

Version No: 0.1 Issue Date: 24/05/2021 Portfolio: Discrete Water Quality	Horizons Regional Council	Section No: 15.7 Appendix No: XX Page: 1 of 18
	Hydrology Operations Manual	

Version 1.0 24/025/2021

Invertebrate Monitoring Run Guide

OHAU

STATE OF ENVIRONMENT (Annual Sampling)

Job Hazard & Task Analysis










Hazard Identification – tick all that apply, write additional hazards identified:

The yellow highlighted hazards are known hazards at the time of compiling this document. This **does not negate** the need to assess for and potentially eliminate or isolate any hazards at *each* sample location at *every* visit

Hazard	Yes	Hazard	Yes	Hazard	Yes
Confined space	<input type="checkbox"/>	Suspended loads	<input type="checkbox"/>	Noise – plant and equipment	<input type="checkbox"/>
Difficult entry/exit	<input checked="" type="checkbox"/>	Falling objects	<input type="checkbox"/>	Communication – means of	<input checked="" type="checkbox"/>
Oxygen deficiency/excess	<input type="checkbox"/>	Working near cranes and crane runways	<input type="checkbox"/>	Remote area	<input checked="" type="checkbox"/>
Poisonous fumes/gas	<input type="checkbox"/>	Live rails-gantry cranes	<input type="checkbox"/>	Temperature extremes	<input checked="" type="checkbox"/>
Explosive gas	<input type="checkbox"/>	Trip hazards	<input checked="" type="checkbox"/>	Reduced visibility	<input checked="" type="checkbox"/>
Flammable materials	<input type="checkbox"/>	Slippery surfaces	<input checked="" type="checkbox"/>	Unauthorized persons	<input type="checkbox"/>
Combustible materials	<input type="checkbox"/>	Manual handling	<input type="checkbox"/>	High pressure water	<input type="checkbox"/>
Hazardous substances	<input type="checkbox"/>	Sharp materials	<input type="checkbox"/>	Vacuum	<input type="checkbox"/>
Drowning	<input checked="" type="checkbox"/>	Line of fire	<input type="checkbox"/>	Air emissions – dust, fumes	<input type="checkbox"/>
Engulfment	<input type="checkbox"/>	Pressurized fluids	<input type="checkbox"/>	General waste	<input type="checkbox"/>
UV Radiation	<input checked="" type="checkbox"/>	Pressurized air/gas	<input type="checkbox"/>	Hazardous waste	<input type="checkbox"/>
Electrical – low /high voltage	<input checked="" type="checkbox"/>	Traffic / vehicle movements	<input checked="" type="checkbox"/>	Hydrocarbon / chemical spill	<input type="checkbox"/>
Multiple electrical feeds	<input type="checkbox"/>	Machinery – mobile plant	<input type="checkbox"/>	Soil disturbance/erosion	<input type="checkbox"/>
Working at height	<input type="checkbox"/>	Moving parts	<input type="checkbox"/>	Habitat disruption	<input type="checkbox"/>
Ladders	<input type="checkbox"/>	Chemical reaction (Pyrophoric iron)	<input type="checkbox"/>	Lighting	<input type="checkbox"/>
Elevated work platforms	<input type="checkbox"/>	Transport of hazardous substances	<input type="checkbox"/>	Weather extremes	<input checked="" type="checkbox"/>
Potential for difficult rescue	<input checked="" type="checkbox"/>	Stock/Farm Animals	<input checked="" type="checkbox"/>		

Required PPE & Safety Equipment– tick all that apply, write additional PPE required:

The yellow highlighted PPE are known required PPE at the time of compiling this document. This **does not negate** the need to assess for the appropriate required PPE measures at each sample location per visit.

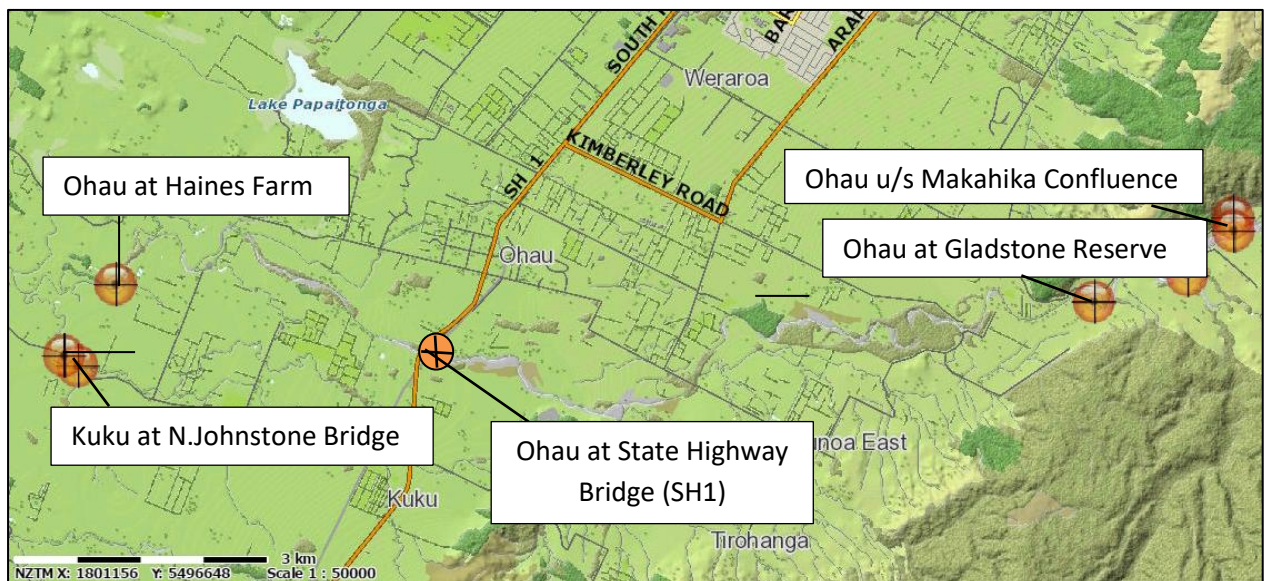
SAMPLING GLOVES	EAR PROTECTION	HARD HAT	SAFETY GLASSES / GOGGLES	WORK BOOTS / WADERS	PROTECTIVE GLOVES	PERSONAL FLOATATION DEVICE (PFD)
						
