

Hazard Profile – Pipe Laying (Water and Sewer)

Preamble

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

The Principal Contractor must:

- undertake their own hazard identification and risk assessment for the particular site(s) at which the work under the contract will be carried out,
- determine the appropriate actions which must be taken to eliminate or satisfactorily control all identified hazards,
- provide Safe Work Method Statement(s) for approval of Hunter Water for employees and contractors which include the specific requirements of the contract,
- comply with all applicable OHS legislation.

For the purpose of the Profile, Principal Contractor means a person who is, under Clause 210 of the *OHS Regulation 2001*, for the time being appointed or taken to be the Principal Contractor for the construction work.

The Profile applies to all activities relating to the laying of pipe line for water and sewer whether a contract is in existence or not.

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

Note: Revisions to previous version are shown in **Bold** type.

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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
Delivery and unloading of pipes	Pipes may move/roll or be tampered with by others	Injury to persons generally	Provide secure stockpile area for pipes and fittings. Unload and stack pipes strictly in accordance with the manufacturers' recommendations (contact manufacturer for recommendations where necessary). Minimise height of pallets / stockpile.
	Pipes and fittings	Lifting injury Swinging load	Correct manual handling techniques. Use mechanical aids where possible. Maintain control of loads when lifting & moving. Carry pipes close to ground while moving.
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, contractors and 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 such as back damage	Conduct site inspection to ensure access/egress is adequate for the task activities.

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Locate existing services	Existing underground services	Explosion, electrocution, damage service, asbestos pipe	<p>Use Dial Before You Dig (www.dialbeforeyoudig.com.au or phone 1100).</p> <p>Check relevant Authority (e.g. power, water, gas, council) records for location of services.</p> <p>If in doubt uses experienced/accredited service locators.</p> <p>When using hand prodders to locate pipes, prodders must never be driven in to the ground by hammers or other implements.</p> <p>Confirm location of services by “Pot holing” techniques.</p> <p>Comply with the <i>OHS Regulation 2001</i> (Part 8.7 and Part 11.2) including the <i>Code of Practice for Safe Removal of Asbestos</i> [NOHSC: 2002 (1988)] and <i>Guide to the Control of Asbestos Hazards in Buildings and Structures</i> [NOHSC: 3002(1988)].</p>
Excavate Refer – <i>WCA Safety Guide Moving plant on construction sites</i> , and <i>WCA Code of Practice Excavation Work</i>	Working plant & equipment	Noise, falling objects Damage to existing surfaces Material spillage Hit by moving plant	Operations of plant by WorkCover accredited personnel. Personal Protective Equipment (PPE) – hardhat, high visibility vest, hearing protection etc. Maintain a safety working area around moving plant. Protect surfaces from plant movements. Ensure appropriate plant noise control. Maintain clean-up equipment on site. Maintain (specified) appropriate spillage control equipment. Employ observer where appropriate.
	Storage of materials	Falling objects	No materials to be placed or stacked near the edge of any excavation. No load to be placed or moved near the edge of excavation where it is likely to cause collapse of side of work. No load handling/movement across excavation. No rollable objects stored uphill from excavation.

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	Overhead & underground power cables	Electrocution	<p>Determine location of underground services.</p> <p>If underground power cables are located in the vicinity, exercise extreme care while excavating.</p> <p>Consider any restriction on kinds of tools and equipment that may be required.</p> <p>Consult with local authority distributor (e.g. Energy Australia 13 1525, Integral Energy 13 1081, Country Energy 13 2356) and comply with requirements.</p> <p>Locate and keep clear of overhead services (3m up to 132kv, 6m over 132kv up to 330kv). If distances cannot be maintained, plant operator and observer must be trained and assessed as competent in crane and plant electrical safety.</p>
	Gas mains	Explosion	<p>Check Authority records for location of services.</p> <p>If in doubt use experience service locators.</p> <p>When using hand prodders to locate pipes, prodders must never be driven in to the ground by hammers or other implements.</p> <p>“Pot holing” techniques.</p> <p>Extreme care to be exercised when working near gas mains.</p> <p>No smoking or mobile phone use within defined radius.</p>
	Sloping ground	Falling, rolling objects	<p>Maintain good house keeping (remove debris, trip hazards, site tidiness).</p> <p>Select locations to minimise potential for movement.</p> <p>Stack materials at level below excavation.</p> <p>Appropriate plant chosen for sloping ground.</p> <p>Secure/retain potential falling/rolling objects.</p>

