TASK DESCRIPTION Sleeper Laying

Purpose: This work instruction describes how to lay sleepers within the BHP WAIO rail network.

SAFETY

Before commencing work, complete a TAKE 5 every time to check that no abnormal conditions exist and complete JHA if prompted by TAKE 5.

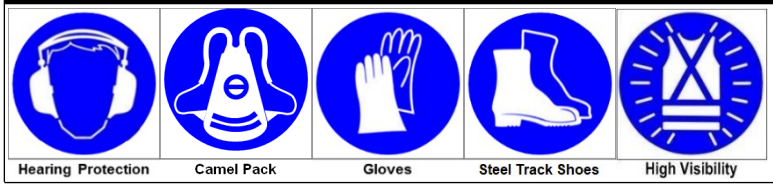
1. This equipment should always be treated as live until fully isolated.

MATERIAL RISKS AND CONTROLS		
Risk	**Description of Risk**	**Critical Controls**
	Rail Mounted Equipment (RME)	Track Access Permits for track access and protection is set up for the work site. Minimum 100m separation distances to separate work trains within worksite. Persons involved in the task must have constant positive communications with worktrain operator. All personnel are deemed competent to access the rail corridor and required persons meet the lookout/warden/TPO specifications.
	Surface Mobile Equipment Interaction	Persons not involved directly with the task shall not be in the vicinity of SME. Where SME cannot be separated, spotters (identified by yellow vests) are to manage personnel interaction. All interaction is to use positive communications. Confirm your workgroup hold the right licence and permit for the equipment they are operating.
	Entanglement and Crushing	Warning & Emergency stops are functioning correctly. Machinery and moving equipment is always visually monitored when personnel are operating within line of fire.
	Dropped Objects	Assess the risk of dropped / falling objects for all your tasks. Identify adequate controls to prevent objects from falling and implement them on your job. Always wear steel track shoes when laying sleepers.
	Extreme Weather Incident	30/30 rule to be applied for potential lightning storms – If thunder is heard within 30 seconds after seeing a lightning strike, stop work for 30 minutes. Relocate to a safe place i.e., in a vehicle cab. Communicate with journey management and other work groups to determine current weather and road conditions.
	Lifting Incident	Lifting equipment inspection and testing. Operators are trained, qualified, competent, and authorised. Competent spotters in place for all movements where there is risk to the operator or personnel in the area.

MATERIAL RISKS AND CONTROLS		
Risk	**Description of Risk**	**Critical Controls**
	Noise-Induced Hearing Loss	Select suitable hearing protection for your level of exposure and based on your personal fit testing results. Fit your hearing protection correctly.
	Uncontrolled Release of Energy	Ensure the task has been assessed for the potential of stored energy using a risk assessment and team discussion. Remove or control the stored energy before executing any work.

ADDITIONAL CONTROLS REQUIRED	
Control Type	**Reason for Control Requirements**
Take 5	This is a minimum standard requirement performed at the start of the task, or if there is any change during the task.
Job Hazard Analysis (JHA)	As determined by take 5, individual, or by supervisor.
Project Environmental Aboriginal Heritage Review (PEAHR)	Required for any land disturbing activity occurring within an approved PEAHR boundary. An application must be submitted in the PEAHR system through the HSE Compliance Database (CMO). Boundaries to be marked by surveyor prior to mobilisation.
Lifting Operations	To ensure everybody is aware of lifting operations and appropriate controls are in place.
Barricading / Warning Signs	Temporary control measure to protect personnel from hazards.
Spotter	Person to watch for something to happen. The spotter will, in the event of unsafe conditions alert others while work is being performed.
Traffic control	To direct vehicle and pedestrian traffic around the workgroup zone or other road disruption.

