

# Environmental Risk Assessment

E-FRM-002



PROJECT: New Shellharbour Hospital

Date: 14/08/2024

| No. | ASPECT | Associated IMPACT | LEGAL REQUIREMENTS | LEGAL REFERENCE | INHERENT RISK |             |      | CONTROLS | VERIFICATION OF COMPLIANCE | RESIDUAL RISK |             |      | COMMENTS |
|-----|--------|-------------------|--------------------|-----------------|---------------|-------------|------|----------|----------------------------|---------------|-------------|------|----------|
|     |        |                   |                    |                 | Likelihood    | Consequence | Risk |          |                            | Likelihood    | Consequence | Risk |          |

| 1.0 LAND |                     |   |   |   |          |          |         |   |  |          |          |        |   |
|----------|---------------------|---|---|---|----------|----------|---------|---|--|----------|----------|--------|---|
| 1.1      | Contaminated Land   | Health risk posed to labourers, Client personnel, and the local public due to excavation and transport of any potential contaminated materials. | Take all reasonable and practicable precautions to prevent or minimize:<br>• Environmental harm;<br>• The risk of death or injury to humans and animals;<br>• Loss or damage to property.   | Contaminated Land Management Act 1997             | Possible | Minor    | Medium  | Site induction to make personnel aware of the potential presence of asbestos contaminated materials and the procedures of its identification and removal.   | Environmental Scientists are satisfied that the soil is effectively contained and treated or contained and removed off-site for treatment.<br><br>Hygienist will confirm the presence of asbestos. | Unlikely | Minor    | Low    |   |
| 1.2      | Acid Sulphate Soils | Leakage of acid sulphate soils into nearby runoff zones or into buildings   | Detect and mitigate release of ASS; treat ASS before reusing soil.  | Protection of the Environment Operations Act 1997 | Unlikely | Moderate | Medium  | ASS report has been produced to verify the existence and likelihood of Acid Sulphate. Potential Acid Sulphate limited to area around retention basin and unlikely as no major site activities in this area. Disturbance of the area to be minimized. Site induction to make personnel aware of the potential presence of ASS and the procedures of its identification and removal.<br><br>If groundwater is penetrated, be wary of acid sulphate. The earth will muddy and produce a sulphuric smell. Site ASS report to be reviewed. | ASS report prepared  | Rare     | Moderate | Low    | Unlikely given the site is not near coastal areas or at 5m Australian Height Datum (AHD) or below. However, reports should confirm level of contamination.  |
| 1.3      | Asbestos            | Release of carcinogenic asbestos  | Ensure that waste asbestos is only removed by a person holding an asbestos removal licence; contained to prevent the release of airborne asbestos fibres; transported in an EPA permitted vehicle; and disposed of as soon as practicable at a site licensed by the EPA | Work Health and Safety Act 2011                   | Likely   | Major    | Extreme | Review the BESIX Watpac Asbestos Register and Procedure.<br>If asbestos is located on site, engage the project Hygienist and licensed asbestos contractor to conduct Risk Assessment, develop an Asbestos Management Plan and to remove and dispose of all asbestos.<br>Site induction to make personnel aware of the potential presence of asbestos contaminated materials and the procedures of its identification and removal.   | Hygienist will confirm all asbestos is safely removed.   | Unlikely | Minor    | Low    | Asbestos condition must be known prior to demolition, likely via the asbestos register.   |
| 1.5      | Weed control        | Accidental destruction of flora or fauna due to foreign incompatible organisms.   | Do not remove machinery or other equipment from land on a road without first taking reasonable precautions to ensure that the equipment is free from noxious weeds and the seeds of noxious weeds.  | Pesticides Act 1999                               | Likely   | Moderate | High    | When working in green areas (off haulroads or hardstands):<br>Strictly maintain vehicle hygiene to prevent weed transfer.<br>Imported materials, particularly landscape supplies to be certified to be weed free, of local provenance and drawn from known sources.<br>If the weed situation is unusual, an arborist will be engaged to develop a weed management plan that includes herbicide treatment.   | Gate controller will inspect passing vehicles to ensure there is no plant material leaving site.<br><br>Herbicide is applied and controlled so as not to affect local flora and fauna.             | Unlikely | Moderate | Medium | A herbicide treatment strategy should be approved before work commences, and sweeps should be done on a weekly basis before, during and after works, particularly before "on-maintenance" handover. |

