



PROJECT SEA DRAGON
BYNOE HARBOUR
BROODSTOCK BREEDING FACILITY

ENVIRONMENT PROTECTION APPROVAL 270

MONITORING REPORT – JUNE 2023 TO MAY 2024

PROJECT AND DOCUMENT DETAILS

Proponent:	Project Sea Dragon Pty Ltd ACN: 604 936 192
Project Title:	Project Sea Dragon Broodstock Breeding Facility
Approval Number:	Environment Protection Approval 270
Location:	Bynoe Harbour NT Portion 3192
Report Title:	Monitoring Report – June 2023 to May 2024

DOCUMENT CONTROL

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Approved by	Position	Date	Signature
Snaebjorn Jonasson	Project Manager		 3/06/2024

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ABBREVIATIONS AND ACRONYMS

Abbreviation	Name, Term or Expression
ASS	Acid Sulfate Soils
BBF	Broodstock Breeding Facility
EPA	Environment Protection Approval
ESCP	Erosion and Sediment Control Plan
PSD	Project Sea Dragon Pty Ltd
WMPC Act	NT <i>Waste Management and Pollution Control Act</i>

1. INTRODUCTION

1.1. BACKGROUND

Project Sea Dragon Pty Ltd (PSD) is developing a Broodstock Breeding Facility (BBF or the Project) on NT Portion 3192 at Bynoe Harbour. PSD was granted an Environment Protection Approval (EPA 270) on 31 May 2019 under the Northern Territory *Waste Management and Pollution Control Act* (WMPC Act) for the construction of a discharge pipeline, discharge settlement ponds, sediment drying area and discharge outfall structure. These facilities will be used to transport, store and dispose of discharge water and discharge sediment from the BBF. The discharge water and discharge sediment will contain traces of prawn effluent and residues, which are listed wastes under the WMPC Act. EPA 270 is due to expire on 30 May 2026.

1.2. PURPOSE OF REPORT

This monitoring report has been prepared to present the results of monitoring activities undertaken in accordance with the conditions of EPA 270 during the period 1 June 2023 to 31 May 2024. Conditions 26, 33 and 34 of EPA 270 specify the monitoring and reporting requirements associated with the activity.

Condition 26 of EPA 270 requires the following monitoring activities to be undertaken over the life of the approval:

26. The approval holder must undertake monitoring of the following activities in accordance with the approval documents specified in Table 1:

- 26.1 pre-construction and construction phase monitoring for Acid Sulfate Soils (ASS); and*
- 26.2 erosion and sediment control audits.*

Condition 33 of EPA 270 requires:

33. The approval holder must complete and provide to the NT EPA a Monitoring Report, as prescribed by this approval, within 10 business days after each anniversary date of this approval.

Furthermore, Condition 34 of EPA 270 requires that the monitoring report is:

- 34.1 prepared in accordance with the requirements of the NT EPA 'Guideline for Reporting on Environmental Monitoring';*
- 34.2 includes a tabulation of all monitoring data required as a condition of this approval;*
- 34.3 includes an assessment of environmental impact from the activity.*

2. CONSTRUCTION ACTIVITIES

Construction of the discharge settlement ponds and sediment drying area was completed in late 2019. Figure 1 shows the completed discharge settlement ponds and sediment drying area. The As Constructed Audit Report including the Engineering Certification was submitted to the Northern Territory Government on 3 February 2020.



Figure 1: Discharge Settlement Ponds and Sediment Drying Area

As a result of implications related to the global Covid-19 pandemic and extension of the date for financial close for the Project, no construction activities have been undertaken since this time.

Construction activities yet to be completed in accordance with EPA 270 include the:

- Discharge pipeline
- Seawater discharge outfall structure.

3. MONITORING RESULTS

Sections 3.1 and 3.2 provide an overview of the monitoring activities associated with EPA 270 undertaken from 1 June 2023 to 31 May 2024, and a summary of the results.

