Government of Western Australia
Department of Water and Environmental Regulation

Decision Report

Application for Works Approval

Part V Division 3 of the *Environmental Protection Act 1986*

Works Approval Number	W2893/2025/1
Applicant	Fortescue Ltd
ACN	002 594 872
File number	App-0027086
Premises	Rail Camp 25A Part of L1SA As defined by the coordinates in Schedule 2 of the works approval
Date of report	06/06/2025
Decision	Works approval granted

Stephen Checker
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Date: 2025.06.06 14:01:29 +08'00'

Steve Checker
MANAGER WASTE INDUSTRIES
an officer delegated under section 20 of the *Environmental Protection Act 1986* (WA)

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1. Decision summary

This decision report documents the assessment of potential risks to the environment and public health from emissions and discharges during the construction and operation of the premises. As a result of this assessment, works approval W2893/2025/1 (W2893) has been granted.

2. Scope of assessment

2.1 Regulatory framework

In completing the assessment documented in this decision report, the Department of Water and Environmental Regulation (the department; DWER) has considered and given due regard to its regulatory framework and relevant policy documents which are available at https://dwer.wa.gov.au/regulatory-documents.

2.2 Application summary and overview of premises

On 28 January 2025, the applicant, Fortescue Ltd (Fortescue), submitted an application for a works approval to the department under section 54 of the *Environmental Protection Act 1986* (EP Act).

The application is to undertake construction works relating to Rail Camp 25A Wastewater Treatment Plant (WWTP) at the premises. The premises is approximately 29 km south of South Hedland.

The premises relates to the category and assessed production / design capacity under Schedule 1 of the *Environmental Protection Regulations 1987* (EP Regulations) which are defined in works approval W2893. The infrastructure and equipment relating to the premises category and any associated activities which the department has considered in line with *Guideline: Risk Assessments* (DWER 2020) are outlined in works approval W2893. Approximately 2,000 kVA power generation (equivalent to approximately 2 MW), is required to support the camp and WWTP for the project.

Power generation requirements for Rail Camp 25A are significantly below the 10 MW threshold for Category 52 activities, as described in Schedule 1 of the *Environmental Protection Regulations 1987* (EP Regs) and therefore do not require a licence. Approximately 120 m^3 of fuel storage is required to support power generation at the facility. This Bulk fuel requirements for Rail Camp 25A are significantly below the 1,000 m^3 threshold for Category 73 activities, as described in Schedule 1 of the EP Regs and therefore does not require a licence.

The proposed works are required for the continued operation and development of the applicants' operations in the Pilbara. The proposed reinstatement of Rail Camp 25A will require minimal clearing, if required, this will be undertaken in accordance with Part IV of the EP Act, Ministerial Statement 690 clearing limits.

Fortescue is proposing to construct a new WWTP with a maximum capacity sufficient to treat the wastewater generated by 500 people. The treated wastewater (TWW) will be blended with reverse osmosis brine reject (RO reject), and disposed of through an irrigation sprayfield (ISF). Fortescue has previously operated two Rail Camps (25 and 25A) within the immediate vicinity of the current proposed reinstatement of Rail Camp 25A. Fortescue initially obtained works approval W4861/2011/1 for Rail Camp 25 to support wastewater treatment of up to 500 people as part of the rail expansion project. The camp, WWTP and associated infrastructure was operational from 7 April 2011 and decommissioned by 31 December 2011. Due to ongoing project requirements, a second Works Approval W5160/2012/1 for Rail Camp 25A, located

adjacent to the initial Rail Camp 25, was approved by the department on 14 June 2012 to treat wastewater for up to 700 people. Following construction compliance and commissioning requirements, W5160/2011/1 was transferred to licence L8710/2012/1, approved by the department on 28 February 2013. Fortescue surrendered the Rail Camp 25A licence L8710/2012/1 on 30 December 2014.

To support new infrastructure projects, the applicant was required to apply for a new works approval for a WWTP, ISF, and associated infrastructure for Rail Camp 25A. The camp reestablishment is required to support existing and future works along the railway, and other projects as required. The proposed camp will be located adjacent to Fortescue's north-south railway at chainage 24 (CH 24), approximately 29 km south of Port Hedland

The applicant proposes to construct a 500-person camp modular WWTP, with a production and design capacity (P&DC) of 225 m^3/day; comprising up to150 m^3/day of TWW blended with 75 m^3/day RO brine discharge. The WWTP will discharge this blended effluent to a 6 ha ISF including. The footprint to the WWTP and ISF also encompasses an associated pipeline corridor and associated infrastructure.

The WWTP will comprise a Sequential Batch Reactor (SBR) Sewage Treatment System (comprised of three interconnected modular EcoFarmer units), consisting of:

- 3 x 50,000 L Flow Balance Tanks including,
  - 1 x primary tank to receive raw sewage, and
  - 2 x tanks are included for use during peak periods.
- 3 x SBR modular units.
- 1 x 50,000 L Waste Slug Tanks.
- 3 x 50,000 L Chlorine Contact Tanks.
- 3 x 50,000 L Wet Weather storage tanks comprising;
- Waste sludge will be disposed off-site, at licenced facility.
- 6 ha ISF.

There will be 2 x 50,000 L RO Reject Tanks constructed in parallel to the WWTP and ISF. These tanks will not form part of the works approval construction conditions however TWW blended with RO Reject (blended effluent) will be assessed as part of discharges to land at the ISF.

2.2.1 Treatment description

A combination of raw sewage from the camp and recirculated raw sewage from SBR units is collected in the balance tanks. From the balance tanks, wastewater is directed to the SBR units for treatment. Treated effluent from the chlorine contact tanks is also recirculated through the system and delivered to the SBR units.

Within the SBR units, wastewater and treated effluent undergo a sequence of anoxic degradation, aeration, mixing, chemical dosing, clarification and decanting. Settled materials in the clarification phase form a sludge layer at the bottom of the reactor. A portion of the sludge is returned to the SBR unit to re-seed the incoming effluent to continue the biological treatment process. The remaining sludge is removed from the system as waste to assist in biological sludge age management.

The clarified liquid stream is decanted from the SBR system to undergo further treatment (disinfection).

Waste sludge from the SBR units is collected in the waste sludge tanks. The stored waste sludge is dewatered and subsequently removed off-site for disposal.