ADDITIONAL PPE REQUIRED



SPECIFIC COMPETENCIES, KNOWLEDGE AND SKILLS REQUIRED

ECO/MOD2, BHP Rail Infrastructure Card (Minimum Track Access Restricted)
SME competencies
Hi-Rail training and VOC
Spotter competencies

TOOLING AND EQUIPMENT REQUIRED

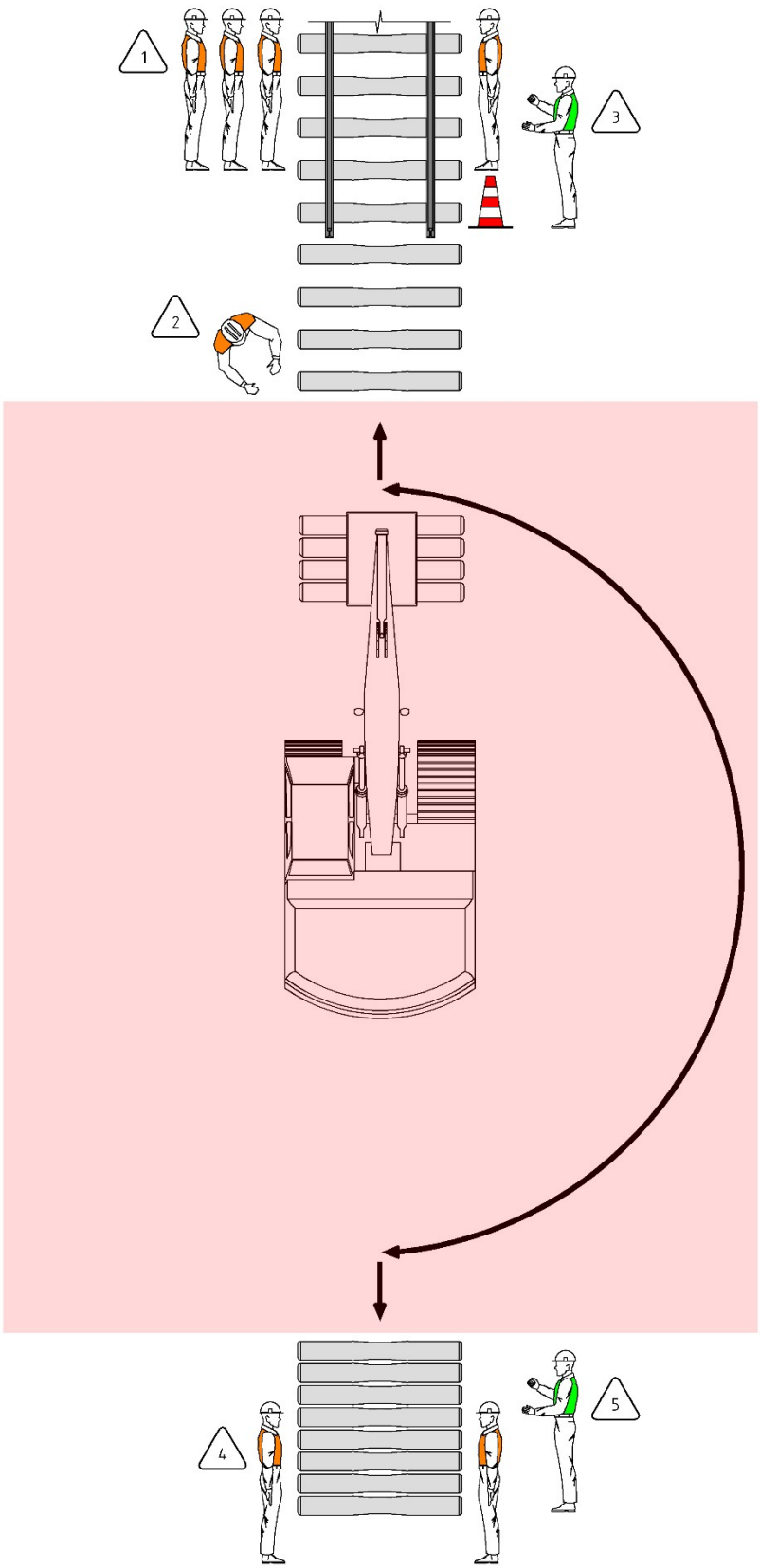
- BHP VHF radio
- UHF radios as required
- 1 x Back-up BHP VHF radio
- 4 x Crowbars

