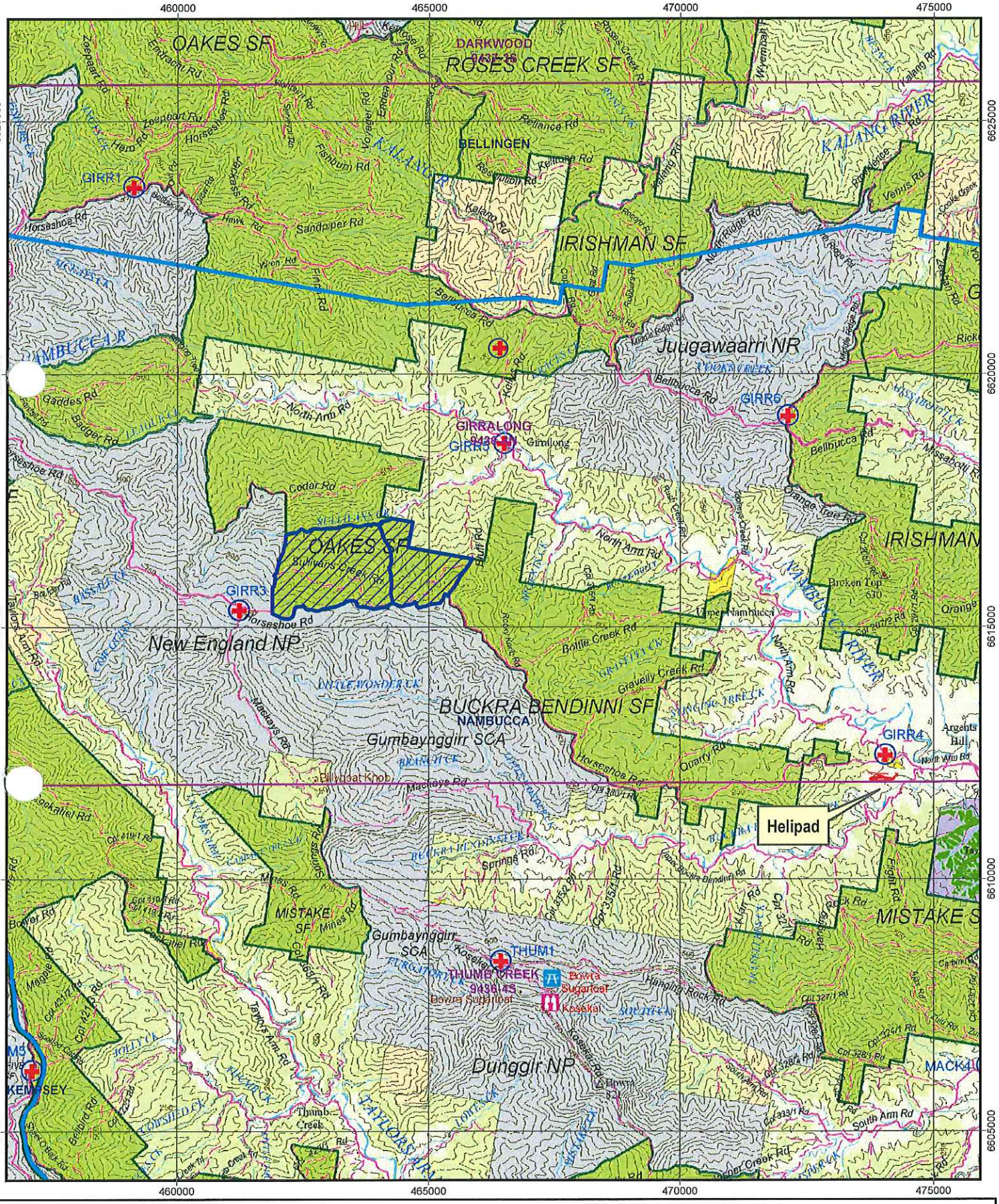
Map Sheets:
1:25,000 Girralong 9436-4N
1:100,000 Macksville 9436
Scale: 1:100,000

North East Region - Urunga MA
Locality Map
Compartments 391 & 392
Oakes State Forest



MAP FEATURES

- Subject Area
- Emergency Meeting Point (Safety Point)
- Helicopter Landing Point
- State Forest
- 1:25000 Map Sheet
- 1:100000 Map Sheet
- National Park Estate
- Local Government Area

0 0.5 1 2 3 Kilometers

GDA

Prepared by: Matt Howat
Date: 16/02/12

North East Region - Urunga MA
Harvest Plan Operational Map
Compartments 391 & 392
Oakes State Forest
VERSION 3

Map Sheets
1:25,000 Girralong 9436-4N
1:100,000 Macksville 9436
Scale 1:10,000 at A3

Apply 10m radius Bat Buffer

462000 463000 464000 465000
6617000 6616000

Sullivans Creek Road
392-4 Road
392-2 Road
392-3 Road
392-1 Rd
Horseshoe Road
Bluff Road
Boundary Road
Gumbaynggirr NP
Gumbaynggirr SCA
392
391

0 250 500 1,000 Meters

MAP FEATURES
- State Forest Boundary
- Compartments Boundary
- 1 Km Grid
- 10 / 100 m Contour
- State Forest
- National Park Estate
- Drainage Feature
- Indicative Drainage Feature
- House

ROADS
- All Weather, Unsealed
- Dry Weather, Unsealed
- Optional Road
- 4WD Track
- Skidder / dozer / forwarder track
- Non Haulage Roads

HARVEST PRESCRIPTION
- General Management (FMZ 4)
- Areas for Further Assessment

HARVESTING PROTECTION (TSCL, EPL & FL)
Riparian (IHC 1 & 2)
- Filter 5m either side
- Protection 5m either side
- Protection 15m either side
- Protection 25m either side
- Protection 45m either side
- Operational zone 10m either side

DUMPS & CROSSINGS
- Temporary Dry Weather Dump
- Optional Dump
- Approved Crossing

FOREST MANAGEMENT PROTECTION
- Special Management (FMZ 2)
- Harvesting Protection (FMZ 3A)
- High Conservation Value Old Growth
- Rainforest - Crafti + RN17
- Nominated Candidate Old Growth
- Indicative Slopes > 30 degrees
- Indicative areas of R3 Soils

RIDGE & HEADWATER HABITAT
- 80m wide exclusion
- Approved IFOA exclusion crossing

THREATENED SPECIES LOCATIONS
- Masked Owl
- Yellow-bellied Glider
- Yellow-bellied Glider feed tree - retain and protect
- Koala
- Sphagnum Frog
- Parsonsia dorrigoensis
- Active and potential bat roosts

TSL PRESCRIPTIONS / ZONES
- 10m, 50m and 100m Frog/Bat Buffer Also contains a 20m Rock Buffer
- Yellow-bellied Glider modified harvest area

Prepared by: Dan Cook
Date:06/04/2016

North East Region - Urunga MA
Harvest Plan Forest Type Map
Compartments 391 & 392
Oakes State Forest

N

Map Sheets
1:25,000 Girralong 9436-4N
1:100,000 Macksville 9436

Scale 1:15,000 at A3

MAP FEATURES
- State Forest Boundary
- Compartments Boundary
- 1 Km Grid
- 10 / 100 m Contour
- State Forest
- National Park Estate
- Drainage Feature

ROADS
- All Weather, Unsealed
- Dry Weather, Unsealed
- Optional Road
- 4WD Track
- Skidder / dozer / forwarder
- Non Haulage Roads

FOREST TYPES
- Type 3 Corkwood - Sassafras - Crabapple - Silver Sycamore
- Type 23 Myrtle
- Type 37 Dry Blackbutt
- Type 47 Tallowwood - Sydney Blue Gum
- Type 53 Brush Box
- Type 62 Grey Gum - Grey Ironbark - White Mahogany

0 250 500 1,000 1,500 Meters

Prepared by: Rob Lloyd
Date: 16/02/12

462000 463000 464000 465000 466000 467000

6618000 6617000 6616000 6615000

Cedar Road
SULLIVANS CREEK
Sullivans Creek Road
392-2 Road
392-3 Road
392-4 Road
Bluff Road
Horseshoe Road
Boundary Road
Gumbaynggirr NP
Gumbaynggirr SCA

FORESTS NEW SOUTH WALES – NORTH EAST REGION

HARVEST PLAN No. 10403

Oakes State Forest – Compartments 391 and 392

1. Certification

This plan has been prepared in accordance with the Integrated Forestry Operations Approval (IFOA) issued under the Forestry and National Park Estate Act 1998 and addresses significant aspects and impacts in the planning process. The Standard Harvest Plan Conditions for Native Forest Operations in North East Region (NER) apply to this operation.

Prepared by:

Harvest Planner Rob Lloyd		Date:

Endorsed by:

Harvest Planning Team Leader Steve Pickering		Date:

Endorsed by:

Acting Planning Manager Matt Howat		Date:

Approved by:

Regional Manager Craig Busby	Approved	Date: 31/05/2013

Note: Approval includes the Harvest Plan Operational Map (HPOM).

2. Description of Proposal

Selective harvesting of regrowth native forest stands, using Single Tree Selection (STS) and Thinning.

Other

	Proposed	*Details*
Road works	Yes	Road works Plan (attached).
Post-harvest Burning	Yes	Plan to be prepared separately.
Rehabilitation	No	Not applicable.

3. Area Identification and Yield Estimates

Region	North East Region
Management Area	Urunga
State Forest	Oakes
State Forest No.	609
Pricing Area	Urunga Upriver
Other Tenure Details	State Forest only

Compartment Number	*391*	*392*	*Total*
Gross Area (ha)	170	351	521
Total Net Harvest Area (ha)	139	265	404
Estimated Accessible NHA (ha)	90	190	280
Estimated Averaged Yield (m^3/ha) across Thinning and STS	48	48	48
Volume (m^3) All Products	3300	6900	10200
Volume (m^3) HQ	1300	2900	4200

	HQ only	HQL	HQS	LQ	Veneer	Poles	Girders	Piles	Total
Thin - Volumes (m^3)	1779	966	447	2539	43	322	0	0	4328
STS - Volumes (m^3)	2390	1592	736	3483	257	311	31	2	5872

4. Forest Description

4.1 Forest Type (See Forest Type map)

- Dry Blackbutt type dominates half the net area with.
- Moist Type 53 on lower slopes and gullies
- Grey Gum (Type 62) is common lower on the ridges

4.2 Harvest History

- This compartment has been harvested since the 1960s with 3 recorded events since 1960.
- Last harvests in 1969/70 were carried out using STS silviculture.
- A Timber Stand Improvement event was carried out in both compartments in the mid 1960s

4.3 Stand Description

Blackbutt stands consisting of:

- Regeneration 30-50cm diameter at breast height over bark (dbhob) regrowth from 1960s harvest event.
- Pole/Mature 40-80cm dbhob component resulting from previous harvest events

Moist Mixed Hardwoods (Type 53 and 62 areas)

- Mature to over-mature remnants 50-100+cm dbhob component remnant from previous harvest events (~ 50% of NHA).

4.4 Site Quality

- Generally excellent site quality with site height 30-40m.

- Generally poorer forest type and quality on sites with an exposed westerly aspect

4.5 Stand Health

- Very Good – few old defective trees in areas dominated by BBT
- Poorer health wetter Type 53 areas where lantana has hampered regeneration, many defective stems remain standing.

5. Silviculture and Harvesting Prescriptions

Notwithstanding the prescriptions detailed below, all conditions of the IFOA, including General and Species Specific conditions of the Threatened Species Licence (TSL) and the Environment Protection Licence (EPL) are to be applied, where they are described in this plan or in the respective licences.

Objectives

- Maximise the recovery of merchantable timber from the mature age/size cohort within the constraints of the harvest plan.
- Create suitable conditions for a regeneration event.
- Thin stand to promote growth in even aged BBT stands
- The table below gives proposed silvicultural treatments for the forest types within the harvest area:

Stand Description	Even-aged Blackbutt Regrowth,	Moist Mixed Species (including BBT dominated)	Pre merchantable, inaccessible and > 30^0
Proposed Silviculture	Thinning	STS	Exclude from harvesting
Est. % of NHA	30%	50%	20%
Expected BA Removal (%)	50%	30%	Nil
Future Ops 15-20 years	STS	Thinning	NA
Other treatments		- Post harvest burn	

Single Tree Selection

- This operation will be managed with the object of harvesting trees that have reached their maximum economic end use, and removing poorer quality and less vigorous trees to allow the remaining high-quality trees to grow on.
- Tree removal and ground disturbance must also maximise regeneration opportunities.
- STS must remove no more than 40% of the basal area across the net harvest area.
- BA removal may exceed 40% in some localized areas, but will be balanced by other less intensely harvested, harvest areas and tree retention across the tract.
- Trees with dbhob <20cm must not be selected for harvesting under STS (1.5.10 IFOA).

Thinning Prescription

- Harvesting will be managed with the objective of removed sub-dominant and occasional co-dominant mature trees to concentrate growth on the best form dominant and co-dominant trees.
- Thinning may be carried out only in even aged regrowth stands.
- No more than 60% of the sum of the basal areas of trees in the stand may be removed in any one operation.

The SFO must monitor basal area retention under STS

The actual harvest areas and area of each type of silvicultural treatment must be recorded/mapped and retained with this plan.

6. Special Conditions

6.1 EPL Licensing

This operation is licensed under the EPL.

The Harvesting Manager is responsible for sending a Commencement of Operations form to the Office of Environment and Heritage (OEH) within 14 days of commencement of operations authorised under this plan.

A Cessation of Operations form is to be forwarded to OEH within 14 days of cessation of operations authorised under this plan.

The SFO must notify the Harvesting Manager when operations have commenced and ceased.

6.2 Rainforest

6.2.1 Lowland Rainforest EEC

Potential Lowland Rainforest EEC is potentially located within the NHA - the Harvesting Team leader is to ensure proper field assessment and mark up in advance of harvesting. See NER field guide for identification key.

6.2.2 Unmapped Rainforest

Unmapped rainforest is to be identified and marked for retention in accordance with Forest Practices Circular 2005/02

6.3 Seasonal Harvesting and Burning Restrictions

The following seasonal harvesting and burning restrictions apply to operations under this plan.

For R1 Soils (most of the NHA): Harvesting is excluded from slopes greater than or equal to 25 degrees, between 1st Jan and 31st March for all areas within the NHA where R! Soils are present.

For R3 Soils (See HPOM): Harvesting is excluded from slopes greater than or equal to 20 degrees, between 1st Dec and 30th April for all areas within the NHA where R# soils are present.

Condition 36/37 of Schedule 4 of the EPL applies. EPL seasonal restrictions apply to burning. Burning is not to be carried out during the months of December to February (inclusive).

Type	Present	Details	Conditions
Crown Leases	No	NA	NA
Occupation Permits (Grazing)	No	NA	NA
Occupations Permits (Apiary)	No	NA	NA
Occupation Permits (Other)	No	NA	NA
Permanent Growth Plots (PGP)	No	NA	NA
Research Plots	No	NA	NA
Plus Trees	No	NA	NA
Special Purpose Permits	No	NA	NA

6.5 Noise

There is a residence within 200m of the State Forest Boundary in Sullivans Creek. The nearest dump is approximately 1500m from this residence; however harvesting may be conducted closer for a short period of time.

Residences in close proximity to an operation or haulage route that are likely to be affected by noise (as determined by the SFO), mitigation measures to lessen the impact on those residences will apply. These measures are to be determined on a site specific basis by the SFO and must be agreed upon by the Harvesting Team Leader.

6.6 Critical Boundaries

6.6.1 Private Property

Private property (PP) adjoins compartments 391 to the north. Some of these boundaries are fenced. Fences that were located during planning were in a poor state of repair and generally poorly located (located > 100m into SF). Precision survey will be required if harvesting is to approach closer than 50m to a mapped boundary. Generally the forests adjacent to the PP boundaries in this area are poorer quality and unlikely to be harvested.

The boundary between SF and PP is only partly fenced and likely incorrectly located.

