Aldington Road Estate, Kemps Creek SSD-17552047

Dam Decommissioning Management Plan

Prepared for

Frasers Property Industrial Pty Ltd

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Aldington Road Estate, Kemps Creek SSD 17552047 – Dam Decommissioning Management Plan

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Document control

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01	20/06/2021	DRAFT Dam Decommissioning Management Plan for review	Frasers
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1 Introduction

1.1 Background

Frasers Property Industrial (Frasers) is proposing to construct and operate a warehouse and logistics hub at 155 to 217 Aldington Road, Kemps Creek (the subject land). The proposed development (the proposal) will involve bulk earthworks, vegetation clearing, provision of infrastructure and construction of warehouse and distribution facilities.

The subject land extends over approximately 43 hectares (ha), which is located within the Penrith City Council local government area (LGA) and comprises several allotments as identified below and shown in Figure 1-1.

- 155-167 Aldington Road, Kemps Creek - Lot 33 DP258949
- 169-181 Aldington Road, Kemps Creek - Lot 28 DP255560
- 183-197 Aldington Road, Kemps Creek - Lot 27 DP255560
- 199 Aldington Road, Kemps Creek - Lot 26 DP255560
- 201-217 Aldington Road, Kemps Creek - Lot 25 DP255560

The subject land contains five farm dams (refer Table 1-1 and Figure 1-1), which will require decommissioning to facilitate the development.

Table 1-1. Subject land farm dams

Name	Area (m^2)	Perimeter (m)
Lot 25a	1,191	139
Lot 25b	2,585	186
Lot 27	2,925	277
Lot 28	22,727	657
Lot 33b	1,888	171
Lot 33a	2,772	207

1.2 Purpose of this plan

This Interim Dam Decommissioning Management Plan (the Plan) has been prepared to guide the decommissioning of five farm dams within the subject land.

The Plan details the procedures that must be undertaken in the planning, preparation and implementation of farm dams within the subject land and addresses relevant legislation, permits and approvals.

These requirements will be met through implementing the procedures described in this Plan, which include:

- Pre-clearance, construction and post construction strategies
- Fauna rescue and relocation protocol
- De-watering guidelines
- Euthanasia and disposal of pest aquatic species
- Weed and pathogen control
- Monitoring and reporting strategies

Coordinate System: MGA Zone 56 (GDA 94) | Image sources: Nearmap 15 April 2021

Name	Area (m^2)	Perimeter (m)
Lot 25a	1191	139
Lot 25b	2585	186
Lot 27	2925	277
Lot 28	22727	657
Lot 33b	1888	171
Lot 33a	2772	207

Aldington Road Estate, Kemps Creek

Figure 1.1. Subject land dams

Farm dams

1.3 Relevant legislation

Table 1-2 provides a summary of legislation relevant to the decommissioning of dams located within the subject land.

Table 1-2. Legislative context

Legislative mechanism	Relevance to proposal
Federal legislation	
Environmental Protection and Biodiversity Act 1999 (EPBC Act)	No individual threatened species or populations or communities listed under the EPBC Act occur within the farm dams or would be impacted on as a result of the dam decommissioning activities.
State legislation	
Biodiversity Conservation Act 2016 (BC Act)	No individual threatened species or populations listed under BC Act occur within the farm dams. Native emergent vegetation within the farm dams has been assessed separately within a Biodiversity Development Assessment Report (BDAR) for the proposal and is being offset in accordance with the NSW Biodiversity Offsetting Scheme.
Biosecurity Act 2015 (Biosecurity Act)	The Biosecurity Act repealed the *Noxious Weeds Act 1993*, which has provided regulatory controls and powers to manage noxious weeds in NSW. The Biosecurity Act: • Applies equally to all land in the state, regardless of whether it is publically or privately owned; and • Introduces the legally enforceable concept of a General Biosecurity Duty (GBD). For weeds, the General Biosecurity Duty (GBD) means that any person dealing with plant matter must take measures to prevent, minimise or eliminate the biosecurity risk (as far as is reasonably practicable). The farm dams do not contain and weed species categorised as priority weeds under the Biosecurity Act. Other biosecurity risks include introduced fish species such as European carp (*Cyprinus carpio*) and Plague minnow (*Gambusia holbrookii*). These species must be managed compliantly with the Biosecurity Act.
Fisheries Management Act 1994 (FM Act)	The rescue and relocation of fin fish during dam decommissioning requires a permit under Section 37 of the FM Act. The power to grant an approval under Section 37 of the FM Act is limited by section 220ZW (Licence to harm threatened species, population or ecological community or damage habitat). Based on ecological assessment conducted for the subject land, it is considered unlikely that any threatened species, populations or