- Excavator (Hi-Rail)
- Traffic management signs and barricading
- Minimum 10 L of water per person
- Lifting Equipment (concrete sleeper 4-grab)
- 4 x Steel Track Shoes
- 2 x Spotter Vests
- 2 x 8m Measuring tapes
- 1 x Traffic cone (separation between SME & crew)

REFERENCE DOCUMENTATION	
Document Reference Number	**Document Description**
0127717	Isolations and Barricading
0136618	Onsite Safety Briefing
0125523	Conducting a Take 5
0124548	Conducting a Job Hazard Analysis (JHA)
0124550	WAIO Job Hazard Analysis (JHA) Form
0002664	Code of Practice - Track Maintenance
0148379	Material Impact during Movement of Goods
0121517	Waste Disposal Work Instruction
SPR-IHS-SAF-029	Lifting Operations
0107569	Lifting Operations – Crane Pre Lift Checklist

ATTACHED PICTURES, DRAWINGS OR DIAGRAMS

Sleeper Laying Machine Movement Controls

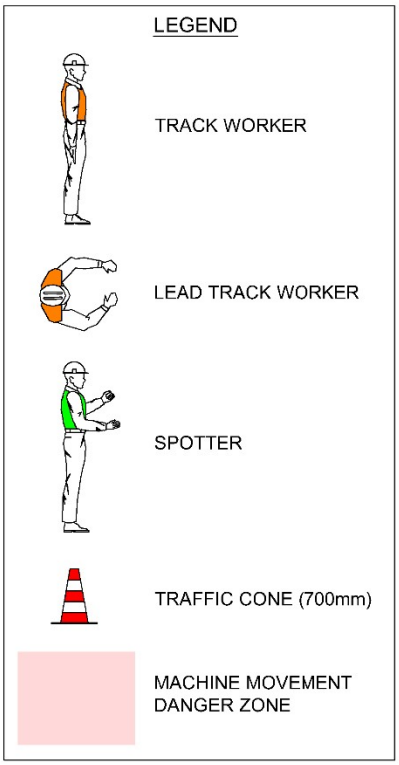


SAFETY REQUIREMENTS

1. ALL MACHINE MOVEMENTS MUST HAVE A SPOTTER PRESENT. THE SPOTTER WHO IS TRAINED, COMPETENT, AND HOLDING A CURRENT VOC FOR THE MACHINE MUST BE WEARING A HIGH VISIBILITY VEST. THE SPOTTER CANNOT DO ANY OTHER TASK WHILE THEY ARE RESPONSIBLE FOR SPOTTING THE MACHINE.

NOTES

1. SLEEPER LAYING TRACK WORKERS ARE NOT PERMITTED PAST THE TRAFFIC CONE AND MUST ALWAYS FOLLOW VERBAL INSTRUCTIONS FROM THE SLEEPER LAYING SPOTTER.
2. LEAD TRACK WORKER IS THE ONLY PERSON PERMITTED PAST THE TRAFFIC CONE.
3. SLEEPER LAYING SPOTTER IS RESPONSIBLE FOR MAINTAINING SEPARATION BETWEEN THE SLEEPER LAYING TRACK WORKERS AND MACHINE MOVEMENT.
4. SLEEPER STACK TRACK WORKERS ARE TO REMOVE DUNNAGE/GLUTS FROM SLEEPER STACKS AFTER THE MACHINE HAS MOVED A SAFE DISTANCE AWAY FROM THE SLEEPER STACK.
5. SLEEPER STACK SPOTTER MUST ALWAYS PREVENT TRACK WORKERS FROM ENTERING THE MACHINE MOVEMENT DANGER ZONE. WHEN ALL CLEAR, GUIDE THE MACHINE OPERATOR TO SAFELY GRAB THE NEXT 4 SLEEPERS FROM THE STACK.