- If there is any doubt about the location of a critical boundary, the Harvesting Team Leader must be consulted about requirements to adequately determine the boundary location.
- Harvesting must not impact on private property or National Park or any fence line.
- Any damage to a functional fence must be immediately repaired by the contractor.

6.6.2 National Park

Gumbaynggirr National Park (NP) adjoins compartments 391 and 392 to the south and compartment 392 to the west. Gumbaynggirr State Conservation Area (SCA) adjoins compartment 391 to the south. The southern boundary between State Forest and both the NP and SCA is offset 20m from the centre line of The Horseshoe Road. Harvesting activities and log dumps are not permitted south in this 20m offset area.

The south-west boundary between Cpt. 392 and NP is defined as between a point on the Horseshoe Road *MGA 0461897E / 6615270N* to where it meets the drainage line approximately 450m north *0461893E / 6615700N* (See HPOM). This boundary must be marked (consult FCNSW Surveyor) and this location agreed to by NPWS representative prior to the commencement of operations from dumps 1 and 2 (See HPOM)

Harvesting operations must not impact on National Park or State Conservation Area.

6.6.3 Other Critical Boundaries

All mapped Rainforest, HCVOG and FMZ 2 is SMZ and must be protected as mapped.

A narrow strip of FMZ 2 (10 to 30m wide) is located on the southern side of Horseshoe Road. As this strip is difficult to define at a scale of 1:15,000, harvesting is not permitted south of Horseshoe Road.

6.7 Haulage Considerations

- Haulage is planned to access the Bowraville via North Arm Road. This route is not suitable for B-doubles.
- Additional signage should be used on Horseshoe Road to notify traffic of turning trucks.

6.8 IFOA Required Approval of Forestry Activities

- One approval has been obtained for snig track construction and snigging through mapped Rainforest as indicated by IFOA Crossing X on the Harvest Plan Operational Map. The existing snig track is to be reopened with a dozer/skidder and drained to EPL specifications upon completion of use.
- Any additional snig crossings of Rainforest, HCVOG and Riparian Protection Zones require prior Regional Manager (or National Parks and Wildlife Service (NPWS)) approval before can be undertaken.
- It is the responsibility of the SFO to identify any additional areas that need to be crossed, the proposed location of any such crossings, and to contact the Planning Unit to obtain the necessary approval.

6.9 Weeds

Areas of the operational area are heavily infested with lantana. Operators are to conduct inspections and clean machinery if required when moving from weeded areas to non weeded area.

6.10 LiDAR Corrected Drainage

- The locations of drainage lines shown on the HPOM have been altered using information available from LiDAR. This should more accurately reflect the location of mapped drainage lines.
- Also shown are Indicative Drainage Features - these may be drainage lines, drainage depressions or neither. The location of these features is indicative only and their status should be confirmed in the field before the appropriate prescriptions (if any) are applied.

6.11 Log Dump Locations

- Particular care must be taken when locating log dumps that are in close proximity to exclusion zones to ensure that there is adequate space and that they do not encroach on these zones (e.g. dumps 1, 2, 3, 10, 11, 12, 13 & 20).

7. Management Zoning Conditions

The following Forest Management Zones and conditions apply:

FMZ	*Type*	*Notes*
Zone 2	Special Management	Rainforest and High Conservation Value Old Growth (HCVOG). FMZ wildlife corridors (variable width) along part of Sullivan's Creek and contained within mapped HCVOG and RF. Variable width FMZ 2 along Horseshoe Road. These areas must be protected as marked on the map.
Zone 3A	Harvesting Protection	Rainforest. These areas must be protected as marked on the map.
Zone 4	General Management	Available for harvesting in accordance with the conditions of this harvest plan.
Zone 8	Further Assessment	These areas are to be rezoned FMZ 4 with management by prescription (Standard Harvest Plan Conditions for Native Forest Operations in North East Region apply). These areas may include - Mapped drainage features – identify in the field and apply EPL and TSL conditions based on actual field location. - Modeled drainage features – modelled streams are to be inspected by the SFO. Appropriate prescriptions (Schedule 4 of the EPL) are to be applied if required and noted on the HPOM. - Modeled Inherent Hazard Class (IHC) 4 areas – assess actual slope in the field and exclude areas >30 degrees in accordance with condition 3 of schedule 4 of the EPL.

8. Cultural Heritage Conditions

8.1 Aboriginal Cultural Heritage

- No special conditions apply

8.2 Non Aboriginal Cultural Heritage

- No special conditions apply

9. Flora and Fauna Conditions

Refer to Technical Guidance Note 2005-3A March 2005 for conditions (TSL Booklet).

9.1 Mark-up Conditions

The SFO must search for threatened species and mark-up the block as per Conditions 5.1 (General) and 5.2 (Koala) of the TSL. The Tree Marking code is shown in the Standard Harvest Plan Conditions for Native Forest Operations in North East Region.

9.2 Applicable Tree Retention Conditions

Prescription	*TSL Conditions*
Hollow Bearing and Recruit Trees	Regrowth Zone – 5.6c & d
Is Greater Glider density >1 per ha	No – 6.9d does not apply.
Stag Retention	5.6e

Significant Food Resources	5.6f
Protection of Retained Trees	5.6g
Koala intermediate use area	6.14. Ten primary browse trees must be retained per two hectares where available. These trees must be marked for retention. No AGS permitted in preferred forest types.

9.3 Species Known or Likely to Occur

Recent and reliable records exist within, or within close proximity of the compartments for the following threatened species. These species require species-specific or site-specific prescriptions if further records or habitat features are identified during mark-up.

Species Group	*Common Name*	*Scientific Name*
Amphibians	Sphagnum Frog	*Philoria sphagnicola*
Mammals	Koala	*Phascolarctos cinereus*
	Parma Wallaby	*Macropus parma*
	Spotted-tailed Quoll	*Dasyurus maculatus*
	Yellow-bellied Glider	*Petaurus australis*
Birds	Masked Owl	*Tyto novaehollandiae*
	Powerful Owl	*Ninox strenua*
	Glossy-black Cockatoo	*Calyptorhynchus lathami*
	Rufous Scrub-bird	*Atrichornis rufescens*
Flora	Rusty Plum	*Amorphospermum whitei*
	Milky Silkpod	*Parsonsia dorrigoensis*

9.4 Site-Specific Conditions, Exclusion Zones & Modified Harvest Areas

Table 1: General Prescriptions

TSL Condition	TSL Condition No.	Record Details	Prescription Summary
Koala Mark-up Searches	5.2.2	14 KOAL records in and within 100m of cpt boundaries	These compartments contain preferred forest types, marking-up must be conducted at least 300m in advance of harvesting operations. In the event that a koala or scats (as noted in 5.2.2(i)) are found, a koala star search will be conducted to determine koala use area/s.
Tree Retention	5.6 (f),(g)	GLBC feed trees. Nil records – continue search 1 YEBG feed tree in cpt U_392	Retain and protect glossy black cockatoo feed trees. Retain all yellow-bellied glider and squirrel glider sap feed trees.
Rocky Outcrops and Cliffs	5.11	Cliff line recorded in cpt U_392	SFA prohibited from feature, 20m exclusion buffer if > 0.1ha (approx. 30m x 30m). **NOTE: contained in 100m bat buffer**
Subterranean Roost Protection	5.14.2	1 subterranean bat roost with bats present recorded in cpt U_392	No exclusion zone if open pit < 3m deep 10m exclusion zone where no bats found. 50m exclusion zone if bats found. 100m exclusion zone on all caves, rock overhangs, tunnels and disused mineshafts (>3m deep) until inspected by Ecology to determine status of roost. Notify Harvest Planner of location.
Significant Subterranean Roost Protection	5.14.3	1 significant bat roost recorded in	100m exclusion zone on all caves, rock overhangs, tunnels and disused mineshafts (>3m deep) until inspected by Ecology to determine status of roost. Notify Harvest Planner of location. 100m buffer if

TSL Condition	TSL Condition No.	Record Details	Prescription Summary
		cpt U_392	roost is significant.
Burning	5.16	Threatened species have been recorded in these cpts.	The habitat requirement of threatened species must be taken into account when instigating hazard reduction burns to promote and maintain an understorey mosaic, significant areas of dense understorey vegetation and to minimise impact on large fallen logs.
Ground Habitat Protection	5.17 (b) 5.17 (d)	CWRV + small mammals reptiles Larger CWRV	Commercial Firewood collection is not permitted Firewood licences state that timber with hollows and/or over 40 cm diameter must not be collected or damaged.

Table 2: Species Specific Prescriptions (Record and Survey Based)

TSL Condition	TSL Condition No.	Record Details	Prescription Summary
Sphagnum frog *(Philoria sphagnicolus)*	6.4	6 PHI SPH records recorded in cpts U_391, 392	Exclusion zone of 50m on all records as mapped.
Masked Owl *(Tyto novaehollandiae)*	6.9	1 MOWL record in cpt U_391	Landscape approach as specified in 6.9.2 will be used. Condition 5.13 may be applicable to protect any roosts or nests found. Search gully lines and heads of gullies for roost and nest sites.
Koala *(Phascolarctos cinereus)*	6.14	14 KOAL records in and within 100m of cpt boundaries	Evidence of koalas was found in the compartments, but pre-logging surveys did not detect high use areas. Compartment mark-up 5.2.2 must be completed. The compartments are intermediate use area. Ten primary browse trees must be retained per two hectares where available. These trees must be marked for retention. No AGS permitted in preferred forest types.
Yellow-bellied Glider *(Petaurus australis)*	6.17	3 YEBG call detection records in cpts U_391 and 392 1 YEBG v-notch feed tree recorded in cpt U_392	Exclusion of 50m on dens. Retention of all sap feed trees. Within 100m of dens, sap feed trees and observation records, 15 mature / late mature feed trees must be retained. Within 200m of call detection site, 15 feed trees must be retained. Retained trees must be of same species as tree with den, feed marks or observation or should be species that shed their bark in long strips.
Parsonsia dorrigoensis	6.27	4 PARS DORR records in cpts U_391, 392	Harvesting is permitted in populated areas. This species is managed under a threatened flora monitoring program. No burning in areas with records

Table 3: Species Specific Prescriptions (Default IFOA Conditions)

TSL Condition	TSL Condition No.	Record Details	Prescription Summary
Ni	-	-	All survey requirements have been completed. No default prescriptions will need to be implemented.

Table 4: Other Ecological Considerations

Issue, Feature or Record	Presence	Assessment and Management Recommendations
EEC: Lowland Rainforest in the NSW North Coast and Sydney bioregion.	Likely to be present - continue search within NLA.	Identify and mark in field to exclude specified forestry activities. Contact FNSW ecology unit for guidance if required.

In addition to Forest Management Zone Exclusions, the following exclusion zones occur within the operation area and are shown on the operational map. Boundary marking conditions for each exclusion zone are described on the HPOM and in the tree marking code.

- Riparian Protection (TSL Condition 5.7)
- Ridge and Headwater Habitat (TSL Condition 5.8)

Boundary marking conditions for each exclusion zone are described on the HPOM and in the tree marking code (see Standard Harvest Plan Conditions for Native Forest Harvesting in North East Region).

10. Fisheries Licence Conditions

Refer to Technical Guidance Note 2005 - 02 March 2005 (Fisheries Licence Booklet).

Conditions of the Fisheries Licence do not apply in these compartments.

11. Soils and Water Protection Conditions

Refer to Technical Guidance Note 2005 - 1B (Environment Protection Licence Conditions booklet) and Standard Harvest Plan Conditions for Native Forest Harvesting in North East Region

Site-specific EPL conditions:

Elements	*Conditions*
Unmapped Drainage Lines	EPL applies. – No unmapped drainage line harvesting
Drainage Feature Protection	See HPOM for widths.
Inherent Hazard Class	2
Dispersible Soils	No
Mass Movement	Yes (See Below)
Log Dumps	Refer relevant conditions for IHL, Schedule 4 Section F of EPL booklet.
Snig Tracks	Refer relevant conditions for IHL, Schedule 4 Section H of EPL booklet.
Roads	See Schedule 5 (p. 18-26) of EPL booklet.
Non-Haulage Roads	May be used for extraction, EPL applies. Remove debris and reshape road to existing state on completion of operations.

11.1 Site Specific Conditions for Mass Movement

The compartments are in an area identified as having a potential for mass movement.

The following conditions will apply to these sites and any additional sites of mass movement identified during operations.

11.1.1 General Conditions

- All slips >10m^3 must be excluded from forestry activities unless advised otherwise by a suitably qualified person (including the above identified slips).

11.1.2 Snig Track Conditions

- Where bedding planes dip out of the hillslope cut batter heights on newly constructed snig tracks must not exceed 1.5m in height except with site specific assessment by a suitably qualified person.

- Where bedding planes dip out of the hillslope and cut batter height exceeds 2.0m and the groundslope exceeds 20 degrees on existing snig tracks, advice must be sought from a suitably qualified person as to whether that section of track can be reopened.
- Notwithstanding the above, existing snig tracks on groundslopes up to 30 degrees (including side cut snig tracks) that are showing no sign of mass movement may be used provided they can be satisfactorily drained to EPL specifications.
- Tree debris must not be used to hang fill batters on newly constructed snig tracks.
- Where it is proposed to reopen a snig track that has been affected by a landslip of > $10m^3$ advice must be sought from a suitably qualified person prior to doing so.
- Reopening of existing snig tracks on groundslopes slopes > 20° must avoid the undercutting of cut batters and the sidecasting of excessive material onto fill batters.
- Snig track runoff must not be directed onto steep (> 20°) hillslope hollows (unchannelled valley above the head of a first order stream).
- Wherever possible snig tracks must follow the terrain rather than side cut across it, particularly where side slopes exceed 20°.

11.1.3 Roading Conditions

- Maintenance on roads where groundslopes slopes are >20° must avoid the undercutting of cut batters and the sidecasting of excessive material onto fill batters.
- All slips >$10m^3$ must be excluded from road maintenance activities unless advised otherwise by a suitably qualified person.
- Road runoff must not be directed onto steep slopes (>20°) in hillslope hollows (an unchannelled valley above the head of a first order stream). Where the EPL road drainage spacings need to be varied to avoid artificially increasing pore water pressure in steep hillslope hollows, the variations must be documented in the harvesting plan and displayed on the operational map.

11.1.4 Site Specific Conditions for Snig Tracks

- Use of snig tracks with a grade of greater than 25 degrees is permitted with the following conditions:
- Use of previous snig track locations is preferred.
- Side-cutting of new snig tracks is not permitted.
- These snig tracks are used to take advantage of favourable terrain, such as a stable ridgeline.
- Site-specific conditions for mass movement must also be applied.

12. Legal Conditions

This operation must comply with:

- Standard Harvest Plan Conditions for Native Forest Operations in North East Region.
- Licence Conditions issued by Forests NSW under the Forestry Act (1916).
- State Forests of NSW Forest Practices Code - Part 2 Timber Harvesting in Native Forests (February 1999) and Forest Practices Code Part 4 Forest Roads and Fire Trails (February 1999).
- Integrated Forestry Operations Approval issued under part 5B of the Forestry Act 2012 (IFOA) including the associated licences:
  - Threatened Species Conservation Licence issued under the Threatened Species Conservation Act (1995).
  - Fisheries Licence issued under section 220ZW of the Fisheries Management Act 1994.
  - Environment Protection Licence No. 3957 (LNE) issued under section 55 of the Protection of the Environment Operations Act 1997.

13. Attachments

- Attachment 1: Locality map.
- Attachment 2: Harvest Plan Operational Map.
- Attachment 3: Forest Type Map

- Attachment 4: Silvicultural Map.
- Attachment 5: Site Safety Plan describes the safety requirements and Medical Emergency Evacuation Plan for this harvesting operation.
- Attachment 6: Roading plan prescribes roading requirements for this harvesting operation.