Supernatant liquid in the waste sludge tank is recirculated back into the balance tanks. Following

the decant phase of the SBR system, treated effluent is decanted and disinfected with sodium hypochlorite (NaOCl) via a chlorine dosing system. A secondary disinfection or additional chemical dosing may be undertaken as required. The system is designed to allow for a sufficient period of contact time for the treated effluent and chlorine.

Treated and disinfected effluent can then be diverted to the wet weather storage tanks or discharged to the irrigation field with blended RO Reject. Valves to the wet weather tanks are nominally closed and can be opened manually as required.

The ISF is fully enclosed within a fenced area, with fence perimeter to be a minimum of 5 metres from the sprinkler system to allow for spray drift.

The ISF has been located outside of floodplains and is outside the minimum buffer distance of 100 m from nearest watercourse. Sprinklers will be spaced evenly across sprayfield surface and operated to prevent pooling and waterlogging. Appropriate warning signage will be affixed along the fence perimeter.

Treated brine waste from the potable water treatment plant is collected in the RO reject tanks. The RO reject is blended with the treated and disinfected TWW effluent from the chlorine contact or wet weather storage tanks prior to discharge to the irrigation field. Excess RO reject may be used for dust suppression.

2.2.2 Targets for Treated Wastewater

The WWTP will receive inputs produced from the Rail Camp, which include toilets, showers, laundries, kitchen, and ablution blocks. Wastewater is proposed to be treated to the TWW target concentrations outlined in Table 1. These targets have been assessed against the Department of Health Guidelines for the Non-potable Uses of Recycled Water in Western Australia (DoH Guidelines) and to the Australian and New Zealand Environment and Conservation Council (ANZECC) 1997 *Australian Guidelines for Sewerage systems, Effluent Management*, National Water Quality Management Strategy (ANZECC (1997) (ANZECC (1997).

Table 1 outlines the proposed discharge quality of the TWW. All parameter discharge targets are less than respective ERL and ANZECC (1997) parameters.

Table 1: WWTP Target discharge quality.

Parameter	Target	ERL[1]	ANZECC (1997)[2]
Biochemical Oxygen Demand (BOD)	<20 mg/L	<20 mg/L	20-30 mg/L
Total Suspended Solids (TSS)	<30 mg/L	<30 mg/L	25-40 mg/L
Total Nitrogen (TN)	20 mg/L	N/A	20-50 mg/L
Total Phosphorus (TP)	7.5 mg/L	N/A	6-12 mg/L
E. coli	<1000 cfn/100mL	<1000 cfn/100mL	10^5 – 10^6 org/100ml
pH	6.5 – 8.5 pH Units	6.5 – 8.5 pH Units	N/A
Disinfection (if used)	0.2 – 2.0 mg/L	0.2 – 2.0 mg/L	N/A

Note 1: Table 7 of the DoH Guidelines.

Note 2: Appendix 6 ANZECC (1997).

The applicant has requested a Commissioning and Time-limited operation period, which will require TWW sampling, assessment, and reporting against the above targets discharge

concentrations.

2.3 Irrigation of Treated Wastewater

The applicant intends to discharge TWW (combined with RO reject) from the WWTP to the ISF. The volume of TWW discharged will be up to 225 m^3/day, comprising 150 m^3/day TWW and up to 75 m^3/day RO reject.

2.3.1 Description of potential adverse impact

Irrigation of nutrient rich water combined with RO reject has the potential to cause soil contamination and vegetation degradation within the ISF.

RO reject can contain high concentrations of salts (measured as total dissolved solids or TDS) causing soil contamination and health impacts (degradation) on vegetation. Irrigation using blended effluent has the potential to modify major cation ratios in the receiving soil, causing loss of soil structure and dispersion. This can occur where the irrigation water being discharged has a high proportion of sodium ions in relation to calcium and magnesium ions (commonly referred to as the Sodium Adsorption Ratio (SAR), as well as a low electrical conductivity (EC).

If irrigation water with a high SAR relative to EC is applied to a soil, overtime the sodium in the water can displace bound calcium and magnesium ions and increase the exchangeable sodium proportion within the receiving soil. This will affect soil behaviour by decreasing permeability and increasing dispersibility, with the potential to impact flora and surface water receptors at and near the irrigation area.

Decreased permeability of the receiving soil reduces root penetration and air availability for plants as soils become waterlogged at the root zone. Waterlogged soils may become saline as salts are unable to leach through the profile and accumulate in the topsoil and root zone. A reduction in root penetration, air availability, and increased soil salinity can lead to reduced plant growth or death.

High dispersibility increases the erodibility of soil, as clay platelets become detached from larger clay aggregates. This may cause a reduction in water quality at surrounding watercourses due to the increased nutrient and sediment transported through surface runoff. There are no localised or significant surface water bodies or creeks located within 1km of the ISF.

2.3.2 Loading calculations

The applicant has referred to the document *Department of Water and Environmental Protection Water Quality Protection Note 22 (WQPN22): Irrigation with nutrient rich wastewater* in determining an appropriate spray field area size to accommodate the proposed nutrient loading from TWW irrigation. The applicant advises that the soil type (Uaroo land system – broad sandy loamy plains) within the ISF is considered to be risk Category D as detailed in WQPN22.

Based on the following inputs:

- the anticipated discharge quality for contaminant parameters outlined in Table,
- an irrigation area of 6 ha, and
- an effluent volume (production or design capacity) of 150 m^3/d of TWW and 75m^3/day RO reject,

The irrigation loading rates will be 278.3 kg/ha/year for Total Nitrogen (TN) and 102.7 kg/ha/year for Total Phosphorus (TP).

Category D nutrient loading rates from WQPN22 are 480 kg/ha/year for TN, and 120 kg/ha/year for TP respectively. This indicates that the proposed sprayfield loading rates are below that required to accommodate the TN and TP loadings proposed for discharge through irrigation. Also, using the above data, the minimum area required for the ISF is 5.13 ha. The ISF has been

designed at 6 ha.

It is noted that due to the dilution of the TWW stream with RO reject, creating a 'blended effluent' stream for final irrigation, the loading rates of TN and TP will decrease. Furthermore, a 5 m wide wind overspray buffer has been incorporated into the design which effectively increases the size of the ISF. The applicant will also manage the ISF to prevent any ponding or pooling of blended effluent.