Legislative mechanism	Relevance to proposal
	ecological communities listed under the FM Act occur within the subject land and a licence under section 220ZW not required.
Prevention of Cruelty to Animals Act 1979 (PCA Act)	Under Part 2 Clause 5(3) of the PCA Act, a person in charge of an animal shall not fail at any time: a. to exercise reasonable care, control or supervision of an animal to prevent the commission of an act of cruelty upon the animal, b. where pain is being inflicted upon the animal, to take such reasonable steps as are necessary to alleviate the pain, or c. where it is necessary for the animal to be provided with veterinary treatment, whether or not over a period of time, to provide it with that treatment. These clauses have been provisioned for in Section 4.1 of this Plan.
Protection of the Environment Operations Act 1997 (POEO Act)	Under Part 5.3 of the POEO Act it is an offence to pollute any waters. As there is no watercourse within the subject land, options for dam water disposal will include irrigating onto land, reuse on site, or reuse during construction (for initial dust suppression and soil conditioning).

2 Existing Environment

2.1 Subject land

The subject land is characterised by cleared pasture, market gardens and rural residences (and associated buildings), isolated patches of native vegetation, scattered paddock trees and areas in which exotic and/or mixed exotic/native trees have been planted.

The landscape of the subject land is of gently undulating topography with a gentle slope towards Kemps Creek located approximately one kilometer (km) to the south west / west. Ground levels of approximately 96 m Australian Height Datum (AHD) are present near the north eastern site extent falling to approximately 56 m AHD in the south western site extent.

2.2 Farm dams

Each of the farm dams have been historically constructed to capture surface flows from the undulating topography and prevailing drainage pathways.

To facilitate the capture and storage of flows, earthern bund walls have been constructed along the downstream or lower elevated perimeter of each dam.

2.2.1 Dam water quality

Surface water quality investigations were conducted by JBS&G Australia Pty Ltd (JBS&G, 2021) as a component of detailed site contamination investigations for the proposal.

Surface water samples were collected at a range of betwee 0.5 – 4.0m from the bank of the dam and analysed for heavy metals, BTEX/TRH, PAHs, Nutrients, ph and TSS.

Guideline values for the protection of fresh water ecosystems (Australia and New Zealand Guidelines for Fresh and Marine Water Quality) were adopted noting the site forms part of the catchment for South Creek – which forms part of the upper catchment to the Hawkesbury River. All surface water receptors are considered to be dominated by fresh water conditions in proximity to the site.

All contaminants of potential concern (COPCs) were reported below the adopted site criteria for 95% specific protection levels for freshwater environments.

3 Dam decommissioning

3.1 Dewatering

Options for dam water disposal include irrigating onto land, reuse on site, reuse during construction, removal to an authorised waste management facility, and discharge into the stormwater drainage system or local creek.

As there is no watercourse within the subject land, it is most likely that dewatering would be staged in line with development progress and provide a source of water for initial dust suppression and soil conditioning.

Irrigation of surrounding land will be feasible for the smaller dams, with the larger Dam Lot 28 recommended as a water supply for dust suppression and soil conditioning (as far as practical), see Table 3-1.

Table 3-1. Dewatering options

Name	Area (m^2)	Dewatering option
Lot 25a	1,191	Irrigation of surrounding land
Lot 25b	2,585	Irrigation of surrounding land
Lot 27	2,925	Irrigation of surrounding land
Lot 28	22,727	Dust suppression and soil conditioning
Lot 33b	1,888	Irrigation of surrounding land
Lot 33a	2,772	Irrigation of surrounding land

Prior to commencement of dewatering, the timeframe for discharge should take into consideration the absorption capacity of the soils (such as the Design Irrigation Rate (DIR) in Australian Standard 1547:2012).