14. Operational Control

Contractor Team Leader to sign here

I acknowledge that I have received a copy of the plan documents and that I have been briefed on the conditions of the Plan. I understand the operational control requirements as outlined in the plan and take responsibility for the implementation of plan conditions as the principle controller of the operation.

I will brief any other operators not present at this briefing prior to them starting any work on site and ensure that risk assessment for the Safety Management Plan is completed for this area prior to operations commencing.

Name		Signature		
Position		Date	From	
Company			To	

Principal SFO to sign here (handovers between principal SFOs also to be recorded)

I acknowledge that I have received a copy of the plan documents and that I have been briefed on the conditions of the Plan. I understand the operational control requirements as outlined in the plan and take responsibility as the principle SFO.

Name		Signature		
Position		Date	From	
Company			To	

Name		Signature		
Position		Date	From	
Company			To	

Name		Signature		
Position		Date	From	
Company			To	

Name		Signature		
Position		Date	From	
Company			To	

15. Handover Briefing

I acknowledge that I have received a copy of the plan documents and that I have been briefed on the conditions of the Plan. I understand the operational control requirements as outlined in the plan.

Company	*Name*	*Signature*	*Date*

Induction Questions

1. What are the expected BA removals under this plan and how will they be managed?
2. Are there any boundary issues, and if so what are they, and can you point out these areas on the HPOM?
3. What, if any, are the seasonality conditions to be applied to these compartments?
4. What exclusion zones can be crossed / snigged through within the NHA and what approval is required?
5. What does the red square mean on the HPOM (west of Dump 12)
6. Are there any special conditions relating to Koalas?
7. What is important to remember about any permanent water bodies?
8. What does Section 10.4, Table 4 tell us ?
9. Are there any special considerations we need to remember about soils in this area?

Appendix 1 - SFO Notes

State Forest	Oakes	*Compartments*	391 and 392

This diary should record general daily events, SFO movements, and operations visited which are not otherwise recorded in detail elsewhere.

Date	*Event*	*Initial*

FORESTS NEW SOUTH WALES – NORTH EAST REGION

ROAD WORKS PLAN

State Forest Oakes; Compartments 391 and 392

Certification

Prepared By: Harvest Planner	Rob Lloyd	Approved By: Regional Manager	Craig Busby
Signature		Signature	
Date		Date	

1. Objectives

Road works are required to service native forest harvesting operations within the above compartments.

The harvest plan operational map shows the location of the proposed works.

Attachments: **Financial Analysis Spreadsheet** gives full details of costs, benefits, material & plant requirements

2. Specifications and Legal Conditions

This operation must comply with:

- Standard Harvest Plan Conditions for Native Forest Operations in North East Region
- Licence Conditions issued by Forests NSW under the Forestry Act (1916)
- State Forests of NSW Forest Practices Code - Part 2 Timber Harvesting in Native Forests February 1999 and Forest Practices Code Part 4 Forest Roads and Fire Trails (February 1999).
- Integrated Forestry Operations Approval issued under part 5B of The Forestry Act 2012 (IFOA), including the associated licences:
  - Threatened Species Conservation Licence (TSCL) issued under the Threatened Species Conservation Act (1995)
  - Licence issued under section 220ZW of the Fisheries Management Act 1994 (FL)
  - Environment Protection Licence No. 3957 (LNE) issued under section 55 of the Protection of the Environment Operations Act 1997 (EPL)
- Technical Guidance Notes for Roadworks.
- State Forests of NSW Forest Practices Code - Forest Practices Code Part 4 Forest Roads and Fire Trails (February 1999).

3. Special Conditions

Feature	Conditions
Cultural Heritage	No
Threatened Species	See harvesting plan. Minimise disturbance within protection zones.
Dispersible Soils Hazard	No
Mass Movement Hazard	Yes ▪ No new roads are to be constructed on over 30 degree slopes unless specifically authorised ▪ Water in not to be concentrated onto un-consolidated or stabilised batters ▪ Slope mowing to be used for clearing all cut batters over 1m through over 30 degrees, for all cut batters over 2m through over 25 degrees, and for all fill batters lying on over 25 degrees ▪ Road and snig track runoff must not be directed onto steep slopes adjacent to drainage lines and depressions.
Seasonality	Yes – Seasonal restrictions apply to operations under this plan. For slopes greater than or equal to 25 degrees, roading activities (other than general maintenance) is excluded from 1st Jan until 31st March inclusive
Engineering Design	No. If road widening is required over 30 Degrees then an engineering design will be require and widening work in this area will need to be postponed until such design are completed and approved.
Works on Over 30^0	▪ No new roads are to be constructed on over 30 degree slopes unless specifically authorised ▪ Slope mowing to be used for clearing all cut batters over 1m through over 30 degrees, ▪ Engineering design will be required if any road widening is required over 30 Degrees.
392/4 Road	SFO/FA and Harvesting Forester must assess for stability prior and approve for haulage prior to haulage on this road. Removal of vegetation and deadfall by dozer is permitted to facilitate assessment by SFO, FA and Harvesting Forester
Environmental impacts i.e. Dust, Noise, Water, Visual	No
National Park	Yes: National Park is offset 20m from the centre line of Horseshoe Road. Road maintenance activities are permitted within this zone so long as there is no impact into the National Park outside of this 20m zone..
Private Property	No
Permit To Enter required	No
Quarries and Gravel Pits	No
Underground/Overhead Utilities	No
Safety Issues (includes hazards, public use of roads)	Yes See – Hazard Assessment in the Site Safety Pack

NOTE: This operation is licensed.

A commencement of Operations form is to be forwarded to the Office of Environment and Heritage within 14 days of commencement of operations authorised under this plan. The Harvesting Manager is responsible

A Cessation of Operations form is to be forwarded to the Office of Environment and Heritage within 14 days of cessation of operations authorised under this plan.

The Supervising Forest Officer must notify the Harvesting Manager when operations have commenced and ceased

3.1 Short Term Haulage Roads

Short Term haulage Roads are shown on the operational map (393/1, 392/3 and 392/4 Roads). They are currently vegetated and stable. These roads may be used for haulage, subject to the following conditions:

- Roads must be left vegetated until immediately prior to use
- Drainage is installed to EPL specifications within 5 days of completion of haulage operations (cross banks)
- Rollovers or other EPL compliant drainage are installed where road grade is less than 3 degrees
- EPL compliant drainage is installed 5-30m either side of any drainage line crossing
- Minimise disturbance to vegetated, working table drains
- Temporary drainage is installed in the event of ongoing rainfall or cessation of operations for more than 2 days.
- Road Drainage spacings may exceed those specified in Schedule 5 of the EPL where:
- mitre drains cannot be constructed (eg side cut road);
- road grade exceeds 3 degrees
- Consideration to be given to implementation of additional site specific conditions as appropriate such as:
- Utilising outfall and other forms of drainage (modified rollovers)
- Installing energy dissipaters in table drains ; and
- Installing silt mesh /trapping on drain outlets if native vegetation filtering is inadequate

4. General Conditions

Remove trees in accordance with FNSW Safety Standard 1.3.9; and

Remove vegetation within 3m of the road prism **only where required** to maintain safe sight distance and passage of trucks.

Note: Clearing is generally permitted within 3m of the road prism for all roads. Ground disturbance and tree debris may impact outside this 3m either side of the road prism as is required to effect clearing within 3m of the road prism. Conditions 5, 6 and 47 Schedule 5 of the EPL must apply.

5. Works Schedule

See attached road maintenance and crossing work sheets.

6. Operational Control

Contractor Team Leader to sign here

I acknowledge that I have received a copy of the plan documents and that I have been briefed on the conditions of the Plan. I understand the operational control requirements as outlined in the plan and take responsibility for the implementation of plan conditions as the principle controller of the operation.

I will brief any other operators not present at this briefing prior to them starting any work on site and ensure that risk assessment for the Safety Management Plan is completed for this area prior to operations commencing.

Name		Signature		
Position		Date	From	
Company			To	

Principal SFO to sign here (handovers between principal SFOs also to be recorded)

I acknowledge that I have received a copy of the plan documents and that I have been briefed on the conditions of the Plan. I understand the operational control requirements as outlined in the plan and take responsibility as the principle SFO.

Name		Signature		
Position		Date	From	
Company			To	

Name		Signature		
Position		Date	From	
Company			To	

Name		Signature		
Position		Date	From	
Company			To	

Name		Signature		
Position		Date	From	
Company			To	

7. Handover Briefing

I acknowledge that I have received a copy of the Roadworks/Harvesting Plan for Compartments 391 & 392 in Oakes State Forest and that I have been briefed on the conditions of the Plan. I understand the supervision and operational control requirements as outlined in the plan.

Position	*Name*	*Signature*	*Date*

Road Maintainence/Upgrade

Road Name Horseshoe Road **Category**

Location ES corner of Cpt. 391 to SW corner of Cpt 392 **Length (m)** 4500

	WORKS		YES	INSTRUCTIONS/SITE SPECIFIC CONDITIONS
Site Info	Works >30 Slopes		☑	See Special Conditions
	Mass Movement		☑	See Special Conditions
	Dispersible		☐	
Pavement	Upgrade	Widening	☐	Location Upgrade Length (m) Formation Width (m) Upgrade Spoil Curve Widening
		Grade Lowering	☐	
		Realignment	☐	
		Reopening	☐	
	Maintenance	Clear veg/debris	☐	Maintenance Length (m)
		Repair surface	☑	Various areas where crown or cross fall has failed (none are major)
		Crown/Crossfall	☑	
		Gravel	☐	Gravel Length (m)
Roadside/Batters	Remove trees >20 cm		☑	Remove Dangerous trees/stags only
	Remove trees <20 cm		☑	Clearing outside the road prism: Yes
	Batter Repair/Upgrade		☑	Near Xing D repair near Xing D
Drainage	Culverts		☑	Clean existing relief pipes Size: Sets:
	Mitres		☑	
	ROD/Spoon		☐	Sets:
	Belts/Channels		☐	Sets:
	Drop Downs		☐	Sets:
	Silt Trapping		☐	

Comments: Good quality road, Crown and Mitre and use exiting drainage spacings. Extra cross draingage RODs or New Relief Pipes (375mm)

Start Date: Finish Date: Soil Stabilisation Date (must be within 5 days):

Date	Event	Initial

Road Name Sullivans Creek Road **Category**

Location From intersection with Horseshoe Road to Dump 12 **Length (m)** 2300

	WORKS		YES	INSTRUCTIONS/SITE SPECIFIC CONDITIONS
Site Info	Works >30 Slopes		☑	See Special Conditions
	Mass Movement		☑	See Special Conditions
	Dispersible		☐	
Pavement	Upgrade	Widening	☑	**Location** NA **Upgrade Length (m)** **Formation Width (m)** 3.7 **Upgrade Spoil** Use in formation **Curve Widening** Minor - through some crossings
		Grade Lowering	☐	
		Realignment	☐	
		Reopening	☑	where trees > 20cm dobbh remain on pavement
	Maintenance	Clear veg/debris	☑	Full length of pavement **Maintenance Length (m)**
		Repair surface	☑	Full length of pavement
		Crown/Crossfall	☑	Full length
		Gravel	☑	wet spots / only if wet **Gravel Length (m)** 500
Roadside/Batters	Remove trees >20 cm		☑	**Remove Dangerous trees/stags only**
	Remove trees <20 cm		☑	**Clearing outside the road prism:** Yes
	Batter Repair/Upgrade		☑	Widen pavement through Crossing I by excavating cut batter Xing I
Drainage	Culverts		☑	Clean existing relief pipes **Size:** **Sets:**
	Mitres		☑	
	ROD/Spoon		☑	**Sets:**
	Belts/Channels		☑	**Sets:**
	Drop Downs		☐	**Sets:**
	Silt Trapping		☐	

Comments: Clean / repair existing relief pipes, use RODs and outfall wherever possible in preference to installing Flaps / Channels. Consider RODs > 3 Degrees

Start Date: Finish Date: Soil Stabilisation Date (must be within 5 days):

Date	Event	Initial

Road Name 392/2 Road **Category**

Location From intersection with Sullivans Creek Road to Dump 16 **Length (m)** 300

	WORKS		YES	INSTRUCTIONS/SITE SPECIFIC CONDITIONS
Site Info	Works >30 Slopes		☐	
	Mass Movement		☑	See Special Conditions
	Dispersible		☐	
Pavement	Upgrade	Widening	☑	**Location** Some small sections **Upgrade Length (m)** **Formation Width (m)** 3.7 **Upgrade Spoil** Use in formation **Curve Widening** Throught Crossing S and T
		Grade Lowering	☐	
		Realignment	☐	
		Reopening	☑	Full length
	Maintenance	Clear veg/debris	☑	Full length of pavement **Maintenance Length (m)**
		Repair surface	☑	Full length of pavement
		Crown/Crossfall	☑	Full length
		Gravel	☐	**Gravel Length (m)**
Roadside/Batters	Remove trees >20 cm		☑	**Remove Dangerous trees/stags only**
	Remove trees <20 cm		☑	**Clearing outside the road prism:** Yes
	Batter Repair/Upgrade		☑	Widen pavement through Crossing S by excavating cut batter Xing S
Drainage	Culverts		☑	Clean any existing relief pipes found **Size:** **Sets:**
	Mitres		☑	
	ROD/Spoon		☑	**Sets:**
	Belts/Channels		☑	**Sets:**
	Drop Downs		☐	**Sets:**
	Silt Trapping		☐	

Comments: Clean / repair existing relief pipes, use RODs and outfall wherever possible in preference to installing Flaps / Channels. Consider RODs > 3 Degrees.

Start Date: Finish Date: Soil Stabilisation Date (must be within 5 days):

Date	Event	Initial

Road Name 392/4 Road (Optional Rd) **Category**

Location From intersection with Sullivans Creek Road to Dump 18 **Length (m)** 250

	WORKS		YES	INSTRUCTIONS/SITE SPECIFIC CONDITIONS
Site Info	Works >30 Slopes		☑	See Special Conditions
	Mass Movement		☑	See Special Conditions
	Dispersible		☐	
Pavement	Upgrade	Widening	☐	**Location** **Upgrade Length (m)** **Formation Width (m)** **Upgrade Spoil** **Curve Widening**
		Grade Lowering	☐	
		Realignment	☐	
		Reopening	☑	Full length
	Maintenance	Clear veg/debris	☑	Full length of pavement **Maintenance Length (m)**
		Repair surface	☑	Full length of pavement
		Crown/Crossfall	☑	Full length
		Gravel	☑	only if wet **Gravel Length (m)** 100
Roadside/Batters	Remove trees >20 cm		☑	**Remove Dangerous trees/stags only**
	Remove trees <20 cm		☑	**Clearing outside the road prism:** Yes
	Batter Repair/Upgrade		☐	
Drainage	Culverts		☐	**Size:** **Sets:**
	Mitres		☑	
	ROD/Spoon		☑	**Sets:**
	Belts/Channels		☐	**Sets:**
	Drop Downs		☐	**Sets:**
	Silt Trapping		☐	

Comments: Optional road, not fully asessed due to heavy lantana (only 1st 120m assessed). Use Crown and Mitre, RODs and outfall wherever possible in preference to installing Flaps / Channels. Consider RODs > 3 Degrees

Start Date: Finish Date: Soil Stabilisation Date (must be within 5 days):

Date	Event	Initial

Crossing Works

Crossing Name A **Road Name** Horseshoe Rd **Location** See HPOM

Drainage Feature Drainage Depression. **Stream Permanency** Intermittant.

Existing Crossing	Size	Stability Status	Crossing Required	Size (mm/m	Future
Pipe Culvert	450mm	Stable	Existing	Existing	Permanent

Crossing Works		Approaches and Road Drainage	
Pavement/Structure	Crossing is offset to Relief Pipe - Nil work reqired	Approaches	Reform pavement
Reshape Bed/banks	Grade pavement	Temporary Drainage	No
Disposal of Spoil	NA	5-30m Upstream Left	
Inlet	Clean	5-30m Upstream Right	
Outlet	Stable	Practices where no 5-30	
Stabilisation	Minimise disturbance to fill batter vege	OutletControl	
ErosionControl	Natural Veg.	TableDrain	

Nil work required

Start Date: Finish Date: Soil Stabilisation Date (must be within 5 days):

Date	Event	Initial

Crossing Name B **Road Name** Horseshoe Rd **Location** See HPOM

Drainage Feature Drainage Depression. **Stream Permanency** Intermittant.