2.3.3 Irrigation of RO reject

Soil salinity refers to the amount of dissolved salts in the soil. Excessive sodium levels relative to calcium and magnesium can adversely affect plant growth, soil structure, and permeability. This is detailed in the document *'Use of effluent by irrigation – Department of Environment and Conservation (NSW) – October 2004'* (NSW 2004).

A Sodium Adsorption Ratio (SAR) is an indicator of the suitability of water for use in irrigation. Generally, the higher the SAR the less suitable the water is for irrigation, depending on the water's electrical conductivity (EC). The NSW 2004 document utilises a SAR calculation in section 3.8 which can be used to describe a relationship between SAR and EC. This can then be used to determine the suitability of an effluent for irrigation; whereby a high SAR may be tolerable if effluent also has a high EC. The relationship between SAR, EC, and soil structural impacts is shown in Figure 3 (*Figure 3.1 of the NSW 2004*) below.

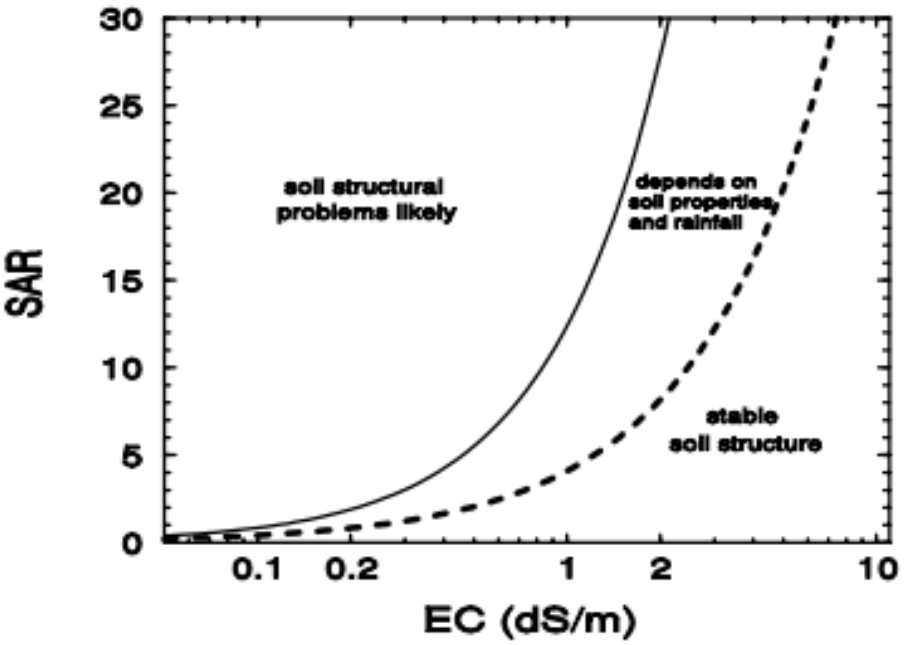

Figure 1: Relationship between SAR and EC of irrigation water for prediction of soil structural stability. Note that 1 dS/m = 1,000 µS/cm.

The applicant has submitted a SAR calculation of approximately 3.56. The applicant has submitted a report on SAR for the ISF area, which used a RO Reject water quality for Total Dissolved Solids (TDS) value of 2,800 mg/L (from Table 9 of the Works Approval Application Attachment 3B Supporting Document) has accordingly determined that RO Reject will have an EC of 4.38 dS/m (4,380 uS/cm). Using Figure 1, there would be a stable soil structure, and the irrigation of RO reject within the blended effluent stream appears to be acceptable.

2.4 Part IV of the EP Act

The applicant has Part IV Ministerial statement 690 and MS 1137 approval in four stages:

- Stage A Project: Port and a north-south railway from the south of the Chichester Ranges in the Central Pilbara to Port Hedland (MS 690).
- Stage B Project: Christmas Creek and Mindy-Mindy mines Rail Camp 25A WWTP R-WA-EN-0003 Rev: 0 This document is uncontrolled when printed. Page 8 of 59 Legislation Instrument Summary and an east-west rail spur (MS 707).
- Cloudbreak Iron Ore Project: The Cloudbreak Iron Ore Mine (MS 721).
- Port Facility Upgrade of the Third Berth at Anderson Point, Port Hedland: Dredging and Wharf Construction (MS 771)

2.5 Other legislative approval

The applicant has approval under the *Railway and Port (The Pilbara Infrastructure Pty Ltd) Agreement Act 2004 (*the TPI State Agreement). Rail Camp 25A is located within Fortescue's L1SA, Special Rail Licence (SRL) and disturbance associated within the camp has been previously approved under Part IV of the EP Act in MS 690. The registered holder of the SRL is The Pilbara Infrastructure Pty Ltd, a wholly owned subsidiary of Fortescue. A detailed proposal pursuant to clause 12 of the TPI State Agreement for the recommissioning of Rail Camp 25 has been submitted the Department of Jobs, Tourism, Science and Innovation and is anticipated to be approved in February 2025.

3. Risk assessment

The department assesses the risks of emissions from prescribed premises and identifies the potential source, pathway and impact to receptors in accordance with the *Guideline: Risk Assessments* (DWER 2020).

To establish a risk event there must be an emission, a receptor which may be exposed to that emission through an identified actual or likely pathway, and a potential adverse effect to the receptor from exposure to that emission.

3.1 Source-pathways and receptors

3.1.1 Emissions and controls

The key emissions and associated actual or likely pathway during premises construction / operation which have been considered in this decision report are detailed in Table 2 below. Table 2 also details the control measures the applicant has proposed to assist in controlling these emissions, where necessary.

Table 2: Proposed applicant controls

Emission	Sources	Potential pathways	Proposed controls
Construction			
Dust	Vehicle movements Earthworks for the installation of the wastewater infrastructure and equipment	Air / windborne pathway	Water Cart. Reduced vehicle speed limits. Siting. Implementation of a Dust Management Plan.
Noise	Operation of vehicles and machinery		Siting. All onsite machinery fitted with mufflers.
Operation			
Dust	Vehicle movements Earthworks for the installation of the wastewater infrastructure and equipment	Air / windborne pathway	Siting. Water Cart. Reduced vehicle speed limits. Implementation of a Dust Management Plan.
Nosie	Operation of vehicles and machinery		Siting. All onsite machinery fitted with mufflers.