3.1. ACID SULFATE SOIL MONITORING

Condition 26.1 of EPA 270 requires pre-construction and construction phase monitoring for Acid Sulfate Soils (ASS). A pre-construction ASS assessment was undertaken in October 2018 by Horizon Environmental Soil Survey and Evaluation in accordance with the requirements of the Environmental Management Plan (EN02-MP4001 REV0) and Development Permit (DP17/0371A). The results of the assessment were presented in the 2020 Monitoring Report for EPA270.

Based on these results, PSD has developed an ASS Management Plan¹ for the Project in which it has committed to avoid disturbance of ASS in high-risk areas by:

- not excavating the discharge pipeline in intertidal areas
- clearing any mangrove vegetation by hand (i.e. cutting mangroves at ground level to avoid digging up the root systems)
- using swamp mats or durabase in the intertidal areas to avoid vehicles becoming bogged.

As construction has not yet commenced on the discharge pipeline and outfall structure, there has been no disturbance of ASS. PSD will undertake fortnightly site inspections once construction recommences on the discharge pipeline and outfall structure to ensure compliance with the above commitments.

Should potential ASS be accidentally exposed during construction activities, an ASS disturbance permit will be completed in accordance with the requirements of the ASS Management Plan. The ASS disturbance permit covers protocols for the testing, treatment and disposal of any exposed ASS.

3.2. EROSION AND SEDIMENT CONTROL MONITORING

Condition 26.2 of EPA 270 requires erosion and sediment control audits. An Erosion and Sediment Control Plan² (ESCP) Compliance Inspection was undertaken by the ESCP Auditor on 20 October 2023. The inspection report is provided in Appendix 1.

Results

The ESCP Auditor found that the site is generally well maintained. The following recommendations were made by the CPESC:

- Installation of check dams along the table drains of the access road as per IECA specifications prior to wet season commencing.
- Monitoring of the gully erosion to the west of the access track (possibly a historic issue) to determine whether it is stabilized or whether repairs are required.

¹ The ASSMP was endorsed by the Northern Territory Government on 15 April 2019.

² The ESCP was endorsed by the Northern Territory Government on 16 September 2019.

- Upgrade of culvert at the creek crossing on the access track once construction recommences and traffic increases.
- Monitoring of rill erosion on pond embankments and repair once construction recommences.

Project Sea Dragon are implementing the above recommendations and the next CPESC inspection will be undertaken prior to the 2024/2025 wet season.

4. SUMMARY AND NEXT STEPS

The results of the monitoring activities have not identified any new environmental impacts associated with the construction of the discharge settlement ponds and sediment drying area. The discharge pipeline and the discharge outfall structure are yet to be constructed.

The next steps are:

- Once construction commences, PSD will undertake fortnightly site inspections of the discharge pipeline and outfall structure to ensure compliance with ASS Management Plan.
- The next site audit by the ESCP Auditor will be undertaken prior to the 2024/2025 wet season to ensure that erosion and sediment control measures are in place.

APPENDIX 1: PRE-WET SEASON EROSION AND SEDIMENT CONTROL COMPLIANCE INSPECTION REPORT



24 October 2023

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Snaebjorn Jonasson
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Re: ESCP Compliance Inspection – Project Sea Dragon – Bynoe BMF

Dear Snaebjorn

On Friday the 20th October 2023, I inspected the Bynoe Broodstock Maturation Facility (BMF). The purpose of the inspection was to assess the state of the site and readiness for the upcoming wet season.

The inspection included review of implementation of recommended works identified by Elder Enviro during their inspection on 20th September 2022.

Photographs and comments are provided in Appendix A. The following refers to site number in Appendix A.

Site Observations

Road Access

At irregular intervals, scour is commencing in road table drains where the gradient steepens. A watch should be maintained on these and if scour increases the drains require reshaping and installation check dams to reduce flow velocity deepening of the scour. An example is seen at site 1.

At site 4, a creek crossing was inspected. The culvert at this location needs to be properly designed and installed in accordance with the International Erosion Control Association (IECE) best practice methods. It is understood that a decision is yet to be made as to whether a causeway will be constructed, or the culverts upgraded. The soil at this is comprised large gravel and few fines so does not present a significant erosion risk.