Existing Crossing	Size	Stability Status	Crossing Required	Size (mm/m	Future
Pipe Culvert	450mm	Stable, but outlet burrie	Existing	Existing	Permanent

Crossing Works		Approaches and Road Drainage	
Pavement/Structure	Nil work reqired	Approaches	Reform pavement
Reshape Bed/banks	Grade pavement	Temporary Drainage	No
Disposal of Spoil	NA	5-30m Upstream Left	
Inlet	Clean	5-30m Upstream Right	
Outlet	Clean outlet	Practices where no 5-30	
Stabilisation	Minimise disturbance to fill batter vege	OutletControl	
ErosionControl	Natural Veg.	TableDrain	

Nil work required other than clean inlet and outlet

Start Date: Finish Date: Soil Stabilisation Date (must be within 5 days):

Date	Event	Initial

Crossing Name C **Road Name** Horseshoe Rd **Location** See HPOM

Drainage Feature Unmapped Drainage Line **Stream Permanency** Intermittant.

Existing Crossing	Size	Stability Status	Crossing Required	Size (mm/m)	Future
Pipe Culvert	450mm	Stable	Existing	Existing	Permanent

Crossing Works		Approaches and Road Drainage	
Pavement/Structure	Nil work reqired	**Approaches**	Reform pavement
Reshape Bed/banks	Grade pavement	**Temporary Drainage**	No
Disposal of Spoil	NA	**5-30m Upstream Left**	Crown / MD
Inlet	Clean	**5-30m Upstream Right**	Falls away
Outlet	Clean inlet	**Practices where no 5-30**	NA
Stabilisation	Minimise disturbance to fill batter vege	**OutletControl**	Natural Vegetation
ErosionControl	Natural Veg.	**TableDrain**	

Nil work required other than clean inlet, grade and reform pavement

Start Date: Finish Date: Soil Stabilisation Date (must be within 5 days):

Date	Event	Initial

Crossing Name D **Road Name** Horseshoe Rd **Location** See HPOM

Drainage Feature Unmapped Drainage Line **Stream Permanency** Intermittant.

Existing Crossing	Size	Stability Status	Crossing Required	Size (mm/m)	Future
Pipe Culvert	450mm	Stable	Existing	Exiting	Permanent

Crossing Works		Approaches and Road Drainage	
Pavement/Structure	Nil work reqired	Approaches	Reform pavement
Reshape Bed/banks	Grade pavement	Temporary Drainage	No
Disposal of Spoil	NA	5-30m Upstream Left	Falls away
Inlet	Clean	5-30m Upstream Right	Exiting Relief Pipe
Outlet	Stable	Practices where no 5-30	NA
Stabilisation	Minimise disturbance to fill batter vege	OutletControl	Natural Vegetation
ErosionControl	Natural Veg.	TableDrain	

Nil work required on crossing other than clean pipe. inlet and outlet.
Repair of slump (fill batter) adjacent to crossing is covered in road works for Horseshoe Road.

Start Date: Finish Date: Soil Stabilisation Date (must be within 5 days):

Date	Event	Initial

Crossing Name E **Road Name** Horseshoe Rd **Location** See HPOM

Drainage Feature Drainage Depression. **Stream Permanency** Intermittant.

Existing Crossing	Size	Stability Status	Crossing Required	Size (mm/m)	Future
Pipe Culvert	450mm	Stable	Existing	Existing	Permanent

Crossing Works		Approaches and Road Drainage	
Pavement/Structure	Crossing is offset to Relief Pipe - Nil work reqired	**Approaches**	Reform pavement
Reshape Bed/banks	Grade pavement	**Temporary Drainage**	No
Disposal of Spoil	NA	**5-30m Upstream Left**	
Inlet	Stable	**5-30m Upstream Right**	
Outlet	Stable	**Practices where no 5-30**	
Stabilisation	Minimise disturbance to fill batter vege	**OutletControl**	
ErosionControl	Natural Veg.	**TableDrain**	

Nil work required

Start Date: Finish Date: Soil Stabilisation Date (must be within 5 days):

Date	Event	Initial
	.	

Crossing Name F **Road Name** Horseshoe Rd **Location** See HPOM

Drainage Feature Drainage Depression. **Stream Permanency** Intermittant.

Existing Crossing	Size	Stability Status	Crossing Required	Size (mm/m)	Future
Pipe Culvert	450mm	Stable	Existing	Existing	Permanent

Crossing Works		Approaches and Road Drainage	
Pavement/Structure	Crossing is offset to Relief Pipe - Nil work reqired	Approaches	Reform pavement
Reshape Bed/banks	Grade pavement	Temporary Drainage	No
Disposal of Spoil	NA	5-30m Upstream Left	
Inlet	Stable	5-30m Upstream Right	
Outlet	Stable	Practices where no 5-30	
Stabilisation	Minimise disturbance to fill batter vege	OutletControl	
ErosionControl	Natural Veg.	TableDrain	

Nil work required

Start Date: Finish Date: Soil Stabilisation Date (must be within 5 days):

Date	Event	Initial

Crossing Name G **Road Name** Horseshoe Rd **Location** See HPOM

Drainage Feature Drainage Depression. **Stream Permanency** Intermittant.

Existing Crossing	Size	Stability Status	Crossing Required	Size (mm/m)	Future
Pipe Culvert	450mm	Stable	Existing	Existing	Permanent

Crossing Works		Approaches and Road Drainage	
Pavement/Structure	Crossing is offset to Relief Pipe - Repair inlet	Approaches	
Reshape Bed/banks	Grade pavement	Temporary Drainage	No
Disposal of Spoil	NA	5-30m Upstream Left	
Inlet	Clean and repair	5-30m Upstream Right	
Outlet	Stable	Practices where no 5-30	
Stabilisation		OutletControl	
ErosionControl		TableDrain	

Repair inlet on relief pipe

Start Date: Finish Date: Soil Stabilisation Date (must be within 5 days):

Date	Event	Initial

Crossing Name H **Road Name** Sullivans Creek Rd **Location** See HPOM

Drainage Feature 1st Order Drainage Line. **Stream Permanency** Intermittant.

Existing Crossing	Size	Stability Status	Crossing Required	Size (mm/m)	Future
Pipe Culvert	450mm	Stable	Existing	Existing	Permanent

Crossing Works		Approaches and Road Drainage	
Pavement/Structure	Reshape pavement Rock and Gravel	**Approaches**	Rock and gravel
Reshape Bed/banks	Minimal - repair headwall	**Temporary Drainage**	No
Disposal of Spoil	Use in pavement	**5-30m Upstream Left**	ROD
Inlet	Clean and repair	**5-30m Upstream Right**	Falls away
Outlet	Stable	**Practices where no 5-30**	NA
Stabilisation	Minimise disturbance to fill batter vege	**OutletControl**	Natural Vegetation
ErosionControl	Natural Veg.	**TableDrain**	

Nil work required other than repair head wall, reform pavement and gravel

Start Date: Finish Date: Soil Stabilisation Date (must be within 5 days):

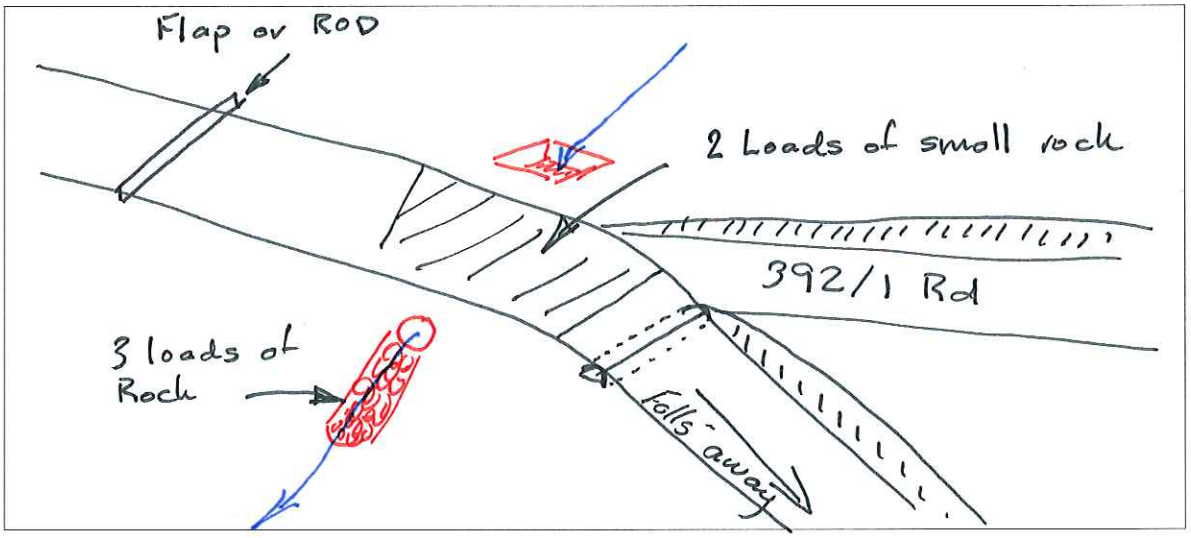
Date	Event	Initial

Crossing Name 1 **Road Name** Sullivans Creek Rd **Location** See HPOM

Drainage Feature Unmapped Drainage Line **Stream Permanency** Intermittant.

Existing Crossing	Size	Stability Status	Crossing Required	Size (mm/m	Future
Earth Gully Strike	Bed Level C	Unstable and too small	450mm Pipe Culvert	450mm	Permanent

Crossing Works		Approaches and Road Drainage	
Pavement/Structure	Reshape pavement and install a 450mm pipe culvert with preformed head and tailwalls	**Approaches**	Flap / channel USL
Reshape Bed/banks	Widen crossing, improve int. 392/1 Rd	**Temporary Drainage**	No
Disposal of Spoil	Use in pavement	**5-30m Upstream Left**	Flap / ROD
Inlet	Headwall/inlet sump	**5-30m Upstream Right**	Containment ROD falls away
Outlet	Preformed tailwall + rock disipator	**Practices where no 5-30**	NA
Stabilisation	Reshape pavement and head/tailwalls	**OutletControl**	Natural Vegetation
ErosionControl	Dissipator	**TableDrain**	



Start Date: Finish Date: Soil Stabilisation Date (must be within 5 days):

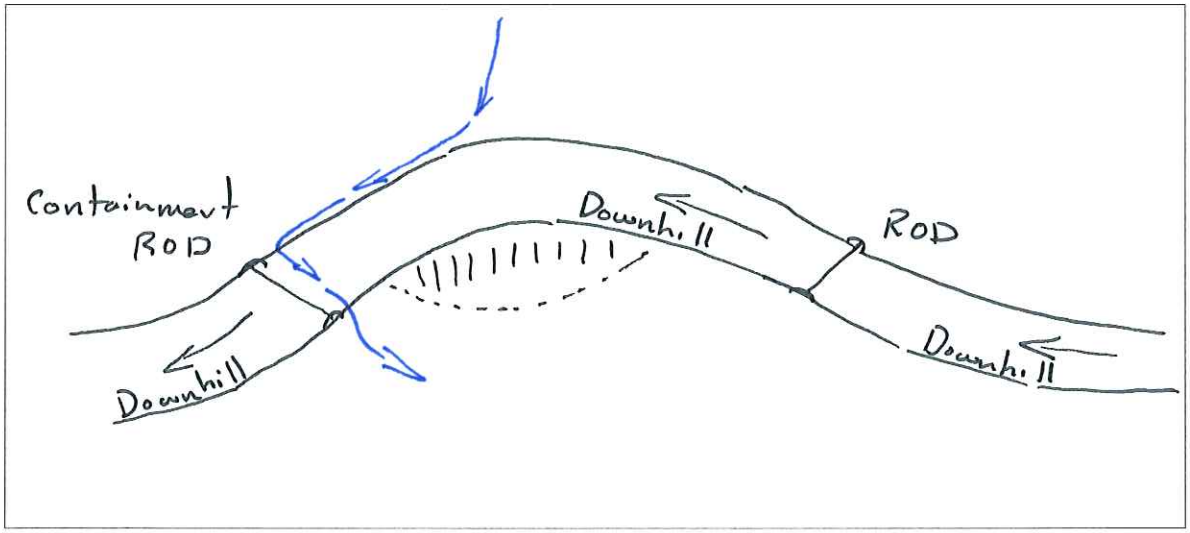
Date	Event	Initial

Crossing Name J **Road Name** Sullivans Creek **Location** See HPOM

Drainage Feature Unmapped Drainage Line **Stream Permanency** Intermittant.

Existing Crossing	Size	Stability Status	Crossing Required	Size (mm/m	Future
Causeway	Bed Level C	Stable	Existing	Existing	Permanent

Crossing Works		Approaches and Road Drainage	
Pavement/Structure	Crossing is offset to TD. Natural surface. Form ROD USL to contain crossing	Approaches	ROD USR
Reshape Bed/banks	Grade pavement	Temporary Drainage	No
Disposal of Spoil	Use in pavement	5-30m Upstream Left	Containment ROD falls awa
Inlet	Stable	5-30m Upstream Right	ROD
Outlet	Stable	Practices where no 5-30	NA
Stabilisation	Minimise disturbance to fill batter vege	OutletControl	Natural Vegetation
ErosionControl	Natural Veg.	TableDrain	



Start Date: Finish Date: Soil Stabilisation Date (must be within 5 days):

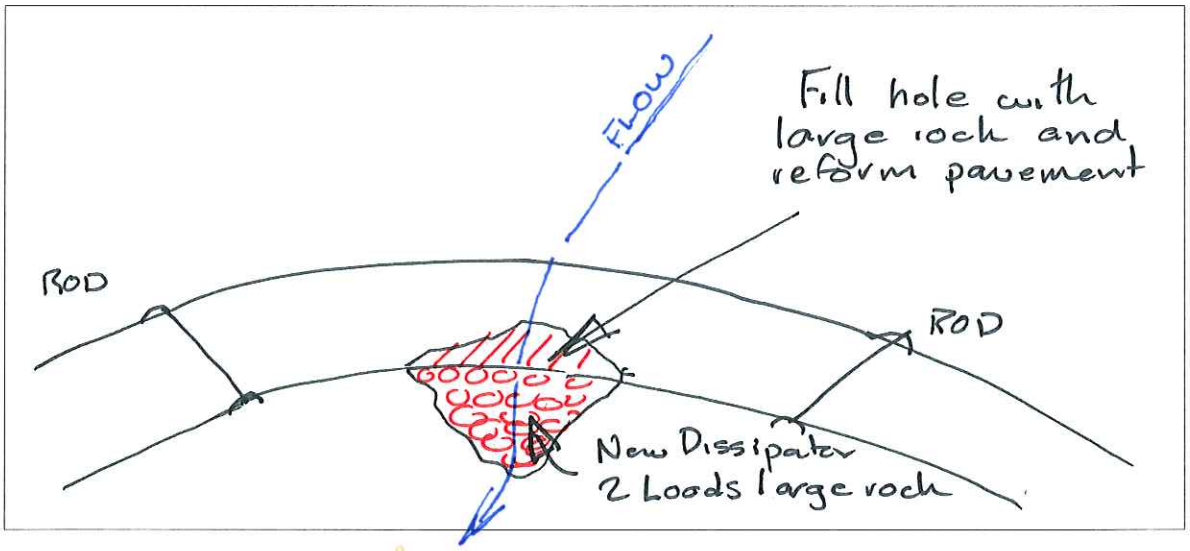
Date	Event	Initial

Crossing Name K **Road Name** Sullivans Creek **Location** See HPOM

Drainage Feature Unmapped Drainage Line **Stream Permanency** Intermittant.

