

Operating Ground Penetrating Radar | SAFE WORK METHOD STATEMENT (SWMS)

TASK OR ACTIVITY: Operating Ground Penetrating Radar

Business Name:	ABN:	SWMS#
Business Address:		
Contact Person:	Phone:	Email:

THIS SAFE WORK METHOD STATEMENT IS APPROVED BY THE PCBU OF THE PROJECT

Under the Work Health and Safety Regulation (WHS Regulation), a person conducting a business or undertaking (PCBU) is required to ensure that a safe work method statement (SWMS) is prepared before the proposed work starts.

Full Name:		
Signature:	Title:	Date:
Details of the person(s) responsible for ensuring implementation, monitoring compliance with the SWMS as well as reviews and modifications of the SWMS.		
Full Name:	Title:	Phone:

ALL PERSONNEL PARTICIPATING IN ANY ACTIVITY ON THIS SWMS MUST HAVE THE FOLLOWING COMMUNICATED

Safety meetings or toolbox talks will be scheduled in accordance with legislative requirements to first identify any site hazards, then to communicate those hazards and then to further take steps to either eliminate or control each hazard.

If an incident or a near miss occurs, all work must stop immediately. Depending on the severity of the incident, a meeting will be called with all workers to amend the SWMS if required. The meeting may also be an educational opportunity.

Any changes made to the SWMS after an incident or a near miss must be approved by the Person Conducting Business or Undertaking and communicated to all relevant personnel.

The SWMS must be kept and be available for inspection at least until the work is completed. Where a SWMS is revised, all versions should be kept. If a notifiable incident occurs in relation to which the SWMS relates, then the SWMS must be kept for at least two years from the occurrence of the notifiable incident.

NAME OF ALL RELEVANT PERSONNEL WHO HAVE BEEN CONSULTED AND COMMUNICATED TO IN THE DEVELOPMENT AND APPROVAL OF THIS SWMS

CLIENT OR PRINCIPAL CONTRACTOR DETAILS

Client:	SCOPE OF WORKS
Project Name:	
Project Address:	
Project Manager:	
Contact Phone:	
Date SWMS supplied to Project Manager:	

ANY HIGH-RISK CONSTRUCTION WORK BEING CARRIED OUT

- | | |
|--|--|
| ☐ involves a risk of a person falling more than 2 meters | ☐ is carried out on or near pressurised gas mains or piping |
| ☐ is carried out on a telecommunication tower | ☐ is carried out on or near chemical, fuel or refrigerant lines |
| ☐ involves demolition of an element of a structure that is load-bearing | ☐ is carried out on or near energised electrical installations or services |
| ☐ involves demolition of an element related to the physical integrity of a structure | ☐ is carried out in an area that may have a contaminated or flammable atmosphere |
| ☐ involves, or is likely to involve, disturbing asbestos | ☐ involves tilt-up or precast concrete |
| ☐ involves structural alteration or repair that requires temporary support to prevent collapse | ☐ is carried out on, in or adjacent to a road, railway, shipping lane or other traffic corridor |
| ☐ is carried out in or near a confined space | ☐ is carried out in an area of a workplace where there is any movement of powered mobile plant |
| ☐ is carried out in/near a shaft or trench deeper than 1.5m or tunnel involving use of explosives | ☐ is carried out in areas with artificial extremes of temperature. |
| ☐ is carried out in or near water or other liquid that involves a risk of drowning. | ☐ involves diving work. |