Site 5 shows erosion of fine material where a causeway was repaired. This should be stabilised.

Sites 6 and 14 show what may be erosion incision into historic wheel ruts. These gullies appear to be stable as head cut is not observed at the top of the gullies. This would be best observed during the wet season to form a decision on how this should be managed.

Site 7 shows a typical mitre drain installed as recommend and functioning correctly.

Residences

Two residence pads were inspected (Sites 11 and 12). No works required.

Discharge ponds

No works required.

Broodstock maturation centre

No works required.

Intake ponds

Site 10 shows rills developing in the crest of the discharge ponds bund. These should be monitored over the wet season and repaired once construction starts.

It is recommended that trees are removed from bunds.

Recommendations

1. Scour in table drains (see example site 1) should be checked regularly and repaired and stabilised if the width and depth continues to increase.
2. Culverts at Site 4 should be upgraded as traffic increases.
3. The gully at the downstream side of the causeway should be stabilised.
4. Maintain routine maintenance of mitre drains.
5. Repair rills at site 10 on the discharge ponds bund and stabilise with soil binder.

Conclusion

The site is generally well maintained.

Creek crossings on the access road and table drains will need attention as traffic increases.

A decision should be made on who is responsible for stabilising the historic gully erosion resulting from large wheel rates. They currently have the appearance of being stable. Monitor over the wet season to determine if increasing in size and whether repairs are required.

Your sincerely



Ken Evans

FIEAust, NER, CPEng, CPESC #9852



See Attachment Appendix A.

MATERIALS

ROCK: 150 TO 300mm NOMINAL DIAMETER, HARD, EROSION RESISTANT ROCK. SMALLER ROCK MAY BE USED IF SUITABLE LARGE ROCK IS NOT AVAILABLE.

SANDBAGS: GEOTEXTILE BAGS (WOVEN SYNTHETIC, OR NON-WOVEN BIODEGRADABLE) FILLED WITH CLEAN COARSE SAND, CLEAN AGGREGATE, STRAW OR COMPOST.

INSTALLATION

1. REFER TO APPROVED PLANS FOR LOCATION AND INSTALLATION DETAILS. IF THERE ARE QUESTIONS OR PROBLEMS WITH THE LOCATION OR METHOD OF INSTALLATION, CONTACT THE ENGINEER OR RESPONSIBLE ON-SITE OFFICER FOR ASSISTANCE.

2. PRIOR TO PLACEMENT OF THE CHECK DAMS, ENSURE THE TYPE AND SIZE OF EACH CHECK DAMS WILL NOT CAUSE A SAFETY HAZARD OR CAUSE WATER TO SPILL OUT OF THE DRAIN.

3. LOCATE THE FIRST CHECK DAM AT THE DOWNSTREAM END OF THE SECTION OF CHANNEL BEING PROTECTED. LOCATE EACH SUCCESSIVE CHECK DAM SUCH THAT THE CREST OF THE IMMEDIATE DOWNSTREAM DAM IS LEVEL WITH THE TOE OF THE CHECK DAM BEING INSTALLED.

4. ENSURE THE CHANNEL SLOPE IS NO STEEPER THAN 10:1 (H:V). OTHERWISE CONSIDER THE USE OF A SUITABLE CHANNEL LINER INSTEAD OF THE CHECK DAMS.

5. CONSTRUCT THE CHECK DAM TO THE DIMENSIONS AND PROFILE SHOWN WITHIN THE APPROVED PLAN.

6. WHERE SPECIFIED, THE CHECK DAMS SHALL BE CONSTRUCTED ON A SHEET OF GEOTEXTILE FABRIC USED AS A DOWNSTREAM SPLASH PAD.

7. EACH CHECK DAM SHALL BE EXTENDED UP THE CHANNEL BANK (WHERE PRACTICABLE) TO AN ELEVATION AT LEAST 150mm ABOVE THE CREST LEVEL OF THE DAM.