3.2 Pre-decommissioning Procedures

Prior to dam decommissioning the following requirements must be considered

3.2.1 Environmental protection measures

Details including a plan of all sediment and erosion control measures that will be in place during the dewatering of each dam.

3.2.2 Water quantity

Water levels in each dam will also need to be monitoring to ensure refuge habitat for aquatic fauna is maintained at all times up until the dam is ready for decommissioning and a program in place to capture and relocate aquatic fauna.

Dewatering should cease at approximately 50cm depth. This would represent a ‘hold point’ at which time inspection of the dam should be undertaken by the Project Ecologist to determine whether further dewatering is required or decommissioning can proceed.

Should discharge to the stormwater drainage system be proposed, details of quantity and flow rate of discharge will be required, and not exceed flowrates as directed by the Engineer to safely manage flows.

3.2.3 Water quality

Depending on the method of dam water disposal further water quality assessment may be required.

Water quality of receiving waters in which aquatic fauna will be relocated to, will also need to be assessed to ensure relocation sites provide suitable habitat for aquatic fauna. The Project Ecologist to ensure compliance.

3.2.4 Sediment quality

Prior to disturbing the sediment of the dam, the sediment within the dam walls and bed must be assessed against the National Environmental Protection Measure (NEPM) 2013. Relevant geotechnical assessment to determine compaction and filling of decommissioned dam is being undertaken separately to this Plan.

3.2.5 Temporary sediment placement

Temporary bunded or silt fenced areas are to be provided alongside each dam for the placement of any sediments removed by excavators for immediate sorting by ecologist(s) to retrieve any fauna present.

The exact dimensions of each temporary holding area will be dependent on the extent of excavation required for decommissioning and the size of each dam and will be directed by the Project Ecologist on site.

3.2.6 Fauna release locations

Three potential release locations (see Table 3-2 and Figure 3-1) have been identified on the following basis:

- Location within drainage lines to the South Creek.
- Accessibility and relatively short distance and subsequent limited time period in which transport of aquatic fauna would be required from the dam to the release site.
- The geomorphology of the release sites, which provides a relatively wide and deeper section and permanence of standing water.
- An open system, which will enable released aquatic fauna to migrate freely from the point of release to reduce competition and predatory impacts at the release site.

Table 3-2. Potential release sites

Site ID	Watercourse	Location	Distance from subject dams
1	Kemps Creek	Elizabeth Drive, Kemps Creek	5.9 kms
2	South Creek	Luddenham Road, Orchard Hills	7.2 kms
3	South Creek tributary	Erskine Park Road, Erskine Park	5.4 kms