ANY HIGH-RISK MACHINERY OR EQUIPMENT NEARBY

RISK MATRIX											
LIKELIHOOD	INSIGNIFICANT	MINOR	MODERATE	MAJOR	CATASTROPHIC	SCORE	ACTION	HEIRARCHY OF CONTROLS			
ALMOST CERTAIN	3 HIGH	3 HIGH	4 ACUTE	4 ACUTE	4 ACUTE			Elimination Remove the hazard.			
LIKELY	2 MODERATE	3 HIGH	3 HIGH	4 ACUTE	4 ACUTE	4A ACUTE	DO NOT PROCEED	Substitution Replace the hazard.			
POSSIBLE	1 LOW	2 MODERATE	3 HIGH	4 ACUTE	4 ACUTE	3H HIGH	Review before work starts.	Isolation Isolate People from the hazard			
UNLIKELY	1 LOW	1 LOW	2 MODERATE	3 HIGH	4 ACUTE	2M MODERATE	Ensure control measures in place.	Engineering Isolate the hazard.			
RARE	1 LOW	1 LOW	2 MODERATE	3 HIGH	3 HIGH	1L LOW	Monitor and keep records	Administrative Change the work.			
										PPE	

Notes on Hierarchy of Controls: Elimination methods are the most effective and preferred when controlling a hazard. Substitution is the second most effective method of controlling a hazard. Engineering by isolation is the third most effective, while Administrative Controls by changing the work is the fourth most effective method. PPE (Personal Protective Equipment) is the least effective method.

PERSONAL PROTECTIVE EQUIPMENT (PPE)											
Select the appropriate PPE below suitable for the equipment used or the job task being performed (if applicable).											
FOOT PROTECTION	HAND PROTECTION	HEAD PROTECTION	HEARING PROTECTION	EYE PROTECTION	RESPIRATORY PROTECTION	FACE PROTECTION	HIGH-VIS CLOTHING	PROTECTIVE CLOTHING	FALL PROTECTION	SUN PROTECTION	HAIR/JEWELLERY SECURED
											
☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Other PPE Required:											
Permit or Licenses Requirements						Mandatory Qualifications and Training					

JOB STEP	POTENTIAL HAZARDS	IR	CONTROL MEASURES	RR
SPECIFIC WORK STEPS	HAZARDS THAT MAY ARISE	INITIAL RISK	SPECIFIC MEASURES TO BE PUT IN PLACE TO ELIMINATE OR CONTROL THE RISKS	RESIDUAL RISK
1. Preparation	Uninitialised equipment, Unclear operation protocol	3H	- Ensure all team members are trained in the operation of Ground Penetrating Radar equipment. - Conduct a pre-operation briefing to clarify roles, responsibilities and procedures. - Verify that the equipment has been properly calibrated according to the manufacturer's specifications before use. - Check that all safety features of the Ground Penetrating Radar are functional. - Use an updated maps to identify potential underground hazards before beginning operation. - Perform a reassessment of the site to identify any additional hazards. - Ensure that a communication plan is in place for reporting issues or emergencies during the operation. - Make sure the operator's manual is readily available on-site for reference as needed. - Confirm all personal protective equipment (PPE) is worn by operators and nearby workers. - Test the Ground Penetrating Radar in a controlled environment to ensure it is functioning correctly. - Keep a log of calibration and maintenance activities for accountability and future reference.	2M
2. Equipment Selection	Incorrect GPR chosen, Faulty equipment	3H	- Ensure the GPR unit and accessory equipment are inspected before use for any visible damage or wear. - Verify that the selected GPR unit meets the required specifications for the type of surface and depth to be scanned. - Conduct regular maintenance as per manufacturer guidelines to keep the GPR in optimal working condition. - Use only approved and calibrated GPR units to ensure accurate readings. - Ensure the operator is adequately trained in the specific model of GPR being used. - Maintain a logbook of all inspections, calibrations, and maintenance activities for the GPR unit. - Follow manufacturer instructions strictly during set-up and operation phases. - Equip operators with necessary personal protective equipment (PPE) as outlined in safety protocols. - Implement a pre-use checklist that includes testing the GPR on a known material to verify proper function. - Ensure a backup GPR unit is available on-site in case the primary equipment fails. - Mark defective or suspicious GPR units as out of service immediately and arrange for repair or replacement.	2M
3. Site Survey	Unknown underground hazards, Terrain instability	4A	- Conduct a site assessment to identify potential hazards using historical maps and existing site data.	2M

- Use appropriate personal protective equipment (PPE), including hard hats.