MAINTENANCE

1. INSPECT EACH CHECK DAM AND THE DRAINAGE CHANNEL AT LEAST WEEKLY AND AFTER RUNOFF-PRODUCING RAINFALL.

2. CORRECT ALL DAMAGE IMMEDIATELY. IF SIGNIFICANT EROSION OCCURS BETWEEN ANY OF THE CHECK DAMS, THEN CHECK THE SPACING OF DAMS AND WHERE NECESSARY INSTALL INTERMEDIATE CHECK DAMS OR A SUITABLE CHANNEL LINER.

3. CHECK FOR DISPLACEMENT OF THE CHECK DAMS

4. CHECK FOR SOIL SCOUR AROUND THE ENDS OF EACH CHECK DAM. IF SUCH EROSION IS OCCURRING, CONSIDER EXTENDING THE WIDTH OF THE CHECK DAM TO AVOID SUCH PROBLEMS.

5. IF SEVERE SOIL EROSION OCCURS EITHER UNDER OR AROUND THE CHECK DAMS, THEN SEEK EXPERT ADVICE ON AN ALTERNATIVE TREATMENT MEASURE.

6. REMOVE ANY SEDIMENT ACCUMULATED BY THE CHECK DAMS, UNLESS IT IS INTENDED THAT THIS SEDIMENT WILL REMAIN WITHIN THE CHANNEL.

7. DISPOSE OF COLLECTED SEDIMENT IN A SUITABLE MANNER THAT WILL NOT CAUSE AN EROSION OR POLLUTION HAZARD.

REMOVAL

1. WHEN CONSTRUCTION WORK WITHIN THE DRAINAGE AREA ABOVE THE CHECK DAMS HAS BEEN COMPLETED, AND THE DISTURBED AREAS AND THE DRAINAGE CHANNEL ARE SUFFICIENTLY STABILISED TO RESTRAIN EROSION, ALL TEMPORARY CHECK DAMS MUST BE REMOVED.

2. REMOVE THE CHECK DAMS AND ASSOCIATED SEDIMENT AND DISPOSE OF IN A SUITABLE MANNER THAT WILL NOT CAUSE AN EROSION OR POLLUTION HAZARD.