| 2.0 WATER |   |   |   |  |          |          |      |   |  |          |          |        |  |
|-----------|---|---|---|--|----------|----------|------|---|--|----------|----------|--------|--|
| 2.1       | Groundwater discharge management            | Potential Spills<br>- General spills<br>- Leaks from plant and equipment<br>- Refuelling spills<br>- Leaching of contaminated materials during earthworks<br>- Infiltration of washwater from construction activities (i.e. concrete wash and equipment wash)   | Do not release prescribed water contaminants or prohibited substances into groundwater tables.<br><br>Prescribed water contaminants as per Environment Protection Regulation 2008 Schedule 9.   | Contaminated Land Management Act 1997<br><br>Protection of the Environment Operations Act 1997 | Possible | Moderate | High | <ul style="list-style-type: none"> <li>Ensure all liquids are stored in appropriate containers</li> <li>Ensure availability of appropriate spill kits and conduct induction / training in their use.</li> <li>Maintain an MSDS register for all products on site</li> <li>Locate chemicals away from water courses and protect waterways in the event of a spill</li> <li>Store minimal amounts on site</li> <li>Clean up spills immediately</li> <li>Contain any spills on site as per the Spill controls in the EMP.</li> <li>Washouts for concrete and paints etc will be tightly controlled.</li> <li>Refuelling only in appropriate areas</li> </ul>   | <p>Induct staff and subcontractors in Emergency Preparedness and Response.</p> <p>Spill kits kept on site.</p> <p>Contamination reports low likelihood over contaminant leaching.</p> <p>Water encountered during earthworks is pumped out quickly, trapped, tested and treated before discharge.</p>  | Unlikely | Moderate | Medium | Ensure all groundwater encountered is pumped out into a temporary storage (e.g. sump pit or tank) and treated as contaminated waste.   |
| 2.2       | Erosion and Sediment Control                | Pollutants entering the Stormwater System<br><ul style="list-style-type: none"> <li>General spills</li> <li>Leaks from plant and equipment</li> <li>Refuelling spills</li> <li>litter</li> <li>sediment from contaminated runoff</li> <li>water from wash-down</li> <li>wash out of concrete trucks and pumps</li> <li>brick and paver cutting</li> </ul> | All stormwater discharges to be in accordance with regulatory requirements and in accord with the controls agreed with the Superintendent.<br><br>Ensure that discharges to stormwater drains, surface waters and groundwater do not put at risk any beneficial use of these waters.<br><br>Manage construction work to minimise land disturbance, soil erosion and discharge of sediments and other pollutants to surface waters. Implement effective management practices consistent with the most recent version of EPA publication 480. Where construction activities cross surface waters, monitor affected surface waters to assess if beneficial uses are being protected. | Protection of the Environment Operations Act 1997  | Possible | Moderate | High | <ul style="list-style-type: none"> <li>Implement a Sediment and Erosion Management Plan</li> <li>Minimise and control all stormwater run-off from site</li> <li>Identify and protect stormwater outlets using geofabric, gravel saugages and silt fences</li> <li>Plan and protect stockpiles and locate away from stormwater drains and low points</li> <li>Establish hard stand haul roads and site entrance/exit</li> <li>Contaminated waste water to be disposed of to sewer in compliance with a Trade Waste Agreement or by licensed contractor to a licensed facility</li> <li>Establish designated areas for washdown of concrete chutes etc. and for wet trades</li> <li>Plan and protect stockpiles. Locate away from stormwater drains and low points</li> <li>Washouts for concrete and paints etc will be tightly controlled.