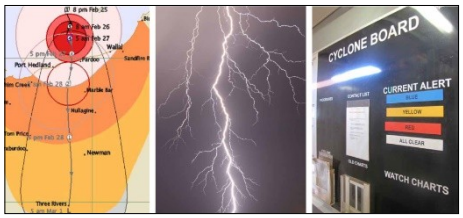
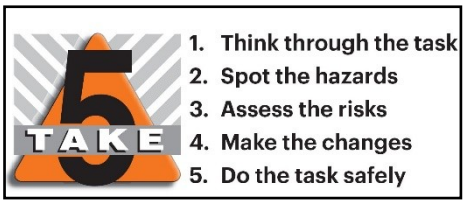
No.	Task Steps	Photo or Diagram	Notes

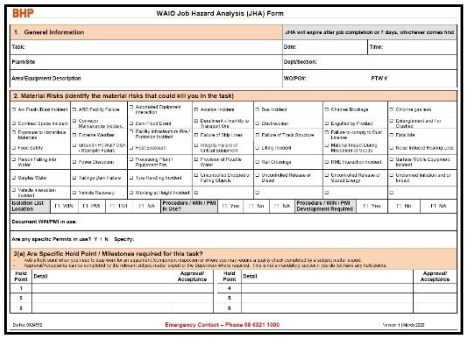
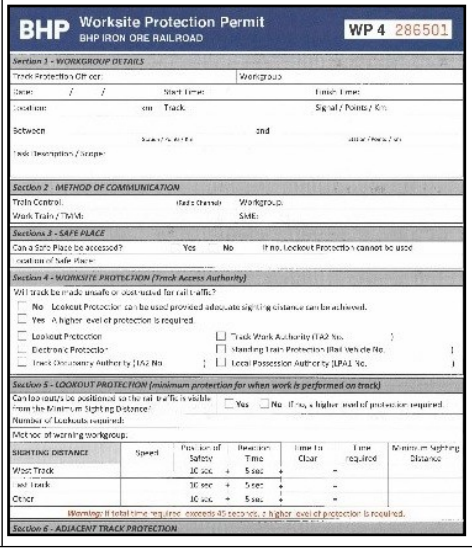
Tasks to be Done Under Running Conditions (Pre-Isolation)

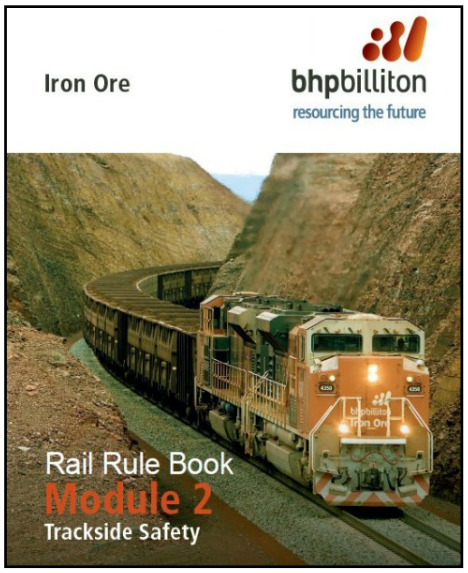
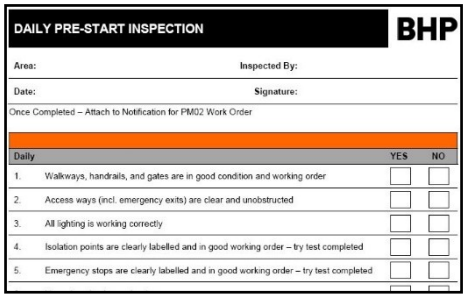
a. Contact area supervisor as applicable.

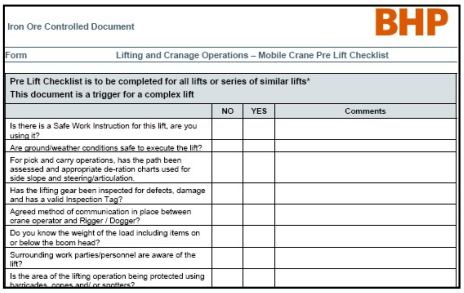
b. Issue a general alert, warning personnel of speed restrictions and access road closures as required.