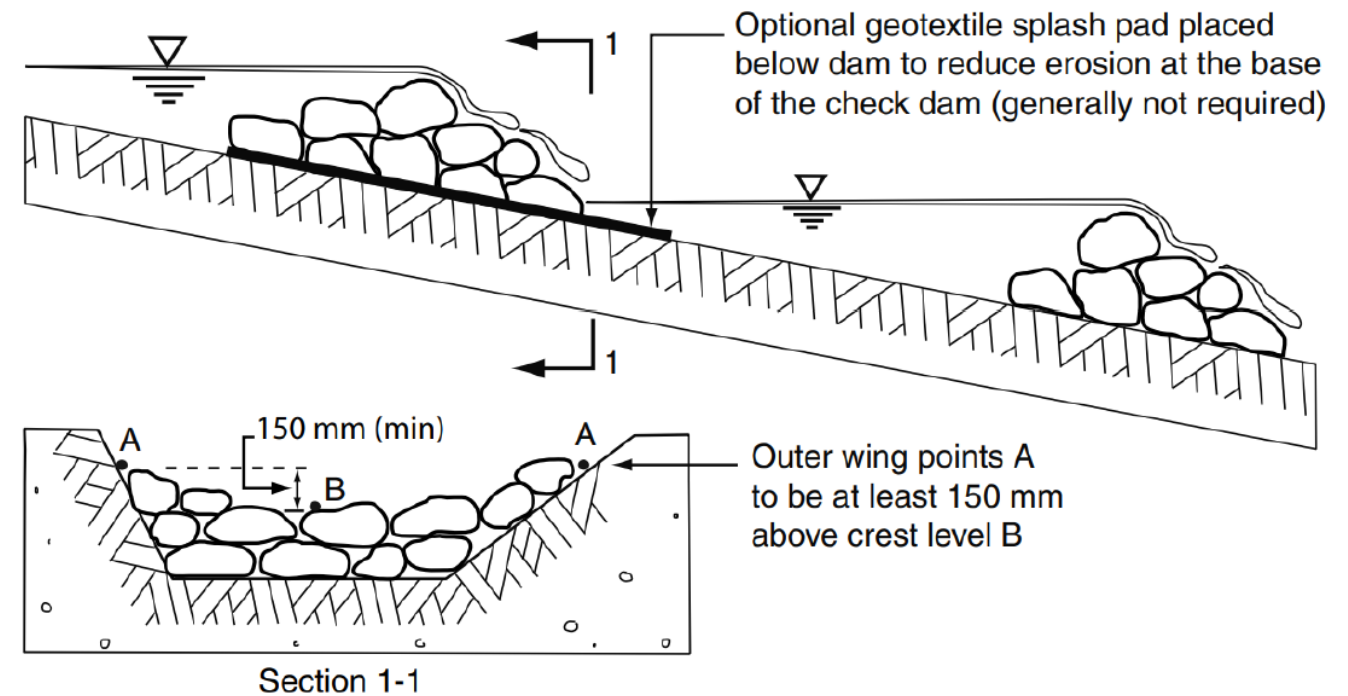


Figure 1 - Layout and profile of check dams (rock check dams shown)

