
			B+	Ensure relevant Safe working Distances maintained at all times	C-		



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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

RailCorp Level 2 Risk Matrix - Regional & Local (Workplace)			Likelihood/Frequency							Definition for Use - Regional & Local level (Workplace)
			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	
Consequence				F1	F2	F3	F4	F5	F6	
			Incredible	Improbable	Remote	Occasional	Probable	Frequent		
>10 Fatalities	C6	Disastrous	B-	B+	A	A	A	A	A	<p>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.</p> <p>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.</p> <p>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 likelihood in the workplace. Choose the most appropriate.</p> <p>To score the risk, follow the steps:</p> <p>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 matrices).</p> <p>2. Identify the likelihood of this level of consequence occurring. (This is done after considering the effectiveness of the current controls in place)</p> <p>3. Score the risk using the combination of likelihood and consequence ranking.</p> <p>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.</p>
2-10 Fatalities	C5	Catastrophic	C+	B-	B+	A	A	A	A	
1 Fatality (2-10 Major Injuries)	C4	Critical	C-	C+	B-	B+	A	A	A	
1 Major Injury	C3	Major	D	C-	C+	B-	B+	A	A	
1 or more Minor Injuries	C2	Minor	D	D	C-	C+	B-	B+	B+	
First aid treatment, or illness/injury not requiring treatment	C1	Negligible	D	D	D	C-	C+	B-	B-	