1. Pre-Task Execution

1.1.	Review the job plan and confirm scope is correct.		**Note:** Make necessary changes to the plan (if required) to enable task to be completed correctly and safely.
1.2.	If required for this site, confirm a PEAHR approval is in place prior to the start of any land disturbance or construction activities that involves the clearing of vegetation and/or a change in land-use or discharge to the environment.		**Note:** Hard copy of approved PEAHR specific to the works area must be on hand for the duration of the task. **Ref:** 0135292 Project Environment and Aboriginal Heritage Review (PEAHR).
1.3.	Assess suitability of existing and forecast weather conditions for duration of task.		**Ref:** 0121599 WAIO Extreme Weather Procedure for lightning or cyclonic weather conditions.
1.4.	Complete a Take 5 for each task.		**Note:** This is a minimum standard requirement. **Note:** If hazard rating is H11 or higher, complete a JHA with entire workgroup.

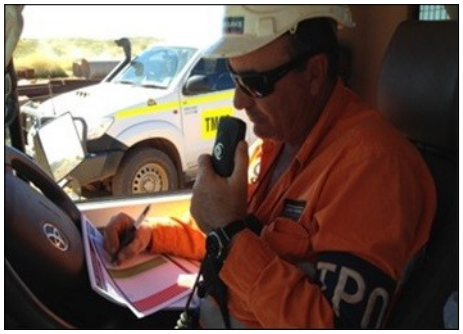
No.	Task Steps	Photo or Diagram	Notes
1.5.	Complete a WAIO Job Hazard Analysis (JHA) Form for any hazards or job steps not covered in this work instruction with all members of the work party if hazard rating is H11 or higher.		**Note:** JHA must be completed for all hazardous hot work activities. **Note:** All members of the work party must review and sign on to the JHA. **Ref:** 0124550 WAIO Job Hazard Analysis (JHA) Form.
1.6.	Conduct an onsite safety briefing. Personnel to attend pre-start briefing.		**Note:** Ensures all workers are aware of tasks to be completed, hazards, and controls in place. **Ref:** 0136618 Onsite Safety Briefing.
1.7.	Ensure all controls are in place as required by WIN, JHA and WP4.		The warning method utilised by lookout must be identified. **Note:** WP4 will determine appropriate level of track protection including adjacent line if required. **Note:** Ensure you have a clear understanding of what protection measures are in place. **Note:** All members of the work party must review and sign onto the WP4.

No.	Task Steps	Photo or Diagram	Notes
1.8. 	Confirm track protection complies with OI 11-21 and document 0119115.		 Be aware of all rolling stock movements. Spotter required to maintain constant vigilance. **Ref:** OI 11-21 Protection from Adjacent Tracks & 0119115 Rail Rule Book (RRB) Module 2 – Trackside Safety.
1.9. 	Place road safety signs and cones around the worksite in accordance with Traffic Control Plan / Traffic Management Plan, at sufficient distance (approx. 200 m) from work location for vehicles to safely slow down. Signage must include site supervisors' information and phone number. Confirm signs include correct machine contact information (UHF/VHF) and is clear to approaching personnel.	 	 Be aware of other road traffic. Do not create a hazard with the road signs.  Use gloves beware of pinch points and carry one sign at a time. **Note:** A general alert shall be issued, warning personnel of speed restrictions and access road closures as required. Refer to relevant Traffic Management Plan. **Ref:** WIN-RTS-RTM-128 Traffic Control Devices (Road Side Operations)
1.10. 	Complete pre-start inspections on all mobile equipment required for the task and fill in pre-start booklet.		 Tag out-of-service if not safe to operate and report to supervisor.

