

**HSEF0301.1 – Environmental Impact Assessment (EIA)****Approved by:** Head of Workplace Health and Safety**Revision:** 3**Date:** May 2019**Page** 1 of 7

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ENVIRONMENTAL IMPACT ASSESSMENT (EIA)

PROJECT SITE/LOCATION	Lake Cethana and Lake Rowallan	ANTICIPATED DURATION OF PROJECT	5 months
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**DESCRIBE THE WORK
ACTIVITY AND WORK
ENVIRONMENT**

As part of the Battery of the Nation initiative Hydro Tasmania is undertaking feasibility assessments of potential pumped hydroelectric schemes (PHES) associated with Lake Rowallan and Lake Cethana. A PHES at either Lake Cethana or Lake Rowallan would include an upper reservoir on land above the lake, an underground power station beneath the upper reservoir, an intake outlet structure on each lake and connecting power, tailrace and access tunnels to allow the transfer of water to and from the lake and upper reservoir via the power station. Further information on the Battery of the Nation and planned Rowallan and Cethana PHES feasibility assessments can be found on Hydro Tasmania's [website](#).

A critical component of the feasibility assessment is geotechnical investigations. Geotechnical investigations will be used to assess the suitability of the potential PHES sites at Cethana and Rowallan for construction of underground infrastructure as well as the upper reservoir. The planned geotechnical investigations will include test pitting, augering and drilling as well as establishment of drill pads and access tracks. A description of each geotechnical investigation method is provided below and a map of proposed locations provided in Annex 1. All proposed locations are on land managed by Sustainable Timber Tasmania (STT). All test pits, auger holes, drill holes, drill pads and access tracks have been located to avoid environmental and heritage values and to minimise environmental impacts.

Test pitting

Test pits will be excavated to allow visual examination of the soil, logging, in-situ testing and sampling from the pit as required. Test pitting will require the excavation of a trench up to approximately 10m long 2.5m wide and 5m deep. Spoil will be stored temporarily next to the test pit. Test pits will be backfilled to existing ground level using excavated soil in the general order it was removed. Top soil will be stockpiled separately and used to cover the infilled trench. No test pit will be left uncovered overnight. A 20 tonne excavator to be used for test pitting to manage large glacial boulders that are expected. Including the trench, spoil stockpile and room for the excavator the potential work area for each test pit is approximately 20m by 20m. **Figure 1** shows an example of a typical test pit whilst **Figure 2** shows a reinstated test pit.

**Figure 1 Test pitting****Augering**

Dependent on the successful contractor, augering will use either with a solid flight auger connected to a 20t excavator or a track mounted auger rig (**Figure 3**). Auger holes will be drilled to a depth of up to 8m and will be approximately 500mm in diameter to allow for soil and rock sampling as required. All auger holes will be backfilled as soon as sampling is completed. Top soil will be separated and replaced. No auger holes will be left uncovered overnight. If augering reaches refusal it is possible that test pitting may be desired to determine whether refusal is caused by bedrock or a boulder.

**Figure 2 Test pit reinstatement**

**Figure 3 Typical auger rig****Drilling**

Although two drill hole locations are shown at Cethana and three at Rowallan only one hole will be drilled at each location. The location of the drill hole is dependent on further feasibility assessment. Two diamond drill holes will be drilled to depths of up to 500m at Rowallan and 700m at Cethana. Drill holes are approximately 100mm in diameter. Core recovered from the drill holes will be analysed and removed from site. The drill hole will be either capped or grouted at the completion of drilling.

Water will be required to facilitate drilling. Water will be circulated from an onsite water tank to the drill hole and back to a series of two sumps each approximately 1.5m³. Sumps allow solids such as naturally occurring rock and organic matter (e.g. tree roots) to fall out of suspension. Whenever possible water will be drawn from the second sump and recirculated through the drill hole. However, where insufficient water is returned from the drill hole water will be supplemented from the on-site water tank. Up to a maximum of 15,000L of water per day is anticipated to be required. Water will be taken from nearby sources, nominally Lake Rowallan and Lake Gairdner and transported to site using a water tanker. Overflow from the second sump (e.g. in the event of high rainfall) will be dissipated over land and not directed down existing drainage channels.