- Implement a permit-to-work system to control access to the site and the ongoing activities.

- Establish exclusion zones around identified hazardous areas.

- Utilise GPS technology and survey markers to map out the area and scans.

- Train operators in hazard identification, risk management, and the radar (GPR) equipment.

- Maintain constant communication among team members using radio devices.

- Deploy a Potter to monitor for unforeseen changes in terrain and issues we detected.

Regularly calibrate and test the GPR equipment before and during the field readings.

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5. Calibration	Misinterpretation of data, Skewed results	3H		2M
6. Scanning Process	Unanticipated ground hardness, Poor visibility of results	4A		3H

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7. Data Analysis	Misreading of data, Computer malfunctions	3H		2M
8. Marking Findings	Incorrect marker placement, Weather conditions altering marks	2M		1L

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9. Equipment Dismantling	Hurt while machinery dismantling, Electrocuting with wires	3H		1L
10. Reporting	Incorrect report generation, Missing important findings	2M		1L

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SPECIFIC WORK STEPS	HAZARDS THAT MAY ARISE	INITIAL RISK	SPECIFIC MEASURES TO BE PUT IN PLACE TO ELIMINATE OR CONTROL THE RISKS	RESIDUAL RISK
			[REDACTED]	
			[REDACTED]	
			[REDACTED]	
			[REDACTED]	
11. Follow up Survey	Missed hazardous materials on first survey, Inaccurate extrapolation		[REDACTED]	2M
			[REDACTED]	
12. Verification Process	False negatives/positives, Mistakes in verification procedure	2M	[REDACTED]	1L



Figure 1: A large, light blue rectangular area on the left side of the page, representing a placeholder for a figure or image.

S, Software issues

3H

SAMPLE

JOB STEP	POTENTIAL HAZARDS	IR	CONTROL MEASURES	RR
SPECIFIC WORK STEPS	HAZARDS THAT MAY ARISE	INITIAL RISK	SPECIFIC MEASURES TO BE PUT IN PLACE TO ELIMINATE OR CONTROL THE RISKS	RESIDUAL RISK
16. Toolkit Sanitization	Exposure to harsh chemicals, Accidental ingestion/inhalation	2M	SAMPLE [REDACTED] [REDACTED] [REDACTED] [REDACTED] [REDACTED] [REDACTED] [REDACTED] [REDACTED] [REDACTED] [REDACTED]	1L
17. Equipment Storage	Incorrect storage causing damages, Unintentional misuse or theft	3H	[REDACTED] [REDACTED] [REDACTED] [REDACTED] [REDACTED] [REDACTED] [REDACTED] [REDACTED] [REDACTED] [REDACTED]	2M

JOB STEP	POTENTIAL HAZARDS	IR	CONTROL MEASURES	RR
SPECIFIC WORK STEPS	HAZARDS THAT MAY ARISE	INITIAL RISK	SPECIFIC MEASURES TO BE PUT IN PLACE TO ELIMINATE OR CONTROL THE RISKS	RESIDUAL RISK
18. Review and Continuous Improvement	Negligence of review procedures, Resistance to change	3H		1L
19. Risk Monitoring and Review	Overlooking minor risks, Incompetent risk assessment	4A		2M

on, Failure to identify

2M

JOB STEP	POTENTIAL HAZARDS	IR	CONTROL MEASURES	RR
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SAMPLE

EMERGENCY RESPONSE – CALL 000 FOR EMERGENCIES

Ensure to have an Emergency Management Plan in place as well as adequate numbers of trained first aid staff with easy access to fully stocked first aid kits, rescue equipment, material safety data sheets, adequate access to emergency communication equipment and fire-fighting equipment suitable for all classes of fire and ignition sources.