Existing Crossing	Size	Stability Status	Crossing Required	Size (mm/m)	Future
Earth Gully Sl...	Bed Level C	Unstable (outlet)	Existing (repaired)	Existing	Permanent

Crossing Works		Approaches and Road Drainage	
Pavement/Structure	Install dissipator	**Approaches**	ROD USL and USR
Reshape Bed/banks	To repair pavement at outlet	**Temporary Drainage**	No
Disposal of Spoil	NA	**5-30m Upstream Left**	ROD
Inlet	Stable	**5-30m Upstream Right**	ROD
Outlet	Rock disipator	**Practices where no 5-30**	NA
Stabilisation	Reshape pavement and outlet	**OutletControl**	Natural Vegetation
ErosionControl	Dissipator	**TableDrain**	



Start Date: Finish Date: Soil Stabilisation Date (must be within 5 days):

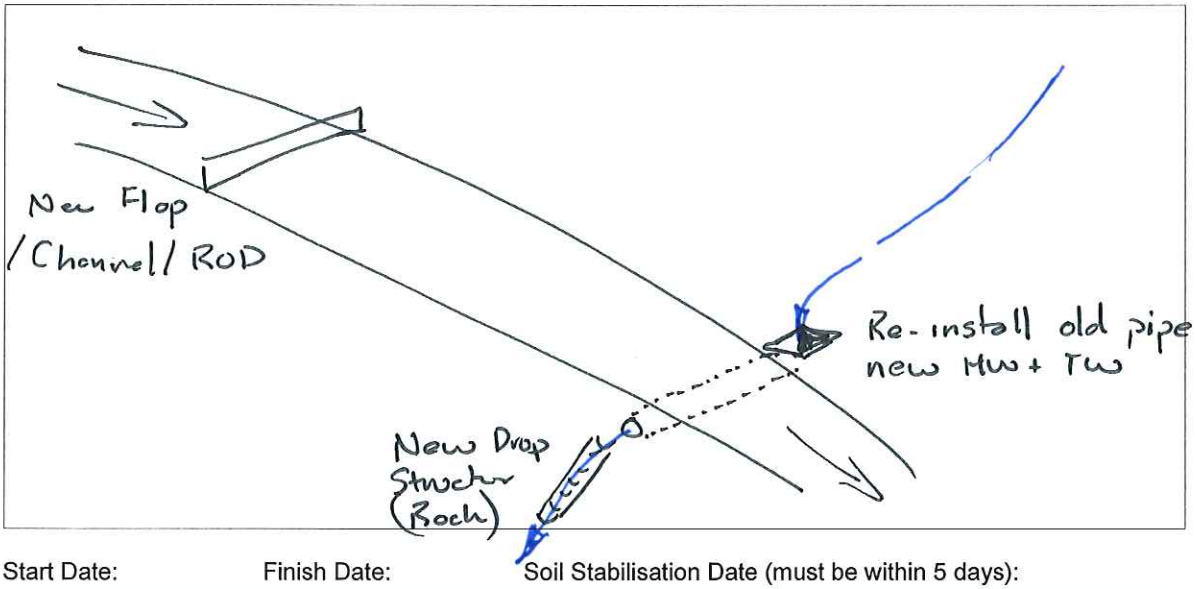
Date	Event	Initial

Crossing Name L **Road Name** Sullivans Creek **Location** See HPOM

Drainage Feature Unmapped Drainage Line **Stream Permanency** Intermittant.

Existing Crossing	Size	Stability Status	Crossing Required	Size (mm/m)	Future
Pipe Culvert	450mm	Unstable (outlet)	Existing (repaired)	Existing	Permanent

Crossing Works		Approaches and Road Drainage	
Pavement/Structure	Repair existing pipe or replace with same size if too damaged	**Approaches**	Flap / channel USL
Reshape Bed/banks	To re-install pipe	**Temporary Drainage**	No
Disposal of Spoil	NA	**5-30m Upstream Left**	Flap / ROD
Inlet	New Headwall	**5-30m Upstream Right**	Falls away
Outlet	New Tailwall	**Practices where no 5-30**	NA
Stabilisation	Drop structure	**OutletControl**	Natural Vegetation
ErosionControl	Dissipator	**TableDrain**	



Start Date: Finish Date: Soil Stabilisation Date (must be within 5 days):

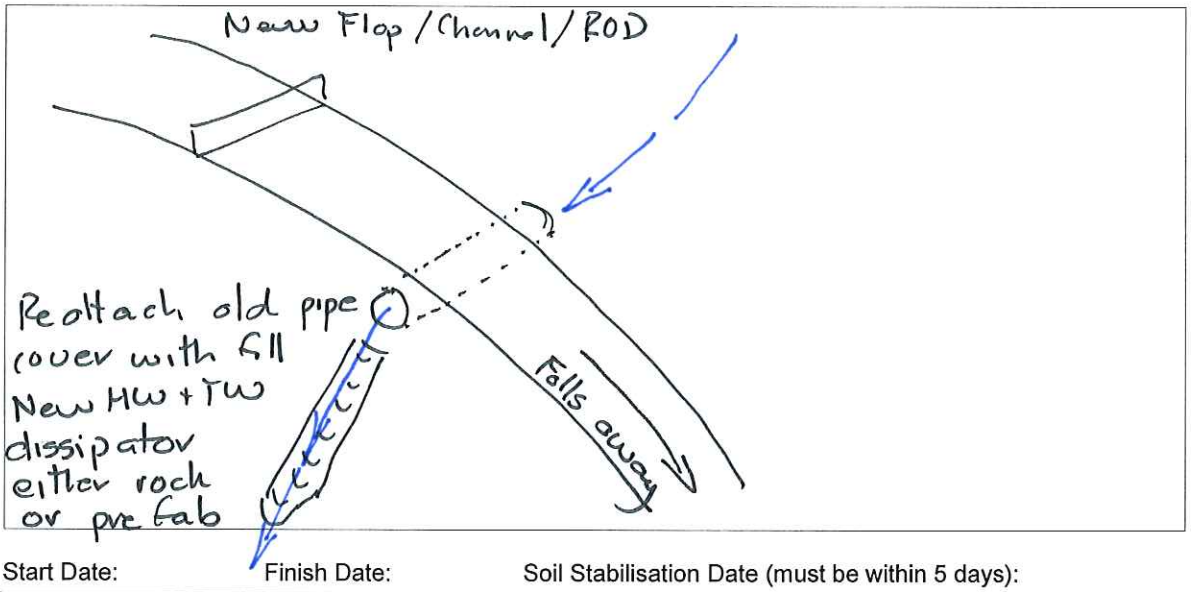
Date	Event	Initial

Crossing Name M **Road Name** Sullivans Creek **Location** See HPOM

Drainage Feature 1st Order Drainage Line. **Stream Permanency** Semi Permanent

Existing Crossing	Size	Stability Status	Crossing Required	Size (mm/m)	Future
Pipe Culvert	450mm	Unstable (outlet)	Existing (repaired)	Existing	Permanent

Crossing Works		Approaches and Road Drainage	
Pavement/Structure	Repair existing pipe or replace with same size if too damaged	**Approaches**	Flap / channel USL
Reshape Bed/banks	To re-install pipe end	**Temporary Drainage**	No
Disposal of Spoil	NA	**5-30m Upstream Left**	Flap / ROD
Inlet	Stable	**5-30m Upstream Right**	Falls away
Outlet	New Tailwall	**Practices where no 5-30**	NA
Stabilisation	Drop structure	**OutletControl**	Natural Vegetation
ErosionControl	Dissipator	**TableDrain**	



Start Date: Finish Date: Soil Stabilisation Date (must be within 5 days):

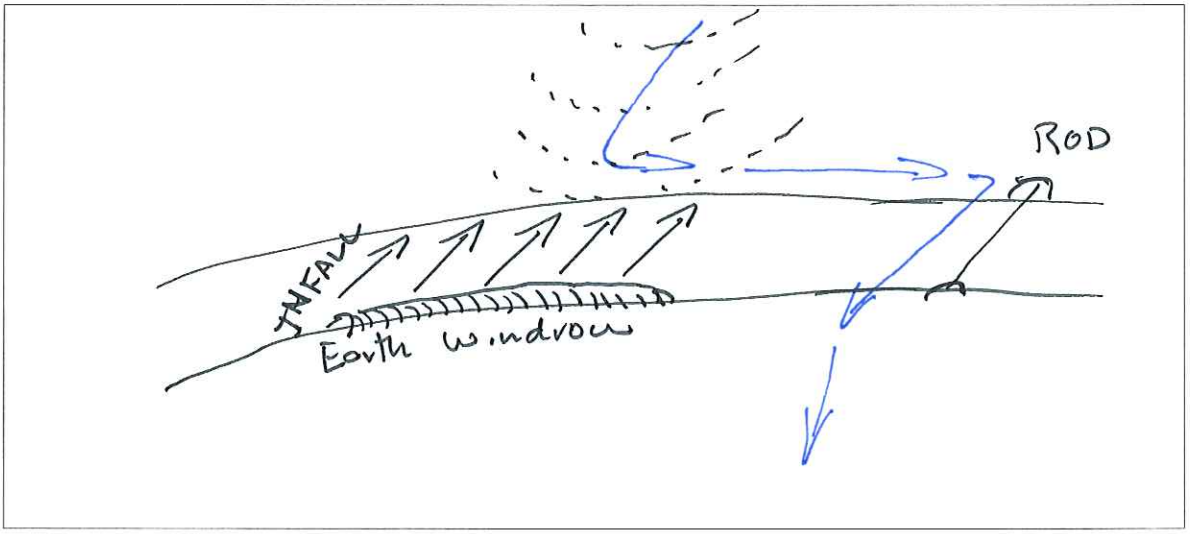
Date	Event	Initial

Crossing Name N **Road Name** Sullivans Creek **Location** See HPOM

Drainage Feature Drainage Depression. **Stream Permanency** Intermittant.

Existing Crossing	Size	Stability Status	Crossing Required	Size (mm/m)	Future
Earth Gully Strs	Bed Level C	Stable	Existing + dissipator	Existing	Permanent

Crossing Works		Approaches and Road Drainage	
Pavement/Structure	Install dissipator	**Approaches**	Reform pavement
Reshape Bed/banks	Grade pavement	**Temporary Drainage**	No
Disposal of Spoil	NA	**5-30m Upstream Left**	
Inlet	Stable	**5-30m Upstream Right**	ROD
Outlet	Stable but install new dissipator	**Practices where no 5-30**	
Stabilisation	New dissipator on outlet	**OutletControl**	
ErosionControl	Dissipator	**TableDrain**	



Start Date: Finish Date: Soil Stabilisation Date (must be within 5 days):

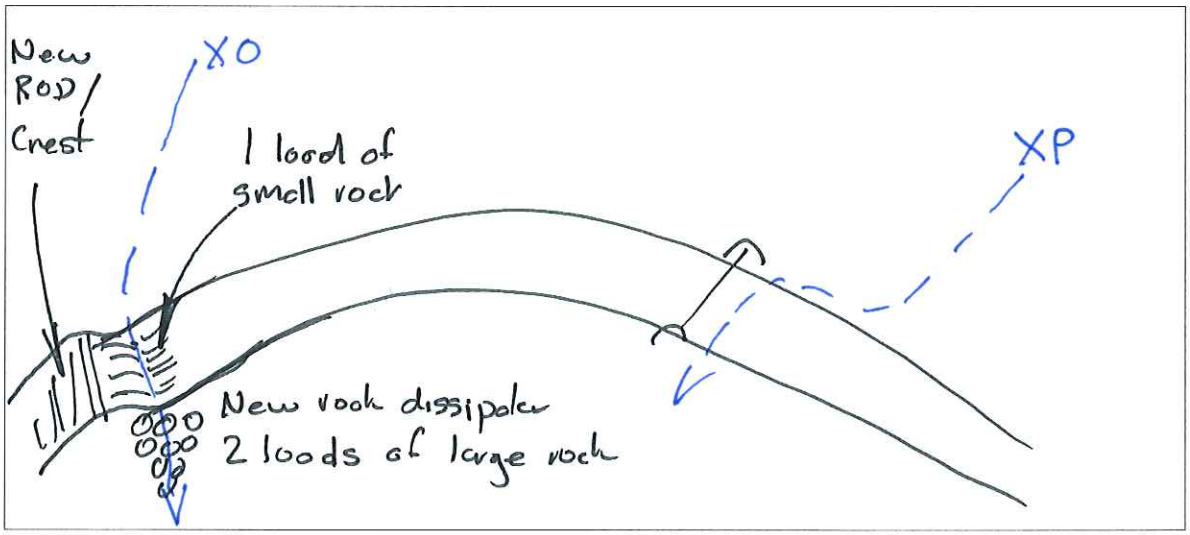
Date	Event	Initial

Crossing Name O **Road Name** Sullivans Creek **Location** See HPOM

Drainage Feature Unmapped Drainage Line **Stream Permanency** Intermittant.

Existing Crossing	Size	Stability Status	Crossing Required	Size (mm/m)	Future
Earth Gully Shallow	Bed Level C	Stable	Existing	Existing	Permanent

Crossing Works		Approaches and Road Drainage	
Pavement/Structure	New ROD USR to contain overland flow from Xing P	**Approaches**	Reform pavement
Reshape Bed/banks	Grade pavement	**Temporary Drainage**	No
Disposal of Spoil	Use in pavement	**5-30m Upstream Left**	New Crest or containment
Inlet	Stable	**5-30m Upstream Right**	ROD
Outlet	Stable but install new dissipator	**Practices where no 5-30**	NA
Stabilisation	New dissipator on outlet	**OutletControl**	Natural Vegetation
ErosionControl	Dissipator	**TableDrain**	



Start Date: Finish Date: Soil Stabilisation Date (must be within 5 days):

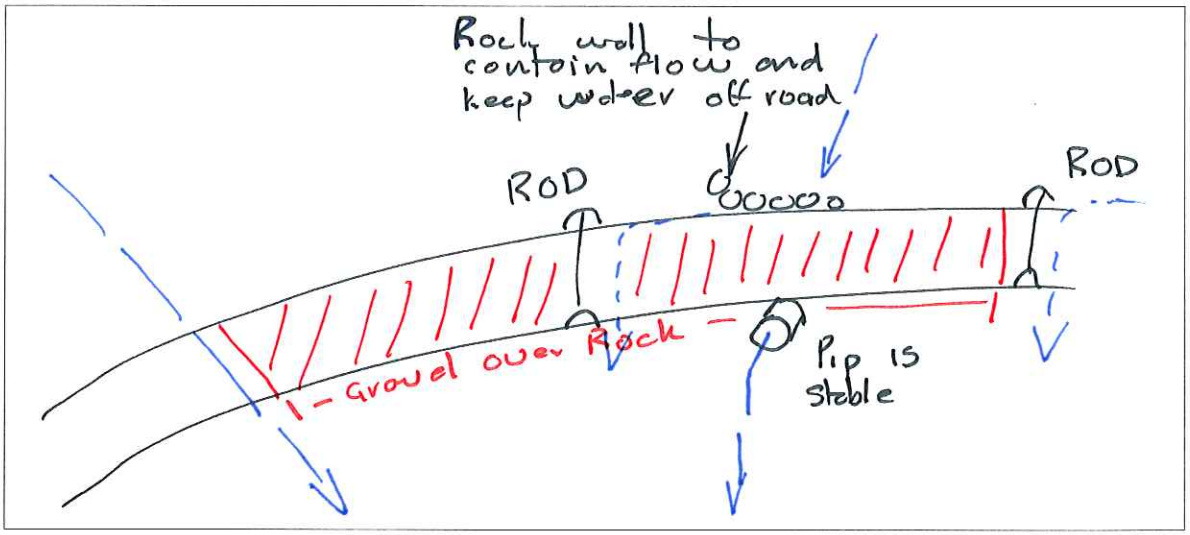
Date	Event	Initial

Crossing Name P **Road Name** Sullivans Creek **Location** See HPOM

Drainage Feature 1st Order Drainage Line. **Stream Permanency** Permanent

Existing Crossing	Size	Stability Status	Crossing Required	Size (mm/m)	Future
Pipe Culvert	600mm	Stable	Existing. + Rck + Grav	Existing	Permanent