Emission	Sources	Potential pathways	Proposed controls
Odour	Commissioning and Time-limited operations, WWTP operations		Siting. Regular inspection of equipment by appropriately qualified personnel. WWTP will be commissioned in accordance with manufacturers specifications. WWTP monitoring system equipped with alarms and alerts raised if malfunctioning. WWTP is appropriately designed and operated to mitigate risk of odour emissions. Containerised (enclosed) WWTP.
Discharges to Land	TWW containing contaminants (e.g. nutrients, pathogens, metals) and RO brine quality	Seepage to soil and groundwater	Volumetric flow meters at WWTP and ISF and from RO Reject Tank. WWTP monitoring of TWW parameters. 6 ha ISF. Buffer distance of 5 m between sprinklers and perimeter fence. Security fence at ISF. Sludge produced by the WWTP collected in dedicated sludge tanks, dewatered, and the bulk solids removed periodically as required by a licensed carrier and taken offsite for disposal at an appropriately licensed premises in accordance with the *Environmental Protection (Controlled Waste) Regulations 2004*. Siting. Depth to groundwater 16 mbgl.
Spills / Leaks	WWTP, Chemical handling and storage		Appropriate earthen bunding (or similar) is maintained around the WWTP perimeter. Chemicals are stored in accordance with Australian Standard AS 3780:2008 *Storage and Handling of Corrosive Substances*. Depth to groundwater 16 mbgl. Spill Kits. Hydrocarbon Management Plan.
Sediment laden stormwater	Stormwater interaction with WWTP and irrigation spray-field		Appropriate earthen bunding (or similar) is maintained around the WWTP perimeter. Implementation of a Surface Water Management Plan.

3.1.2 Receptors

In accordance with the *Guideline: Risk Assessment* (DWER 2020), the Delegated Officer has excluded the applicant's employees, visitors, and contractors from its assessment. Protection

of these parties often involves different exposure risks and prevention strategies, and is provided for under other state legislation.

Table 3 below provides a summary of potential human and environmental receptors that may be impacted as a result of activities upon or emission and discharges from the prescribed premises *(Guideline: Environmental Siting* (DWER 2020)).

Table 3: Sensitive human and environmental receptors and distance from prescribed activity

Human receptors	**Distance from prescribed activity**
White Hill residential Estate	13.36 km north
Environmental receptors	**Distance from prescribed activity**
Turner River	4.97 km west
Minor creek line	3.5 km east
Groundwater	16 mbgl
PDWSA	28.07 km west

3.2 Risk ratings

Risk ratings have been assessed in accordance with the *Guideline: Risk Assessments* (DWER 2020) for each identified emission source and takes into account potential source-pathway and receptor linkages as identified in Section 3.1. Where linkages are in-complete they have not been considered further in the risk assessment.

Where the applicant has proposed mitigation measures/controls (as detailed in Section 3.1), these have been considered when determining the final risk rating. Where the delegated officer considers the applicant's proposed controls to be critical to maintaining an acceptable level of risk, these will be incorporated into the works approval as regulatory controls.

Additional regulatory controls may be imposed where the applicant's controls are not deemed sufficient. Where this is the case the need for additional controls will be documented and justified in Table 4.

Works approval W2893 that accompanies this decision report authorises construction and time-limited operations. The conditions in the issued works approval, as outlined in Table 4 have been determined in accordance with *Guidance Statement: Setting Conditions* (DER 2015).

A licence is required following the time-limited operational phase authorised under the works approval to authorise emissions associated with the ongoing operation of the premises. A risk assessment for the operational phase has been included in this decision report, however licence conditions will not be finalised until the department assesses the licence application.

Table 4: Risk assessment of potential emissions and discharges from the premises during construction, commissioning and operation

Risk events					Risk rating [1] C = consequence L = likelihood	Applicant controls sufficient?	Conditions [2] of works approval	Justification for additional regulatory controls
Sources / activities	**Potential emission**	**Potential pathways and impact**	**Receptors**	**Applicant controls**				
Construction								
Construction of WWTP and ISF and associated equipment including vehicle movements (reversing beepers).	Dust	Air / windborne pathway causing impacts to health and amenity	White Hill residential Estate13.36km north	Refer to Section 3.1	C = Slight L = Unlikely **Low Risk**	Y	N/A	The Delegated Officer has considered the scale of the works and the separation distance between the source and receptors as indicating that the risk of dust emission impacts is not foreseeable. Dust can be adequately regulated by section 49 of the EP Act.
	Noise			Refer to Section 3.1	C = Slight L = Unlikely **Low Risk**	Y	N/A	The Delegated Officer has considered the separation distance between the source and receptors as a guide to inform the risk of noise emissions as not foreseeable. Noise emissions are adequately regulated under the *Environmental Protection (Noise) Regulations 1997*.
Commissioning								
Commissioning of WWTP and ISF and associated equipment including vehicle movements	Dust	Air / windborne pathway causing impacts to health and	White Hill residential Estate13.36km	Refer to Section 3.1	C = Slight L = Unlikely	Y	N/A	The Delegated Officer has considered the scale of the works and the separation distance

Risk events					Risk rating [1] C = consequence L = likelihood	Applicant controls sufficient?	Conditions [2] of works approval	Justification for additional regulatory controls
Sources / activities	**Potential emission**	**Potential pathways and impact**	**Receptors**	**Applicant controls**				
(reversing beepers).		amenity	north		**Low Risk**			between the source and receptors as indicating that the risk of dust emission impacts is not foreseeable. Dust can be adequately regulated by section 49 of the EP Act.
	Noise			Refer to Section 3.1	C = Slight L = Unlikely **Low Risk**	Y	N/A	The Delegated Officer has considered the separation distance between the source and receptors as a guide to inform the risk of noise emissions as not foreseeable. Noise emissions are adequately regulated under the *Environmental Protection (Noise) Regulations 1997*.
	Odour			Refer to Section 3.1	C = Slight L = Unlikely **Low Risk**	Y	N/A	The Delegated Officer has considered the scale of the works and the separation distance between the source and receptors as indicating that the risk of odour emission impacts is not foreseeable. Odour can be adequately regulated by section 49 of the EP Act.