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
HI VIZ	SAFETY HARNESS	SUN BLOCK & HAND SANITISER	VHF RADIO	THROW BAG	PERSONAL LOCATOR BEACON	
						
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	

Known Hazard	Significant		Can it be Eliminated		Can it be Isolated		Method of control
	Yes	No	Yes	No	Yes	No	
Drowning	✓			✓		✓	Staff should use a sample pole if access into the river/stream is unsafe. PFD's must be worn by staff. Always carry a throw bag when working around water and have a personal locator beacon on hand. It is always preferable to have someone else with you at all times when working around water [HMP 18]
UV Radiation	✓			✓	✓		Horizons provide sunscreen and hats. Staff are encouraged to make use of these. [HMP 17]
Difficult Entry/Exit	✓			✓	✓		Entry and exit into waterways poses many risks and should be treated with caution. Sampling must be done from stable level ground. Staff should use a sample pole if access into the river/stream is unsafe. PFD's must be worn by staff and staff must be trained for working around water. [HMP18]
Electrical-Low/High Voltage	✓			✓	✓		Many of the rural sampling sites require traversing across farm paddocks equipped with electric fences that contain stock. If unknown, treat every farm fence as electric and avoid direct contact. Contact the landowner for advise on whether or not the fence is live and discuss alternative routes or options for avoiding the fence if possible.
Potential for Difficult Rescue	✓			✓		✓	Sampling must always be done from stable level ground. Staff should use a sample pole if access into the river/stream is unsafe. PFD's must be worn by staff and staff must be trained for working around water. Vehicles must be driven a sensible distance from any river or pond edges. Always carry a throw bag when working around water and have a personal locator beacon on hand. It is always preferable to have someone else with you at all times when working around water [HMP18]
Trip Hazards	✓			✓	✓		Prior to sampling, staff must check area is clear of items that pose a risk. Trip Hazards should only be moved if safe to do so. Sampling only to commence if the sampler is satisfied that any slip, trip or fall hazards are isolated.
Slippery Surfaces	✓			✓	✓		Sampling must be done from stable level. Vehicles must be driven a sensible distance from any river or pond edges. [HMP 18]. Staff driving four wheel drive vehicles must have adequate training [HMP 9]
Traffic Vehicle Movements							The designated driver of a vehicle is responsible for ensuring the safety and operational requirements and recommendations are met. All staff working within the road reserve must wear high visibility clothing to AS/NZS 1906.4:2010.

Known Hazard	Significant		Can it be Eliminated		Can it be Isolated		Method of control
	Yes	No	Yes	No	Yes	No	
							This clothing must be fluorescent red orange in colour unless the individual is the site STMS then the garment must be fluorescent lime yellow. [HMP 9] [HMP 16] [HMP 20].
Stock/Farm Animals	✓			✓	✓		Although generally docile, farm animals can still be hazardous. The risk should be isolated by finding alternative access routes to the sample location or contacting the owner for assistance. [HMP26]
Communications-Means of							Cell phone coverage is not available at all sites. Staff must be capable of communicating via VHF radio in an equipped vehicle. [HMP 24]
Remote Area	✓			✓		✓	Most council vehicles are fitted with the E-Road vehicle locator system. Many vehicles are also fitted with a radio operating on the Horizons digital radio network providing communication and tracking coverages across a majority of the region. [HMP 24]
Temperature/Weather Extremes	✓			✓		✓	During the duration of a sampling run varying types and degrees of weather may be experienced. All sampling staff are to have access within their HRC vehicle to additional and appropriate clothing. Staff must have access to suitable PPE and spare clothing within their vehicle. [HMP 18]
Reduced Visibility	✓			✓		✓	If you find you are driving in limited visibility slow your driving speed and turn your fog lights on and watch out for vehicles that aren't using their lights. When working in limited visibility if you cease to be able to make out your surrounding environment stop work immediately. If working at night it is advisable to traverse the property in daylight first to map out an action plan outlining walking tracks, vehicle tracks, fence lines, stock positions, ponds, waterways, houses, and sheds as well as other significant items of interest. [HMP12]

Site Information

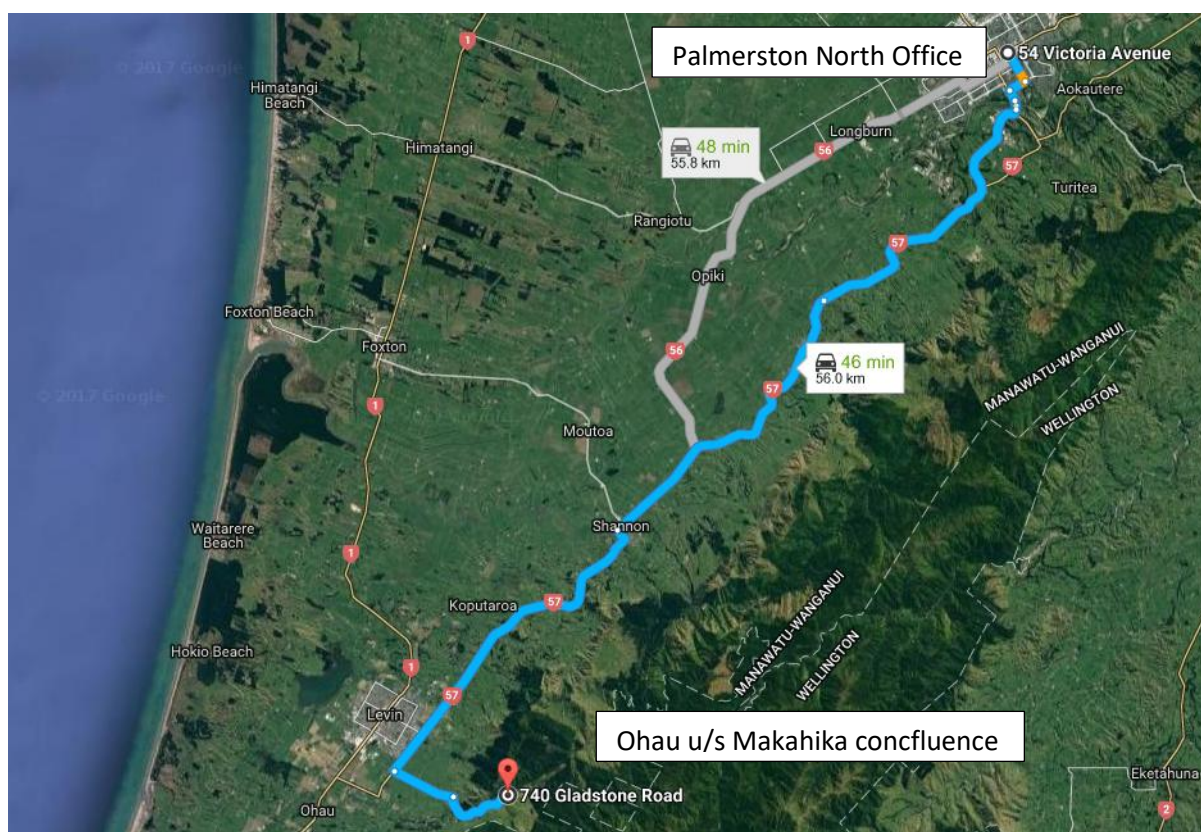
Hilltop Site Name	Easting/Long (NZTM)	Northing/Lat (NZTM)
Ohau u/s Makahika Confluence	1799096	5496819
Ohau at Gladstone Reserve	1797434	5495980
Ohau at State Highway Bridge (SH1)	1789382	5495374
Ohau at Haines Property	1785783	5496186
Kuku Stream at N.Johnstone Farm Bridge	1785330	5495215



Equipment Required

Equipment	<ul style="list-style-type: none">• Camera and GPS• Kick net• Invertebrate Pottles and Propan-2-ol• White plastic tray• Metal ruler• Gravelometer• Sampling Worksheet and Pencil• Bathoscope / Viewer• Scrubbing brush, tooth brush, washer bottle, yellow sample bottle lid and ice cream container• Pottles (Approx 10), chilly bins and ice-packs• Personal Locator Beacon• 4WD Vehicle equipped with VHF Radio• Throw Bag
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SITE LOCATION MAP – Ohau u/s Makahika confluence



POSSIBLE SITE HAZARDS (this does not negate undertaking a hazard review prior to sampling on the day):

Drowning	Engulfment	UV Radiation	Slippery surfaces	Trip hazards
Difficult entry/exit	Remote Area	Potential for difficult rescue	Weather/Temperature Extremes	Traffic / Vehicle Movements
Stock/Farm Animals	Electrical- low/high voltage	Machinery- mobile plant	Communication- means of	Reduced Visibility

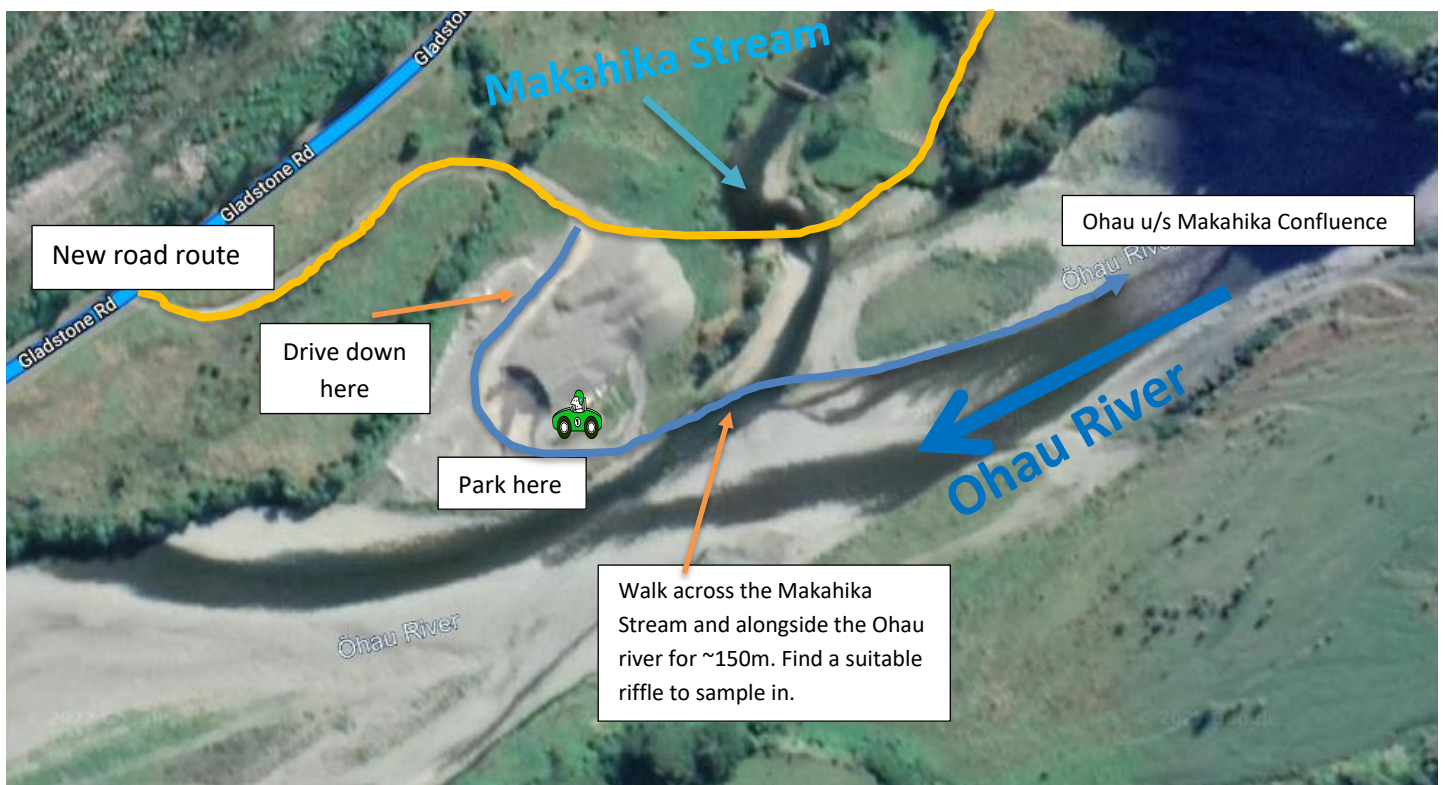
REQUIRED PPE (in accordance with above hazards – this does not negate undertaking a hazard review prior to sampling on the day and/or using additional PPE if deemed necessary):

WORK BOOTS / WADERS	PFD	SUNSCREEN & HAND SANITISER	PERSONAL LOCATOR BEACON	THROW BAG	VHF RADIO	HI-VIS
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DIRECTIONS:

- From the Palmerston North office head out along State Highway 57, go through Shannon and continue on towards Levin. Go past the turn off to Levin and turn left onto Tatarua Road. There is a big brown road sign opposite this turn off which says Makahika Outdoor Centre.
- Drive to the end of Tatarua Road and turn right onto Gladstone Road
- Continue past the turn off to Poas Road. Not far on the right you will see the new road (which once used to be a farm gate seen in the photo below), curve around to the right down a hill. Continue down this hill and park in the quarry where there are usually gravel extraction works.
- You will see a large stream to the left with the new road bridge over it. This is the Makahika stream, walk across the stream and upstream alongside the Ohau river for about 150m (see map below).
- Sample in a suitable riffle.

ACCESS: This site often has gravel extraction vehicles working along the main driveway, be sure to wear your high visibility garments and be on the lookout for these.





Ohau at u/s Makahika confluence looking upstream



Ohau at u/s Makahika confluence looking downstream

SITE LOCATION MAP – Ohau at Gladstone Reserve



POSSIBLE SITE HAZARDS (this does not negate undertaking a hazard review prior to sampling on the day):

Drowning	Engulfment	UV Radiation	Slippery surfaces	Trip hazards
Difficult entry/exit	Remote Area	Potential for difficult rescue	Weather/Temperature Extremes	Traffic / Vehicle Movements
Communication-means of	Reduced Visibility			

REQUIRED PPE (in accordance with above hazards – this does not negate undertaking a hazard review prior to sampling on the day and/or using additional PPE if deemed necessary):

WORK BOOTS / WADERS	PFD	SUNSCREEN & HAND SANITISER	PERSONAL LOCATOR BEACON	THROW BAG	VHF RADIO	HI-VIS	
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DIRECTIONS:

- From the Ohau u/s Makahika confluence site, head back to Gladstone Road and continue down Gladstone Road towards Levin for about 2 minutes until you see Gladstone Reserve to the left.
- Drive into the reserve.
- In summer you will be able to drive right down to the river. In winter there is a gate so you will have to park up near the toilet and walk down.
- Drive/Walk down through the Reserve until you find the Ohau River.
- Find a suitable riffle to sample downstream of rapids by the cliff.



Entrance to Gladstone Reserve.



Ohau at Gladstone Reserve sample location.

SITE LOCATION MAP – Ohau at State Highway Bridge



POSSIBLE SITE HAZARDS (this does not negate undertaking a hazard review prior to sampling on the day):

Drowning	UV Radiation	Slippery surfaces	Trip hazards
Difficult entry/exit	Potential for difficult rescue	Weather/Temperature Extremes	Traffic / Vehicle Movements

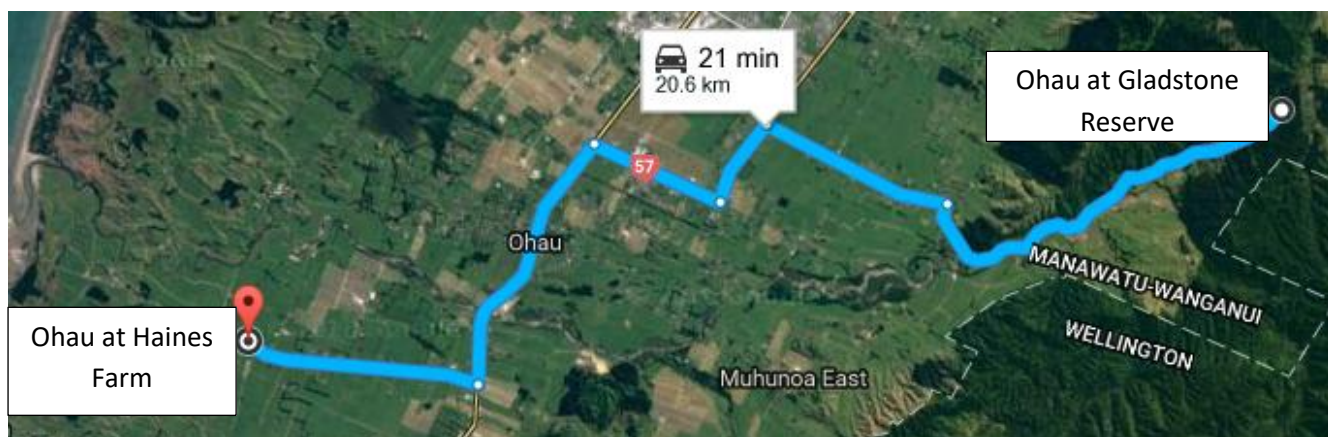
REQUIRED PPE (in accordance with above hazards – this does not negate undertaking a hazard review prior to sampling on the day and/or using additional PPE if deemed necessary):

WORK BOOTS / WADERS	PFD	SUNSCREEN & HAND SANITISER	PERSONAL LOCATOR BEACON	THROW BAG	VHF RADIO	HI-VIS	
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DIRECTIONS:

- From Gladstone Reserve, drive back to SH57. Turn left out of Gladstone Reserve and turn left onto Tararua Road, and follow the road to the end.
- Turn left into SH57 and follow the road around a sharp right turn and follow it to the end.
- Turn Left on to SH 1 towards Wellington, drive through Ohau, then turn left on to Parakawau Road.
- Park close to the river and sample downstream of the bridge from a run.
- Take a Chlorophyll a sample from 10 rocks and do a 20-view visual assessment of periphyton, take water quality samples and a SmarTroll reading.

SITE LOCATION MAP – Ohau at Haines Property



POSSIBLE SITE HAZARDS (this does not negate undertaking a hazard review prior to sampling on the day):

Drowning	Engulfment	UV Radiation	Slippery surfaces	Trip hazards
Difficult entry/exit	Remote Area	Stock/Farm Animals	Communication- means of	Reduced Visibility
Potential for difficult rescue	Electrical- low/high voltage	Machinery- mobile plant	Weather/Temperature Extremes	Traffic / Vehicle Movements

REQUIRED PPE (in accordance with above hazards – this does not negate undertaking a hazard review prior to sampling on the day and/or using additional PPE if deemed necessary):

WORK BOOTS / WADERS	PFD	SUNSCREEN & HAND SANITISER	PERSONAL LOCATOR BEACON	THROW BAG	VHF RADIO	HI-VIS
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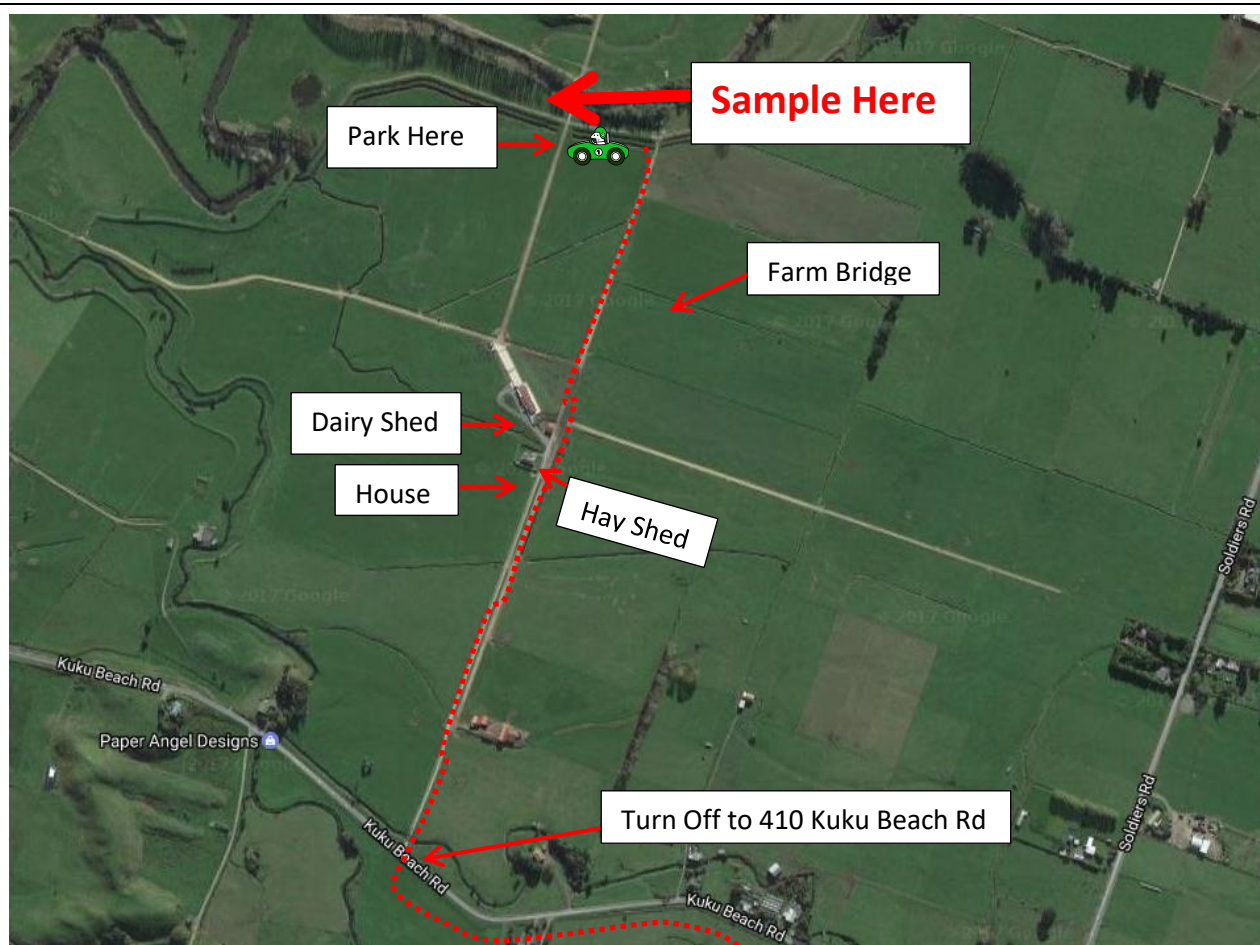
DIRECTIONS:

- From Gladstone Reserve head back down Gladstone Rd towards Levin and turn left back onto Tararua Road.
- Follow Tararua Road for about 3km until you reach the intersection with SH57 (Arapaepae Road). Turn left onto SH57 heading towards Wellington.
- Continue along this road until you reach the intersection with Kimberley Road (SH57) - follow the road around to the right.
- Follow Kimberley Road to the end and you will reach the intersection with SH1. Turn left onto SH1 towards Wellington.
- Follow SH1 then turn right onto Kuku Beach Rd at the end of a passing lane.
- Follow Kuku Beach Road for approximately 4 minutes until you reach a small bridge on the right and a red barn in the adjacent paddock. This is 410 Kuku Road (Haines Farm), turn down here.
- Follow the main driveway and then turn in through one of the gates (there are multiple gates) onto the cattle race which runs adjacent to the driveway. Stop in at the cowshed office to sign the visitor's book then head back to the race.
- Follow the race in the same direction heading towards the stopbank in the distance. Continue on straight down the race to the stopbank. Drive on up the stopbank and park the car at the top.
- Walk down the other side of the stopbank and over the electric fence and through the trees down to the river. Find a suitable riffle to sample.

ACCESS:

- Contact the landowner for permission to sample prior to accessing the property.

Dylan Smith- Farm Manager: 027 208 9927
Sign in at cowshed office in visitors book



Ohau at Haines Farm Sample Point looking downstream.

SITE LOCATION MAP – Kuku at N.Johnston Farm Bridge



POSSIBLE SITE HAZARDS (this does not negate undertaking a hazard review prior to sampling on the day):

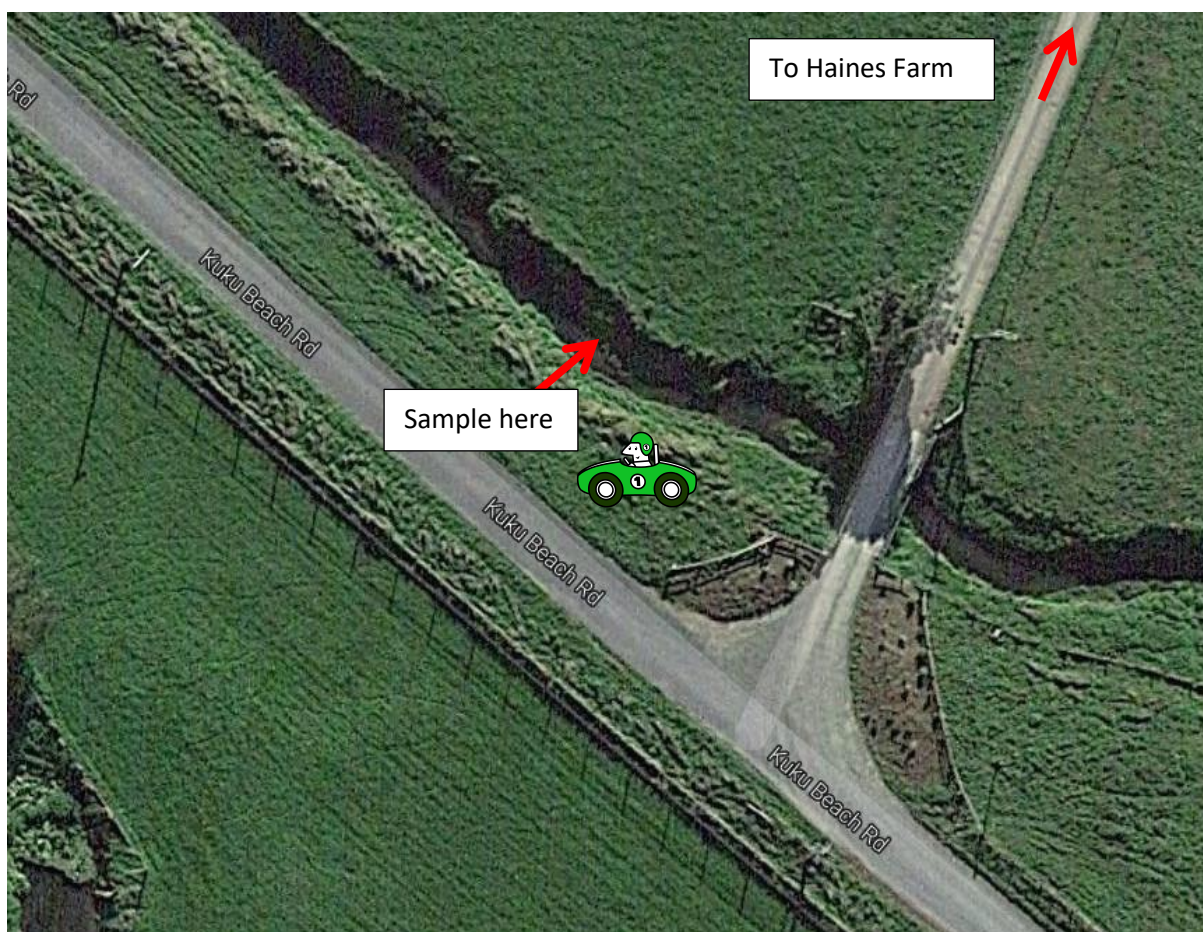
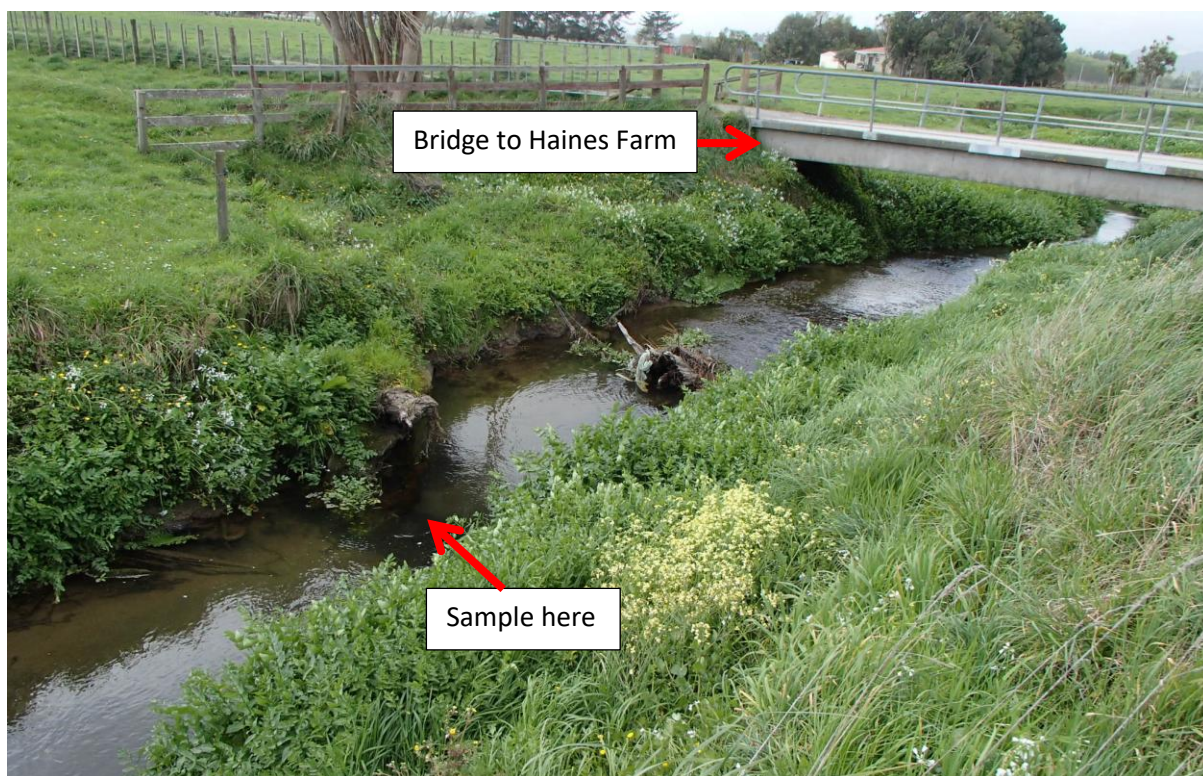
Drowning	Engulfment	UV Radiation	Slippery surfaces	Trip hazards
Difficult entry/exit	Remote Area	Potential for difficult rescue	Weather/Temperature Extremes	Traffic / Vehicle Movements
Stock/Farm Animals	Electrical- low/high voltage	Machinery- mobile plant	Communication- means of	Reduced Visibility