LEGISLATIVE REFERENCES

RELEVANT LEGISLATION AND CODES OF PRACTICE. DELETE THE LEGISLATIVE REFERENCES IF ANY STATE THAT ARE NOT APPLICABLE

Queensland & Australian Capital Territory

Work Health and Safety Act 2011

Work Health and Safety Regulations 2011

Legislation QLD: <https://www.worksafe.qld.gov.au/laws-and-compliance/work-health-and-safety-laws>

Codes of Practice QLD: <https://www.worksafe.qld.gov.au/laws-and-compliance/codes-of-practice>

Legislation ACT: <https://www.worksafe.act.gov.au/laws-and-compliance/acts-and-regulations>

Codes of Practice ACT: <https://www.worksafe.act.gov.au/laws-and-compliance/codes-of-practice>

Victoria

Occupational Health and Safety Act 2004

Occupational Health and Safety Regulations 2017

Legislation VIC: <https://www.worksafe.vic.gov.au/occupational-health-and-safety-act-and-regulations>

Codes of Practice VIC: <https://www.worksafe.vic.gov.au/compliance-codes-and-codes-practice>

New South Wales

Work Health and Safety Act 2011

Work Health and Safety Regulations 2017

Legislation NSW: <https://www.safework.nsw.gov.au/legal-obligations/legislation>

Codes of Practice NSW: <https://www.safework.nsw.gov.au/resource-library/list-codes-of-practice>

Western Australia

Work Health and Safety Act 2020

Work Health and Safety Regulations 2022

Legislation Western Australia: <https://www.commerce.wa.gov.au/worksafe/legislation>

Codes of Practice WA: <https://www.commerce.wa.gov.au/worksafe/codes-practice>

Northern Territory

Work Health and Safety (National Uniform Legislation) Act 2011

Work Health and Safety (National Uniform Legislation) Regulations 2011

Legislation NT: <https://worksafe.nt.gov.au/laws-and-compliance/workplace-safety-laws>

Codes of Practice NT: <https://worksafe.nt.gov.au/form-and-resources/codes-of-practice>

Safe Work Australia Links

Law and Regulation (All States): <https://www.safeworkaustralia.gov.au/law-and-regulation>

Model Codes of Practice: <https://www.safeworkaustralia.gov.au/resources-publications/model-codes-of-practice>

Model Codes of Practice

- Managing noise and preventing hearing loss at work
- Confined spaces
- Labelling of workplace hazardous chemicals
- Managing risks of hazardous chemicals in the workplace
- Welding processes
- First aid in the workplace
- Managing the risk of falls at workplaces
- Hazardous manual tasks
- Managing the risk of falls in housing construction
- Managing electrical risks in the workplace
- Demolition work
- Excavation work
- Work health and safety consultation, cooperation and coordination
- Managing the work environment and facilities
- How to manage work health and safety risks
- Managing risks of plant in the workplace
- Construction work

South Australia

Work Health and Safety Act 2012 (SA)

Work Health and Safety Regulations 2012 (SA)

Legislation for SA: <https://www.safework.sa.gov.au/resources/legislation>

Codes of Practice for SA: <https://www.safework.sa.gov.au/workplaces/codes-of-practice#COPs>

Tasmania

Work Health and Safety Act 2012

Work Health and Safety (Transitional and Consequential Provisions) Act 2012

Work Health and Safety Regulations 2012

Work Health and Safety (Transitional) Regulations 2012

Legislation for TAS: <https://worksafe.tas.gov.au/topics/laws-and-compliance/acts-and-regulations>

Codes of Practice for TAS: <https://worksafe.tas.gov.au/topics/laws-and-compliance/codes-of-practice>

Details of permits, licenses or access required by regulatory bodies (add or delete as required):

- Permits from local council
- Authorisation to commence work
- Any required documents.