No.	Task Steps	Photo or Diagram	Notes
1.11.	Confirm all lifting equipment is certified, inspected, and tagged appropriately. Lifting equipment must comply with standardised, regulatory, periodic inspection requirements, be colour tagged to indicate its compliance at the time of inspection and be listed on a register.		⚠ Any defective lifting gear shall NOT be used and must be placed out-of-service and reported. **Note:** Qualified riggers/dogmen to complete the inspections. **Note:** All lifting gear must have documentation to confirm it has been tested by the manufacturer or NATA accredited authority.
1.12.	Conduct a pre-lift assessment.	 Iron Ore Controlled Document BHP Form Lifting and Cranage Operations – Mobile Crane Pre Lift Checklist Pre Lift Checklist is to be completed for all lifts or series of similar lifts* This document is a trigger for a complex lift NO / YES / Comments Is there is a Safe Work Instruction for this lift, are you using it? Are ground/weather conditions safe to execute the lift? For pick and carry operations, has the path been assessed and appropriate de-ration charts used for side slope and steering/articulation. Has the lifting gear been inspected for defects, damage and has a valid Inspection Tag? Agreed method of communication in place between crane operator and Rigger / Dogger? Do you know the weight of the load including items on or below the boom head? Surrounding work parties/personnel are aware of the lift? Is the area of the lifting operation being protected using barricades, cones and/ or spotters?	⚠ Pre-Lift Checklist 0107569 must be completed immediately prior to all lifts. **Ref:** SPR-IHS-SAF-029 Lifting Operations.
1.13.	Confirm all parts and components required are available and stored at the designated work site area. Inspect materials.		⚠ Damage can occur whilst transporting and unloading materials. All damage, regardless of how minor must be reported to the Supervisor. **Note:** Inspect all materials for sufficient quantities and condition.

Tasks to be Done Under Track Occupancy Authority (or higher level of protection)

2. Task Execution

2.1.	Confirm track protection is in place and it is safe to occupy track. Permission obtained from train control to proceed/obstruct track (if required).		☠ Track Occupancy Authority is the minimum level of protection required to work on a portion of a track. ⚠ Be aware of other traffic, wildlife and rolling stock movement – constant vigilance.

No.	Task Steps	Photo or Diagram	Notes
2.2.	Demarcate area with barricading, signage, and traffic cones to provide an exclusion zone for SME movement.		**Ref:** 0127717 Isolations and Barricading.
2.3.	All movements of equipment must have a spotter present. The spotter who is trained and competent must: • Be listed in the JHA • Have a radio on the correct channel • Wear a high visibility vest • Completed spotter awareness training		The spotter cannot do any other task while they are responsible for spotting the machine.
2.4.	Work crew to confirm and test positive forms of communication.		Immediate and positive communication is critical to performing safe sleeper laying.
2.5.	Move hi-rail excavator (HRE) with concrete sleeper 4-grab attachment into position.		Wear hearing protection when required. **Note:** Spotters to aid placement and alignment.

No.	Task Steps	Photo or Diagram	Notes
2.6.	Position work crew correctly for the task. • HRE operator to enter the cab. • 2 x spotters in place, 1 behind (trailing team) and 1 in front (lead team) of the HRE maintaining separation between the machine and workers. • 4 x sleeper laying track workers (lead team) stationed behind the traffic cone (positioned at the fourth sleeper laid). • 2 x sleeper stack track workers (trailing team) stationed behind the last sleeper stack.	Refer to: Sleeper Laying Machine Movement Controls	HRE operator must maintain three-point contact when entering the cab. Sleeper laying track workers must always wear steel track shoes. It is the operator's responsibility to ensure spotter are in place before moving the machine.
3.	**Pick & Carry Sleepers**		
3.1.	Trailing team spotter to guide HRE in to pick 4 x sleepers from the closest stack.		Sleeper stack track workers (trailing team) to remain a safe distance away from moving HRE.
3.2.	Trailing team spotter to confirm HRE concrete sleeper 4-grab has picked and held the load correctly to allow safe lifting and machine movement with a suspended load. Communicate with HRE operator that is safe to proceed.		

