

Hazard Profile – Sewer Rehabilitation

Preamble

This Hazard Profile has been prepared by Hunter Water Corporation for the purpose of assisting Contractors with the identification of occupational health and safety (OHS) hazards associated with sewer rehabilitation and the subsequent preparation of Safe Work Method Statements. Although the Profile is reasonably detailed, it is not intended to be exhaustive. There may be other hazards associated with the work depending upon the site(s) and the construction technique proposed by the Contractor.

The Contractor must :

- undertake his/her own hazard identification and risk assessment for the particular site(s) at which the work under the Contract,
- determine the appropriate actions which must be taken to eliminate or satisfactorily control the risks,
- prepare Safe Work Method Statement(s) which include the specific requirements of the Contract.

A copy of the Profile (Word document) will be provided on request to debbie.croft@hunterwater.com.au.

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TYPICAL ACTIVITY	WHAT CAN HARM YOU (Hazards)	WHAT CAN HAPPEN (Risks)	TYPICAL SAFETY CONTROLS TO BE CONSIDERED AND IMPLEMENTED WHERE APPROPRIATE
Secure Site	Public safety	Injury to a member of the public	Provide the appropriate fencing and/or barricades as per site risk assessment Apply appropriate signage and pedestrian control Devise and implement system for site inspection and security Ensure security and equipment suitable to minimise vandalism
	Traffic	Personal injury to members of the public or employees Vehicle Accidents	Traffic Control Plan (TCP) as per RTA regulations Keep area clean & clear of obstacles
	Inadequate access/egress	Slips, trips and falls, abrasions, strains and sprains; manual handling injuries	Conduct site inspection to ensure access/egress is adequate for the task activities
	Contaminated soil	Exposure	PPE, including chemical proof gloves and disposable overalls
Work around access chambers	Removal and storage of access chambers	Manual handling injuries	Correct manual handling technique, use an adequate number of people and/or lifting tools
		Spider, snake bits Cuts, abrasions	PPE – gloves, be alert for spiders and snakes Store covers away from access opening.
	Entering/exiting access chamber	Slips, trips and falls	Wear confined spaces harness, attach to a fall arrest device, mounted appropriately, prior to entry Wear non-slip footwear Maintain 3 points of contact during descent/ascent
		Exposure to atmospheric hazards	Constant gas testing and ventilation if required, specialist gas testing if required, reference MSDS where available
		High flows in pipes causing drowning	Flow Bypass/Isolation Plan Monitor Weather Exit space immediately if bad weather creates a risk of flooding Secure stopboards, monitor flow, select off peak times to overcome flow, lighting

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		Contract work occurring upstream or downstream of proposed works	Flow Bypass/Isolation Plan
		Foreign bodies such as broken glass, debris and needles causing abrasions, hepatitis, AIDS	Wear gloves and full protective clothing Work with care Ensure space is clean and free from foreign bodies. Take care when handling any foreign bodies Employees to have appropriate vaccinations
		Rodents – bites, health hazard	Gloves and full protective clothing
		Sewage aerosol, sludge leading to: hygiene hazards, illness eg Hepatitis A, eye infections, ear, nose and throat infection, biological hazards etc	Ventilate the space and wear respiratory protection for aerosols as required Wear appropriate PPE, ie heavy duty red PVC gloves, disposable splash suits, rubber boots, eye protection, respiratory protection where needed and hard hat, safety boots, maintain hygiene practices and use antibacterial wash. If required hose the space down prior to entry
		Collapse of pipe/manhole, spalling of concrete during work due to poor structural integrity as a result of gas attack	No person to access unlined section of pipe
		Build up of toxic substances (spillage, introduced or leaks), leading to health related biological hazards and/or explosions	Obtain details of the chemistry of effluent/substance and handle as per controls identified on MSDS Constant gas monitoring during work and constant ventilation if required Emergency evacuation procedures to be in place.
		Working during wet weather and outside normal hours leading to high flows, wet and dark environment	Protective clothing, clear visible work area, good lighting, postpone to more suitable time
	Jet cleaning	Hoses across road leading to Trip Hazard, vehicle Damage, Personal Injury	Follow the traffic management plan and set up signs Locate vehicles as close as possible to access chamber

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		High pressure water hose uncontrolled causing injury Fitting failure leading to fitting breaks or loosens causing injury	Visually inspect hose and fittings prior to use Tie hose down
		Removal of debris leading to manual handling hazards and falling objects due to overhead lifts	Insert collection devise either cage or bin in D/O MH to collect debris
		Slippery surfaces leading to slips, trips and falls	Washdown area, steel capped waterproof non-slip footwear Work with care
		Sharp section of access chamber cover leading to hose damage and possible injury	Protective clothing, isolate sharp areas and cover hose with protective covers, keep hoses away from sharp edges
		High pressure water causing residential flooding	Do not operate unit above ground or in access chamber Jet line from the downstream MH
		High pressure back-spray infection and biological hazards	Use barrier board to isolate area cover access chamber with protective material eg hessian to prevent additional spray during retrieval
		Refuelling leading to burns, explosion, fumes, spillage etc	Unit to be switched off and refuelled Use correct filling nozzles and appropriate filling techniques
CCTV Inspection	Loose cables	Cause slip, trip injury	Keep cables on draw, use only the amount of cable needed. Do not spread cables over the work site
	Equipment Electrical short circuit	Infection	Glove used when equipment is removed from access chamber and facilitators available to wash down equipment Use antibacterial wash and ensure hygiene good practice
		Electric shock	Ensure equipment is maintained correctly and check for electrical faults Wear appropriate PPE ie rubber-soled shoes Do not stand in water
Liner installation	Lifting equipment Concrete chips, dust, sharp edge on Liner	Manual handling injuries Personal injury and cuts from liner	Inspect lifting equipment prior to use Wear appropriate PPR including gloves and safety eyewear and work with care