Where required, drilling additives may be used (e.g. to control high hole torque, lubricate drill strings or stabilise the hole). Drilling additives will be used only when required and will be biodegradable (e.g. drill muds such as Mudex or Mudlogic).



Drilling will require the clearance and levelling of a drill pad up to approximately 20m by 30m and sheeted using fine gravel (10-15mm). The size of the drill pad (and area of vegetation cleared) will be the minimum required to meet OH&S requirements. The drill pad will provide an all-weather work area and accommodate the drill rig, water truck as well as various drilling infrastructure including nine meter drill rods, transportable water tanks and light 4WD vehicles. Erosion control measures will be installed at the drill pad.

Drilling at Rowallan will require the use of a rubber tracked mobile drill rig whilst drilling at Cethana will require the use of a larger truck mounted drill rig. Both drill rigs require the ability to recover continuous core samples with low disturbance, in-situ testing (including packer/water pressure testing and stress testing) and backfilling with grout under artesian pressure (potentially). A typical track mounted drill rig and truck mounted drill rig is shown in **Figure 4** and **Figure 5** respectively.



Figure 4 Typical track mounted drill rig



Figure 5 Typical truck mounted drill rig

Access tracks

Proposed test pits, auger sites and drill holes have been located as close as possible to existing tracks to reduce the need to create new access tracks. Access to drill holes will require the establishment of a gravel track from the nearest existing access road to the drill sites to provide safe and appropriate accessibility for heavy machinery and personnel. Access to drill sites at Cethana can be achieved from existing access tracks via the Treloar owned and operated Moina Quarry though the existing track may need minor upgrade (vegetation removal and track repair). Access to two of the drill sites at Rowallan will require the establishment of new tracks (**Figure 6**) whilst the third (BH-01) will require minor upgrades to the existing track. Tracks are planned to be built using either a 13 or 20 tonne excavator. The location of proposed access tracks is shown in Annex 1.

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**Figure 6 Typical access track to drill holes**

Test pitting and augering and will be completed using a 20t excavator (or track mounted auger rig) and will not require the establishment of sheeted access tracks. It is anticipated that the excavator (or auger rig) with accompanying 4wd vehicle will be 'walked' between sites with minimal disturbance. Proposed access routes for test pits and auger sites are shown in Annex 1.

Rehabilitation

Drill pads and access tracks will be removed at the completion of geotechnical works (subject to consultation with STT) and the disturbed sites rehabilitated. Rehabilitation will include the removal of sheeting gravel, reinstatement of natural contours, spreading of removed vegetation and, if required to aid revegetation, planting disturbed areas with local species suitable to the location.

PROJECT MANAGER

Joe Booth

EIA PREPARED BY

David Procter

FINAL COPY APPROVED BY

Ian Jones

SIGNATURE**DATE**

23/9/19

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LEGAL ASSESSMENT*Does this activity require a permit or the requirement to notify a regulatory body?**Refer to HSEP0201 – Legal and Other Requirements Procedure for further information***Local Council/State Requirements**

- ☒ Council Development Planning/Building Permits
- ☒ Heritage Permits (Aboriginal/Cultural)
- ☒ Permit to Take Threatened Species
- ☐ Mining Lease or Licence
- ☐ Forest Practices Plan
- ☐ Reserve Activity Assessment (TWWHA and other reserves)
- ☐ Dam Works Permit
- ☐ Crown Land Works Authority
- ☐ Scientific Research Permit
- ☐ Environment Management Pollution Control Act Permit (Level 2 activities or other)

Commonwealth Requirements

- ☐ Referral under *Environmental Protection and Biodiversity Conservation Act 1999* for significant impacts on matters of National Environmental Significance

Further Advice

- ☐ Seek assistance with identifying applicable legal requirements and obligations from Subject Matter Experts including the Environment & Engagement and Legal Teams, if required

If any of the above are required, please describe requirements and attach a copy of the documents:

The Meander Valley and Kentish Councils have been consulted and have confirmed that the proposed geotechnical works are exempt from the requirement for a planning permit (Annex 2).