Risk events					Risk rating [1] C = consequence L = likelihood	Applicant controls sufficient?	Conditions [2] of works approval	Justification for additional regulatory controls
Sources / activities	**Potential emission**	**Potential pathways and impact**	**Receptors**	**Applicant controls**				
	Discharges to Land	Discharge to land and subsurface seepage causing contamination of soil, degradation of groundwater quality and impacts to downgradient receptors	Groundwater 16mbgl	Refer to Section 3.1	C = Minor L = Possible **Medium Risk**	Y	Conditions 1, 2, 3, 4, 5, 6, 7, 8, 9 and 10.	N/A
	Spills / Leaks	Direct discharge to land and groundwater	Groundwater 16mbgl	Refer to Section 3.1	C = Slight L = Unlikely **Low Risk**	Y	Conditions 1 and 5.	N/A
	Contaminated stormwater	Overland runoff potentially causing ecosystem disturbance or impacting surface water quality	Minor creek line 3.5km east	Refer to Section 3.1	C = Slight L = Unlikely **Low Risk**	Y	Conditions 1 and 5.	N/A
Operation **(including time-limited-operations operations)**								
Operation of WWTP and ISF and associated equipment including vehicle movements (reversing beepers).	Dust	Air / windborne pathway causing impacts to health and amenity	White Hill residential Estate13.36km north	Refer to Section 3.1	C = Slight L = Unlikely **Low Risk**	Y	N/A	The Delegated Officer has considered the scale of the works and the separation distance between the source and receptors as indicating that the risk of dust

Risk events					Risk rating [1] C = consequence L = likelihood	Applicant controls sufficient?	Conditions [2] of works approval	Justification for additional regulatory controls
Sources / activities	**Potential emission**	**Potential pathways and impact**	**Receptors**	**Applicant controls**				
								emission impacts is not foreseeable. Dust can be adequately regulated by section 49 of the EP Act.
	Noise			Refer to Section 3.1	C = Slight L = Rare **Low Risk**	Y	N/A	The Delegated Officer has considered the separation distance between the source and receptors as a guide to inform the risk of noise emissions as not foreseeable. Noise emissions are adequately regulated under the *Environmental Protection (Noise) Regulations 1997*.
	Odour			Refer to Section 3.1	C = Slight L = Unlikely **Low Risk**	Y	N/A	The Delegated Officer has considered the scale of the works and the separation distance between the source and receptors as indicating that the risk of odour emission impacts is not foreseeable. Odour can be adequately regulated by section 49 of the EP Act.
	Discharges to Land	Discharge to land and subsurface seepage causing	Groundwater 16mbgl	Refer to Section 3.1	C = Minor L = Possible **Medium Risk**	Y	Conditions 1, 2, 3, 4, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21	N/A

Risk events					Risk rating [1] C = consequence L = likelihood	Applicant controls sufficient?	Conditions [2] of works approval	Justification for additional regulatory controls
Sources / activities	Potential emission	Potential pathways and impact	Receptors	Applicant controls				
		contamination of soil, degradation of groundwater quality and impacts to downgradient receptors					and 22.	
	Spills / Leaks	Direct discharge to land and groundwater	Groundwater 16mbgl	Refer to Section 3.1	C = Slight L = Unlikely **Low Risk**	Y	Conditions 1, 5, and 13.	N/A
	Contaminated stormwater	Overland runoff potentially causing ecosystem disturbance or impacting surface water quality	Minor creek line 3.5km east	Refer to Section 3.1	C = Slight L = Rare **Low Risk**	Y	Conditions 1, 5 and 13.	N/A

Note 1: Consequence ratings, likelihood ratings and risk descriptions are detailed in the *Guideline: Risk Assessments* (DWER 2020).

Note 2: Proposed applicant controls are depicted by standard text. **Bold and underline text** depicts additional regulatory controls imposed by department.

4. Consultation

Table 5 provides a summary of the consultation undertaken by the department.

Table 5: Consultation

Consultation method	Comments received	Department response
Local Government Authority advised of proposal on 13 March 2025.	No response received.	Noted
Department of Mines, Energy, Industry Regulation and Safety (DEMIRS) advised of proposal 13 March 2025.	DEMIRS replied on date 26 March 2025 advising; *DEMIRS has reviewed the documentation provided in relation to APP-0027086 (WWTP/spray field tied to FMG Rail Camp located on L1SA and managed under an Agreement Act).* *DEMIRS is not a DMA in relation to this proposal. We did provide advice to DJTSI in relation to the detailed proposal that was lodged by FMG with DJTSI mentioned in table 1 (of the Works Approval Attachment 3B).*	Noted
Department of Health (DoH) advised of proposal on 13 March 2025.	DoH responded on 10 April 2025: *The DoH has reviewed the documentation submitted and provides the following comment.* ***Wastewater Management:*** *In relation to wastewater management, the DoH has no objection to the proposal subject to ensuring the wastewater treatment plant complies with the Department's legislative requirements, the (Health Treatment of Sewage and Disposal of Effluent and Liquid Waste) Regulations, 1974 and policy objectives including the Government Sewerage Policy, 2019 (GSP).* *The proposed onsite wastewater treatment plant and disposal area is proposed for up to 500 persons at 300 litres per person per day or a total volume of 150kL/day. There is a reference to the wastewater treatment plant being capable of receiving more personnel. However, The DoH will require an updated application that may require upgrading works to ensure the system is not overloaded if this was to occur. The proponent will need to provide:* *1. Engineering Certification of the wastewater treatment plant for structural integrity of the system for a minimum of 15 years, sizing for proposed volumes peak and non-peak performances and to meet the minimum water quality criteria.* *2. The proposed development is in proximity to a major river system. Therefore, a site-specific, Site and Soil Evaluation (SSE) needs to be undertaken by a qualified consultant during the wettest seasonal time of the year (Feb - March) as per AS/NZS*	Noted. The department has confirmed the separation of the treatment and irrigation area from waterways as indicated in table 3, page3. This separation distance has informed the risk assessment associated with impacts to waterways in the area.