Drawn:	Date:		
GMW	Dec-09	Check Dams	RCD-01

APPENDIX A

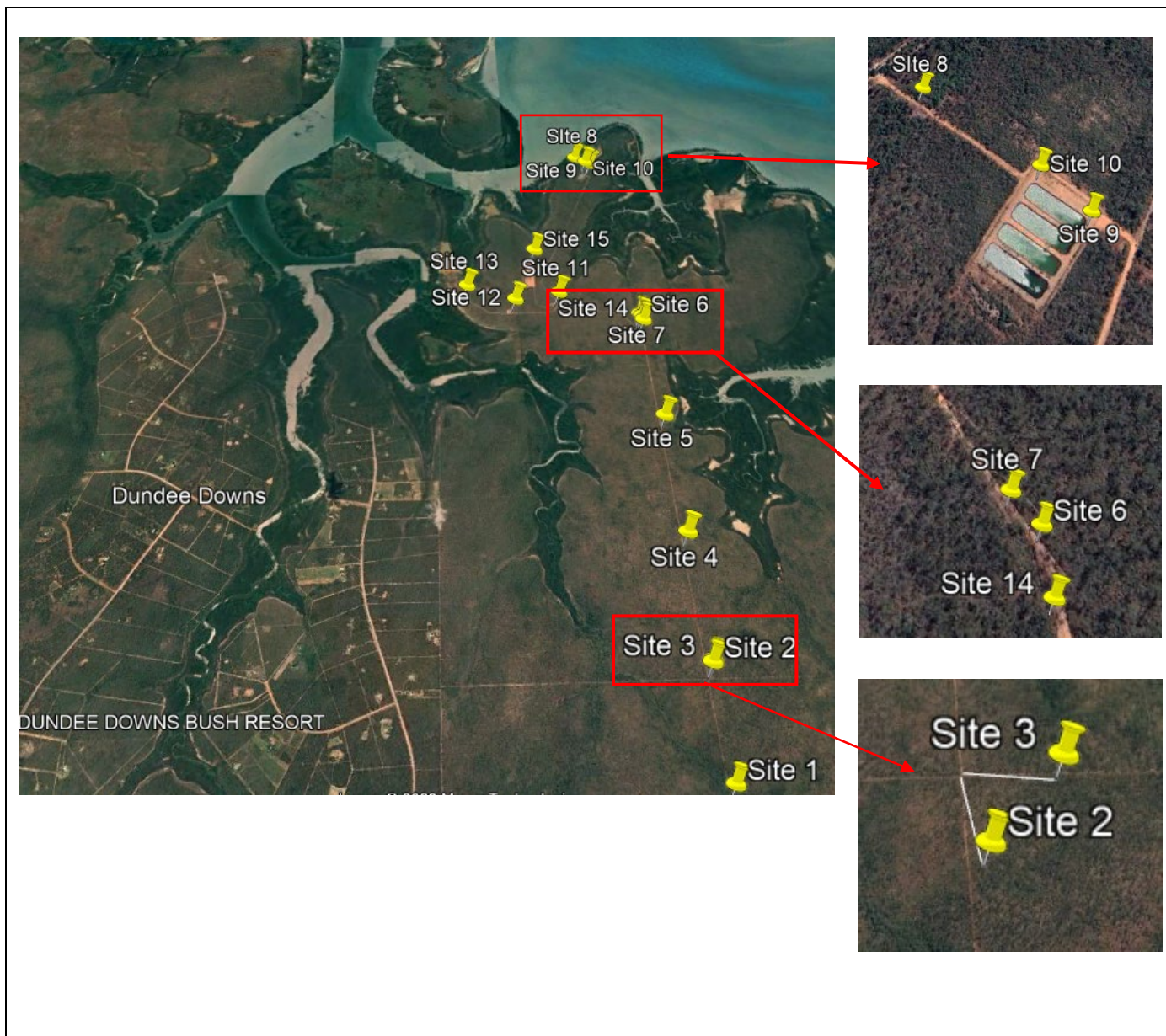


Figure 1. Site Inspection Sites Map
Source: Google Earth



Site No.	Comment Latitude and Longitude	Photographs
Site 1 Road access	Gully erosion: Gully in table drain toward creek west side. This drain displays active scour. This, and other similar scoured areas should be repaired in accordance with IECA guidelines. See standard IECA Drawing RCD-1 attached. -12.7792101 130.5545956	
Site 2	Fire break property boundary. Slashed and well maintained. -12.7703034 130.554576	
Site 3	Soil unknown source. Gravelly soil. Little erosion. -12.7701448 130.5546857	



Site No.	Comment Latitude and Longitude	Photographs
Site 4	Creek crossing. Determine peak discharge for pie or causeway design. If retaining pipe, wingwalls will be required to stabilise road batters. -12.7590654 130.5545697	Photograph 1 
	Downstream damaged pipe concrete in swale to control erosion. May need riprap energy dissipater downstream. Road surface above outlet also eroding. This will need repair once operations begin -12.7590654 130.5545697	Photograph 2 

Site 5 Road Access	Works completed. -12.7469427 130.5545366	Photograph 1 
	Gully east side causeway. To be repaired. Repair in accordance with IECA guidelines. See standard IECA Drawing RCD-1 attached. -12.7469427 130.5545366	Photograph 2 
Site 6 Road access	Large gully west side of road. Trees growing in it. Needs repair. Although this may be an historic issue. Monitor during the wet season to determine if increasing in size and whether repair is required. -12.7347787 130.5541025	



Site 7 Mitre drain	Typical mitre drain functioning correctly. -12.7345347 130.5538666	
Site 8 Intake Ponds	No erosion. Intake pond pipeline corridor. -12.7103162 130.5492265	
Site 9 Intake Ponds	Good condition. Recommend removal trees from bunds. Mostly Acia sp. When trees die the holes left by roots may cause tunnelling in bunds. -12.7114752 130.5510164	Photograph 1 

Site 9 Intake Ponds	Soil binder may need reapplication. Inspect during wet season. -12.7114752 130.5510164	Photograph 2 
Site 10 Discharge Ponds	Rill erosion. Rills on pond embankment. These should be repaired, and soil binder applied to maintain integrity of bund. Monitor during wet season. If increasing in size, repair. -12.7110629 130.5505108	
Site 11 Residences	No erosion issues. -12.7313572 130.5450745	

Site 12 Residences	No erosion issues. -12.7321039 130.5400147	
Site 13 Discharge Ponds	No erosion. Recommend removal trees on crests of wall to maintain structural integrity. Residual soil binder. No works required. -12.7300383 130.5345552	
Site 14 Road Access	Gully erosion. Downstream end of large gully. Look like large wheel ruts. This may be historic. -12.7352979 130.5541765	

Site 15 Broodstock Maturation Centre	No erosion. Slashed yearly. No inflow. Direct rainfall. -12.7251589 130.5427795	
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