</li> <li>Establish stormwater connections as soon as practicable</li> <li>Control water from wheel wash, rumble strip and road cleaning</li> <li>No washing of roadways into unprotected drains</li> </ul> | <p>Induct staff and subcontractors in Stormwater and Erosion Management</p> <p>Daily monitoring of site conditions</p> <p>Weekly inspection to be undertaken and recorded</p> <p>Controls inspected before, during and after storm events.</p> <p>All incidents and non-compliance with controls to be reported, investigated and recorded</p> | Rare     | Minor    | Low    | <p>Clearing and grubbing will disturb topsoils, and increase erosion potential and subsequent downstream sedimentation in directly affected areas</p> <p>Civil Engineers must be engaged to develop appropriate Erosion and Sediment Control Plans for Construction requirements, which must be followed, monitored and updated during the works.</p> <p>Erosion and subsequent downstream sedimentation may reduce water quality in the receiving environment, potentially harming aquatic flora and fauna.</p>   |
| 2.3       | Storage and Handling of Hazardous Chemicals | Leakage of hazardous chemicals<br><br>Spill of chemicals  | Ensure that so far as is reasonably practicable any system for the use, handling or storage of hazardous chemicals is used only for a purpose for which it was designed, manufactured, modified, supplied or installed<br><br>Manage construction work to minimise land disturbance, soil erosion and discharge of sediments and other pollutants to surface waters. Implement effective management practices consistent with the most recent version of EPA publication 480.   | Protection of the Environment Operations Act 1997<br><br>Work Health and Safety Act 2011       | Unlikely | Major    | High | <ul style="list-style-type: none"> <li>Subcontractors will be required to maintain their own storage in accordance with the Australian Standards where required.</li> <li>Ensure spill kits are readily available.</li> </ul>   | The site environmental officer will audit subcontractors to ensure storage is maintained.<br><br>Spill kits are readily available.   | Unlikely | Moderate | Medium | <p>Storage of all chemicals must be in an impervious shelter that is bonded. Segregation must be maintained as per AS 3833.</p> <p>As the site is a high risk zone for bushfires, all flammable material must be kept in a cool, dry zone. Flammable materials must not be bundled too tightly or exposed to the sun (i.e. must be covered).</p> <p>Spills or leaks of fuels or other chemicals from storage containers, tanks, vehicles, machinery and other equipment may contaminate soils in the areas of the proposed works. Spill kits must be maintained in all major sections of the works, and storage of all chemicals must be in an impervious shelter that is bonded. Segregation must be maintained as per AS 3833.</p> |
| 2.4       | Watercourse Impact                          | Disruption to overland or rainfall flow   | Do not take or interfere with the flow of water in a watercourse, lake or spring; do not construct a referable dam. Unless:<br><ul style="list-style-type: none"> <li>a water entitlement is held under the Water Act; and</li> <li>a development permit is obtained under the Sustainable Planning Act 2009.</li> </ul>  | Water Management Act 2000  | Rare     | Minor    | Low  | All earthworks must be only as drawn or specified. Any alterations to earth must be as documented by a Civil Engineer and a development permit must be provided   | Evidence of development permit and works are documented.   | Rare     | Minor    | Low    | No disturbance to watercourse.   |