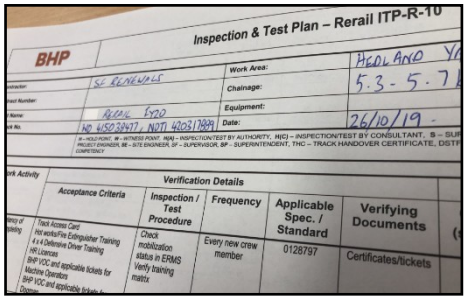
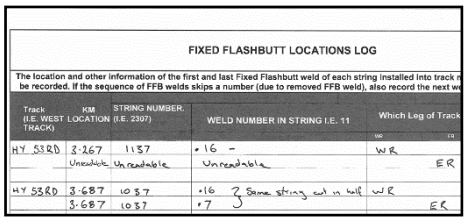
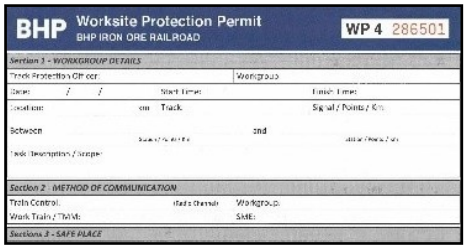
No.	Task Steps	Photo or Diagram	Notes
3.3.	Trailing team spotter to give the all-clear once HRE has reversed from the stack, slewed 180 degrees, and is moving forward toward the sleeper laying track workers (lead team). Once all clear, sleeper stack track workers (trailing team) can remove dunnage / gluts from the sleeper stack in preparation for next grab.		**Note:** Discard or store removed dunnage / gluts away from the work area.
4.	**Lay Sleepers**		
4.1. 	On approach, the lead team spotter must call the sleeper laying track workers (lead team) to retreat behind the traffic cone (positioned at the fourth sleeper laid) to create separation.		 Sleeper laying track workers are **not permitted** past the traffic cone and must always follow verbal instructions from the sleeper laying spotter.
4.2. 	When the HRE is within 2000mm of the last laid sleeper and has the load lowered to 200mm from the ground, the lead track worker must approach the HRE to guide the placement of the next stack of sleepers.		 Only the lead track worker is permitted past the traffic cone. **Note:** Correct placement is approximately 600mm from the last laid sleeper.
4.3.	Lead track worker to give the all-clear once HRE has placed and reversed from the stack, slewed 180 degrees, and is moving forward toward the sleeper stack track workers (trailing team).		
4.4.	Once all clear, the lead team spotter must move the traffic cone ahead 4 sleepers to allow the sleeper laying track workers (lead team) access to the newly laid sleepers.		

No.	Task Steps	Photo or Diagram	Notes
4.5.	Sleeper laying track workers (lead team) to bar the sleepers into position.		Always wear steel track shoes and gloves when baring sleepers.
4.6.	Repeat this process from step 3.1 until all sleepers are laid.		

Completion Tasks

5. Post Task Responsibilities

5.1.	Waste management tasks: • Relocate waste to relevant bins or designated waste areas. • Ensure no rubbish is left behind.		It is an offence to abandon waste material. **Ref:** 0121517, Waste Disposal Work Instruction.
5.2.	Relocate and stack unused concrete sleepers. Relocate, stack and strap used timber sleepers.		
5.3.	Pack up tools and equipment.		Be aware of Pettibone movements. Use spotter and maintain continual vigilance. Use correct manual handling techniques.

No.	Task Steps	Photo or Diagram	Notes
5.4. 	Securely tie down all loads for transport.		**Ref:** 0148379 Material Impact during Movement of Goods.
5.5.	Complete all mandatory track paperwork including QA reports.		
5.6.	Submit all documentation to supervisor on completion of work.		**Note:** Record and report all equipment faults and damage. Worksite supervisor must be notified of all problems and fault information.
5.7.	Remove track protection and hand back possession. Record and report all equipment faults and damage.		**Note:** All work party members to sign off WP4 before leaving site. **Note:** Worksite supervisor must be notified of all problems and fault information.
5.8.	Mark-up work instruction (WIN) if changes are required to improve work process and safety.		**Note:** Escalate any issues to Work Area Owner who will after reviewing, pass the copy of marked-up WIN to Technical Writer for updating.

ADDITIONAL WORK IDENTIFIED		
Maintainable Item	**Details and comments on Work Required**	**Notification #**

FEEDBACK (To support content improvement)

General Feedback: