

EMERGENCY WORKS – HIKUWAI BRIDGE #1 & SH35 DEVIATION ROUTE

1. Purpose

The purpose of the State Highway 35 Deviation Route is to provide a safe accessible passageway for light vehicles and heavy vehicles from Tolaga Bay to Tokomaru Bay and other northern communities, as a temporary thoroughfare due to the collapse and destruction of the State Highway 35 Hikuwai No. 1 Bridge following the adverse weather event of Cyclone Gabriel on 14th February 2023.

Safe thoroughfare for supplies, whanau, and other emergency services will assist in further community contact and communication with the build of the SH35 Hikuwai Deviation Route whilst currently in a State of Local Emergency in the Tairāwhiti Region. There is no confirmed date of when SH35 and the Hikuwai Bridge No. 1 will be repaired or a NZTA and Gisborne District Council (GDC) approved alternative route will be formally and readily available for community thoroughfare. Gisborne District Council on their Facebook page updated a map of roads for the region and indicated a possible three (3) months before the Hikuwai Bridge No. 1 temporary bridge may be erected and this may be restricted with no heavy vehicles having access (refer to GDC Map-image 1, page 2).

Social Impact

The social impact on the communities north of Tolaga Bay extends to having safe access for whanau to gain supplies and reconnect with whanau south of their location. Communities thrive off each other and the impact of social engagement, cultural whanaungatanga, employment, mental health and wellbeing following a natural disaster or hazardous event is common but more manageable when people connect or reconnect with people. Support mechanisms are in place through civil defence and hauora organisations, however these extend to formal relationships whereas whanau relationships can be re-established for improving well-being and wairua.

Economic Impact

Tairāwhiti is known as predominantly being an agriculture and forestry industry-led region that has, following Cyclone Gabrielle, suffered great losses across communications, utilities, employment, and health. Today this has changed with some reconnection with utilities, however this is still sporadic and not at its full potential with some clusters of groups still not receiving power to their homes. Employment in particular for forestry workers has come to a stand still for many in the northern communities above Tolaga Bay as their assessment of the forests is somewhat possible through flying into the area, however land access by vehicle is more difficult or lengthy due to the alternative route of going around SH2 to Opotiki, across to Ruatoria then down to relevant land masses. Further to this, road infrastructure for heavy vehicles for forestry (logging trucks, metal trucks, transporters) are not able to cart materials and therefore the forestry crews will not be able to send out wood to Gisborne within timeframes suitable to truck drivers so as not to cause mental and physical fatigue as well as being within their driving hours requirements. Pressure to the industries of Tairāwhiti for many whanau to survive financially due to employment impact in the agriculture and forestry industries, businesses that receive only some supplies (e.g., supermarkets, local dairy's, etc) experience reduced income and profit, limited supplies of fuel across the region impacts a business to afford to run vehicles and machinery.

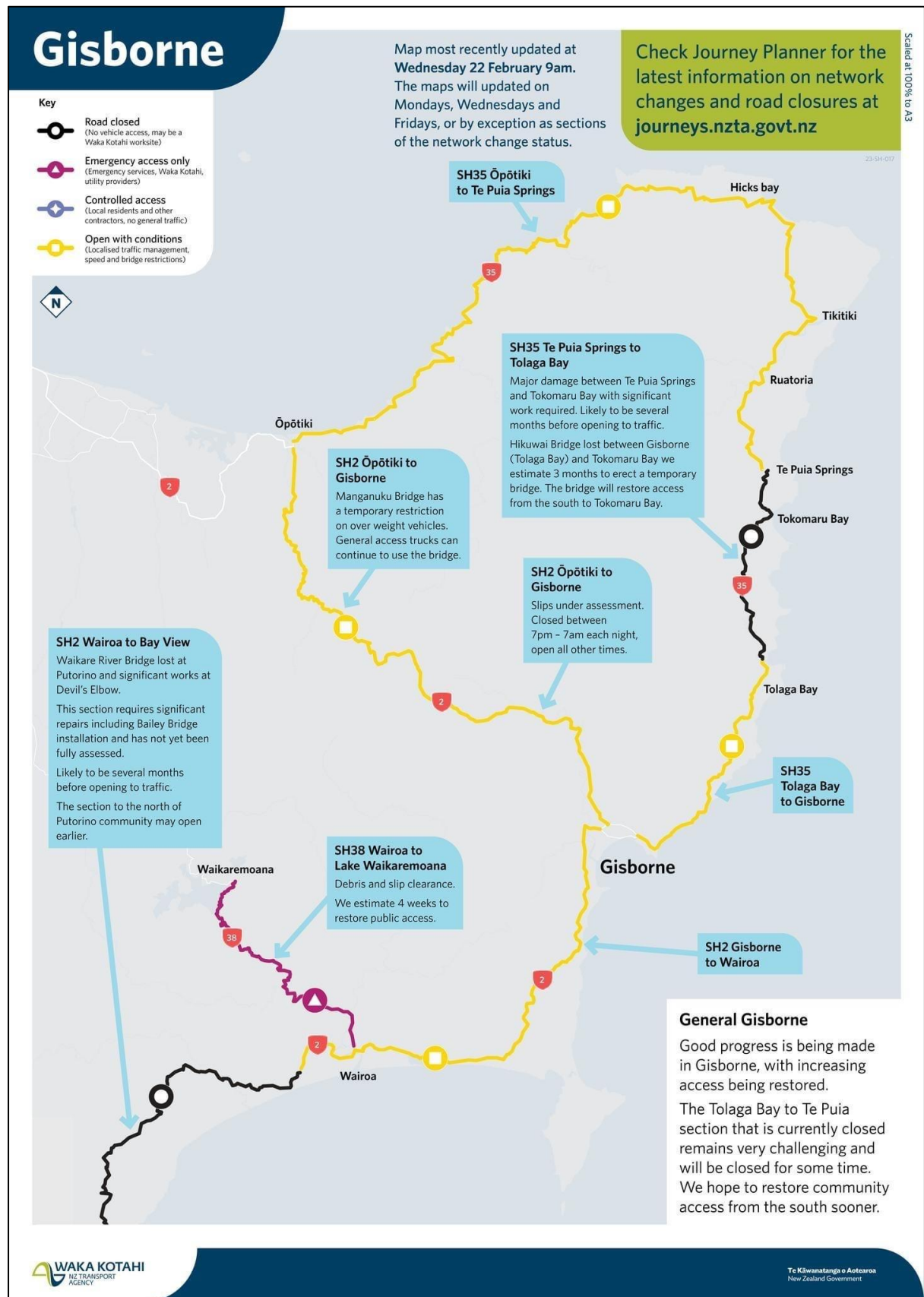


Image 1: Tairawhiti Civil Defence-Facebook-Road Access Progress-22 February 2023

2. Landowner and Contractors

Consultation was undertaken as of 16th February 2023 for the purpose of the SH35 Deviation Route.