	1547:2012 to ensure the land application area is located and sized appropriately. *3. Details of sludge management for the tanks and ponds.* *4. Detailed plans showing the proposed building envelopes, proposed and existing onsite wastewater systems, all trafficable areas, parking bays and land application area/s including setback distances, exclusion/riparian zones with all measurements are required at building stage.* *5. The DoH requires a minimum of 30 metres from rivers, creeks and seasonal creeks and it is undetermined if this has been met. The GSP require 100 metre setbacks that the DWER may wish to implement or relocate the proposed system.* *The proponent will be required to submit a formal application for each onsite wastewater treatment system, upgrade and or relocation of a system to the Local Government for assessment who will forward onto the DOH for assessment and approval.* *Of note, the reverse osmosis reject water may contain high concentrations of total dissolved solids and non-nutrient chemicals that could adversely impact ground water or the environment. Accordingly, the proposed disposal method may require further attention by the Department of Water and Environment.* ***Recycling Water Management Plan*** *If the proposal will later utilise recycled water or brine water for beneficial purposes, sewage intended to be reused or recycled for landscaping, garden bed irrigation, toilet flushing, industrial reuse or other purposes, will require prior approval from the Department of Health. Please refer to the "Application Process for approval of a recycling water scheme": https://ww2.health.wa.gov.au/Articles/A_E/Application process-for-approval-of-recycling-water-scheme* ***Drinking Water Management:*** *All drinking water provided on site must meet the health-related requirements of the Australian Drinking Water Quality Guidelines 2011.*	
Department of Planning, Lands ad Heritage (DPLH) advised of proposal on 13 March 2025.	DPLH replied on date 28 March 2025 advising; *A review of the Register of Places and Objects, as well as the DPLH Aboriginal Heritage Database, concludes that the subject area as described in 'Figure 4 Land Systems' in document 'W2893 - Attachment 3B - Rail Camp 25A WWTP Activity', does not appear to intersect with any known Aboriginal heritage Places or Registered Sites. Therefore, based on the current information held by DPLH, no approvals under the Aboriginal Heritage Act 1972 (AHA) are required in this instance. I note that a shapefile of the subject area has not been provided and as such, this advice is based on the map provided, for more specific advice, please provide a shapefile of the subject area.* *I note Fortescue Ltd's engagement with the Kariyarra Traditional Owners, and the Indigenous Land Use Agreement and Land Access Agreement currently in place. The subject area has been archaeologically and ethnographically surveyed with no heritage values identified within the proposed project footprint. I note Fortescue Ltd's statement it 'will endeavour to avoid any identified heritage places to the greatest practical extent', and*	Noted.

	that it will consult with the relevant native title group should disturbance be required to any heritage. DPLH encourages ongoing engagement between Fortescue Ltd and Kariyarra Aboriginal Corporation in relation to the proposed works and any potential impacts to Aboriginal heritage. *DPLH also advises Fortescue Ltd regularly checks ACHIS should new Aboriginal Cultural Heritage be reported within the subject area. ACHIS can be searched by using the following link: https://espatial.dplh.wa.gov.au/ACHIS/index.html?viewer=ACHIS.*	
Kariyarra Aboriginal Corporation advised of proposal on 13 March 2025.	No response received.	Noted.
Applicant was provided with draft documents on 24 April 2025.	The Applicant requested an extension for comment until Friday 23 May 2025. The Applicant submitted comments on 23 May 2025. Refer to Appendix 1.	Refer to Appendix 1

5. Conclusion

Based on the assessment in this decision report, the delegated officer has determined that a works approval will be granted, subject to conditions commensurate with the determined controls and necessary for administration and reporting requirements.

References

1. Department of Environment Regulation (DER) 2015, *Guidance Statement: Setting Conditions*, Perth, Western Australia.
2. Department of Water and Environmental Regulation (DWER) 2020, *Guideline: Environmental Siting*, Perth, Western Australia.
3. DWER 2020, *Guideline: Risk Assessments*, Perth, Western Australia.

Appendix 1: Summary of applicant's comments on risk assessment and draft conditions

Condition	Summary of applicant's comment	Department's response
Condition 1 Table 1 Row 2 (d)	Comment Fortescue requests to amend the wording in Condition 1(d) of the works approval. Specifically, for the addition of the phrase "per day"' to clarify the unit discharge rate. The minor correction will provide consistency with the assessed production / design capacity limit stated the cover page of the instrument. Requested Change The requested change to Condition 1 (d) is indicated by the highlighted, bold text below. Irrigation spray field must meet the following specifications: (a) Minimum 6 ha irrigation spray field with sprinkler units, (b) Maintain a 5 m spray drift buffer, (c) Above ground sprinklers must be installed, (d) No more than 225 m^3 of blended effluent to be applied to the irrigation spray field **per day,** (e) Irrigation is managed to prevent ponding and pooling of effluent on the ground surface of the irrigation spray field, (f) No blended effluent is permitted to be discharged outside of the irrigation spray field as identified in Schedule 1, (g) Irrigation spray field is fully enclosed within fenced area, (h) Warning signage fixed to all sides of the fence, and (i) Bunds and diversion drains must be installed where required to divert uncontaminated stormwater away from the irrigation spray field.	Noted. The Delegated Officer grants this request. Sub-condition (d) has been amended as requested.
Condition 3 (a) and (c)	Comment Fortescue proposes to revise the wording in Condition 3 (a) and (c) of the	Noted Condition 3 (a) has been amended to *certification by a suitably qualified engineer* as per standard condition wording. This

Condition	Summary of applicant's comment	Department's response
	works approval. The proposed change to Condition 3 (a) is to include the conjunction "or", to provide clarity and continuity when reading this sub-provision. The proposed change to Condition 3 (c) is to remove the word "and" at the end of the sentence, as this is not necessary due to the absence of sub-provision (d). Fortescue requests these changes to remove ambiguity and ensure better compliance outcomes with the conditions of the works approval. Requested Change The requested change to Condition 3 (a) and (c) is indicated by the highlighted, bold text below. The Environmental Compliance Report required by condition 2, must include as a minimum the following: (a) certification by a suitably qualified person **or** engineer that the items of infrastructure or component(s) thereof, as specified in condition 1, have been constructed in accordance with the relevant requirements specified in condition 1; (b) as constructed plans and a detailed site plan for each item of infrastructure or component of infrastructure specified in condition 1; (c) be signed by a person authorised to represent the works approval holder and contains the printed name and position of that person; ~~and~~	aligns with the wording provided by the Applicant in Appendix A Fortescue proposed standard conditions in Attachment 3B: Proposed Activities. The Delegated Officer grants this request. The 'and' has been removed from 3 (c) as this is a Typo error.
Condition 5 Table 2	Comment Fortescue has noted that the works approval stipulates that the authorised commissioning duration is not to exceed 60 days in aggregate. Fortescue requests for an extension to the stipulated commissioning duration to 90 calendar days in aggregate. The request is to ensure that Fortescue can sufficiently complete commissioning works associated with the WWTP (which depend on a biological treatment process, specified minimum hydraulic loads and correct seed bacteria balance) to ensure the treated effluent water quality will be able to meet the discharge limits described in Table 7. The amendment will allow Fortescue a longer commissioning period with improved treated effluent water quality, and better environmental	Noted. The Applicant originally requested 60 days Commissioning in Appendix A Fortescue proposed standard conditions in Attachment 3B: Proposed Activities. The Delegated Officer grants this request. Condition changed to 90 days Commissioning.