A Aboriginal and historic heritage survey has been completed at all locations potentially disturbed by the proposed geotechnical works (Annex 3). One isolated artefact was found on one of the proposed access tracks. This artefact will be avoided either by temporarily covering (eg with wooden blanks) or by using an alternative access track. Provided the identified artefact is avoided the survey did not identify the requirement to obtain a permit to move or destroy any Aboriginal or historic heritage.

An ecological survey has been completed at all locations potentially disturbed by the proposed geotechnical works (Annex 4). The survey did not identify the requirement to obtain a Permit to Take under the *Threatened Species Protection Act 1995*.

The proposed works are not subject to any other Local Council or State requirements and do not require referral under the Commonwealth *Environmental Protection and Biodiversity Conservation Act 1999*.

WORKING WITHIN THE TASMANIAN WILDERNESS WORLD HERITAGE AREA (TWWHA) AND OTHER PWS RESERVES*Refer to HSEP0911 - Operations in the TWWHA for further information**Skip this section if the works are not within the TWWHA or other PWS reserves*

- **Maintenance work** in the TWWHA will require notification to Parks & Wildlife Services in the form of a cover letter (see *HSEP0911.1 - WHA Notification of Works*).

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- New work** in the TWWHA and other reserves may require the completion of a Parks & Wildlife Services *Reserve Activity Assessment*. Refer to a Subject Matter Expert within the Environment & Engagement Team for further advice.

What is the zoning of the land under the TWWHA Management Plan?	(See HT Map Viewer – Environment & Heritage – Work in the TWWHA - PWS WHA Management Overlays + PWS WHA Management Zones)
What is the Wilderness Quality Rating of the land?	(See HT Map Viewer – Environment & Heritage – Work in the TWWHA - PWS Wilderness Quality 2005)
What is the Reserve Category of the land?	(See HT Map Viewer – Stakeholders - LIST Public Land Classification)
Is the land vested in Hydro Tasmania?	(See HT Map Viewer – Property - HT Property)
What distance are the works from a public road, designated walking track or other public access route (e.g. Franklin River)?	

LIFECYCLE CONSIDERATIONSAs an example - *Does this activity have the opportunity to consider and influence more sustainable acquisition of raw materials, end of life treatment and final disposal of waste?***If yes, describe the considerations and how to influence these through proposed actions (please note a lifecycle assessment isn't required):** N/ARefer to [IBRM Operation Information](#) for further information regarding operational impacts including probability and impact (consequence).

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Probability Table		
Description	Probability Range	Example Probability
7. Almost Certain	91% – 100%	Event is expected
6. Likely	61% – 90%	Event is likely to occur
5. Possible	21% – 60%	Event may occur, but not likely
4. Unlikely	6% – 20%	Event not expected
3. Rare	1% – 5%	Event extremely unlikely
2. Extremely Rare	< 1%	May only occur in extreme and exceptional circumstances

Probability	Impact (Consequence)					
	1.Insignificant	2.Minor	3.Moderate	4.Major	5.Extreme	6.Catastrophic
7. Almost Certain 91% - 100%	7	14	21	28	35	42
6. Likely 61% - 90%	6	12	18	24	30	36
5. Possible 21% - 60%	5	10	15	20	25	30
4. Unlikely 6% - 20%	4	8	12	16	20	24
3. Rare 1% - 5%	3	6	9	12	15	18
2. Extremely Rare <1%	2	4	6	8	10	12