Landowner

Pourau Incorporation representative Mr Phillip Hope (Chairperson and Shareholder) consulted with the Committee of Management, and has unanimous support for this project to proceed forthwith. Authorisation and permission issued as of 16th February 2023, to construct a road track and the installation of a culvert within the 240 Hectare Katikati Block in the vicinity of the Three Bridges/SH35 in conjunction with Valour Partnership (Roz and John Pethybridge) who currently lease this block of land, as per instruction from the Landowners. The letter of support and approval from Pourau Inc. is attached for your reference.

Further letters of support from Iwi, community leaders, businesses, and primary industry parties that may have personal or commercial impact from the Hikuwai Bridge No. 1/SH35 non-access to the northern communities are being sought and collated by Mr Hope (Chair of Pourau Incorporated), such as Her Honourable Kiritapu Allan (MP for east Coast, Minister of Justice & Regional Development, Associate Minister of Transport), Honourable Meka Whaitiri (Member for Ikaroa-Rawhiti), to name a few. Those received to date will be attached for reference.

Contractors

Kuru Contracting Ltd (KCL) are a current contractor for Downer New Zealand and Gisborne District Council for civil works on the local and NZTA roading network. Whilst Tairāwhiti is under a State of Emergency, KCL is one of the contractors currently working in Tolaga Bay, Tokomaru Bay, Ruatoria, and surrounds for emergency road works.

KCL in conjunction with Pourau Incorporation have agreed to be the primary contractor for the earthworks and culvert installation to NZ FOA NZ Forest Road Engineering standards and Ernslaw One Ltd Road Specifications on private land for the Hikuwai/State Highway 35 Deviation Route.

Duration of Works

Kuru Contracting Ltd is proposing the full operational activities of earthworks, culvert installation, and continued consultation with vested interest parties will be approximately 3-4 weeks from commencement of the project. It is proposed for works to commence as of 21st February 2023.

3. Application for Emergency Works

Gisborne District Council, following consultation, has provided via email authorisation to proceed with the Emergency Works-Hikuwai/SH35 Deviation Route under section 330B of the Resource Management Act 1991. Authorisation and Notification of Works for the activity being undertaken to be processed accordingly with all relevant and requested information that is detailed within this document and/or any attachments of reference.

Eastland Group specialises in regional infrastructure: ports, electricity distribution and transmission networks, and electricity generation. Eastland Network is the electricity utility lines company for Tairāwhiti and Wairoa; a division of Eastland Group.

As a primary economic provider for Tairāwhiti, and Tairāwhiti currently being in a Local State of Emergency, Eastland Port via the company representative Mr Andrew Gaddum has provided a letter of support (attached) for the construction of the Hikuwai /SH35 Deviation Route to assist with the provision of utilities and roading infrastructure from Gisborne to Tokomaru Bay and northern communities. With the support of Eastland Port being the export of forestry materials being provided to other countries, assists workers throughout Tairāwhiti, including Tokomaru Bay and northern communities, to be able to continue their employment as best as possible under the current circumstances following Cyclone Gabrielle. It is envisaged that the sister company Eastland Network, a division of Eastland Group NZ, would also be impacted to some degree with having good infrastructure access to their utilities network in the northern communities from Tolaga Bay to assist those pockets of communities and whānau who are still currently without power and other means of communication.

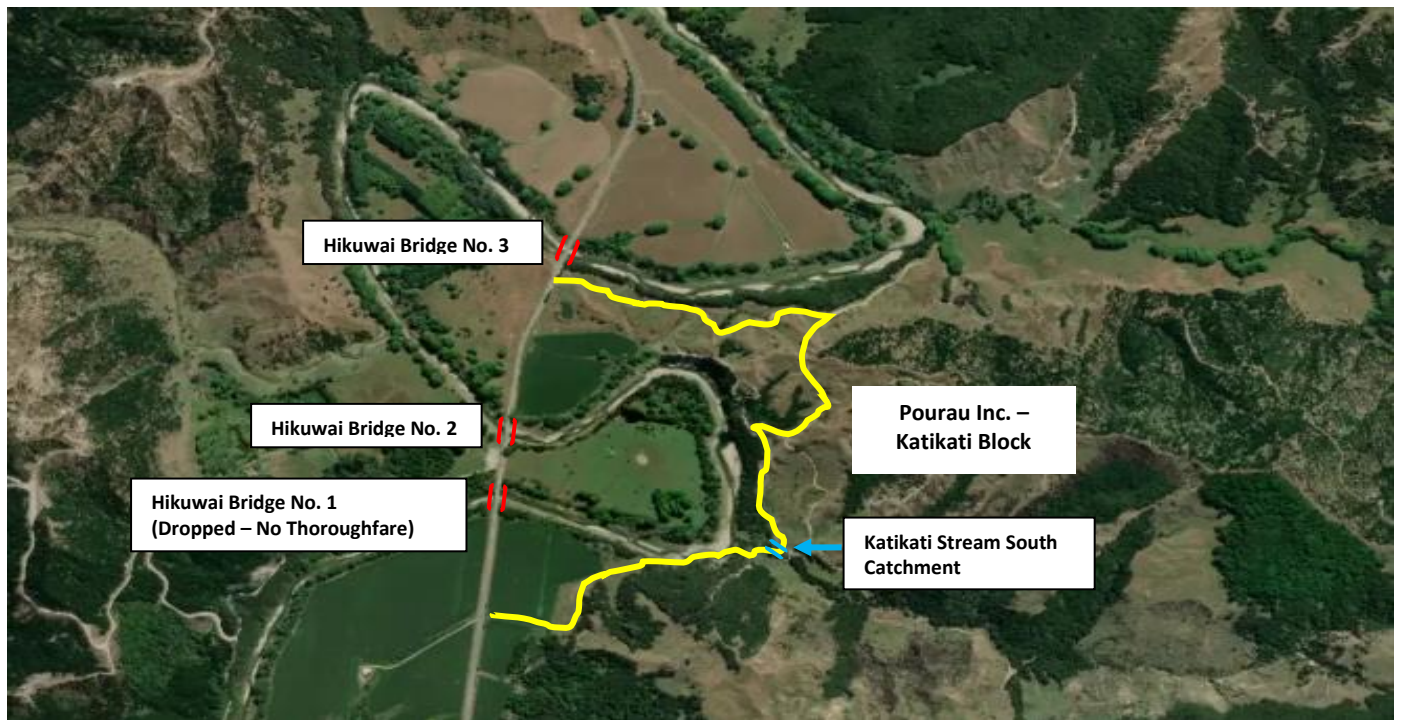
4. Location and Site Description

Hikuwai/SH35 (Waiapu Road) Deviation Route starts from Pourau Inc. and Katikati Block on State Highway 35 road entrance on to private land on the Tolaga Bay side of the collapsed Hikuwai Bridge No. 1 and will meander through farm land existing tracks, cross a small section of the Katikati Stream (South Catchment), across to an existing farm road that will exit on to State Highway 35 in between Hikuwai Bridge No. 2 and No. 3 heading towards Tokomaru Bay and the northern communities of the Tairāwhiti Region.

The following section of map is from NZ Topo Map (www.topomap.co.nz/NZTopoMap?v=2&ll=-38.254442,178.251801&z=15). GPS Coordinates: South -38.255099, East 178.271971



The following section of map is from LINZ Data Service, providing the potential indication of the Deviation Route across the Pourau Inc. Katikati Block from SH35/Waiapu Road entrance from Tolaga Bay out to SH35/Waiapu Road exit in between Hikuwai Bridges No. 2 and No. 3 heading out towards Tokomaru Bay and other northern communities.



5. Earthworks/Road Construction

SH35 Deviation Route through the Pourau Inc. Katikati Block will be known as the Pourau Road track and will be constructed on this private land as a Secondary Road as per the NZFOA NZ Forest Road Engineering Manual guidelines. Secondary Road specifications are an unsealed, one or two-lane road construction with layby's incorporated to alleviate congestion and potential for vehicles to pass safely.

The Deviation Route will be utilising approximately 4 km of existing farm tracks and roads on rolling terrain through the Katikati Block, to maximise the existing road conditions and minimise full earthworks construction activities. It is proposed to potentially be at the relevant NZFOA NZFRE standard to carry between 20-80 heavy vehicles per day, and designed for a maximum speed of 50 km/hr.

It is notable that the road construction is influenced by the current Hikuwai River flooding and remaining silt with some water mining of the existing embankment around the bluff of the Hikuwai River and into the Katikati Stream (South Catchment) for a short distance. This will not impact on the road construction but will be worked around to consider these areas and conditions.

It is proposed that Earthworks/Road Construction will further be in accordance to the Ernslaw One Ltd Road Specifications (attached for reference).

6. Culvert Installation

Culvert installation shall be in accordance with the NZFOA NZ Forest Road Engineering Manual and will be a temporary crossing method to ensure ease of removal when necessary.

Furthermore, culvert installation shall be in accordance to the following Resource Management (National Environmental Standards for Freshwater) Regulations 2020:

Part/Subpart/Section	Status	Comment
Part 3-Standards for other activities that relate to freshwater	Permitted	<i>Meaning of Natural Hazard Works</i>
Subpart 1-Natural Inland Wetlands		(1) In this regulation, natural hazard works means works for the purpose of removing material, such as trees, debris, and sediment, that-
		(a) Is deposited as the result of a natural hazard; and
		(b) Is causing, or is likely to cause, an immediate hazard to people or property.
<i>Natural Hazard Works:</i>		<i>Permitted activities for the purpose of natural hazard works</i>
Section 51 Permitted Activities		(3) Earthworks or land disturbance within, or within a 10 m setback from, a natural inland wetland is a permitted activity if it-
		(a) Is for the purpose of natural hazard works; and
		(b) Complies with the conditions.
		<i>Conditions</i>
		(5) The conditions are that-
		(a) the activity must not-
		(i) result in land becoming unstable; and
		(ii) result in, or involve, debris or other materials being deposited in the natural inland wetland; and
		(b) the activity must not be undertaken only to the extent necessary to achieve the purpose of the natural hazard works; and
		(c) if the activity changes the profile of the bed of the natural inland wetland, the profile must be restored so that it does not inhibit the passage of fish; and
		(d) if the activity is earthworks or land disturbance, erosion and sediment control measures must,-
		(i) during and after the earthworks, be applied and maintained at the site of the activity to minimise adverse effects of sediment on the natural inland wetland; and
		(ii) include stabilising or containing soil that is exposed or disturbed by the activity as soon as practicable after the activity ends; and
		(e) as soon as practicable (but no later than 3 months) after the activity ends,-

		<p>(i) debris, materials, and equipment relating to the activity must be removed from the site, and</p> <p>(ii) the site must be free from litter.</p> <p>Emergency Works conducted as part of the Hikuwai/SH35 Deviation operations will manage, and remove sediment and other debris that has impacted the location following Cyclone Gabriel disaster as per the Conditions set out above.</p>
<p>Part 3-Standards for other activities that relate to freshwater</p> <p>Subpart 3-Passage of fish affected by structures</p> <p>Section 58 Purpose of the Subpart</p>	-	<p>The purpose of this subpart is to deal with the effects on the passage of fish of the placement, use, alteration, extension, or reconstruction of any of the following structures in, on, over, or under the bed of any river or connected area:</p> <p>(a) culvert</p> <p>(b) a weir</p> <p>(c) a flap gate (whether passive or non-passive)</p> <p>(d) a dam</p> <p>(e) a ford.</p> <p>Culverts shall be installed for natural water movement off land and in the Katikati Stream South Catchment ensuring water flow and fish passage is not obstructed and with minimum alteration.</p>
<p>Part 3-Standards for other activities that relate to freshwater</p> <p>Subpart 3-Passage of fish affected by structures</p> <p><i>Information Requirements:</i> Section 63 Requirement for culvert activities: information about culverts</p>	-	<p>(1) This regulation applies to any activity that-</p> <p>(a) Is the placement, alteration, extension, or reconstruction of a culvert in, on, over, or under the bed of any river or connected area; and</p> <p>(b) Is permitted activity, or a class of activity that requires a resource consent, whether under this subpart or otherwise.</p> <p>Culverts shall be placed in accordance to permitted activities of Natural Hazard Works-section 51 Permitted Activities.</p>
<p>Part 3-Standards for other activities that relate to freshwater</p> <p>Subpart 3-Passage of fish affected by structures</p> <p><i>Culverts:</i> Section 70 Permitted Activities</p>		<p>(1) The placement, use, alteration, extension, or reconstruction of a culvert in, on, over, or under the bed of any river or connected area is a permitted activity if it complies with the conditions.</p> <p><i>Conditions</i></p> <p>(2) The conditions are that—</p> <p>(a) the culvert must provide for the same passage of fish upstream and downstream as would exist without the culvert, except as required to carry out the works to place, alter, extend, or reconstruct the culvert; and</p>