3.3 Decommissioning Procedures

3.3.1 Requirements

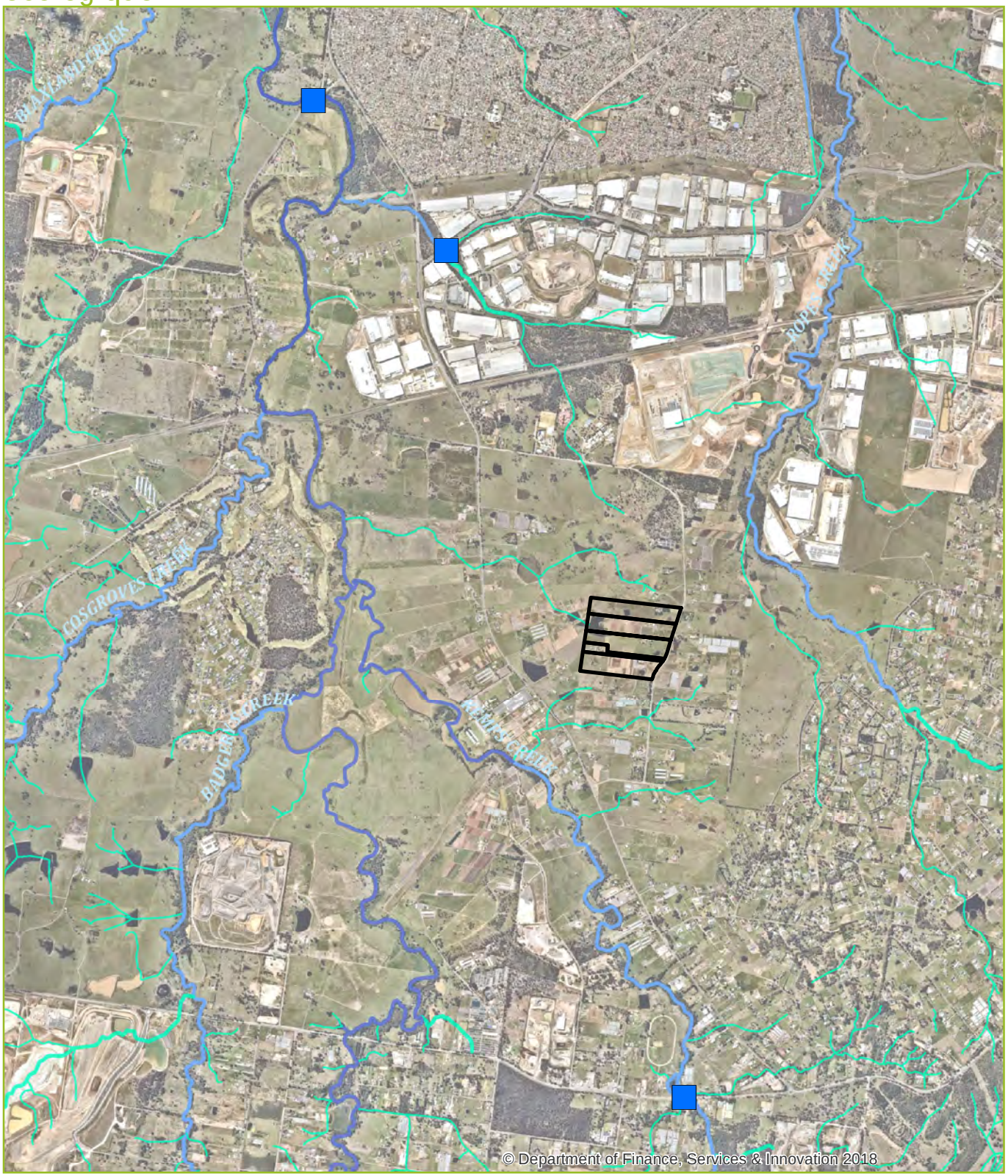
- A qualified ecologist with relevant permit under Section 37 of the FM Act must be present on-site during, and following, the dewatering to ensure that appropriate action can be taken about care and relocation of fauna residing in the dam.
- Sufficient support personnel must also attend to ensure that the handling, storage and relocation of is achieved with minimal stress to aquatic fauna.
- Dewatering works are to cease when ecologist(s) leave to release fauna. Fauna are not to be handled or removed in the absence of an ecologist.
- Fauna are not to be handled or removed in the absence of an ecologist.

It is recommended that a site meeting be held with the ecologist, contractor and management to ensure that resourcing required is understood.

3.3.2 Approach

The exact method of final dewatering will vary depending on the shape and configuration of each dam being decommissioned (i.e., the local topography and bathymetry of each dam). The following procedures are recommended for final dewatering in combination with aquatic fauna rescue.

- Typically, a trench will be excavated in isolation from the dam's remaining standing water, retaining a berm or where a dam wall exists the trench should be excavated on the landside of the dam wall.
- The berm or dam wall will be breached, and aquatic fauna captured via netting. For the larger dams it is recommended that fyke netting be installed immediately upstream of the wall. Several nets would be required for rotation as aquatic fauna are progressively captured.
- The wall is then carefully breached to allow water flow into the trench. Fin fish, including eels will naturally migrate towards the flowing water and be captured in nets.
- As water levels lower it is likely that pools of stranded water will occur as a result of undulations in the dam bed. In order to access such pools:
    - An excavator should be used to gradually build a berm into the dam from which access is made possible to breach pools and enable flow to continue.
    - Nets should be relocated as necessary.
    - Additional trench excavation may be required depending on the size of the dam and nature of the dam bed.
    - Sediments removed for construction of trenches should be carefully scooped up by excavator for immediate sorting by ecologist(s) to retrieve any fauna present. Sediments should be placed in temporary bunded, or silt fenced areas.
- Ecologist support would also traverse the dam during the de-watering to collect aquatic fauna where accessible, if required.