SIGNATORIES OF THE SAFE WORK METHOD STATEMENT

The signed and dated personnel listed below have cooperated in the consultation and development of this Safe Work Method Statement which has been approved by the Person/s Conducting a Business or Undertaking (PCBU). In signing this Safe Work Method Statement each individual acknowledges and confirms that they have read this SWMS in full, having raised any questions for items on this Safe Work Method Statement that require clarification, and confirms that they are competent, skilled and knowledgeable for the task assigned to them. Every person acknowledges that they have received the relevant training and qualifications where required, before carrying out any work contained in this Safe Work Method Statement. By signing this Safe Work Method Statement each individual agrees to work safely, to follow any safe work instructions which are provided, and agrees to use all Personal Protective Equipment where appropriate.

Worker Name	Signature	Date

SAFE WORK METHOD STATEMENT MONITORING AND REVIEW

The SWMS must be reviewed regularly to make sure it remains effective and must be reviewed (and revised if necessary) if relevant control measures are revised. The review process should be carried out in consultation with workers (including contractors and sub-contractors) who may be affected by the operation of the SWMS and their health and safety representatives who represent that work group at the workplace.

When the SWMS has been revised the PCBU must ensure that all persons involved with the work are advised that a revision has been made and how they can access the revised SWMS, including all persons who will need to change a work procedure or system as a result of the review are advised of the changes in a way that will enable them to implement their duties consistently with the revised SWMS. All workers that will be involved in the work must be provided with the relevant information and instruction that will assist them to understand and implement the revised SWMS.

The SWMS must be monitored regularly for the effectiveness of ensuring hazard controls are effective in reducing the risk of incidents, keeping the workplace safe for all personnel. The person responsible for monitoring the effectiveness of the Safe Work Method Statement should employ a multi-faceted approach which includes but is not limited to:

1. Spot Checks.
2. Consultation with workers, contractors and sub-contractors.
3. Internal audits on a continual basis.

An approach of continuous improvement, promptly recording inconsistencies or deficiencies, followed up by immediate corrective action and consultation with all relevant personnel ensures that the PCBU is consistently developing ever-improving systems of safe work principles.

REVIEW NUMBER	1	2	3	4	5	6	7
NAME							
INITIALS							
DATE							

SAFE WORK METHOD STATEMENT REVIEW CHECKLIST

This Safe Work Method Statement Review Checklist is to be followed and used upon initial development of the SWMS to help ensure that all steps have been adequately taken before work commences. Think of this document as an internal audit review checklist before commencing work, and may form part of a Toolbox Talk (safety meeting) and may be used as an opportunity for education and training.

ITEMS WHICH MUST BE INCLUDED IN THE SWMS	COMPLETED	COMMENTS
The company details have been entered, including the project name and address.	☒	
All relevant personnel consulted during the development of the SWMS.	☒	
Name, signature, position and date signed of the person approving the SWMS.	☐	
Specific personnel and qualifications, experience is noted in the SWMS.	☒	
Provides a step-by-step process of tasks required to carry out the activity or task.	☒	
Adequate risk assessment of any identified hazards has been completed.	☒	
Foreseeable hazards are identified and documented for each step.	☒	
Any hazards listed in any site risk assessments have been added to the SWMS.	☒	
SWMS initial risk (IR) column as well as residual risk (RR) column completed.	☒	
Check control measures added to the SWMS are the most effective selected.	☒	
Responsible person is assigned and listed on the SWMS for the implementation of control measures.	☒	
Permit or licenses requirements specified, such as Hot Work, Electrical Work, Work at Heights etc.	☒	
SWMS identifies plant and equipment to be used.	☒	
Details of inspection checks required for any equipment listed and noted on the SWMS.	☒	
Describes any mandatory qualifications, experience, training or skills required to perform the work.	☒	
Applicable personal protective equipment is selected on the SWMS.	☒	
Reflects and documents any legislative references and/or Australian Standards.	☒	
Identifies any hazardous substances used with specific control measures in line with any SDS.	☒	
REVIEWED BY		DATE REVIEWED
SIGNATURE		DATE COMPLETED