		<p>(b) the culvert must be laid parallel to the slope of the bed of the river or connected area; and</p> <p>(c) the mean cross-sectional water velocity in the culvert must be no greater than that in all immediately adjoining river reaches; and</p> <p>(d) the culvert's width where it intersects with the bed of the river or connected area (s) and the width of the bed at that location (w), both measured in metres, must compare as follows:</p> <p>(i) where $w \leq 3$, $s \geq 1.3 \times w$;</p> <p>(ii) where $w > 3$, $s \geq (1.2 \times w) + 0.6$; and</p> <p>(e) the culvert must be open-bottomed or its invert must be placed so that at least 25% of the culvert's diameter is below the level of the bed; and</p> <p>(f) the bed substrate must be present over the full length of the culvert and stable at the flow rate at or below which the water flows for 80% of the time; and</p> <p>(g) the culvert provides for continuity of geomorphic processes (such as the movement of sediment and debris).</p> <p>Culverts shall be placed in accordance to permitted activities of Natural Hazard Works-section 51 Permitted Activities AND adhere to the requirements of set out in Culverts-section 70 Permitted Activities. Further detailed information is following for Culvert Installation as outlined in this document relevant to culvert type, size, placement, etc.</p>
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The culvert installation shall be conducted as per the following:

- Culvert installation includes the construction of trenches; the transport and laying of pipes; the jointing of the pipes; the construction of headwalls, wing-walls, and flumes where instructed/applicable.
- All culverts, flumes and associated materials shall be supplied and installed by the contractor.
- Trenches shall be cut in such a manner that will ensure the pipes will be laid true to the depths.
- Culvert pipes should be installed to the manufacturer's specification according to a polyethylene/plastic type pipe and its rating.
- Where no suitable bedding material is available this may have to be outsourced or borrowed in order to provide a suitable envelope for the Culvert.
- When backfilling culverts, fill material must be compacted in layers to achieve a uniform density.
- Headwalls will be required where it is necessary to maintain formation width over the culvert crossing.
- All culvert installations shall be carried out by a hydraulic excavator.
- Pipe jointing shall be carried out in accordance with manufacturer's recommendations and the finished joints present a smooth invert surface.
- The falling gradient of all culverts shall be not less than 1 vertical to 24 horizontal (4.1%)

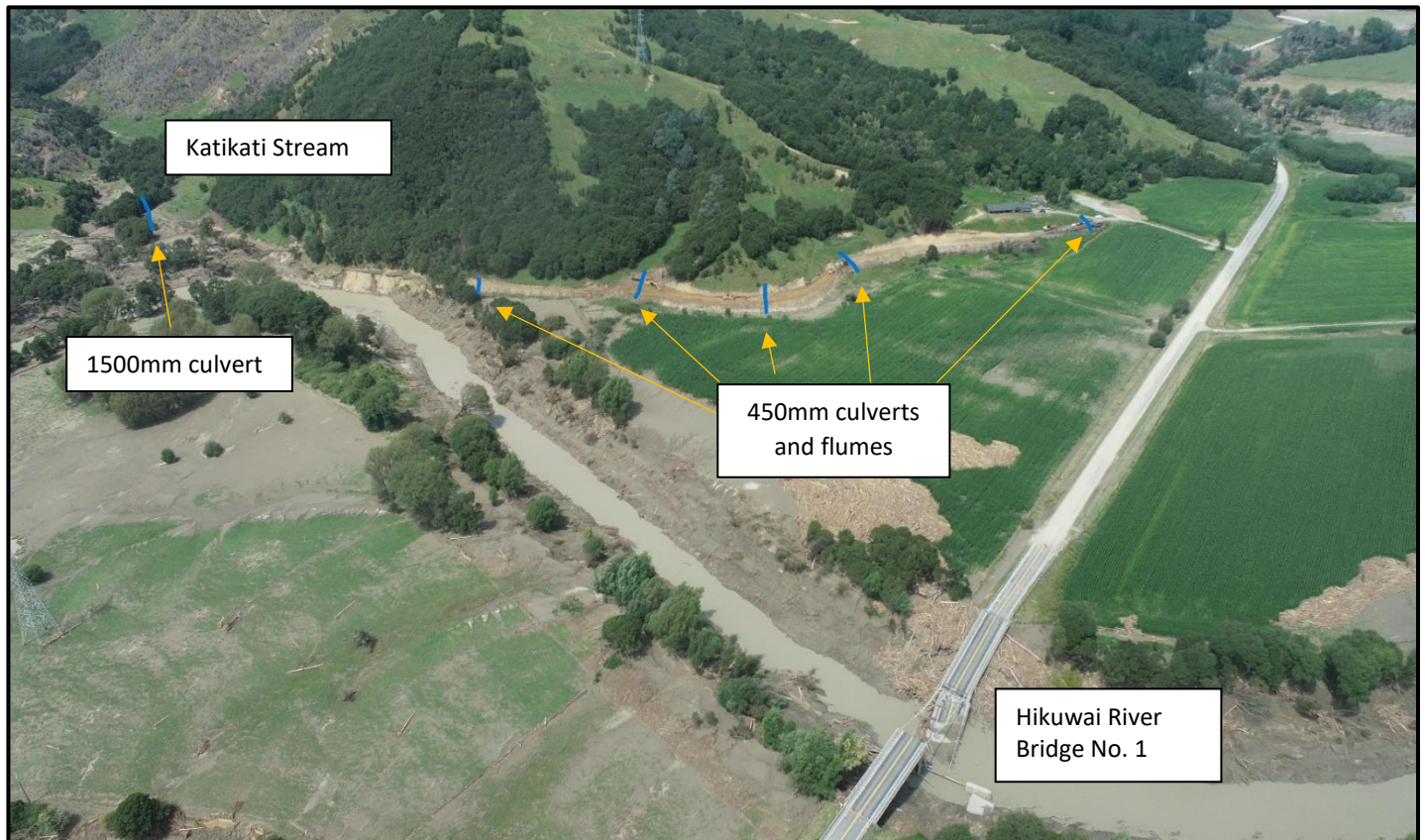
- Culverts are to be flumed or directed on to solid ground. Flumes are to be anchored down to the slope with iron standards.
- Culverts are not to be discharged on unprotected fill material or unstable ground.



Image 1: Example of a single culvert laid perpendicular to the road and ensuring natural waterflow is maintainable. (Image reference: s8.5.1 NZFOA NZ Forest Road Engineering Manual).

- The minimum diameter of culvert pipes will be 450 mm for road drainage. The diameter of larger pipes will be 1500mm.
- In order to mitigate the potential for major blow outs the maximum depth of fill over culverts in natural channels shall be **1.5m** unless sanctioned by the contractor's site engineer. Roding geometry should be designed to meet this specification during the construction phase unless it is impractical to achieve.
- A minimum of two sediment traps will be constructed before culvert inlet.
- Flumes will be attached to outlet of 450mm culverts.
- Rip rap to be placed at inlet/outlet of culverts.