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POTENTIAL HAZARD AND RISK	INHERENT RISK (probability x impact)	CONTROL MEASURES	RESIDUAL RISK (probability x impact)	PERSON WHO IS RESPONSIBLE FOR MANAGING THE CONTROL MEASURE	HOW OFTEN WILL THE CONTROL MEASURE BE CHECKED TO ENSURE IT IS IN PLACE & EFFECTIVE
LAND <i>see HSEP0913 Land Management Procedure</i> <input type="checkbox"/> N/A					
<input checked="" type="checkbox"/> Importation of gravel from a quarry <input checked="" type="checkbox"/> Air and noise quality / pollution <input checked="" type="checkbox"/> Land clearing and contamination <input checked="" type="checkbox"/> Storage of equipment and / or construction of site shed <input checked="" type="checkbox"/> Excavation <input type="checkbox"/> Noise from works of normal business hours					
Land clearing for access tracks, test pitting and drill pad establishment leading to erosion and sedimentation	15 - Moderate	<p>Erosion control measures will be installed to control surface water runoff and prevent the transport of sediments from test pits, auger sites, drill holes, access tracks and drill pads. Sites will be established in a manner to minimise risk of erosion occurring including:</p> <ul style="list-style-type: none">• All land disturbances will be confined to the minimum practicable area to maintain OH&S requirements to ensure that the minimum land area is exposed to erosion for the shortest possible time;• Surface water will be diverted around the drill pad using structures such as catch drains, silt fences or bunds; and• Any discharge of drilling fluids from above ground sumps shall be to vegetated land or removed from site.• Test pit and auger holes will be reinstated as soon as sampling is completed and will not be left open overnight.• Drill holes will be either capped or grouted at the completion of sampling. <p>To prevent erosion from site drill hole, auger holes, test pits, drill pads and access tracks will</p>	8 - minor	Hydro Tasmania site manager Hydro Tasmania environmental representative (six monthly monitoring)	Daily visual inspection of sediment control structures Six monthly monitoring of rehabilitation works.

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		<p>be rehabilitation as soon as works at each site are completed. Rehabilitation will include:</p> <ul style="list-style-type: none">• Drill holes – full or partial grout as required and cap with appropriate plug.• Auger holes – backfill with original materials in reverse order and finish with topsoil.• Test pits - Backfill with original materials in reverse order finishing with topsoil. Any excess spoil will be treated as waste and removed from site.• Drill pad, access tracks and other cleared areas – (except with prior consent from STT) remove gravel, stabilise and cover cleared areas with vegetation removed during clearing and, where required to facilitate revegetation, local seed or seedlings appropriate to the location.• Where erosion is a particular problem, such as on steep slopes, sediment may be held in place by using geotextile fabric or jute mesh held down with steel pins. <p>Rehabilitated sites will be monitored six monthly and further work carried out, if required, to ensure rehabilitation has been successful.</p>			
Source and transport of gravel for access tracks impacting environment and amenity.	12 - moderate	Gravel for access tracks will be sourced from existing stockpiles or quarries from the closest available stockpile or quarry.	8 - minor	Hydro Tasmania site manager	Once – inspection of gravel source

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Noise emissions from drill rigs and machinery impacting amenity of nearby residents and visitors	12 - moderate	Ensure that machinery used on site is fitted with the required exhaust and noise suppression systems and it is in manufacturers recommended operating condition. Vehicles and machinery will not be left running when not in use. Site working hours will typically be from 0730 – 1730 from Monday to Friday. Work outside these times shall only be undertaken with the approval of the Hydro Tasmania Site Supervisor.	8 - minor	Hydro Tasmania site manager	Daily – visual inspection of machinery.
Generation of excessive dust through project activities impacting amenity of nearby residents and visitors.	5 – insignificant	The project site, material stockpiles and access tracks will be wetted or stabilised if excessive dust is generated. Vehicles and machinery travelling to the sites will maintain an appropriate speed to prevent excessive dust generation. Earth moving equipment will be cleaned prior to leaving site to prevent the tracking of soil on nearby roads.	3 – insignificant	Hydro Tasmania site manager	Daily visual inspection of dust generation

FLORA – LAND AND AQUATIC☐ N/A☒ Vegetation clearing☒ Threatened Species, Communities & Habitat nearby☒ Disturbance / removal of habitat☒ Weed and disease spread