Crossing Works		Approaches and Road Drainage	
Pavement/Structure	Grade pavement, rock and gravel	Approaches	ROD USR
Reshape Bed/banks	Upgrade rock / sandbag, US side	Temporary Drainage	No
Disposal of Spoil	Use in pavement	5-30m Upstream Left	Containment ROD falls awa
Inlet	Stable	5-30m Upstream Right	ROD
Outlet	Stable	Practices where no 5-30	NA
Stabilisation	Minimise disturbance to fill batter vege	OutletControl	Natural Vegetation
ErosionControl	Natural Veg.	TableDrain	



Start Date: Finish Date: Soil Stabilisation Date (must be within 5 days):

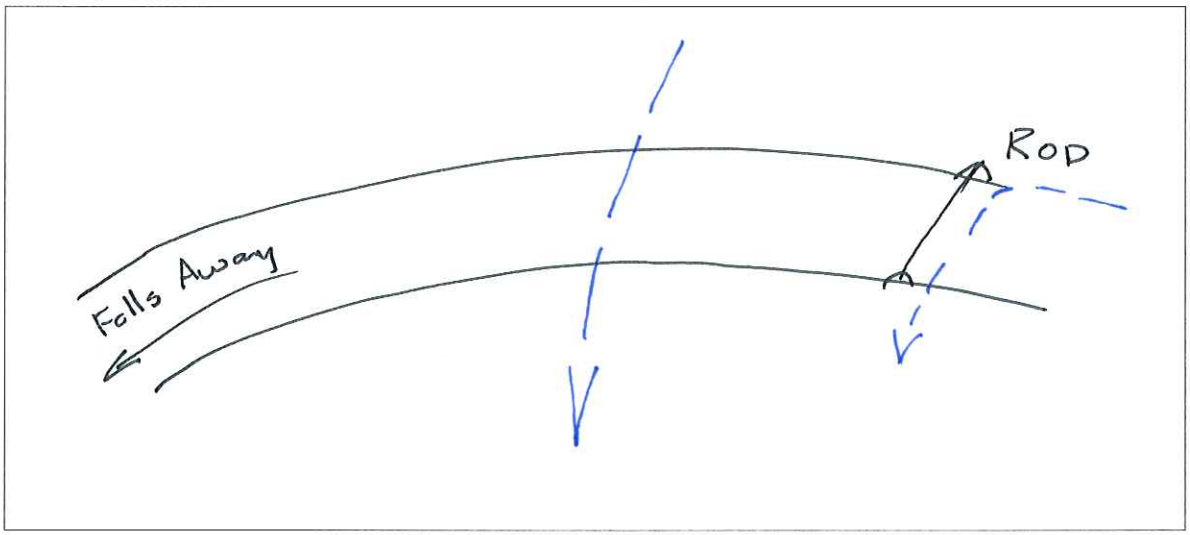
Date	Event	Initial

Crossing Name Q **Road Name** Sullivans Creek **Location** See HPOM

Drainage Feature Drainage Depression. **Stream Permanency** Intermittant.

Existing Crossing	Size	Stability Status	Crossing Required	Size (mm/m)	Future
Earth Gully Shape	Bed Level C	Stable	Existing	Existing	Permanent

Crossing Works		Approaches and Road Drainage	
Pavement/Structure	Nil work reqired	**Approaches**	Reform pavement
Reshape Bed/banks	Grade pavement	**Temporary Drainage**	No
Disposal of Spoil	NA	**5-30m Upstream Left**	Crest
Inlet	Stable	**5-30m Upstream Right**	ROD
Outlet	Stable	**Practices where no 5-30**	
Stabilisation	Minimise disturbance to fill batter vege	**OutletControl**	
ErosionControl	Natural Veg.	**TableDrain**	



Start Date: Finish Date: Soil Stabilisation Date (must be within 5 days):

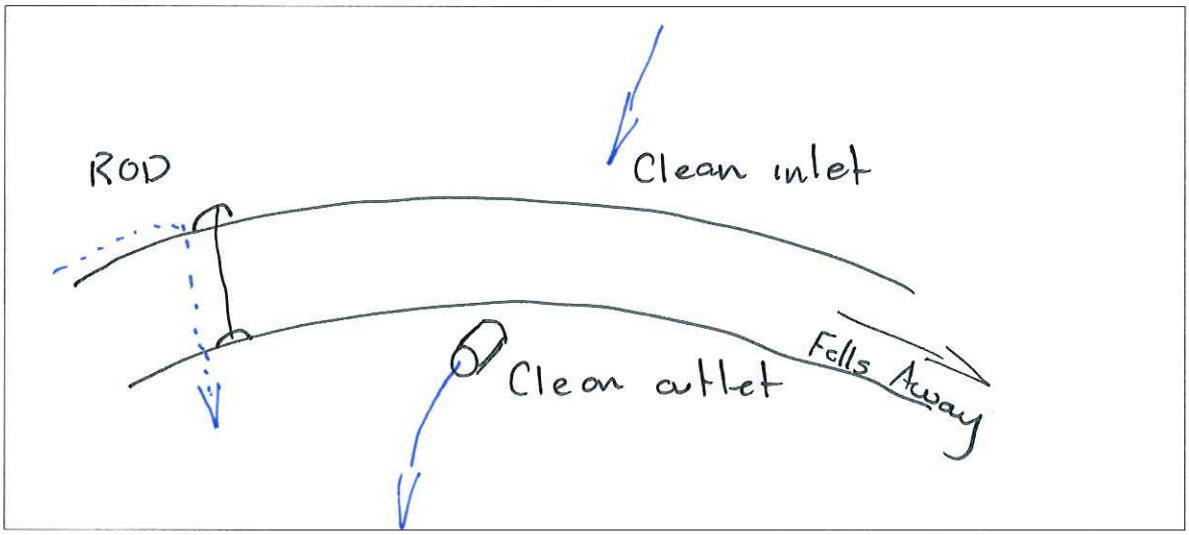
Date	Event	Initial

Crossing Name R **Road Name** Sullivans Creek **Location** See HPOM

Drainage Feature Unmapped Drainage Line **Stream Permanency** Intermittant.

Existing Crossing	Size	Stability Status	Crossing Required	Size (mm/m	Future
Pipe Culvert	450mm	Stable	Existing	Existing	Permanent

Crossing Works		Approaches and Road Drainage	
Pavement/Structure	Nil work reqired	**Approaches**	Reform pavement
Reshape Bed/banks	NA	**Temporary Drainage**	No
Disposal of Spoil	NA	**5-30m Upstream Left**	ROD
Inlet	Stable	**5-30m Upstream Right**	Falls away
Outlet	Stable	**Practices where no 5-30**	NA
Stabilisation	Minimise disturbance to fill batter vege	**OutletControl**	Natural Vegetation
ErosionControl	Natural Veg.	**TableDrain**	



Start Date: Finish Date: Soil Stabilisation Date (must be within 5 days):

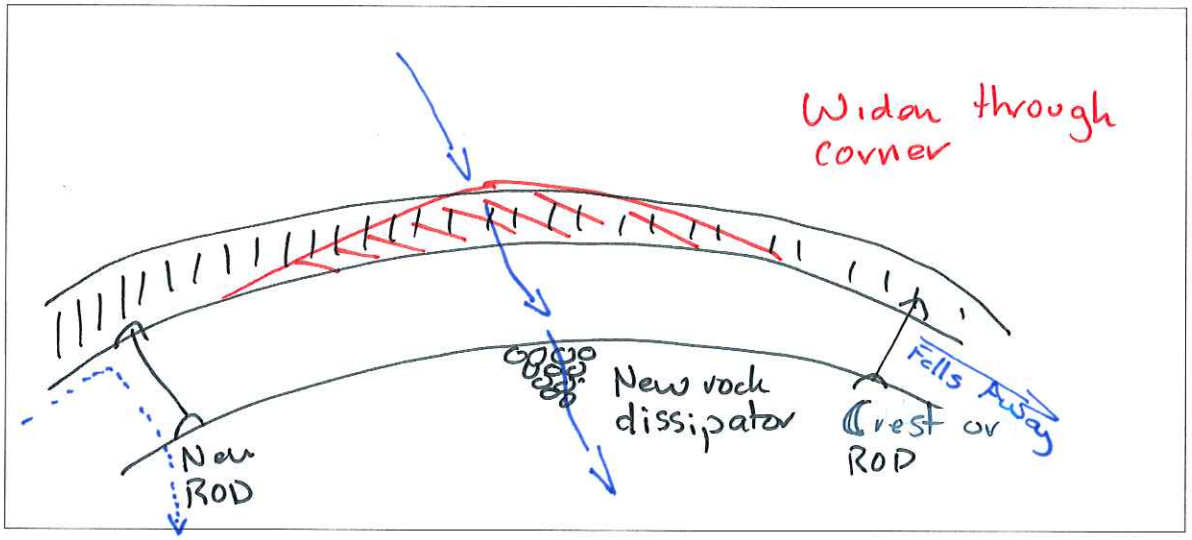
Date	Event	Initial

Crossing Name S **Road Name** 392/2 Road **Location** See HPOM

Drainage Feature Unmapped Drainage Line **Stream Permanency** Intermittant.

Existing Crossing	Size	Stability Status	Crossing Required	Size (mm/m)	Future
Earth Gully Shallow	Bed Level C	Stable - narrow widen	Existing (but wider)	Existing	Permanent

Crossing Works		Approaches and Road Drainage	
Pavement/Structure	Widen crossing by extraction of cut batter (curve widening), install dissipator	**Approaches**	ROD USL
Reshape Bed/banks	Widen crossing and reform pavement	**Temporary Drainage**	No
Disposal of Spoil	Use in pavement	**5-30m Upstream Left**	ROD
Inlet	Stable	**5-30m Upstream Right**	Crest or ROD
Outlet	Stable (but will need to be reformed (	**Practices where no 5-30**	NA
Stabilisation	New dissipator on outlet	**OutletControl**	Natural Vegetation
ErosionControl	Dissipator	**TableDrain**	



Start Date: Finish Date: Soil Stabilisation Date (must be within 5 days):

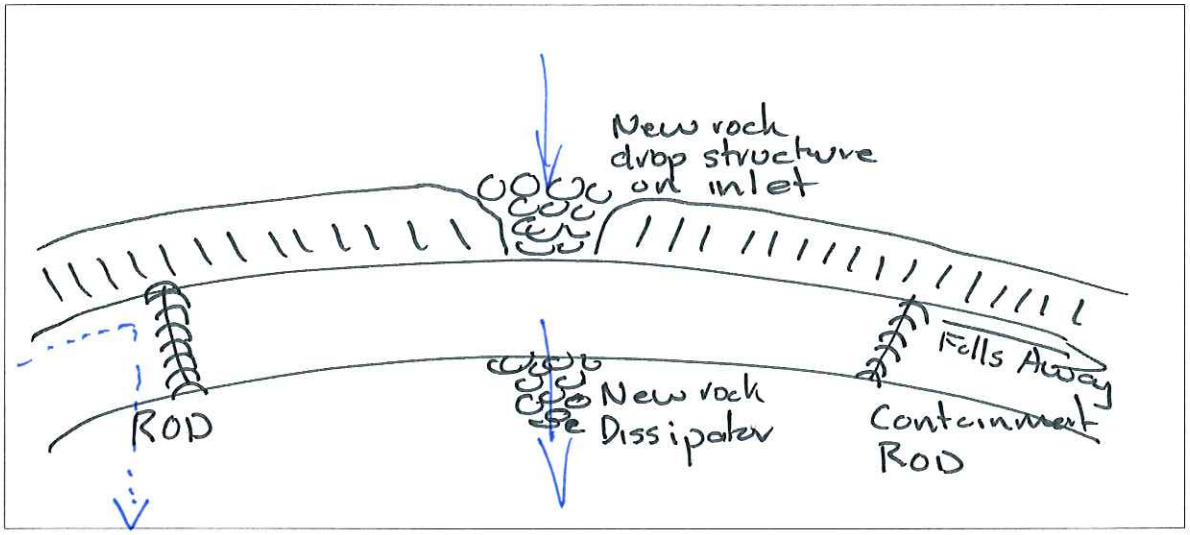
Date	Event	Initial

Crossing Name T **Road Name** 392/2 Road **Location** See HPOM

Drainage Feature Unmapped Drainage Line **Stream Permanency** Intermittant.

Existing Crossing	Size	Stability Status	Crossing Required	Size (mm/m)	Future
Rock Gully Stabilizer	Bed Level C	Stable but rock inlet and	Existing	Existing	Permanent

Crossing Works		Approaches and Road Drainage	
Pavement/Structure	Install dissipator at inlet and outlet	**Approaches**	ROD USL
Reshape Bed/banks	Grade pavement	**Temporary Drainage**	No
Disposal of Spoil	Use in pavement	**5-30m Upstream Left**	ROD
Inlet	Dissipator	**5-30m Upstream Right**	Containment ROD falls away
Outlet	Dissipator	**Practices where no 5-30**	NA
Stabilisation	New dissipator on inlet and outlet	**OutletControl**	Natural Vegetation
ErosionControl	Dissipator	**TableDrain**	



Start Date: Finish Date: Soil Stabilisation Date (must be within 5 days):

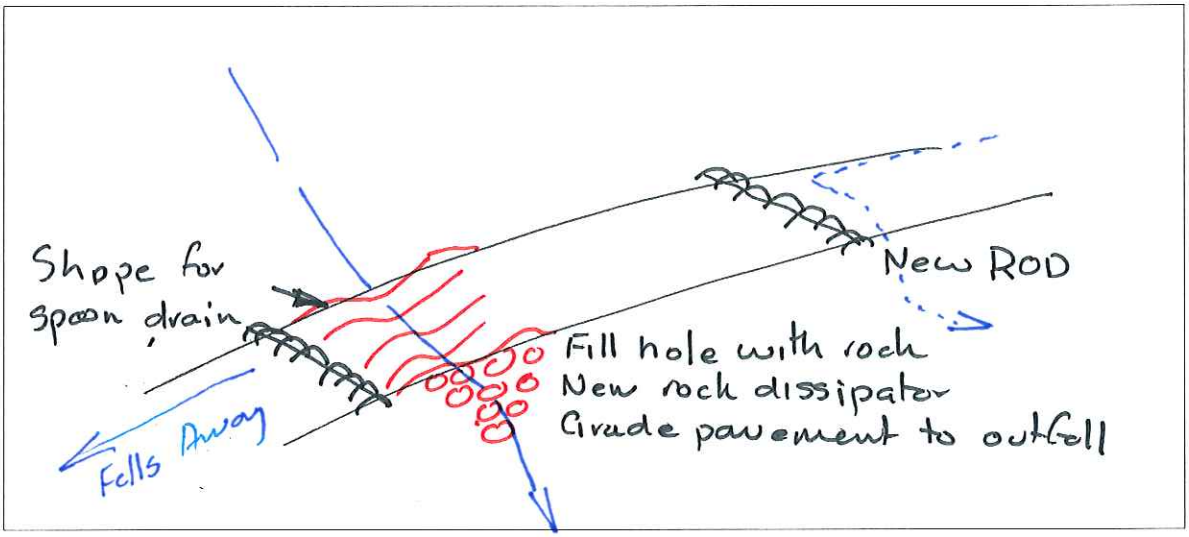
Date	Event	Initial

Crossing Name U **Road Name** Bluff Road **Location** See HPOM

Drainage Feature Drainage Depression. **Stream Permanency** Intermittant.