The following is the proposed location of culverts and flumes within the earthworks and Katikati Stream (south catchment):



7. Assessment of Effects on the Environment

Environmental Effects Considered	Risk Response (Less than minor, minor, more than minor, positive)	Comments/Details
Bed and bank Stability / Neighbouring and downstream properties	Less than minor	No areas with built up vegetation (islands) will be disturbed.
Alteration of the natural character of the River	Less than minor	The natural character will not be adversely affected, and the site will be left in a tidy manner. The bed load area at the proposed site is mobile in nature
Public Access	Positive	Members of the public as well as contractors from north and south of the collapsed Hikuwai Bridge No. 1 will gain alternative access and thoroughfare connecting them from State Highway 35 (Waiapu Road) from Tolaga Bay side via the Deviation Route to Hikuwai Bridge No. 3 towards Tokomaru Bay and northern communities.

Environmental Effects Considered (continued)	Risk Response (Less than minor, minor, more than minor, positive)	Comments/Details
Downstream structures	Less than minor	The is no identified effect on downstream structures, such as the Hikuwai Bridge No. 1 that has currently collapsed into the Hikuwai River infrastructure.
Ecological effects	Less than minor	To mitigate the possible ecological effects, the works will occur with the intention of the least amount of disturbance to the existing stream bed and banks. Vehicle movement (Quad Bike/ATV) will be kept to a minimum and only if absolutely necessary where people are required to be transported across and the waterflow is too difficult to walk across safely. No light vehicles and/or machinery shall enter the stream. Refuelling of vehicles and machinery shall be conducted away from any waterways and monitored for spillage as well as have relevant spill kits available on site for clean-up and removal as required. Unwanted material/spoils shall be removed to an approved dump site or if clean and suitable may be made available for repurposing back into the road construction.
Noise /Dust	Less than minor	The potential adverse noise/dust effects will be less than minor due to the isolation of the site. The proposed work is required to occur during time of suitable weather conditions to mitigate the potential of increased sediment associated with the earthwork's activities.
Potential sedimentation and/or hazardous substances entering the Katikati Stream (South Catchment)	Less than minor	<ul style="list-style-type: none"> All vehicles and machinery will be refuelled away from the any waterway so that any contaminant cannot enter any waterway. To further prevent sediment from entering the Katikati Stream, road construction and/or culvert installation will only occur during favourable weather conditions and there will only be minor stockpiling of material on site. Spill kit(s) appropriate to the nature and scale of operation, and will be available on site to respond to an emergency spill. Debris and spoils from operations will not be discharged into any stream or left in a position where it may enter a waterway. Soak pits/spoil ponds will be positioned for any catchment and where available hay bales to assist in spoil control. Silt traps and/or sediment fences will be built in a safe location but relevant to the potential movement of silt and debris from recent flooded areas. End-hauling will be utilised where applicable to repurpose material such as spoils back into the road.

Environmental Effects Considered	Risk Response (Less than minor, minor, more than minor, positive)	Comments/Details
Damage to sensitive areas	Less than minor	The applicant will ensure that important environmental values (protected vegetation areas, neighbouring properties and water bodies etc.) are identified and clearly documented before the start of operations. All sensitive areas will be risk managed accordingly and where necessary further expert advice is to be sought.
Rubbish	Less than minor	All rubbish will be removed from site and disposed of in a legal and environmentally acceptable way
Historical and cultural heritage	Less than minor	There are no known heritage sites in the application area. Any accidental discoveries will be treated in accordance with the Heritage NZ Pouhere Taonga Act 2014
Economic effects	Positive	The proposal will provide local employment and facilitate economic development (road construction in association with community) in the local area.



Pourau Incorporation
1698 Waiapu Road, SH35
P O Box 408
Gisborne
<https://pourau.nz/>

16th February 2023

Ma Parata
General Manager
Kuru Contracting
Tolaga Bay

Tena Koe Ma

Support for the Hikuwai / SH35 Deviation Roothing Project

Following an inspection of the remains of Hikuwai Bridge Number One immediately following cyclone gabrielle and understanding the implications for communities on the coast, the writer was pleased to collaborate with Kuru Contracting and carry out a site visit with you and Val Milham to our Katikati Block.

Pourau Incorporation is the entity that represents the whenua blocks owned by the Potae whanau, including the Katikati Blocks, otherwise known as Three Bridges Cropping Block and Three Bridges Pastoral Block.

The Katikati Block is the whenua that connects Hikuwai One Bridge to Hikuwai Three Bridge.

The purpose of this letter is to confirm the Potae whanau provide unanimous support for the establishment of a traffic bypass (deviation road) on our whenua, to connect traffic (including heavy vehicles) travelling north of Tolaga Bay SH35, via 1698 Waiapu Road, with access to Hikuwai Number Three Bridge.

This deviation road will also enable vehicles travelling south from Hikuwai Bridge Number Three via our whenua (Katikati) which will reconnect to SH35 at 1698 Waiapu Road.

The Potae whanau were one of the first settlers in Tokomaru Bay and we consider this bypass road to be fundamental to the wellbeing of whanau living on the coast. This is a humanitarian issue.

This important roading infrastructure will be key to the recovery effort and provide a lifeline for health, education and social services to function. We also consider this road will help prevent far

greater economic impacts on primary industry which is critical to sustaining business and families based on the coast.

We give our consent for Kuru Contracting to lead the Hikuwai/SH35 Deviation Project and ask that GDC provide the necessary support for this project to be delivered.

This letter is supported by the committee of management of Pourau Incorporation; Steve Brooking, Miria Heavey, Derrick Hope (Secretary/Treasurer), Philip Hope, Kylee Potae, Anita Kake, Evelyn Williams (Tikanga Advisor), Mero Rokx (Rangatahi).

We sign off with two whakatauki which reflect the essence of our thinking.

Ehara taku toa i te toa takitahi Engari, he toa takitini

Manaaki whenua,
manaaki tangata,
haere whakamua

Naku noa na

A handwritten signature in black ink, consisting of a large, stylized 'P' followed by a series of loops and a long horizontal stroke extending to the right.

Philip Hope Dip. Bus. Hons. CFRM
Chairperson
Pourau Incorporation

Te Whanau o Ruataupare te hapu
Te Aitanga-a-Hauiti te iwi
Ngati Porou te iwi

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Email: hope_ngatiporou@yahoo.com
Pourau Inc. <https://pourau.nz/>

Ko Taumatapatiti te paemaunga,

Ko Kahuitara te maunga,

Ko Waiputaputa te awa,

Ko Waiputaputa te Marae,

Ko Ngati Awhia te hapu,

Ko Ngati Ira te iwi!