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	Removing concrete debris	Cuts, abrasions, infections	Collect material using shovel and bucket Use antibacterial wash and ensure hygiene good practice
	Hoses and cables	Trip hazard	Ensure good housekeeping – store away unused hoses, use only lengths as required
	Use of air tools	Inhaling dusts, PVC dusts, carbon monoxide and hydrocarbons	Wear appropriate respiratory protection for ducts P1 or P2 filter Ensure compressor intake is not exposed to intake of exhaust Compressor should have a hydrocarbon filter in line
	Machine falling into access chamber	Crush injury	Lower machine into clean access chamber. Do not enter access chamber until machine is in place.
	Air hose disconnects	Injury	Test and inspect all fittings and tie off hose if required
	PVC fragments dislodge while cutting	Personal injury	Wear appropriate PPE including gloves and safety eyewear
	Equipment operating above ground Locking bar falls from profile	Cuts and injury from grinding Personal injury	Wear PPE including gloves and work with care Tag locking bar to ensure it cannot fall into space
	Electrical short circuit	Electric shock	All electrical equipment going into space is to be low voltage Ensure equipment is maintained correctly and check for electrical faults Wear appropriate PPE ie rubber-soled shoes Do not stand in water
	Equipment	Infection	Glove used when equipment is removed from access chamber and facilitators available to wash down equipment Use antibacterial wash and ensure hygiene good practice
	End seal	Skin irritation	Attach delivery nozzle to can prior to use. Use glove to apply sealer
Liner removal	Rope break	Trip hazard, personal injury	Supply and enforce use of proper safety equipment and attire and follow correct removal procedures and work with care
	Damaged profile	Cuts and injuries	Neat site, use proper length

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	PVC Fragment dislodge	Personal injury	PPE including use of safety eyewear
Patch lining	Resin Lowering equipment into chamber Hoses and cables Equipment Air hose	Chemical splash causing personal irritation to eyes and skin Crush injury Trip hazards Infections Disconnects, causing injury	Work with care
Localised sewer repair	Limited access and egress	Slip, trip hazard near open trench	Isolate work site with barriers or barricades Use of correct footwear Ladders provided for entry and exit at excavation, ladders to be installed at 30m intervals Ladders to be secured in trenches deeper than 1.5m
	Existing underground services – dig up or cut	Personal injury, disruption to the community	Service providers identify location of services by issue of plan Service providers locate services by site inspection as required Hand dig around identified services When underground services are parallel to and above the sewer line, insert timber support underneath the service
	Open trenches	Pedestrian/workers slip, trip or fall causing personal injury	Isolation of work site with banners, barrier mesh, barricades
	Trench	Collapse of trench walls may cause entrapment of worker	Excavated trench to be supported if depth is greater than 1.5m or if extreme ground conditions are encountered

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	Cutting existing pipe	Fragment to injure worker	Personal protective equipment – glasses, gloves, hard hat when cutting pipe
	Open pipe section	Drowning caused by flooding	If repaired section of pipe is unable to be completed, a temporary flow through will be used until the repair is complete
	Excessive fumes from traffic and machinery	Sickness	During the period of occupancy, personnel will remain on standby and ensure exits are clear and kept open Maintain standby ventilation equipment to carry out forced ventilation
Sewer bypass	Bypass pump fails, work exceeds time window, communication breakdown	Surcharge causing drowning	Monitor pump operation regularly, ensure responsible person is available to raise evacuation alarm and remove stopboards to allow flow to return to normal. Ensure adequate pump capacity and redundancy
	Hose and stop board failure	Increased flow and injury	Standby hoses available at site Use double isolation to minimise risks
	Insufficient flow storage	Overflow leading to contamination, infection	Storage levels of adjacent manholes in the area monitored Spillage containment or tankers in place to capture any overflow. Use of hay bails to direct flow away from potential hazard
	Refuelling	Burns, explosion, spillage	Shut down equipment prior to refuelling, do not completely fill tank Fire extinguisher available at site Remove fuel container from immediate area after refuelling is complete
	Hose	Slip/trip/fall injury to workers/pedestrians	Hoses at the upstream and downstream access chambers are properly anchored and will not be displaced by the pressure of the pump Housekeeping – use the most direct route from access chamber to access chamber