Existing Crossing	Size	Stability Status	Crossing Required	Size (mm/m)	Future
Earth Gully Shape	Bed Level C	Unstable (outlet)	Existing (repaired)	Existing	Permanent

Crossing Works		Approaches and Road Drainage	
Pavement/Structure	Install dissipator	**Approaches**	ROD USR
Reshape Bed/banks	Grade pavement and repair outlet	**Temporary Drainage**	No
Disposal of Spoil	Use in pavement	**5-30m Upstream Left**	Crest or ROD
Inlet	Stable	**5-30m Upstream Right**	ROD
Outlet	Dissipator	**Practices where no 5-30**	NA
Stabilisation	New dissipator on outlet	**OutletControl**	Natural Vegetation
ErosionControl	Dissipator	**TableDrain**	



Start Date: Finish Date: Soil Stabilisation Date (must be within 5 days):

Date	Event	Initial

Crossing Name V **Road Name** Bluff Road **Location** See HPOM

Drainage Feature Unmapped Drainage Line abov **Stream Permanency** Intermittant.

Existing Crossing	Size	Stability Status	Crossing Required	Size (mm/m	Future
OFFSET TO TABLE DRAIN	Bed Level C	Stable	Existing	Existing	Permanent

Crossing Works		Approaches and Road Drainage	
Pavement/Structure	Crossing is offset to TD. Nil work reqired	**Approaches**	Reform pavement
Reshape Bed/banks	Grade pavement	**Temporary Drainage**	No
Disposal of Spoil	NA	**5-30m Upstream Left**	Falls away
Inlet	Stable	**5-30m Upstream Right**	ROD
Outlet	Stable	**Practices where no 5-30**	NA
Stabilisation	Minimise disturbance to fill batter vege	**OutletControl**	Natural Vegetation
ErosionControl	Natural Veg.	**TableDrain**	

UDL above road - No DD or UDL below road

Nil work required other than ROD USR

Start Date: Finish Date: Soil Stabilisation Date (must be within 5 days):

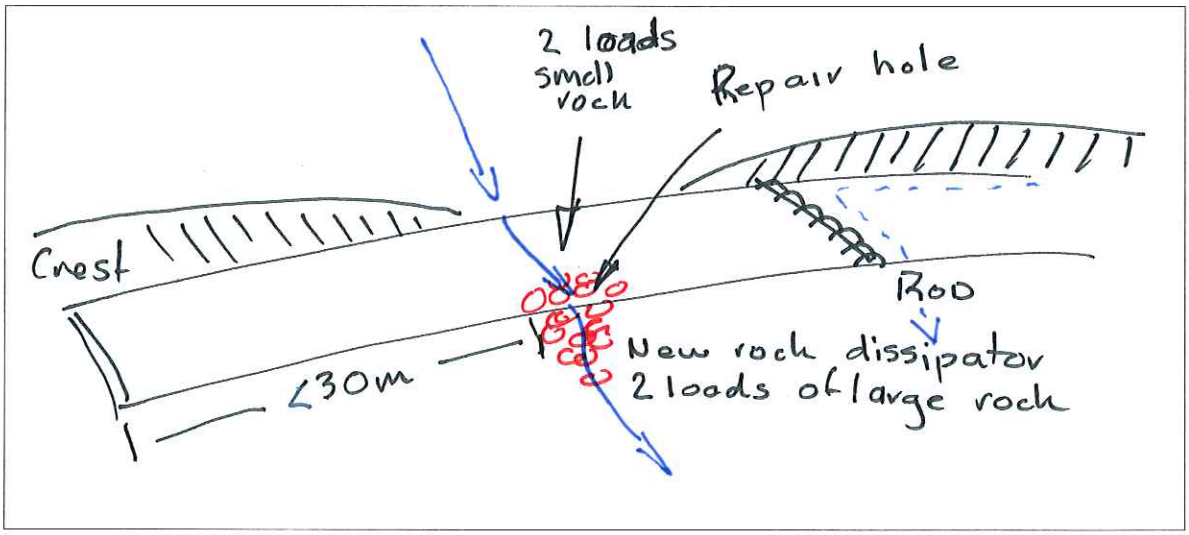
Date	Event	Initial

Crossing Name W **Road Name** Bluff Road **Location** See HPOM

Drainage Feature 1st Order Drainage Line. **Stream Permanency** Intermittant.

Existing Crossing	Size	Stability Status	Crossing Required	Size (mm/m)	Future
Earth Gully Shallow	Bed Level C	Unstable (outlet)	Existing (repaired)	Existing	Permanent

Crossing Works		Approaches and Road Drainage	
Pavement/Structure	Install dissipator	**Approaches**	ROD USR
Reshape Bed/banks	Grade pavement and repair outlet	**Temporary Drainage**	No
Disposal of Spoil	Use in pavement	**5-30m Upstream Left**	Crest
Inlet	Stable	**5-30m Upstream Right**	ROD
Outlet	Dissipator	**Practices where no 5-30**	NA
Stabilisation	New dissipator on outlet	**OutletControl**	Natural Vegetation
ErosionControl	Dissipator	**TableDrain**	



Start Date: Finish Date: Soil Stabilisation Date (must be within 5 days):

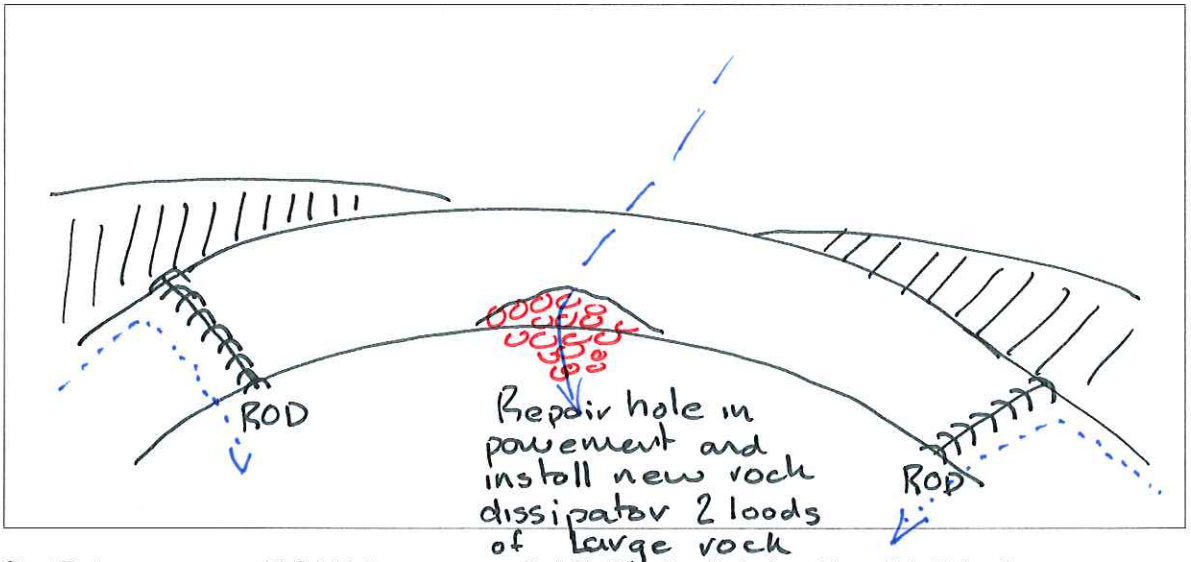
Date	Event	Initial

Crossing Name X **Road Name** Bluff Road **Location** See HPOM

Drainage Feature 1st Order Drainage Line. **Stream Permanency** Intermittant.

Existing Crossing	Size	Stability Status	Crossing Required	Size (mm/m)	Future
Earth Gully Stoffee	Bed Level C	Unstable (outlet)	Existing (repaired)	Existing	Permanent

Crossing Works		Approaches and Road Drainage	
Pavement/Structure	Install dissipator	**Approaches**	ROD USL and USR
Reshape Bed/banks	Grade pavement and repair outlet	**Temporary Drainage**	No
Disposal of Spoil	Use in pavement	**5-30m Upstream Left**	ROD
Inlet	Stable	**5-30m Upstream Right**	ROD
Outlet	Dissipator	**Practices where no 5-30**	NA
Stabilisation	New dissipator on outlet	**OutletControl**	Natural Vegetation
ErosionControl	Dissipator	**TableDrain**	



Start Date: Finish Date: Soil Stabilisation Date (must be within 5 days):

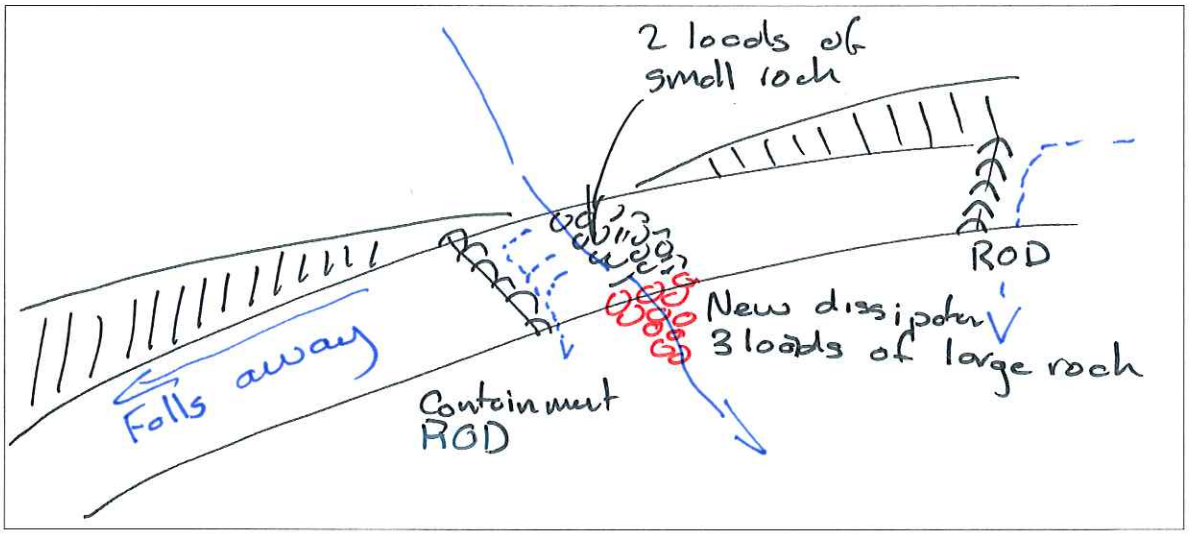
Date	Event	Initial

Crossing Name XX1 **Road Name** Bluff Road **Location** See HPOM

Drainage Feature Unmapped Drainage Line **Stream Permanency** Intermittant.

Existing Crossing	Size	Stability Status	Crossing Required	Size (mm/m)	Future
Earth Gully Shot	Bed Level C	Unstable (outlet)	Existing (repaired)	Existing	Permanent

Crossing Works		Approaches and Road Drainage	
Pavement/Structure	Install dissipator	**Approaches**	ROD USR
Reshape Bed/banks	Grade pavement and repair outlet	**Temporary Drainage**	No
Disposal of Spoil	Use in pavement	**5-30m Upstream Left**	Containment ROD falls awa
Inlet	Stable	**5-30m Upstream Right**	ROD
Outlet	Dissipator	**Practices where no 5-30**	NA
Stabilisation	New dissipator on outlet	**OutletControl**	Natural Vegetation
ErosionControl	Dissipator	**TableDrain**	



Start Date: Finish Date: Soil Stabilisation Date (must be within 5 days):

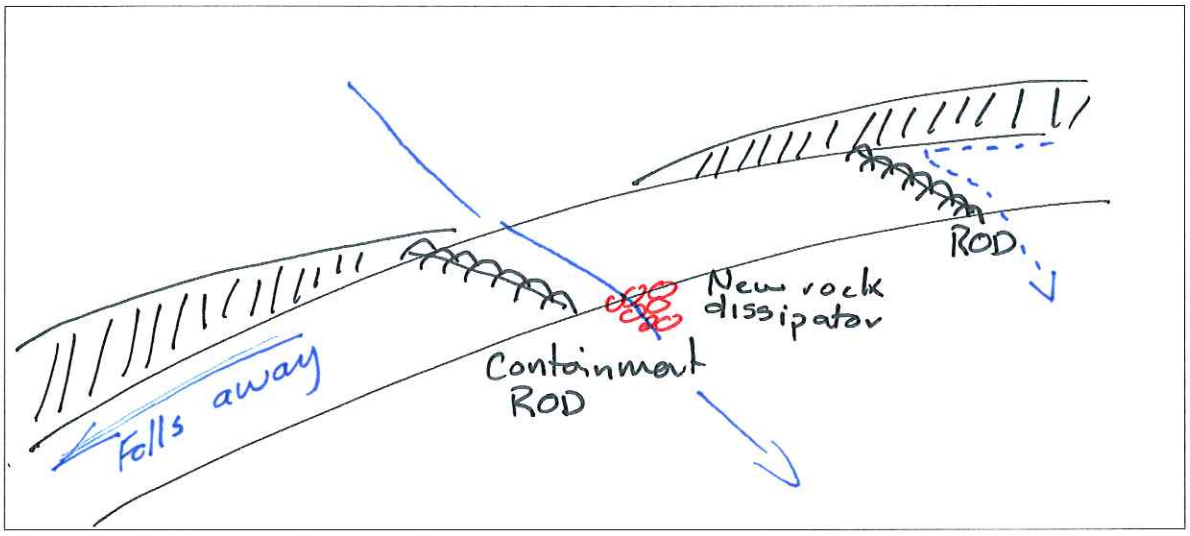
Date	Event	Initial

Crossing Name Y **Road Name** Bluff Road **Location** See HPOM

Drainage Feature Unmapped Drainage Line **Stream Permanency** Intermittant.

Existing Crossing	Size	Stability Status	Crossing Required	Size (mm/m)	Future
Earth Gully Sluice	Bed Level C	Unstable (outlet)	Existing (repaired)	Existing	Permanent

Crossing Works		Approaches and Road Drainage	
Pavement/Structure	Install dissipator	Approaches	ROD USR
Reshape Bed/banks	Grade pavement and repair outlet	Temporary Drainage	No
Disposal of Spoil	Use in pavement	5-30m Upstream Left	Containment ROD falls awa
Inlet	Stable	5-30m Upstream Right	ROD
Outlet	Dissipator	Practices where no 5-30	NA
Stabilisation	New dissipator on outlet	OutletControl	Natural Vegetation
ErosionControl	Dissipator	TableDrain	



Start Date: Finish Date: Soil Stabilisation Date (must be within 5 days):

Date	Event	Initial

Crossing Name Z **Road Name** Bluff Road **Location** See HPOM

Drainage Feature Drainage Depression. **Stream Permanency** Intermittant.