TOKOMARU K5B

Hikuwai Farm
2577 Waiapu Road,
Te Whaanga,
HIKUWAI

22 February 2023

Ma Parata,
General Manager
Kuru Contracting
TOLAGA BAY

Resource Consent for Hikuwai SH35 Deviation Roding Project

Tena koe Ma,

We write to support the building of the Hikuwai SH35 Deviation Roding Project (Hikuwai Bypass) between Hikuwai No 1 and No 3 bridges. We like to take this opportunity to thank Pourau Incorporation Chair Phillip Hope for providing leadership at a critical time to ensure the Hikuwai Bypass is built to maintain socio-economic wellbeing for the East Coast region. E te Rangatira, e Piripi, tenei te mihi nui kia koe me te Komiti Whakahaere o Pourou mo tenei koha nui whakaharahara, he whenua hei tuhono ai nga Whanau o te wa kainga ki te ao whanui. No reira, ka nui te koa me te mihi nui kia koutou katoa.

The purpose of this letter is to confirm that the Tokomaru K5B Incorporation support the building of the Hikuwai SH35 deviation roding project (Hikuwai Bypass) between Hikuwai Bridge No 1 & 3 to connect light and heavy vehicles travelling north and south from Hikuwai Valley.

We consider the Hikuwai Bypass critical to the economic recovery of the East Coast region and very important to the wellbeing of Whanau on the East Coast because the Hikuwai Bypass will provide a lifeline to social, health and education services. This is a humanitarian issue! So, the sooner the Hikuwai Bypass is built, the sooner the East Coast region can start to rebuild our lives and livelihoods.

The Tokomaru K5B farm at Te Whaanga, Hikuwai valley is the fattening unit for the Marotiri Farm Partnership. When the Hikuwai No 1 Bridge was washed out by Cyclone Gabrielle, we like many primary producers on the East Coast have not been able to transport our product to market. Therefore, the business sector of the East Coast region needs the Hikuwai Bypass as soon as possible to transport our product to Gisborne to process for regional, national, and international markets.

The Tauwhareparae lands that the Hikuwai Bypass is being built on are the traditional lands of the Ngati Ira people. The Pewhairangi Whanau and many other Whanau of Ngati Ira have lived in the Hikuwai Valley since the Raupekanui Battle around 1650. As the customary owners of the Taumatapatiti Paemaunga and Tokomaru K5B Farm at Te Whaanga, Hikuwai Valley, we whole heartedly support the building of the Hikuwai Bypass.

We support Kuru Contracting to lead the Hikuwai Bypass roading project and ask the Gisborne District Council to provide necessary support to get this project over the line for the reasons stated in this letter.

In closing, we'd like to share two proverbs that capture our thinking;

“Me mahitahi tatau mo te oranga o te katoa.”

We should work together for the wellbeing of everyone

“He waka eke noa,”

We are all in this together

Na Maua

Nikki Searancke,
Chair Hikuwai Committee of Management

Karen Pewhairangi
Secretary Hikuwai Committee of Management

23/02/2023

Gisborne District Council

2 Crawford Road
PO Box 1048
Gisborne 4040
New Zealand
Tel 06 868 5129
eastland.nz

To Whom It May Concern

Letter in support - SH35 Deviation Route

This letter is in support of the work currently being undertaken by Kuru Contracting in relation to the Waiapu Rd to Hikuwai Bridge No. 3 alternate route. This work is crucial to the well-being of the coast, both emotional and economic. SH35 is the coast's life-line every day it remains closed the damage to our communities and the region grows exponentially.

Kuru Contracting are one of the most respected forestry contracting companies on the East Coast, they are well used to dealing with the difficult conditions and our demanding roading environment, in terms of earthworks formation, pavement construction and water management.

I have no doubt the road will be built to the highest standard, with protection of the environment a key consideration.

For the people of the coast and our wider region to see our local contractors out working to reconnect our communities, provides a much-needed emotional boost in very trying times. Any form of resilience we can build into our regional infrastructure should be encouraged and enabled as a regional priority.

Yours sincerely



Andrew Gaddum
COO - Regional Infrastructure



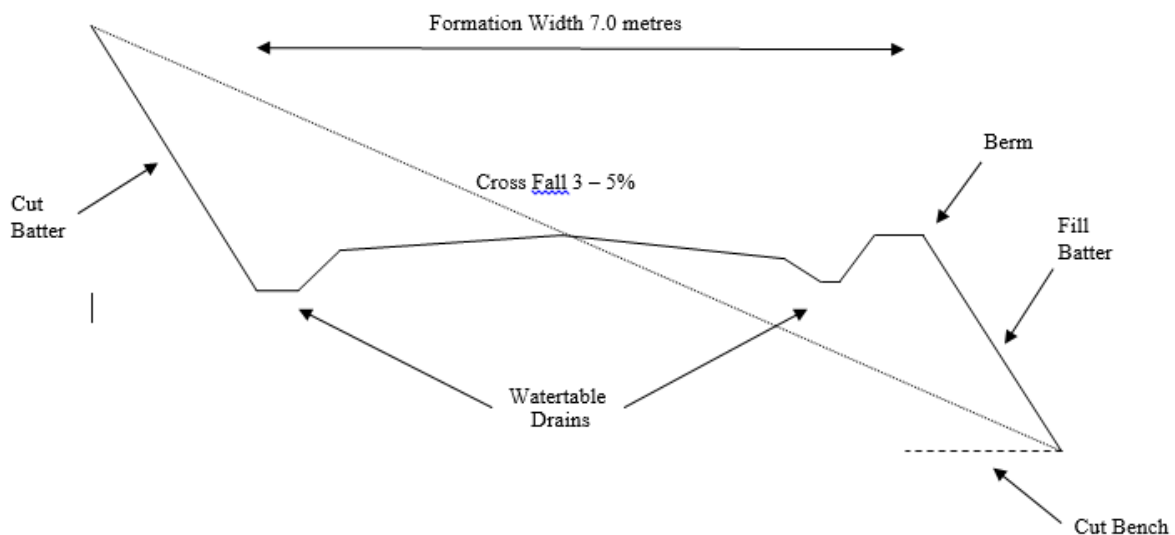
Road & Landing Specifications: Gisborne Region

Introduction:

- All roads constructed within Ernslaw One Ltd. forest estate should meet the following specifications unless stated otherwise in the Road Construction Plan.
- These specifications outline the design and performance requirements for the construction of new and up-graded roads and landings
- Refer to the NZ Forest Road Engineering Manual Operators Guide for Best Practices

Road Construction Specifications:

1. Road Formation



- Cut slope (vertical: horizontal 2:1) 200%, Bench or ease back upper batters >6m, in unstable ground. Fill slope should not exceed (1:1.5) 66%
- Road formation and fill are to contain no stumps or Deleterious materials.