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Clearance/disturbance of listed threatened flora and vegetation communities at auger, test pit and drill hole sites or for the establishment of access track and drill pads.	20 - Major	<p>An ecological survey was completed at all auger, test pit and drill hole sites (including access tracks and drill pads) (Annex 4).</p> <p>At Cethana the survey identified a range of vegetation communities. Of these only one, highland <i>Poa</i> grassland (GPH), is listed as threatened under the <i>Nature Conservation Act 2002</i> (NC Act). One auger hole (HF-09) is located in this vegetation community however, due to the surrounding ground wetness it was assessed that moving this hole to nearby forest would likely result in greater environmental impact.</p> <p>A Rowallan all geotechnical sites were located in <i>Eucalyptus delegatensis</i> dry forest and woodland (DDE) which is not listed under the NCA Act.</p> <p>No flora species listed under the <i>Threatened Species Protection Act 1995</i> or <i>Environmental Protection and Biodiversity Conservation Act 1999</i> are expected to be disturbed by the geotechnical works.</p> <p>Test pitting at auger holes may be required to determine whether refusal is the result of bedrock or a bolder. Test pitting at auger holes will only be undertaken with the consent of the Hydro Tasmania's environmental representative. Test pitting will not be undertaken at Cethana HF-09 located in highland <i>Poa</i> grassland.</p> <p>Clearing of overhanging vegetation may be required to safely operate the drill rig at the drill</p>	8 - minor	Hydro Tasmania site manager	Once – visual inspection of site clearance

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		<p>holes. Any clearing of trees will be conducted to current forestry industry standards, including adequate safety protection for personnel and equipment.</p> <p>Contractors will be made aware of the requirement to confine all disturbance to within the marked area.</p> <p>Contractors will be provided with a map of 'no go' areas to be used when 'walking' the excavator between auger and test pit locations.</p> <p>If it is determined at the time of the works that additional disturbance is required or that the site is not suitable an appropriately qualified ecologist will inspect the additional / alternative site. If threatened species are located the site will be relocated if possible. If not a permit to take application will be completed for the threatened species prior to the commencement of works.</p> <p>Vegetation clearance shall be kept to the minimum required to safely undertake the geotechnical works. Wherever possible vegetation will be trimmed rather than removed.</p>			
Introduction of weeds or dieses via importation of contaminated machinery or material.	10 - minor	<p>Drill holes, test pits and auger holes will be backfilled with excavated material.</p> <p>Any imported material (e.g. gravel for drill pads and access roads) will be sourced from a location that is certified to be free of Phytophthora.</p> <p>Vehicles and equipment used for the geotechnical investigations will be clean prior to</p>	8 - minor	Hydro Tasmania site manager	As required – visual inspection of Phytophthora compliance and vehicles and machinery entering site.



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		transport to the site and free of mud and dirt that could harbour weeds and diseases prior to commencing work at the site. Vehicles and equipment used for the geotechnical investigations to keep to designated tracks.			
FAUNA – LAND AND AQUATIC <input type="checkbox"/> N/A					
<input checked="" type="checkbox"/> Threatened fauna <input checked="" type="checkbox"/> Disturbance to spawning, nesting or breeding seasons <input type="checkbox"/> Pest Fish <input checked="" type="checkbox"/> Injury / death of fauna (stranding, drowning) <input checked="" type="checkbox"/> Disturbance to sensitive habitats					
Clearance and/or disturbance of listed threatened fauna habitat at auger, test pit and drill hole sites or for the establishment of access track and drill pads	20 - major	An ecological survey was completed at all auger, test pit and drill hole sites (including access tracks and drill pads). No fauna species (or habitat for fauna species) listed under the <i>Threatened Species Protection Act 1995</i> or <i>Environmental Protection and Biodiversity Conservation Act 1999</i> are expected to be disturbed by the geotechnical works.	8- minor	N/A	N/A
Disturbance of active wedge tailed eagle nests.	20 - major	There is a wedge-tailed eagle nest (nest ID 184) recorded approximately 500m from the auger site HF03 at Rowallan. The record dates from 1985. The record was investigated and approached within 200m. No nest could be observed. It is possible that the nest is present further down the westerly slope but if this is the case it is further than 500m away from any potential disturbance and not within the 1km line of site exclusion zone (FPA Fauna Technical Note 1 Eagle nest	8 - minor	N/A	N/A

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		searching, activity checking and nest management). The nearest known wedge-tailed eagle nest at Cethana is over 3.5km to the northwest, well beyond the range of likely disturbance. The habitat within the geotechnical works area is low quality eagle habitat and has a low likelihood of containing nests.			
Entrapment of fauna in open test pits	15 - moderate	No test pits will be left open overnight.	6 - minor	Hydro Tasmania site manager	Daily visual inspection of test pits.