Condition	Summary of applicant's comment	Department's response
	performance of the plant. Requested Change The requested change to Table 2, Column 3 is indicated by the highlighted, bold text below. A period not exceeding ~~**60**~~ **90** calendar days in aggregate	
Condition 5 Table 2 Row 2 (b)	Comment Fortescue requests the removal of sub-provisions (i) and (ii) of part (b) of Row 2, Table 2 and replacement with the wording "investigated and corrective actions implemented" to provide operational flexibility. The current wording of the condition implies that treated effluent cannot be discharged unless the water quality specifications of Condition 1, Table 1 are achieved. However, this is inconsistent with the Industry Guideline to Licensing (DWER, 2019), which recognises that during commissioning, "emissions higher than normal operation may occur in the short term until the plant is stabilised". Fortescue's understanding of this guidance would mean that it is contradictory to prevent discharges to land during commissioning which do not meet the parameter limits. Fortescue notes that during the commissioning phase, effluent water quality results inevitably vary as the correct seed bacteria balance, hydraulic loading and chemical dosing processes are optimised. From an operational perspective, the receipt of laboratory results can vary considerably, therefore it is not practically possible to store treated effluent for extended periods until lab results are received to ensure the Condition 1, Table 1 parameters are met, prior to irrigation. The proposed changes align with the Department's Industry Guideline to Licensing and provide for flexibility during commissioning. Requested Change The requested change to Condition 5, Table 2, Row 2 is indicated by the highlighted, bold text below. (a) Treated effluent that meets design specifications listed in condition 1 may be disposed of to the irrigation sprayfield (b) Treated effluent that does not meet design specifications listed in condition 1 is to be **investigated and corrective actions implemented.** ~~**(i) removed by a licensed Controlled Waste Carrier for disposal to**~~	The Delegated Officer agrees that variable emissions are to be expected in the commissioning period. The Delegated Officer considers that discharge of off specification treated effluent during the commissioning period will be acceptable given the categorisation of soil in the irrigation area as 'lowest risk' Category D and that as a construction camp, operations are expected to be temporally limited. The Department's Industry Guide to Licencing (Guide to Licensing) advises that '*If an applicant wishes to environmentally commission under a works approval they must provide sufficient information in the works approval application so that the environmental commissioning activities can be assessed under the works approval. This would include, for example, the provision of an environmental commissioning plan'.* It is recommended that future similar applications from the works approval holder includes such information, including an environmental commissioning plan if environmental commissioning is sought. The Delegated Officer has removed the subcondition.

Condition	Summary of applicant's comment	Department's response
	~~**a premises authorised by the department to accept the waste; or**~~ ~~**(ii) re-circulated back through the WWTP; or**~~ (c) Volumetric flow meters are maintained on the WWTP inlet, RO reject pipeline and outlet to the irrigation spray field (d) Earthen bunding is maintained around the WWTP perimeter. (e) Sludge is contained within sealed sludge tanks prior to removal by a licensed waste carrier for disposal to a licensed disposal facility. (f) Chemicals are stored in accordance with Australian Standard AS3780-2008 Storage and Handling of Corrosive Substances. (g) In the event of a leak/spill, the source will be isolated, and any contaminated soil remediated or disposed of to an appropriately licensed facility.	
Condition 7 Table 4	Comment Fortescue requests for the parameter "residual chlorine" be referred to as "residual free chlorine". This inclusion will provide clarity and consistency with the wording in Table 1, Row 1, (f) (vi) and will remove ambiguity with "total residual chlorine" in the interpretation of the condition. Requested Change The requested change to Condition 7, Table 4, Row 8 is indicated by the highlighted, bold text below. Residual **free** chlorine	Noted The Delegated Officer grants this request. Tabel 4 amended to include 'free'.
Condition 10 (e)	Comment Fortescue requests for a change to Condition 10 (a) and (e) which describe the commissioning report requirements. The proposed change to Condition 10 (a) is to remove the reference to time-limited operations, as this is addressed in Condition 19 (a) and for this to be replaced with "commissioning activities". The proposed change to Condition 10 (e) will remove ambiguity associated with this condition, as it currently implies that a review of performance and compliance against all the conditions of the works	Noted. Change to condition 10(a) to Commissioning as Time-limited operations was a typo error. Condition 10 (e) is the same wording provided by the applicant in Appendix A Fortescue proposed standard conditions in Attachment 3B: Proposed Activities. Condition 10 (e) represents the standard condition wording for this Condition. It is the same wording in W6863,

Condition	Summary of applicant's comment	Department's response
	approval is required. As such, it may be interpreted that compliance against the construction conditions is required, however, this would have previously been submitted in accordance with Conditions 2 and 3 of this works approval. Additionally, the current phrasing of Condition 10 (e) would also imply that compliance against the time limited operations conditions is required, however, this phase would not have commenced as the Commissioning Report required by this condition would not have been submitted yet. The proposed changes will clarify that compliance is to be assessed based on the "commissioning" conditions of this approval. Requested Change The requested change to Condition 10 (a) and (e) is indicated by the highlighted, bold text below. The works approval holder must ensure the Environmental Commissioning Report required by condition 9 of this works approval includes the following: (a) a summary of the ~~**time limited operations**~~ **commissioning** activities, including date(s) for commencement of ~~**time limited operations**~~ **commissioning activities**, timeframes and amount of wastewater processed; (b) a summary of blended effluent monitoring results recorded in accordance with condition 7; (c) copies of laboratory reports for blended effluent monitoring results recorded in accordance with condition 8; (d) a summary of the environmental performance of each item of infrastructure or minimum includes: (i) a comparison of the blended effluent monitoring results against discharge limits specified in condition 15; (ii) assessment of the irrigation spray field performance against operational requirements in condition 5; (e) a review of the works approval holder's performance and compliance against the **commissioning** conditions of this works approval; and (f) where they have not been met, measures proposed to meet the manufacturer's design specifications and the conditions of this works	W6616/2024/1 (W6616) and W6664/2022/1 (W6664), all current works approvals for the Applicant at different premises. The Delegated Officer declines the request. No change to the condition as requested.