- All side cast material must be supported by a well-constructed bench below the level of the formation that will support the toe of any compacted fill. Stumps must be keyed into the heel of the bench
- Water tables shall be excavated to a minimum depth of 0.5 metre and shall be free draining and clear of debris.
- All sections requiring fill shall first be cleared of unstable material, vegetation and topsoil prior to depositing any fill.
- Care shall be taken throughout the fill operation to ensure adequate compaction of the material is achieved.
- Stable, compacted berms not less than 75cm wide and 40cm high are to be established on the outside edge of any roads located on slopes >40%. These must include regularly spaced, effective berm pipes directed onto stable ground.
- It is preferable that the maximum adverse (uphill loaded) gradient for harvesting roads does not exceed 10%, however there will at times be exceptions for short critical stretches, where good quality aggregates are available. This will require consultation with the Harvest Engineer.
- The maximum favourable (downhill loaded) gradient is 14-17%. The gradient of any road used for the transporting of logs by trucks shall not exceed 20%.

2. Horizontal Alignment:

In terms of safety, a consistent alignment which provides no surprises for the driver is more important than an absolute design speed standard. The coordination of horizontal and vertical geometry is important to ensure:

Safety and viability

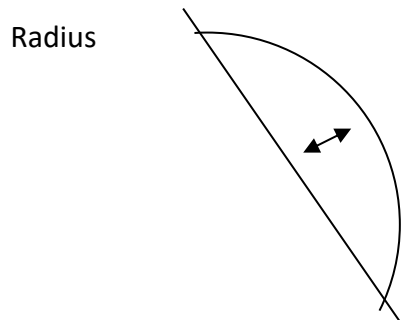
Good traffic flow

Desirable visual impact

Sight benches should be considered on tight “blind” corners where visibility is poor.

Grade limit on curve radius:

Horizontal radius (metres)	Adverse %	Favourable %
>15	6-10	12-14
>20	10-13	14-17



3. Vertical Alignment:

On any sections of steep adverse grades i.e. >10%, constant road gradients need to be maintained, unless there is any good reason to establish a grade change, such as on acute bends.

4. Pavement Design:

Pavements are to be constructed to produce a road which will provide a durable all weather surface, providing reasonable comfort, safety and having sufficient strength to minimize deterioration under traffic loads and the effects of moisture.

Layer Thickness (Loose)

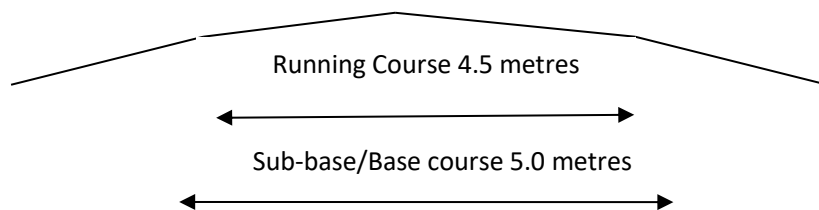
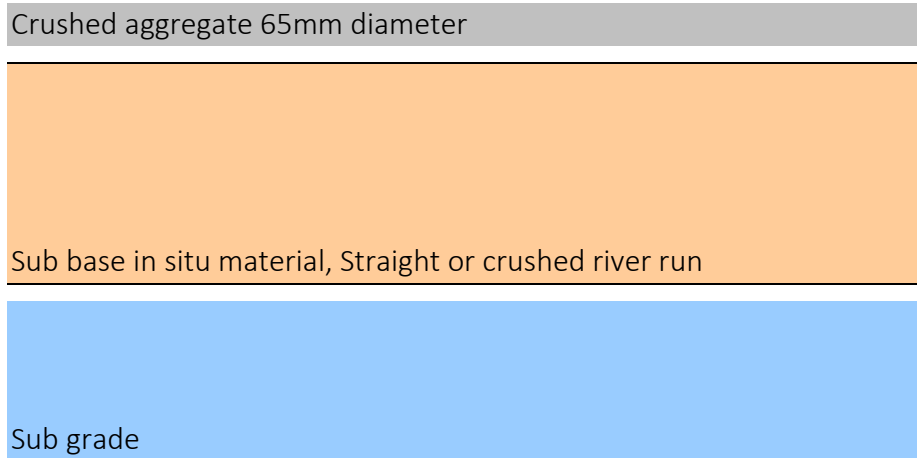
The average depth (loose) of in situ material or river run shall be up to 400mm.

Application rates for crushed aggregate are generally 2.5 times the diameter of the aggregate; this may vary depending on the quality of the sub base material and will be at the discretion of the Harvest Engineer.

Allow a minimum of 20% for compaction of loose aggregates. Allow more for corners and switchbacks

Compaction shall be achieved by the minimum number of passes of compaction plant, and compaction plant shall include: vibratory roller with single or double vibrating drum or a sheep's foot roller.

Pavement design



- The application of insitu materials and aggregates is to be carried out in the appropriate conditions as to ensure that compaction is achieved and excessive use of materials is avoided.
- Metalling is to be carried out in suitable conditions as to not be destructive to the fresh pavement or formation, or any existing roads which are being traversed on the metal cartage route.
- The Contractor must use a self-auditing system to ensure that the correct metal depths are achieved, as are the correct volumes carted by trucks.
- On completion of metal application the roadway must be graded, compacted to leave a hard surface (3 - 5% cross-fall), which is smooth, will shed water and is able to withstand loaded logging traffic.

Evaluation of Subgrade Properties

Commonly Used Measures:

CBR	California Bearing Ratio	(Use of Dynamic Cone Penetrometer)
IV	Impact Soil Test Procedure	(Use of Clegg Hammer)

Comparison Between CBR and IV Values

IV	CBR	
6	3	
7	3	Insitu = rottenrock,shail, rubble,sandstone sourced close to earthworks
8	4	
9	6	
10	7	Absolute minimum compaction for insitu base course material
11	8	
12	10	
13	12	
14	14	
15	16	
16	18	
17	20	
18	23	
19	25	
20	28	
21	31	
22	34	
23	37	
24	40	Minimum compaction for top course crushed 65mm rock/or straight RR as basecourse
25	44	
26	47	
27	51	
28	55	
29	59	
30	63	
31	67	
32	72	
33	76	
34	81	
35	86	
36	91	
37	96	
38	101	
39	106	
40	112	

CBR and Impact Value:

Equation:

$$1 \quad \text{CBR} = 0.07 \quad (\text{IV})^2 \dots\dots\dots(1)$$

$$2 \quad \text{CBR} = (0.24(\text{IV}) + 1)^2 \dots\dots\dots(2)$$

Example: if the IV is 25, the CBR from equation 2 is 49. Use equation 1 for the East Coast.