WATER QUALITY☒ N/A☐ Changes in water quality for upstream/downstream users☐ Unnatural, extreme or long term changes to water levels or flows☐ Changes to recreational uses of water☐ Disturbance of fish passages / breeding / migration☐ Rapid drawdowns

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HERITAGE <i>see HSEP0912 Cultural Heritage Management Procedure</i> <input type="checkbox"/> N/A <input type="checkbox"/> Impacts to Hydro Tasmania historic heritage <input type="checkbox"/> High/Very High ranking on the HT Cultural Heritage Inventory <input type="checkbox"/> Site on the Tasmanian Aboriginal Heritage Register (AHR) <input type="checkbox"/> Impacts to non-Hydro historic heritage <input type="checkbox"/> Site listed on the National Heritage List, Tasmanian Heritage Register, Planning Scheme Heritage Code or external heritage database <input checked="" type="checkbox"/> Impacts to artefacts (including concealment by rising water levels following planned maintenance drawdown)					
Disturbance of Aboriginal relics or sites due to test pit excavation or access track and drill pad establishment.	16 - major	<p>A survey for Aboriginal and historic heritage was completed by Gondwana Heritage Solutions (Greg Jackman), accompanied by an Aboriginal Heritage Officer (AHO) at both Rowallan and Cethana (Annex 3). The survey included all test pit and drill hole sites (including access tracks and drill pads). Auger holes were considered to be of low risk not to require assessment. Nonetheless all by six auger holes at Cethana were assessed in case test pitting should be required.</p> <p>Four artefacts (three isolated artefacts and one artefact scatter) were found at Rowallan. One artefact (ROAH01) was recorded on the access track to BH-01. If the track is to be used the artefact will be appropriately covered (eg supported metal plate) to prevent damage. At the completion of works the cover will be removed.</p> <p>The other three artefacts are located close to, but not on, proposed access tracks and will be avoided. The sites, with 5m exclusions zones, will be flagged to prevent accidental disturbance.</p>	8 - minor	Hydro Tasmania site manager	Inspection of recorded artefact protection – if required.

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		<p>There were no artefacts recorded at Cethana.</p> <p>No test pitting will be undertaken at CE-HF02, CE-HF03, CE-HF04, CE-HF05 , CE-HF07 , CE-HF010 without prior consent from Hydro Tasmania's environmental representative.</p> <p>All ground disturbance will be minimised.</p> <p>If it is determined at the time of the works that additional disturbance is required or that the site is not suitable an appropriately qualified heritage expert will inspect the additional / alternative sites prior to the commencement of work.</p> <p>If the site is assessed as medium or high risk an alternative site will be found.</p> <p>Ensure contractors/workers have access to, and understand, Aboriginal Heritage Tasmania's Unanticipated Discovery Plan (Annex 5).</p> <p>Any Aboriginal relics encountered during works will be reported immediately as per UDP protocols and Hydro Tasmania's Cultural Heritage Management Procedure (HSEP0912).</p>			
Disturbance of historic heritage sites due to test pit excavation or access track and drill pad establishment	15 – moderate	No historic heritage values were identified or anticipated at the location of any sites or access tracks.	5 - insignificant	TBC	N/A