Coordinate System: MGA Zone 56 (GDA 94) | Image sources: Nearmap 15 April 2021

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Figure 3.1. Potential release sites

Lot boundaries

Potential_release_locations

N

0 0.375 0.75 1.5 2.25 3
kms

4 Aquatic fauna

4.1 Aquatic fauna handling procedures

- Captured aquatic fauna would be temporarily stored in vehicle-based holding tanks for transportation to the release site.
- Holding tanks would vary in size and water depth and duration of temporary storage would be dependent on species captured.

A description of the specific requirements for handling different types of fauna is detailed below.

4.1.1 Amphibians

Hygiene precautions as detailed in the NSW Department of Environment and Climate Change (2008) (now OEH) must be observed when handling frogs.

- Frogs should only be handled when necessary.
- Gloved hands would be made wet in the local water or in wet grass/vegetation so that loss of skin secretions is minimised when frogs are first picked up.
- Frogs will be captured in aerated plastic bags (can be used as a glove) and kept as one per bag for release.
- Frogs should be released at night to disadvantage predators, however if this is not feasible, they should be released into dense pool/pond side vegetation.

4.1.2 Turtles

Scoop nets may be utilised to capture turtles from the water. However from experience turtles respond quickly to water draw down and voluntary start to leave the dam and are relatively easy to capture by hand.

- If direct handling is required, captured individuals should be gripped from the side, with a firm grip on both their shell (carapace) and belly (plastron).
- Captured individuals are to be transferred into plastic buckets containing water from the dam for relocation.
- Turtle shells will be wiped down with a sponge to remove any carp eggs that may be attached.
- Turtles would be transported separately to avoid the risk of shell damage and hence infection.
- Any injured turtles are to be taken to a local veterinary service for treatment.

4.1.3 Fin Fish

- Generally, all native fish would be handled as little as possible. Handling of fish would be in accordance with the NSW Department of Primary Industries (2017) guide to acceptable procedures and practices for aquaculture and fisheries research (4th Edition).
- The removal of the fish's protective mucous covering and reducing temperature shock would be minimised by wetting hands first with dam water.
- Fish would be placed into holding tanks which:
  - allow fish to rest comfortably
  - minimize the risk of escape or injury
  - be adequately aerate;
  - maintain constant temperature

  - minimise the risk of disease transmission
- The time for which the fish is held should be minimal.
- Wherever possible, fish must be captured whilst still in the water.
- Holding areas must be safe, quiet and hygienic.
- Fish must be assessed regularly if prolonged restraint or confinement is required.
- Fish should be transported in a dark environment, with very low light intensity to reduce stress.
- When releasing fish from holding tanks, fish must be supported by both hands and gently lowered into the water.
- Any captured pest species are to be humanely euthanased, and the carcasses disposed in an appropriate manner to prevent any potential contamination of soil or waterbodies.

4.1.4 Dealing with injured native aquatic fauna

Injured fauna will be taken to an appropriately trained animal carer. The trained animal carer will be contacted prior to the start of dewatering to ensure they are able and willing to accept any injured fauna.

4.1.5 Euthanasia

Aquatic fauna would only be euthanased if severely injured and suffering or if they are exotic pest species.

Euthanasia would be applied either by way of percussive stunning or hypothermal euthanasia.

Percussive stunning involves a sharp blow to the head in the area just above the eyes (the area adjacent to the brain) using a special tool such as a heavy wooden handle or a priest. When applied correctly the fish's gill covers should stop rhythmically moving and the eye should remain still.

Percussive stunning is considered a good approach provided it is done swiftly and delivered to the correct area.

Hypothermal euthanasia involves the depression of the fish in an ice slurry at a temperature of 2–4 Celsius. The fish is to come into contact with the chilled water as quickly as possible and not come into direct contact with the ice. This may lead to the development of internal ice crystals.

4.2 Biosecurity risk minimisation

4.2.1 General biosecurity duty

Management, contractors and employees are required to fulfil their general biosecurity duty, which may simply be to ensure that their vehicles, boots and equipment are clean of any potential biosecurity risks.