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	Accessing trenches/conduits	Collapse of trench, falling objects	Support / bench / batter excavation. Keeping safe distance from edge of trench (Refer Clause 3.10 of WCA Code of Practice Excavation Work). Materials not to be placed or stacked near the edge of trench. No load to be placed or moved near the edge of trench where it is likely to cause collapse of the trench. All trenches to have safety barricades when left open for a period of time. Provide submersible pump to dewater trenches where ground is water-charged. PPE – hardhats. No load/personnel movement across trench.
		Falling into	Installation of shoring system (Ref Clause 3.3 of WCA Code of Practice Excavation Work). Where possible backfill trenches. Erect 1.8 metre (min) security fence if open excavation is to be left unattended, or Cover open excavation with suitable steel plating if left unattended. No personnel movement across trench.
		Other risks associated with confined spaces such as gases etc	Where trench/conduit is considered to be a confined space, use accredited trained personnel. Follow confined space entry procedures as per <i>OH&S Regulation 2001</i> (Clauses 66-78). No smoking/mobile phone use, avoid sparking.

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	Storage of fill	Trip hazard Dust – eye injury Environmental damage	Secure fill stockpile. Provide a dedicated area for fill. Watering of material. Provide necessary environmental protection measures. Cover fill when unattended or unable to be watered.
	Manual handling (shovelling)	Strains and sprains; injuries such as back damager	Manual handling awareness. Adequate rest periods allowed, job rotation, minimise repetitious twisting and shovelling.
	Contaminated soil	Impact on health of persons generally	Refer Section 4 of <i>WCA Code of Practice Excavation Work</i>
Materials Checking	Defective materials	Risk of various injuries	Visual inspection of materials. Refer Australian Standards and WorkCover guidelines used where appropriate.
	Storage of Hazardous Materials	Risk of various injuries and illnesses	Handling and storage to be done according to Materials Safety Data Sheets (MSDS).
Lay bedding	Earth mounds	Engulfment Dust – eye injury	Control operation of mobile plant by competent person. Watering of material. Control slopes. Delineate earth mounds appropriately. Warning signage. Cover when unattended or unable to be watered.

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Stringing Pipes	Pipes may move/roll or be tampered with by others	Injury to persons generally	<p>Provide secure stockpile area for pipes and fittings.</p> <p>Unload and stack pipes strictly in accordance with the manufacturers' recommendations (contact manufacturer for recommendations where necessary).</p> <p>Minimise height of pallets / stockpile.</p> <p>Secure pipes to prevent movement irrespective of slope of surface, secure pipes to prevent movement e.g sand bags, star pickets, place against fixed objects which will prevent the movement of pipes.</p> <p>Orientate/select position to minimise potential for movement e.g place pipes normal to slope of ground.</p> <p>Place pipes in secure compound if site left unattended.</p> <p>Minimise waiting time for pipes on site prior to laying.</p> <p>Identify high risk or unsuitable stringing locations in advance, eg sloping or soft ground.</p> <p>Ensure availability of sand/gravel bags/pegs/timber or other suitable materials for retaining or securing pipes.</p>
Install pipe and fittings on bed	Accessing trenches/conduits	<p>Collapse of trench, falling objects</p> <p>Electrocution if using power tools in water-charged environment</p>	<p>Use shoring system (Ref Clause 3.3 of <i>WCA Code of Practice Excavation Work</i>).</p> <p>String only sufficient pipes for day's work.</p> <p>Return all pipes not laid at end of day to secure stockpile areas.</p>