Existing Crossing	Size	Stability Status	Crossing Required	Size (mm/m	Future
Earth Culy Shtr	Bed Level C	Stable	Existing	Existing	Permanent

Crossing Works		Approaches and Road Drainage	
Pavement/Structure	Crossing is offset to TD. Nil work reqired	**Approaches**	Reform pavement, ROD USR
Reshape Bed/banks	Grade pavement	**Temporary Drainage**	No
Disposal of Spoil	NA	**5-30m Upstream Left**	
Inlet	Stable	**5-30m Upstream Right**	ROD
Outlet	Stable	**Practices where no 5-30**	NA
Stabilisation	Minimise disturbance to fill batter vege	**OutletControl**	Natural Vegetation
ErosionControl	Natural Veg.	**TableDrain**	

Nil work required other than ROD USR

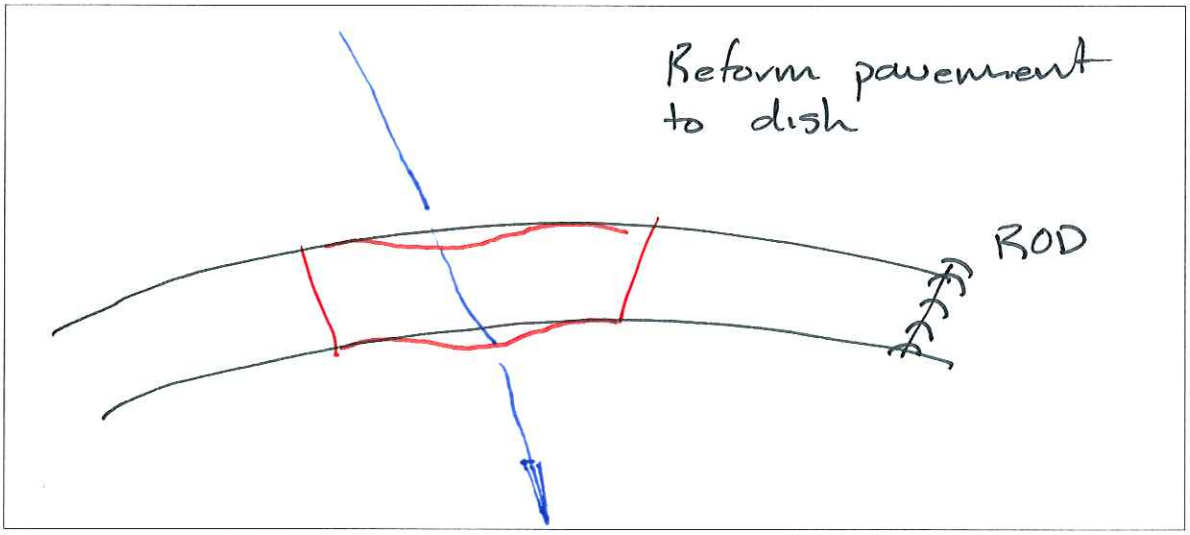
Start Date: Finish Date: Soil Stabilisation Date (must be within 5 days):

Date	Event	Initial

Crossing Name	AA	Road Name	Bluff Road	Location	See HPOM
Drainage Feature	Drainage Depression.	Stream Permanency	Intermittant.		

Existing Crossing	Size	Stability Status	Crossing Required	Size (mm/m)	Future
Earth Cully Shlg	Bed Level C	Stable	Existing	Existing	Permanent

Crossing Works		Approaches and Road Drainage	
Pavement/Structure	Reform pavement to a small dish drain to help contain water to crossing point	Approaches	Reform pavement, ROD USR
Reshape Bed/banks	Grade pavement	Temporary Drainage	No
Disposal of Spoil	NA	5-30m Upstream Left	
Inlet	Stable	5-30m Upstream Right	ROD
Outlet	Stable	Practices where no 5-30	
Stabilisation	Minimise disturbance to fill batter vege	OutletControl	
ErosionControl	Natural Veg.	TableDrain	



Start Date: Finish Date: Soil Stabilisation Date (must be within 5 days):

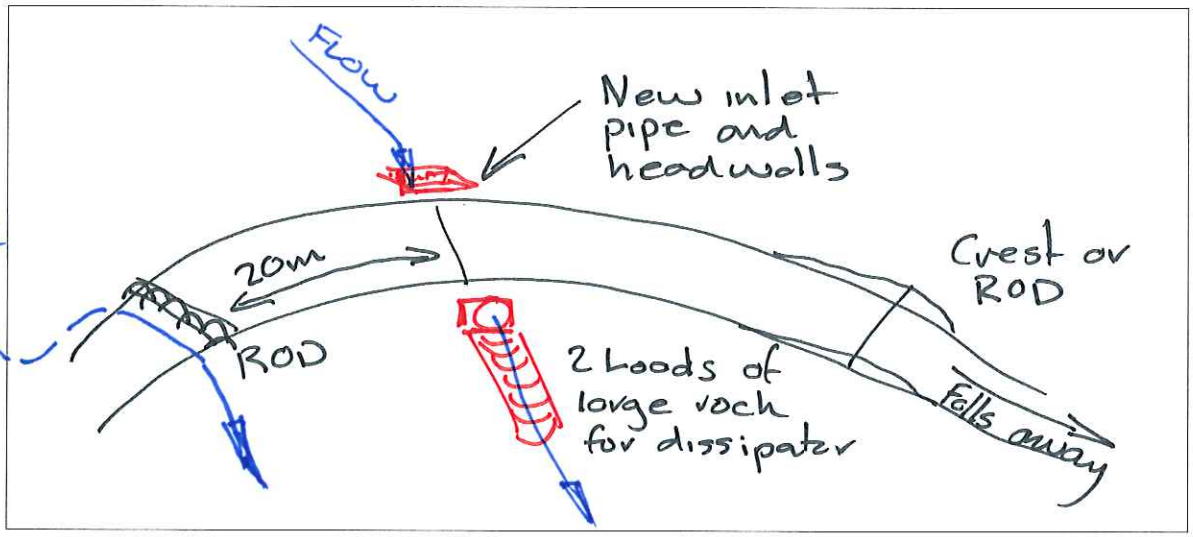
Date	Event	Initial

Crossing Name AB **Road Name** Bluff Road **Location** See HPOM

Drainage Feature Unmapped Drainage Line **Stream Permanency** Intermittant.

Existing Crossing	Size	Stability Status	Crossing Required	Size (mm/m)	Future
Earth Gully Shape	Bed Level C	Unstable	Pipe	450mm	Permanent

Crossing Works		Approaches and Road Drainage	
Pavement/Structure	Install pipe, head/tailwalls, dropstructure and dissipator	Approaches	ROD USL
Reshape Bed/banks	To install new pipe, headwall and tail w	Temporary Drainage	No
Disposal of Spoil	Use in crossing	5-30m Upstream Left	ROD
Inlet	Unstable	5-30m Upstream Right	Crest / ROD
Outlet	Unstable	Practices where no 5-30	NA
Stabilisation	New pipe crossing	OutletControl	Natural Vegetation
ErosionControl	Dissipator	TableDrain	



Start Date: Finish Date: Soil Stabilisation Date (must be within 5 days):

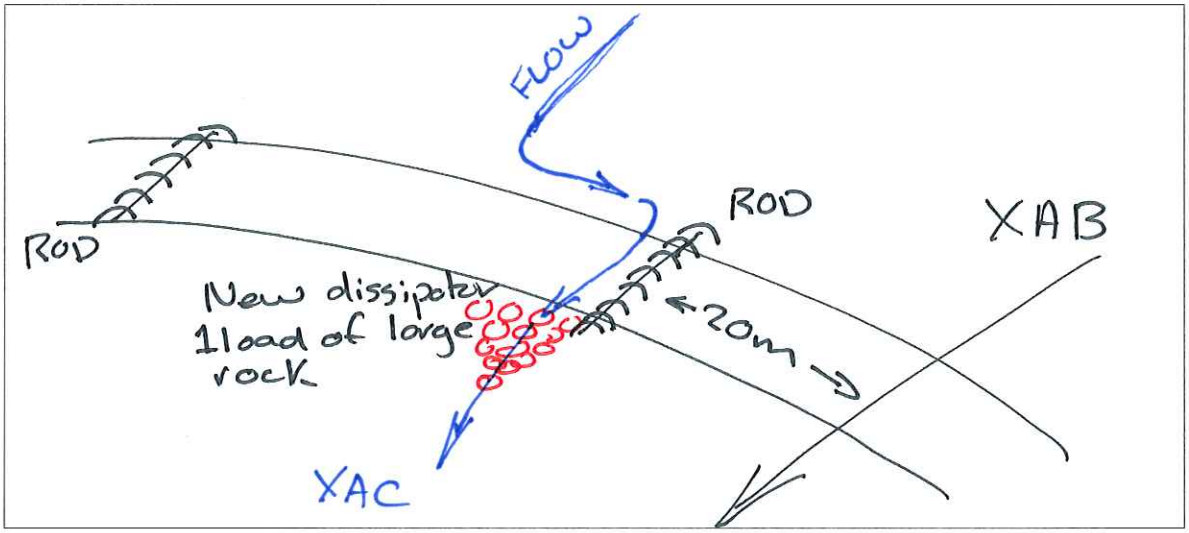
Date	Event	Initial

Crossing Name AC **Road Name** Bluff Road **Location** See HPOM

Drainage Feature Unmapped Drainage Line **Stream Permanency** Intermittant.

Existing Crossing	Size	Stability Status	Crossing Required	Size (mm/m)	Future
Offset to ROD	Bed Level C	Stable	Existing	Existing	Permanent

Crossing Works		Approaches and Road Drainage	
Pavement/Structure	Install dissipator on ROD USL from Xing AB	Approaches	ROD USL
Reshape Bed/banks	Grade pavement	Temporary Drainage	No
Disposal of Spoil	Use in pavement	5-30m Upstream Left	ROD
Inlet	Stable	5-30m Upstream Right	Falls away
Outlet	Stable	Practices where no 5-30	NA
Stabilisation	New dissipator on outlet (ROD USL Xi	OutletControl	Natural Vegetation
ErosionControl	Dissipator	TableDrain	



Start Date: Finish Date: Soil Stabilisation Date (must be within 5 days):

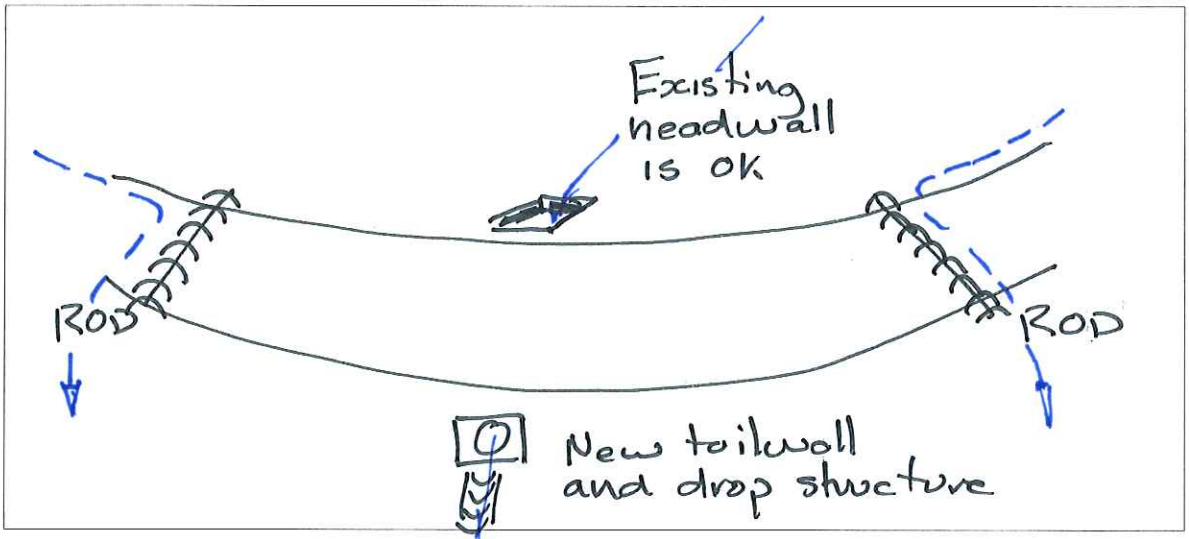
Date	Event	Initial

Crossing Name AD **Road Name** Bluff Road **Location** See HPOM

Drainage Feature Unmapped Drainage Line **Stream Permanency** Intermittant.

Existing Crossing	Size	Stability Status	Crossing Required	Size (mm/m)	Future
Pipe Culvert	450mm	Unstable	Existing (repaired)	Existing	Permanent

Crossing Works		Approaches and Road Drainage	
Pavement/Structure	Repair existing pipe or replace with same size if too damaged	Approaches	ROD USL and USR
Reshape Bed/banks	To re-install pipe	Temporary Drainage	No
Disposal of Spoil	Use in crossing	5-30m Upstream Left	ROD
Inlet	Stable	5-30m Upstream Right	ROD
Outlet	Unstable	Practices where no 5-30	NA
Stabilisation	New tailwall and dissipator on outlet	OutletControl	Natural Vegetation
ErosionControl	Dissipator	TableDrain	



Start Date: Finish Date: Soil Stabilisation Date (must be within 5 days):

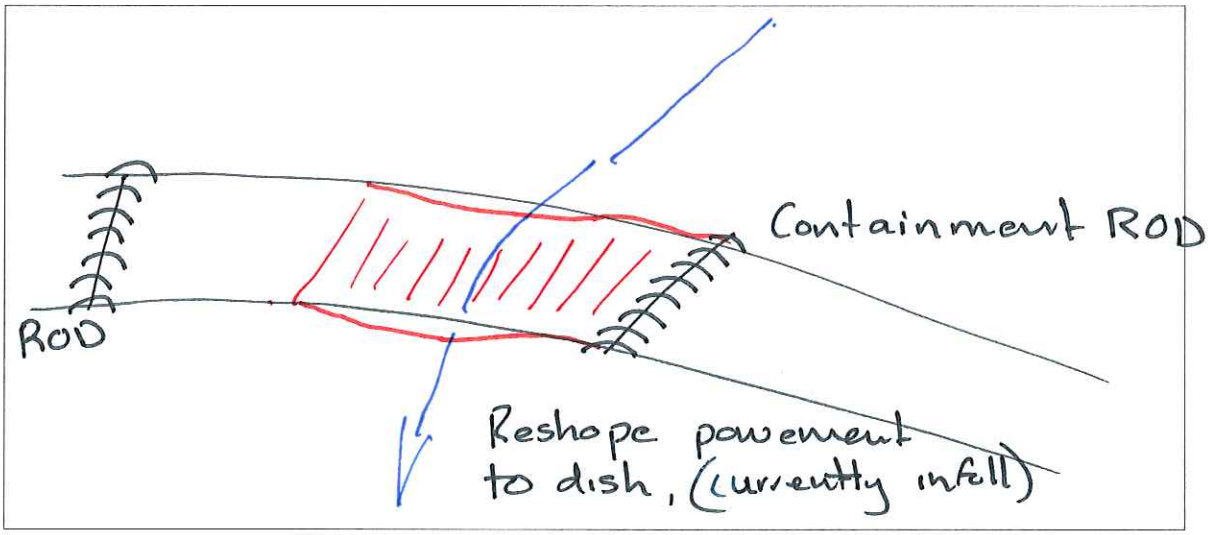
Date	Event	Initial

Crossing Name AE **Road Name** Bluff Road **Location** See HPOM

Drainage Feature Unmapped Drainage Line **Stream Permanency** Intermittant.

Existing Crossing	Size	Stability Status	Crossing Required	Size (mm/m)	Future
Existing Culv Shed	Bed Level C	Stable	Existing - reshape pave	Existing	Permanent

Crossing Works		Approaches and Road Drainage	
Pavement/Structure	Shape pavement to small dish	**Approaches**	ROD USL
Reshape Bed/banks	Grade pavement shape to dish	**Temporary Drainage**	No
Disposal of Spoil	Use in crossing	**5-30m Upstream Left**	ROD
Inlet	Stable	**5-30m Upstream Right**	Containment ROD falls away
Outlet	Stable	**Practices where no 5-30**	NA
Stabilisation	Minimise disturbance to fill batter vege	**OutletControl**	Natural Vegetation
ErosionControl	Natural Veg.	**TableDrain**	



Start Date: Finish Date: Soil Stabilisation Date (must be within 5 days):

Date	Event	Initial

Crossing Name AF **Road Name** Bluff Road **Location** See HPOM

Drainage Feature Drainage Depression. **Stream Permanency** Intermittant.

Existing Crossing	Size	Stability Status	Crossing Required	Size (mm/m)	Future
Earth Gully Shape	Bed Level C	Stable	Existing	Existing	Permanent

Crossing Works		Approaches and Road Drainage	
Pavement/Structure	Nil work reqired	Approaches	Reform pavement
Reshape Bed/banks	Grade pavement	Temporary Drainage	No
Disposal of Spoil	NA	5-30m Upstream Left	
Inlet	Stable	5-30m Upstream Right	Containment ROD falls away
Outlet	Stable	Practices where no 5-30	
Stabilisation	Minimise disturbance to fill batter vege	OutletControl	
ErosionControl	Natural Veg.	TableDrain	

Nill work required other than ROD USR.

Start Date: Finish Date: Soil Stabilisation Date (must be within 5 days):

Date	Event	Initial