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| 3.0 WASTE MANAGEMENT  |                                |  |   |  |          |          |        |  |   |  |          |            |        |   |
|-----------------------|--------------------------------|--|---|--|----------|----------|--------|--|---|--|----------|------------|--------|---|
| 3.1                   | Waste Management               | Waste Spillage   | Comply with local government requirements for:<br>• provision of suitable general waste containers for general waste;<br>• maintenance and cleaning of the containers;<br>• keeping containers covered;<br>• preventing damage to containers, or placing liquids, burning objects, or living things in the containers;<br>• keeping containers where directed, and maintaining access to them.  | Protection of the Environment Operations (Waste) Regulation 2014<br><br>Waste Avoidance and Resource Recovery Act 2001 | Likely   | Moderate | High   | Establish a Waste Management Plan (or outline in the Project Management Plan); establish appropriate waste area on site; induct staff to waste protocols.  | Environmental inspections.  |  | Unlikely | Moderate   | Medium | Putrescible waste such as food stuffs may attract pests, including birds, vermin, and wild dogs. Birds present a direct hazard to base operations.<br><br>Ensure all waste is captured in the correct receptacles, that the skips are on impervious surfaces and covered/protected from weather. Ensure the skips are serviced regularly. |
| 3.2                   | Transport and Dumping of waste | Improper disposal of waste<br><br>Loss of waste from a vehicle during transport. | Do not deposit litter or conduct dangerous littering at a place<br>Do not dump 200L or more of waste at a place or from a vehicle.<br><br>Prevent the loss of waste from a vehicle during transport.  | Protection of the Environment Operations (Waste) Regulation 2014<br><br>Waste Avoidance and Resource Recovery Act 2001 | Unlikely | Moderate | Medium | Establish a Waste Management Plan (or outline in the Project Management Plan); establish appropriate waste area on site; induct staff to waste protocols.<br><br>Gate personnel will ensure all vehicles loads are secured.  | Environmental inspections.<br><br>No complaints or waste spotted.                             |  | Unlikely | Minor      | Low    | Follow waste management strategies in PEMP.<br><br>As with above, transport and servicing of the waste will be high risk. Ensure all waste trucks are checked for secure loads.   |
| 4.0 ECOSYSTEM         |                                |  |   |  |          |          |        |  |   |  |          |            |        |   |
| 4.1                   | Fauna Endangerment             | Works place wildlife at risk   | Do not take an action that may:<br>• result in the death, injury, taking, trading, keeping or moving of a member of a listed threatened species or ecological community<br>• result in the death, injury, taking, trading, keeping or moving of a member of a listed migratory species<br>• knowingly cause significant damage to critical habitat of a listed threatened species or ecological community<br>• result in the death, injury, taking, trading, keeping, moving of, or interfering with, a cetacean (eg whales, dolphins, porpoises, narwhals)<br>• result in the death, injury, taking, trading, keeping or moving of a member of a listed marine species<br>• result in a significant ecological impact on a relevant wetland. | Biodiversity Conservation Act 2016   | Possible | Major    | High   | An environmental specialist will be engaged to review the wildlife and habitats in the area to create a wildlife management plan.<br><br>Environment Management Plan will specifically address work methods in the area to avoid may risk to flora and/or fauna.<br><br>Subcontractor method statements will be provided to outline how to minimise potential risks. | No wildlife is harmed.  |  | Possible | Major      | High   | A Fauna Spotter/Catcher must be attend on site during all clearing, and conduct an inspection prior to clearing works starting.   |
| 4.2                   | Flora Endangerment             | Works will impact vegetation in some way   | Do not take an action that may result in the destruction of local and native vegetation, or vegetation protected by the Nature Conversation Act, Sustainable Planning Act, or Council Local Asset Regulations.  | Local Land Services Act 2013<br><br>Biodiversity Conservation Act 2016   | Possible | Minor    | Medium | An Aborist inspection will take place and a report will provided to assess the state of current trees, note which require protection and/or offsetting.<br><br>Tree Protection zones will be established.  | No trees are harmed.  |  | Possible | Major      | High   | Trees must not be demolished without a tree removal permit. A qualified arborist must be attend on site during all clearing.  |
| 4.3                   | Coastal Area or Marine Life    | Damage to sensitive coastal area, or fish  | Do not release oil, a noxious liquid substance or a harmful substance from a boat into non-coastal waters. Do not release sewage from a boat into non-coastal waters if the boat has a holding tank or is required by law to have a holding tank. Do not deposit rubbish from a boat into non-coastal waters.<br><br>Obtain development approval before undertaking development on land wholly or partly in a coastal management control district.  | Coastal Management Act 2016  | N/A      | N/A      |        | Subcontractors will be inducted to emphasise the important of controlling their actions in the sensitive area.<br><br>Subcontractors will be required to maintain their own spill kits where required.<br><br>Obtain development approval before undertaking development on land wholly or partly in a coastal management control district.                          | The site environmental officer will audit subcontractors to ensure spill kits are maintained. |  | N/A      | N/A        |        | Not near the ocean.   |
| 5.0 HAZARD MANAGEMENT |                                |  |   |  |          |          |        |  |   |  |          |            |        |   |
| 5.1                   | Flooding                       | Disruption of overland flow causing flooding to vegetation                       | Ensure emergency plan factors in flood plains if a flood event occurs during works.   | Environmental Planning and Assessment Regulation 2000  | Unlikely | Major    | High   | Emergency Plans cover evacuation and safety of local community via securing plant and equipment from flood activity.   | Emergency Plan is in place.   |  | Unlikely | Minor      | Low    | Construction works won't add to the impact. The retention basin will have positive influence on the natural flooding.   |
| 5.2                   | Fire                           | Spreading of bushfire  | Don't spread bushfires or create environments that are conducive to the spread of bushfires.<br><br>Interfere with protected vegetation without a permit only if it interference is in accordance with written direction to clear a firebreak by a Fire Warden, the Queensland Fire and Rescue Authority or an authorised person  | Regulatory Reform (Fire Safety) Order 2005   | Possible | Major    | High   | Store combustible chemicals in cool enclosures. Do not stockpile flammable materials. Do not allow smoking or lighters on site. Grass will be kept short to reduce risk on fire. Implement on follow Hot Work Permits procedures. Observing fire bans and planning work in accordance. Familiarise with local RFS & FRNSW teams.                                     | Environmental inspections.  |  | Unlikely | Negligible | Low    | Hot vehicle exhaust and improperly disposed litter such as cigarette butts may ignite a wildfire in dry areas.<br><br>Ensure all flammable materials including chemicals and materials are stored in cool, dry areas. Follow the fire preparation procedures outlined in the PEMP.  |