Condition	Summary of applicant's comment	Department's response
	approval, together with timeframes for implementing the proposed measures.	
Condition 12	Comment Fortescue requests to rephrase Condition 12 to align with Condition 18 of this works approval and the recently approved W6506/2021/1. The change to the condition will allow time-limited operations to continue "until such a time as the works approval expires" or "until such time a registration or licence for that item of infrastructure is granted in accordance with Part V of the Environmental Protection Act 1986". The proposed change will reduce administrative burdens associated with future Works Approval Amendments to extend time-limited operations due to unforeseen external factors, such as contractor delays and personnel shortages. Further, the inclusion of "whichever occurs first" is requested to be included to account for any unforeseeable administrative delays to the receipt of the Licence. Requested Change The requested change to Condition 12 is indicated by the highlighted, bold text below. The works approval holder may conduct time limited operations for an item of infrastructure specified in condition 13: (a) ~~**for a period not exceeding 180 calendar days from the day the works approval holder meets the requirements of condition 10 for that item of infrastructure; or until such a time as the works approval expires; or**~~ until such a time as the works approval expires; or (b) until such time as a registration or licence for that item of infrastructure is granted in accordance with Part V of the Environmental Protection Act 1986 ~~**and only where this occurs prior to the time period specified in sub provision (a)**~~ **whichever occurs first.**	. TLO timeframes are set in works approvals to be consistent with the maximum timeframes specified for TLO in the Guide under section 4.3 – *periods of operations under the works approval will be set to between 90 to 180 days* . Extensions to these timeframes can be applied for on a case by case basis where the occupier has demonstrated extenuating circumstances or otherwise has difficulty in meeting the required timeframe – as was the case with W6506/2021/1. Such extensions are not intended to be granted at the outset for new works approvals. The Delegated Officer declines the request. No change to condition wording.
Condition 13 Table 5	Comment Fortescue requests for the removal of sub-provision (e) of Row 2 of Table 5, which requires chemicals to be stored in a dangerous goods container, as this is a duplication of sub-provision (f).	Noted. The Delegated Officer grants this request. Sub-condition (e) removed from Condition.

Condition	Summary of applicant's comment	Department's response
	Fortescue notes that sub-provision (f) accounts for chemical storage in accordance with the Australian Standard AS3780-2008 (refer to Section 5 Storage and handling of packages of AS3780-2008) and therefore, sub-provision (e) is already accounted for. Requested Change The requested change to Condition 15, Table 5 is indicated by the highlighted, bold text below. (a) Volumetric flow meters are maintained on the RO brine holding tank outlet, WWTP inlet and outlet to the irrigation spray field (b) Earthen bunding is maintained around the WWTP perimeter. (c) Sludge is contained within sealed sludge tanks prior to removal by a licensed waste carrier for disposal to a licensed disposal facility. (d) Screenings are contained within a sealed bin prior to removal for disposal to a licensed disposal facility. (e**) ~~Chemicals including sodium hypochlorite are stored in a dangerous goods container.~~** (f) Chemicals are stored in accordance with Australian Standard AS3780-2008 Storage and Handling of Corrosive Substances. (g) Spills of wastewater or chemicals outside of a vessel/container are cleaned up immediately.	
Condition 15 Table 7	Comment Fortescue requests for the parameter "residual chlorine" be referred to as "residual free chlorine". This inclusion will provide clarity and consistency with the wording in Table 1, Row 1, (f) (vi) and will remove ambiguity with "total residual chlorine" in the interpretation of the condition. Requested Change The requested change to Condition 15, Table 7, Row 7 is indicated by the highlighted, bold text below. Residual free chlorine	Noted. The Delegated Officer grants this request. Condition amended as requested.
Condition 16	Comment	Noted.

Condition	Summary of applicant's comment	Department's response
Table 8	Row 6: pH Row 8: pH Row 9: Residual chlorine. Fortescue notes that the "pH" parameter has been listed twice in Table 5 and requests for the removal of Row 6 or Row 8. <u>Requested Change</u> Fortescue requests for the parameter "residual chlorine" be referred to as "residual free chlorine". This inclusion will provide clarity and consistency with the wording in Table 1, Row 1, (f) (vi) and will remove ambiguity with "total residual chlorine" in the interpretation of the condition.	The Delegated Officer grants this request. Condition amended to remove the second pH and add 'free' as requested.
Condition 19	<u>Comment</u> Fortescue requests for a change to Condition 19 (e) to clarify that compliance is to be assessed based on the "time-limited operations" conditions of this approval. The proposed change will remove ambiguity associated with this condition, as it currently implies that a review of performance and compliance against all the conditions of this works approval is required. Compliance against the construction and commissioning conditions would have previously been submitted in accordance with Conditions 2, 3, 9 and 10. The proposed changes will clarify that compliance is to be assessed based on the "time-limited operations" conditions of this approval. <u>Requested Change</u> The requested change to Condition 19 (e) is indicated by the highlighted, bold text below: The works approval holder must ensure the report required by condition 18 includes the following: (a) a summary of the time limited operations, including date(s) for commencement of time limited operations, timeframes and amount of wastewater processed; (b) a summary of monitoring parameter results obtained during time limited operations under condition 16.	Noted. Condition 19 employs standard condition wording (see for example similar Fortescue approvals - W6616, W6893 and W6664). Previous submissions and compliance reports may include information relevant to TLO and this information can be incorporated into the compliance report for TLO to ensure the WWTP is operating as proposed, and this will ensure the risk assessment is reflective of operations. Consideration of broader works approval requirements also provides the opportunity to update or address any previously identified non-compliance in the submission if appropriate. The Delegated Officer declines the request. No change to condition wording.

Condition	Summary of applicant's comment	Department's response
	(c) copies of laboratory reports for blended effluent monitoring results recorded in accordance with condition 17; (d) a summary of the environmental performance of equipment as installed, which at minimum includes: (i) a comparison of the blended effluent monitoring results against discharge limits specified in condition 15; (ii) of the spray irrigation field performance against operational requirements in condition 13; (e) a review of performance and compliance against the **time limited operations conditions** of the works approval ~~and the Environmental Commissioning Report;~~ and (f) where the specifications and the conditions of this works approval have not been met, what measures will the works approval holder take to meet them, and what timeframes will be required to implement those measures	