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POTENTIAL HAZARD AND RISK	INHERENT RISK (probability x impact)	CONTROL MEASURES	RESIDUAL RISK (probability x impact)	PERSON WHO IS RESPONSIBLE FOR MANAGING THE CONTROL MEASURE	HOW OFTEN WILL THE CONTROL MEASURE BE CHECKED TO ENSURE IT IS IN PLACE & EFFECTIVE
WASTE & RECYCLING <i>see HSEP0914 Waste Management Procedure</i> <input type="checkbox"/> N/A					
<input type="checkbox"/> Waste oil / Hydrocarbons <input type="checkbox"/> Hazardous waste (e.g. PCB) <input checked="" type="checkbox"/> Construction waste					
<input type="checkbox"/> Concrete slurry <input type="checkbox"/> Asbestos / Coal Tar Enamel (CTE) waste <input type="checkbox"/> Recycling opportunities including steel, paper/cardboard, plastics					
<input checked="" type="checkbox"/> Excavation spoil					
Spoil from drilling, test pitting, augering and site clearance left on site.	5 - insignificant	If generated, excess spoil will be removed from site and disposed of in an appropriate location. Drill cuttings may be discharged to vegetated areas around the site away from watercourses. Larger volumes of drill cuttings (>2m2) will be removed from site.	3 - insignificant	TBC	
Site waste from geotechnical works contaminates surrounding environment.	10 - minor	Animal proof general rubbish bins will be available on drilling sites for the duration of the works. Rubbish generated during test pitting and augering will be collected and removed from site. Portable toilets to be kept on site for duration of works. general waste and sewage will be disposed of at an approved location by the waste management supplier.	4 - insignificant	TBC	Daily – inspection of rubbish collection and site for rubbish.

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		It is the responsibility of the Drilling Contractor to ensure that all drilling related tools, equipment and rubbish is removed prior to rehabilitation commencing and that all drill hole collars, plugs or caps are clearly marked and communicated.			
Contamination of surrounding land from drilling waste water		install an above ground sump to collect and store waste water. Reuse sump water in preference to carting in water.			
HAZARDOUS SUBSTANCES & CHEMICAL MANAGEMENT <i>see HSEP0921 - Hazardous Chemical Management Procedure</i> <input type="checkbox"/> N/A					
<input checked="" type="checkbox"/> Hazardous substances storage <input checked="" type="checkbox"/> Fire risk <input checked="" type="checkbox"/> Oil / fuel spill to land, air and water <input checked="" type="checkbox"/> Land contamination <input type="checkbox"/> Transport of hazardous substances required <input checked="" type="checkbox"/> Waste					
Pollution of nearby land from release of drill slurry containing drilling additives	10 - minor	Drilling additives will only be used when absolutely required. All additives used will be biodegradable Safety Data Sheets (SDS) must be available onsite. Recommendations on the safe handling and storage of these substances must be followed.	5 - insignificant	TBC	

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POTENTIAL HAZARD AND RISK	INHERENT RISK (probability x impact)	CONTROL MEASURES	RESIDUAL RISK (probability x impact)	PERSON WHO IS RESPONSIBLE FOR MANAGING THE CONTROL MEASURE	HOW OFTEN WILL THE CONTROL MEASURE BE CHECKED TO ENSURE IT IS IN PLACE & EFFECTIVE
Contamination of nearby land from accidental spills (e.g. fuel or oils).	12 – moderate	<p>Any hazardous materials (including hydrocarbons) stored onsite must be contained in a bund, away from watercourses, and in accordance with any relevant and applicable legislation, regulations or Australian Standard.</p> <p>Staff must be trained in the use of spill kits and associated equipment.</p> <p>Ensure any fuel or oil spills contained immediately.</p> <p>Oil and fuel spill kits adequate for the quantity and type of materials on site will be kept at each site.</p> <p>Any waste from oil spill clean ups will be double bagged, removed from site and disposed of at an appropriately licenced facility.</p>	6 - minor	TBC	
Spark or heat from operation of machinery starts fire.	12 - major	<p>Regular inspection of vehicles/machinery for defects likely to start a fire.</p> <p>Ensure separation of fuel supplies from machinery by suitable distance.</p> <p>Ensure vehicles/machinery are not left running unattended.</p> <p>Ensure fire extinguishers are kept on machinery and in vehicles.</p>	6 - minor	TBC	Daily - vehicle and machinery check

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STAKEHOLDER ENGAGEMENT*see WMS-FRM-060 Stakeholder Advice Checklist (found within the Works Management System)*

Has WMS-FRM-060 been completed?

☒ Yes ☐ No

If No, please complete

Have any potential issues been identified?

☐ Yes ☒ No

If Yes, then as per the instructions on the form, please consult with the Engagement Team to confirm what, if any, additional stakeholder consultation should be completed prior, during and post the project.

PROJECT LEARNINGS*Lessons from the project to be completed during project and during the final review.***Issue****Action/Resolution**