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| 6.0 LOCAL AREA |   |   |   |  |          |          |        |   |   |          |            |        |   |
|----------------|---|---|---|--|----------|----------|--------|---|---|----------|------------|--------|---|
| 6.1            | Discovery and protection of Cultural and Historical Artefacts | Loss of cultural history  | Do not disturb or damage an Aboriginal place, object or relic without the consent or authorisation. Notify within reasonable time of becoming aware of the location or discovery of certain Aboriginal objects and relics<br><br>Ensure that objects and areas with significance to Aboriginals are treated in accordance with Aboriginal tradition and are preserved and protected from injury and desecration.<br>Do not fail to report to the Minister the discovery of remains which are believed to be Aboriginal remains.<br>Report the discovery to the DEHP as soon as practicable.<br><br>Comply with all requirements of a Cultural Heritage Management Plan. | National Parks and Wildlife Act  | Unlikely | Moderate | Medium | A heritage report will be conducted.<br><br>All personnel will be inducted to be vigilant for any cultural artefacts. If any are discovered, work will immediately be stopped the the Department of Environment and Heritage will be contacted.   | Environmental inspections.<br><br>Sign off from the Heritage Consultant that the area has been thoroughly searched and managed. | Unlikely | Minor      | Low    |   |
| 3.1            | Excavation Dust<br>Demolition Dust<br>Construction Dust       | Air Pollution<br>Annoyance<br>Nuisance                              | Do not pollute the atmosphere so that it becomes potentially harmful to the health, welfare, safety or property of people; detrimental to any beneficial use.   | Protection of the Environment Operations (Clean Air) Regulation 2010<br><br>National Environment Protection (Ambient Air Quality) Measure (Air NEPM) | Likely   | Moderate | High   | Implement dust suppression methods:<br>- barriers to prevent the spread of dust<br>- cover loads, restrict vehicle speeds<br>- minimise areas being worked<br>- use water cart and water sprays<br><br>Notify parties potentially impacted by activities<br>Cease activities if dust is not controlled  | Monitor site conditions<br><br>Conduct site inspections   | Unlikely | Negligible | Low    | Dust generated during clearing and earthworks may cause a nuisance to nearby receptors. Ensure dust is monitored and suppressed as required. Ensure Civil contract is let with an allowance for constant water truck sweeps.<br><br>Dust generation from stockpiling must also be monitored. Stockpiles must be protected by sediment fencing on all sides and either covered with tarp or seed-binded to minimise dust blow-off. |
| 6.3            | Noise   | Disturbance to nearby residents                                     | Do not emit unreasonable noise (having regard to its volume, intensity, duration). Construction equipment cannot be operated outside of 7am - 10pm M-F and 9 to 10 weekends and public holidays   | Protection of the Environment Operations (Noise Control) Regulation 2017   | Possible | Minor    | Medium | All personnel will be inducted to only conduct noisy activities within the prescribed hours.  | No complaints received.   | Unlikely | Minor      | Low    | Area is fairly isolated.  |
| 6.4            | Vibration   | Disturbance to nearby residents.<br>Damage to physical assets       | Avoid disturbance caused by vibration.  | Protection of the Environment Operations (Noise Control) Regulation 2017<br><br>Crimes Act 1900  | Possible | Minor    | Medium | Minimise inconvenience to adjoining property owners.<br>Conduct a dilapidation survey prior to commencing works.<br>Monitor and control vibration levels.   | Carry out surveys and monitoring as required  | Unlikely | Minor      | Low    | Area is fairly isolated. No heavy vibration works are to be undertaken.   |
| 6.6            | Protection of Existing Infrastructure and Services            | Damage to adjacent property or disruption of services to neighbours | Do not Damage to adjacent property or disrupt services to neighbours.   | Government Telecommunications Act, 2018<br><br>Energy Legislation Amendment (Infrastructure Protection) Act 2009 No 31<br><br>Crimes Act 1900        | Possible | Moderate | High   | Set up protection to adjacent structures as required.<br><br>Identify and protect overhead and inground services.<br>Contact Dial-before-you-dig and client records.<br>Ensure service authority requirements are met.<br>Notify Client prior to planned interruptions to services.<br>Project Emergency Plan in place with correct emergency contact numbers on display.<br>Excavation Permits approved before commencing excavations<br>Create Master Services Plan<br>Mark exclusion zones as required | Monitor activities, implementation of site identification and protection, compliance with Excavation Permits.                   | Unlikely | Moderate   | Medium | Ensure underground services are marked out.   |