REQUIRED PPE (in accordance with above hazards – this does not negate undertaking a hazard review prior to sampling on the day and/or using additional PPE if deemed necessary):

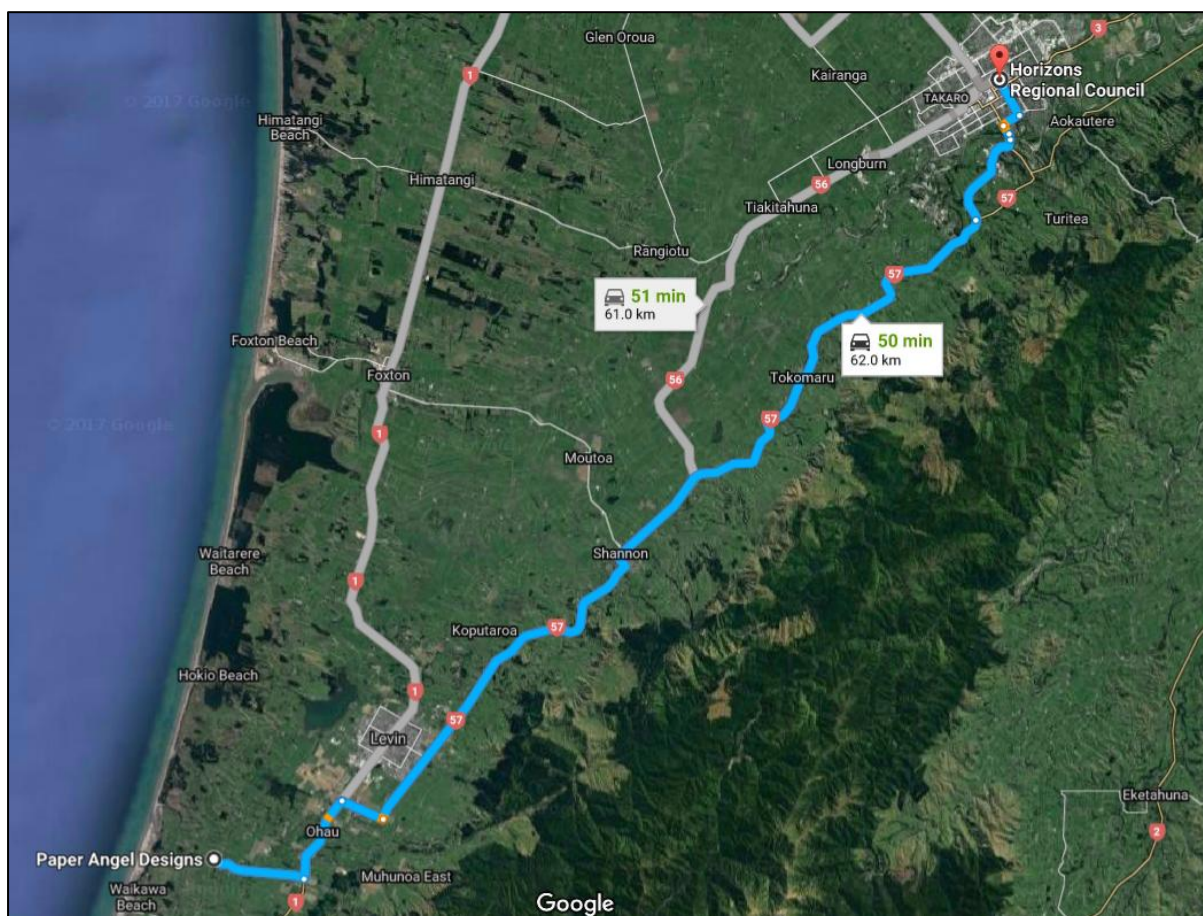
WORK BOOTS / WADERS	PFD	SUNSCREEN & HAND SANITISER	PERSONAL LOCATOR BEACON	THROW BAG	VHF RADIO	HI-VIS
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DIRECTIONS:

- From the Haines Property site, drive back down the driveway to Kuku Beach Road, the next site is directly downstream of the small bridge that you drove over to get onto Haines Farm.
- Park up off the road and sample the creek that runs under the bridge- this is the Kuku Stream.
- Note: this stream is often very weedy and soft-bottomed, use soft-bottomed sampling protocols if necessary.



RETURNING TO THE PALMERSTON NORTH OFFICE



DIRECTIONS:

- From the Manganaonao at Ohau West Rd site drive about 4.3km the way you came down Kuku Beach Rd towards SH1.
- Turn left onto SH1 and follow for about 4.1km until you come to the turn off for Palmerston North (SH57), turn right onto SH57 towards Palmerston North.
- Follow SH57 through Shannon, Tokomaru and Linton, eventually after about 43km the road name will change to Tennent Dr, follow Tennent Drive past Massey University.
- Continue along Tennent Dr until you come into Palmerston North over the Fitzherbert Bridge. At the first set of lights turn right onto Te Awe Awe Rd.
- Follow Te Awe Awe Rd for about 900m then turn left onto Victoria Ave.
- Drive down Victoria Ave until you come to the Horizons Office.