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	Working plant & equipment	Personal injury	Use only maintained equipment fitted with yellow flashing lights and reversing alarms. Maintain a safe distance from working plant. Wear appropriate PPE including high visibility clothing and hard hat etc. Perimeter fencing where appropriate. Place trained personnel on look-out.
	Pipes and fittings	Lifting injury Swinging load	Correct manual handling techniques. Use mechanical aids where possible. Maintain control of loads when lifting & moving. Carry pipes close to ground while moving providing mechanical aid is used.
	Pressure testing pipe work	Delivery pipe/joint failure may cause body injuries	Use only competent person to perform the task. Adequately secure connecting pipes (safety pins for lever couplings). To prevent joint or pipe section failure, fix brackets close enough together to prevent excessive movement. Don't exceed pipe operating pressure, ensure pipe is correct diameter. Ensure pipe not damaged. Ensure adequate support where a change in direction or reducer occurs. Pressure for air testing must not exceed 32kPa.
Set up laser for line and grade	Laser	Eye injury	Use only competent person to perform the task. Follow manufactures safety guidelines. Erect warning signs.

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Cut-in to existing pipeline	Failure of existing pipeline under pressure	Injury from high pressure	<p>Use PPE.</p> <p>Ensure adjacent stop valves are operational / closed.</p> <p>Secure adjacent valves against movement.</p> <p>Relieve pressure in system.</p>
Reconnecting house services	High pressure water	Injury from high pressure	<p>Use PPE.</p> <p>Relieve pressure in system.</p>
	Welding	Burns	Care with torch and PPE.
	House services	Electrocution	<p>Earth straps and insulating gloves to be used as services are used for household earthing. Always ensure pipes are cleaned back to bare metal prior to fitting the bridging straps to ensure a direct electrical contact between the pipes and the strap.</p>
Restoration of site	Inadequate compaction	Public hazard	Compaction to specified standard.
	Construction refuse	Public hazard	Site cleared of debris and refuse.
	Inadequate re-surfacing	Public hazard	<p>Re-surface appropriately.</p> <p>Do not leave gaps in turf or leave uneven surface.</p> <p>Erect fence around hazardous areas until restored and safe.</p>
	High hydraulic/pneumatic pressures	Injury from high pressures in pipelines blowouts of plugs	<p>Ensure plugs and compressors are installed and secured against movement.</p> <p>Release air before removing plugs.</p> <p>Clear area of pipe ends being tested.</p>

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General Activities Refer <i>WCA Code of Practice Occupational health and safety induction training for construction work</i>	Inadequate training, consultation, planning and improvisation	Task specific injuries due to inexperience, inadequate consultation or failure to provide appropriate equipment	All personnel on-site to be appropriately inducted. All personnel on-site to be suitably qualified. Competent supervision to be provided on-site.
	Misuse of equipment/fire hazards	Fire/Explosion	Care to be taken when refuelling machinery with petrol to ensure engines aren't running and there are no naked flames in the vicinity. Oxy Acetylene and gas equipment must be used strictly in accordance with the manufacturers safe operating procedures. All personnel working on the site are to be trained in the correct operation of the tools and equipment they are using. All tools and equipment are to be serviceable and in safe condition. All electrical tools are to be fitted with current test tags. Fire extinguishers are to be located on site. No work during high fire danger unless dry vegetation is cleared and/or watered down prior to carrying out hot work. Avoid driving or parking motor vehicles on long dry grass as the heat generated by the exhaust could start a fire.
	Exposure to ultra violet light, glare	Skin cancer, sunburn, eye damage	Protective clothing, sunscreen, flap on hard hat. AS rated sunglasses.

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	Weather Conditions (e.g. hot, cold wet, flooding/inundation, electrical storms, high winds)	Dehydration and dizziness	Supply adequate drinking water in work area. Provide protection from UV rays. PPE.
	Slippery surfaces	Slips and falls	Non-slip safety footwear to be worn on all worksites. Extreme care when working in wet and slippery areas. Personnel should never run on worksite.
	Untidy site	Slips and falls	Keep worksite clean and tidy at all times.
	Storage of materials	Materials may be dislodged and fall onto people or property particularly when site is unattended	Materials to be stored in a safe manner.
	Stockpile of pipes, drums (rolling objects)	Pipes or drums may roll onto the roadway causing an accident or may be rolled by unauthorised persons particularly when site is unattended causing injury to persons	All materials to be secured by suitable chocks, sandbags or other means. All pipes not laid during the course of a day are to be returned to the stockpile and secured appropriately.
	Storage of plant	Public Safety	Store/park plant & equipment off site & in a secure area.