

CONTINGENCY PLAN - RISK

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OBJECTIVE:

To ensure the successful excavation of a 100m long, 2m deep trench for plumbing in a bush environment, addressing potential risks and unexpected challenges.

KEY TEAM MEMBERS AND ROLE:

Project Manager	Oversees the project, ensures timelines and budget are adhered to.
Site Supervisor	Manages on-site activities, ensures safety protocols are followed.
Excavation Crew	Executes the trenching work, operates machinery.
Safety Officer	Monitors site safety, conducts risk assessments.
Environmental Officer	Ensures compliance with environmental regulations and minimises ecological impact.
Plumbing Technician	Oversees the installation of plumbing infrastructure.

RISK ASSESSMENT AND CONTINGENCIES

Risk	Contingency
Collapse of trench walls – Excavating a trench can weaken the surrounding soil, leading to the collapse of trench walls. This can result in injuries to workers and damage to equipment	• Shoring: Installing supports to prevent soil movement. • Shielding: Using trench boxes or other types of supports to protect workers from cave-ins. • Benching: Create a series of steps or benches in the trench wall to reduce the risk of collapse.
Encountering underground utilities- There is a risk of accidentally encountering underground utilities such as gas lines, electrical cables, or water pipes, which can pose serious safety hazards if damaged.	• Locate Utilities: Conduct comprehensive surveys to identify the presence and location of underground utilities including reviewing site plans, as-built drawings and utility records. • Utility Marking: Use utility detection services to accurately locate and mark the positions of underground utilities on the ground surface with paint or flags. • Obtain permits: Ensure all necessary permits are obtained before starting excavation. • Notify Stakeholders: Inform relevant utility companies and stakeholders about the planned excavation work. Utilise one-call services (e.g., "Call Before You Dig") to notify utility providers.
Unstable soil conditions- The soil in the bush may be unstable or prone to erosion, increasing the risk of trench collapse or landslides during excavation	• Geotechnical Surveys: Conduct thorough geotechnical investigations to understand soil properties, including bearing capacity, moisture content, and composition.

	• Soil Classification: Classify the soil according to its stability (e.g., Type A, B, or C in OSHA standards) to determine the appropriate protective measures.
Wildlife- Working in the bush environment may expose workers to encounters with wildlife, including venomous snakes, insects, or larger animals, posing safety risks.	• Wildlife Surveys: Conduct an environmental survey to identify the types of wildlife present in the area and their habitats. • Environmental Impact Assessment (EIA): Perform EIAs to understand the potential impact of construction on local wildlife and develop mitigation strategies. • Habitat mapping: Map out critical habitats, nesting sites, and migration paths to avoid disturbing them during excavation.
Weather conditions- Adverse weather conditions (rain, storms) causing delays and safety hazards.	• Monitor weather forecasts daily. • Schedule work during favourable weather periods. • Prepare weather-resistant covers for equipment and trench. • Implement a drainage plan to prevent water accumulation in the trench.
Access and Egress- The remote location of the trench may present challenges for access and egress, making it difficult for workers to enter and exit the site quickly in case of an emergency.	• Ladders and ramps: Provide safe access points such as ladders or ramps at regular intervals (e.g., every 7.5 meters) for safe entry and exit. • Stability checks: Ensure access points are stable and secure, avoiding placement on unstable ground.
Communication challenges- Poor communication leading to misunderstandings and delays.	• Establish a reliable communication system (radios, satellite phones). • Hold regular coordination meetings. • Keep a detailed project log and ensure all team members have access to updated plans and schedules.
Equipment failure- Machinery breakdowns causing delays.	• Conduct regular maintenance checks on all equipment. • Keep spare parts and tools on-site. • Arrange for backup machinery availability from nearby suppliers.
Environmental Impact - Disturbance to local wildlife and vegetation.	• Conduct an environmental impact assessment before starting work. • Mark and avoid sensitive areas. • Use erosion control measures like silt fences and vegetation barriers. • Restore the site post-excavation with native vegetation.

PLANNING AND PREPERATION

- **Trench Design:** Plan the trench layout to ensure it meets the required dimensions (100m long, 2m deep) and proper slope for plumbing.
- **Equipment and materials:** List all required equipment (excavators, shovels, safety gear) and materials (pipes, fittings, bedding material, Survey Equipment).
- **Logistics:** Arrange transportation for equipment and materials, considering the remote location.

- **Inspection and testing:** Inspect the trench and plumbing installation for compliance with standards and conduct pressure tests.
- **Backfilling:** Backfill the trench in layers, compacting the soil to prevent future settling.
- **Site Restoration:** Restore the site to its original state as much as possible and properly dispose of waste materials.

POST EXCAVATIONS

EMERGENCY PROCEDURES

Medical Emergencies:

- Administer first aid immediately.
- Call for medical assistance using the nearest available communication method.
- Evacuate the injured person to the nearest medical facility if necessary.

Fire Emergencies:

- Cease all operations immediately.
- Use fire extinguishers or sand to control small fires.
- Evacuate the area and call local fire services for larger fires.
- Conduct regular fire drills and ensure all workers are trained in fire response procedures.

MONITORING AND REPORTING

Daily Reports: Site supervisor submits daily progress and safety reports.

Weekly Meetings: Review project progress, address any issues, and update plans as necessary.

Incident Reports: Document and analyse any incidents or near-misses to prevent future occurrences.

BUDGET AND RESOURCE ALLOCATION

- Allocate a contingency budget of 10% of the total project cost for unexpected expenses.
- Maintain a list of local suppliers for quick procurement of additional materials or equipment.