It is expected that management, contractors and employees should know all biosecurity risks associated with the industry, business and relevant day-to-day work activities.

Biosecurity risks relevant to the decommissioning of each dam are to be minimised and mitigated as detailed in the following sections.

4.2.2 Introduction and / or spread of aquatic weeds

The following mitigation measures shall be implemented to ensure that the contractor's biosecurity duty is fulfilled and spread of existing weeds or introduction of new weed infestations is prevented.

- Hygiene protocols should be implemented to ensure that plant and machinery enter / leave the site clean to prevent the spread of weed species. In particular, Contractors that have recently engaged in work activities within waterbodies (watercourses, wetlands, farm dams) must ensure that all equipment and vehicles are free of sediment and plant material.
- Monitoring of the site and general surrounds for aquatic weed infestations should be undertaken prior to disturbance of each dam by the Project ecologist.

- Generally, the re-use of topsoil and/or sediments removed during excavation of dams that are found to contain aquatic weeds should not be reused on the subject land unless encapsulated by burying.
- Weed contaminated soils can be buried away from any pavement, structure, watercourse or drainage path and covered with fill (free of weeds) of a minimum 500 mm compacted thickness.

4.2.3 Spread of aquatic pest fauna

The Project ecologist will be responsible for the identification and euthanasia of any aquatic pest fauna rescued from each dam using methods provided in Section 4.1.5.

4.3 Monitoring and Reporting

4.3.1 Monitoring

All related activities are to be continually monitored throughout the dam decommissioning process. This shall include inspection of sediment and erosion controls and other protection controls implemented to ensure that these measures remain fully functional for the duration of the process.

4.3.2 Reporting

As part of the Project records legible environmental records of all environmental activities associated with the dam decommissioning are to be maintained to demonstrate compliance with relevant legislation. The records must include:

- Induction and training records
- Records of related amendments to the Project CEMP
- Ecologist post-decommissioning reports, which are to include:
  - Number of each species of native fauna removed from the dam
  - Relocation point of recorded native fauna
  - Number of native species injured or euthanased
  - Number of pest species euthanased
  - Analysis of the effectiveness of decommissioning and fauna rescue methods
- Reports of any stop work incidents (relating to unexpected finds), associated actions taken, and follow-up actions.

4.3.3 Performance Targets

The following targets have been established for the management of decommissioning impacts during the Project, to ensure full compliance with the relevant legislative requirements, approvals, licences or permits:

- No disturbance to flora and fauna outside the proposed decommissioning works area.
- No introduction or spread of biosecurity risks to and from the subject land.
- All aquatic fauna species encountered during construction are handled humanely in accordance with industry standards.
- No pollution or siltation enters drainage pathways and / or the stormwater system.

5 Conclusion

The proposed dam decommissioning activities will not result in any pollution of waters as there are no proximal watercourses into which dam water can be discharged.

The preferred option for disposal of dam water is a combination of on-site irrigation and use for dust suppression and soil conditioning, however this may not be practical for all dams. Discharge to the stormwater drainage system will require additional consideration of water quality (to ensure it is of a quality permissible for discharge) and water quantity information (e.g. details of quantity and flow rate of discharge).

Site investigations of the subject land have concluded that decommissioning of dams will not impact on any threatened species or habitat of importance to any threatened species. Clearing of native vegetation present within the dams is being offset under the NSW Biodiversity Offset Scheme, separately to this Plan.

The dams do not contain any priority weeds, but do contain pest fish species, which are a biosecurity risk under the Biosecurity Act. This risk will be minimised through the identification and euthanasia of pest fauna rescued from each dam. Euthanasia of any species regardless of native or exotic origin, reasonable steps as are necessary will be undertaken to alleviate any pain in compliance with art 2 Clause 5(3) of the PCA Act.

Prior to decommissioning of any dams within the subject land, a permit under Section 37 of the FM Act is required for the relocation of fin fish to the proposed watercourse release sites.

Providing the procedures and mitigation measures provided in this Plan are implemented, the proposed dam decommissioning activities can be undertaken in compliance with all relevant legislation.

6 References

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