Penetrometer Use with Resulting CBR Values

Blows	Penetration/millimetres	CBR	
4	5	178	Insitu= Rotten rock, shail, rubble, sandstone; sourced close to earthworks
4	6	148	
4	10	89	Cone penetrometer not suitable for RR or crushed rock
4	15	59	
4	20	44	
4	25	36	
4	30	30	
4	35	25	
4	40	22	
4	45	20	
4	50	18	
4	55	16	
4	60	15	
4	65	14	
4	70	13	
4	75	12	
4	80	11	
4	85	10	
4	90	10	Absolute minimum compaction for insitu base course material
4	95	9	
4	100	9	

Further content relating to evaluation of subgrade properties can be found in the NZ Forest Road Engineering Manual

5. Aggregate Source:

In situ materials being won from borrow pits must be of reasonable quality. River run being used as base course must be water worn gravel of reasonable size. This is to be discussed with the Harvest Engineer prior to projects commencing. The company will be responsible for the crushing and testing of aggregates. The contractor will be responsible for the cartage of aggregates from either the crushed stockpile, river, or borrow pit.

6. Geogrid and Filter Cloth:

- Filter cloth and geogrid shall be supplied by the Company when required.
- All costs associated with uplifting and laying of the Geosynthetics, plus “additional” costs involved in back dumping and spreading of the basecourse shall be inclusive in the construction rate by variation, when anticipated, however upon agreement can be negotiated as required.
- Care shall be taken to ensure an adequate depth of basecourse is applied over the Geosynthetic to avoid it being damaged.
- Reduction in metal usage from the standard should be shown in the accompanying variation.
- Generally apply aggregate to road surface soon after formation.

7. Environmental Considerations:

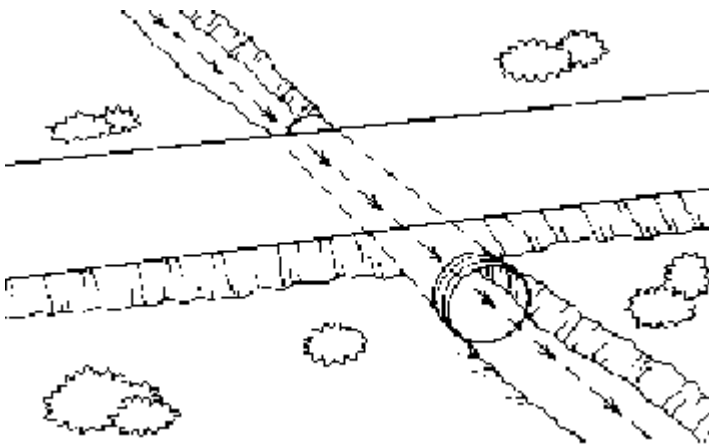
- Do not leave formation of bare earth lying exposed to the elements for an extended period. An exception is when constructing roads across wet soils that need drying before the aggregate is applied but taking into account Resource Consent Conditions.
- Resource Consents for metal extraction must be obtained by Ernslaw One Ltd after explanation of management of the extraction is given and Quarry Management Plan is supplied.
- Prior to any crushing or quarrying work being carried out on site, the contractor must supply Ernslaw with a Quarry Management Plan outline how the issues of safety and environment will be managed.

8. Culvert Installation:

- Culvert installation shall include: the construction of trenches; the transport and laying of pipes; the jointing of the pipes; the construction of headwalls, wing-walls, and flumes where necessary.
- All culverts, flumes and associated materials shall be supplied by the company
- Trenches shall be cut in such a manner as will ensure that the pipes will be laid to the appropriate depths including a block section of the cut batter removed at the site of each culvert entrance to improve access for future culvert maintenance.
- Unless otherwise specified trenches shall have a minimum depth that will ensure that when the pipes are laid the distance between the top of the pipes and the finished surface level shall be not less than the diameter of the pipe being installed.
- When backfilling culverts fill material must be compacted in layers to achieve a uniform density.
- Culverts laid where there is a road gradient and no natural channel should be laid at approximately 110 degrees to the road centre-line
- Headwalls will be required where it is necessary to maintain formation width over culvert crossings
- All culvert installations shall be carried out by hydraulic excavator.
- Pipe jointing shall be carried out in accordance with manufacturer's recommendations and the finished joints present a smooth invert surface.
- The falling gradient of all culverts shall be not less than 1 vertical to 24 horizontal (4.1%)
- Culverts are to be flumed on to solid ground. During the installation of culvert pipes ensure that an even foundation is available for establishment of the fluming structure, and clear of any logging debris or tree stumps. Place the end of the flume into slash or stumps as a secondary sediment control.
- Culverts are not to be discharged on unprotected fill material or unstable ground



Sediment traps are to be constructed as part of the culvert entrance; a small excavator bucket can easily clean it out.



Any natural channels are not to be modified and the flow must be directly into the culvert where possible. Culvert must be perpendicular to the road.

- The minimum diameter of culvert pipes will be 450 mm for road drainage. The diameter of larger pipes will be determined by the Harvest Engineer.

Landing Construction Specifications:

1. Skid Formation

- Hauler landings should be 60 metres by 40 metres (2400 m²). Critical measurement is the depth of the landing from the haul direction which must achieve 40 metres.
- Ground based landings should be 50 metres by 40 metres (2000m²). Consideration should be given to haul direction and ability to install ramps to access the wood.
- Landings shall be constructed, arranged, maintained and operated so that: logs can be landed safely, workers may work in the clear of moving logs and equipment, and hazards are eliminated or minimized.
- Sufficient area shall be provided for truck turnaround, parking of workers transport, and rest facilities.
- Landing chutes shall be long and level enough to safely land extracted logs allowing for; machine type, surrounding terrain, extraction direction.
- For downhill hauling there should be adequate flat chute area to land logs without endangering the hauler operator or other workers.
- Over burden, cast material, rocks or stumps shall not be placed where they will create a hazard to operations.
- Ensure landing sites are adequately drained and of sufficient size for the storage of the types of logs, and for skid workers and machines to work safely on clear ground on the longest logs to be extracted.
- Before operations begin, all dangerous trees within reach of the landing should be removed, paying particular attention to trees leaning towards the landing and those disturbed during formation.
- Ensure that any unstable logging debris accumulated around the edge of the landing is removed before workers enter the hazard zone.



Landing fills are to have multiple benches that are visible and not covered with fill that is compacted in layers.

2. Water Control

- The final landing surface must be graded and compacted and left with a smooth well sealed surface that will shed water.
- The landing must be sloped to allow sufficient drainage (approximately 2-3%).
- If possible position a drainage channel at the back of the landing to collect any direct water runoff.
- Avoid construction in adverse wet conditions.
- Avoid landing run off into water ways.
- Avoid depositing spoil into water ways



Silt traps are to be used when draining water from skids.

3. Benching

- A bench must be constructed where the cross slope is too steep to support any side cast material, thus slumping may degrade the integrity and design of the landing.
- The bottom bench must be cut to support the toe of any fill. Filling onto benches must then be layered and compacted at no greater than every 0.5 vertical metre. Large fills will require multiple benches.
- All stumps should be keyed into the heel of the bench to minimize the hazard for future logging operations.
- Benches must be suitably sized to ensure that fill is contained within the bench.

