

Version No: 1.0 Issue Date: 24/05/2021 Portfolio: Discrete Water Quality	<b>Horizons Regional Council</b>	Section No: 15.7 Appendix No: <b>XX</b> Page: 1 of 19
<b>horizons</b> <small>regional council</small> 	<b>Hydrology Operations Manual</b>	

Version 1.0 24/05/2021

## Invertebrate Monitoring Run Guide

# WOODVILLE

## 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 checked="" 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.

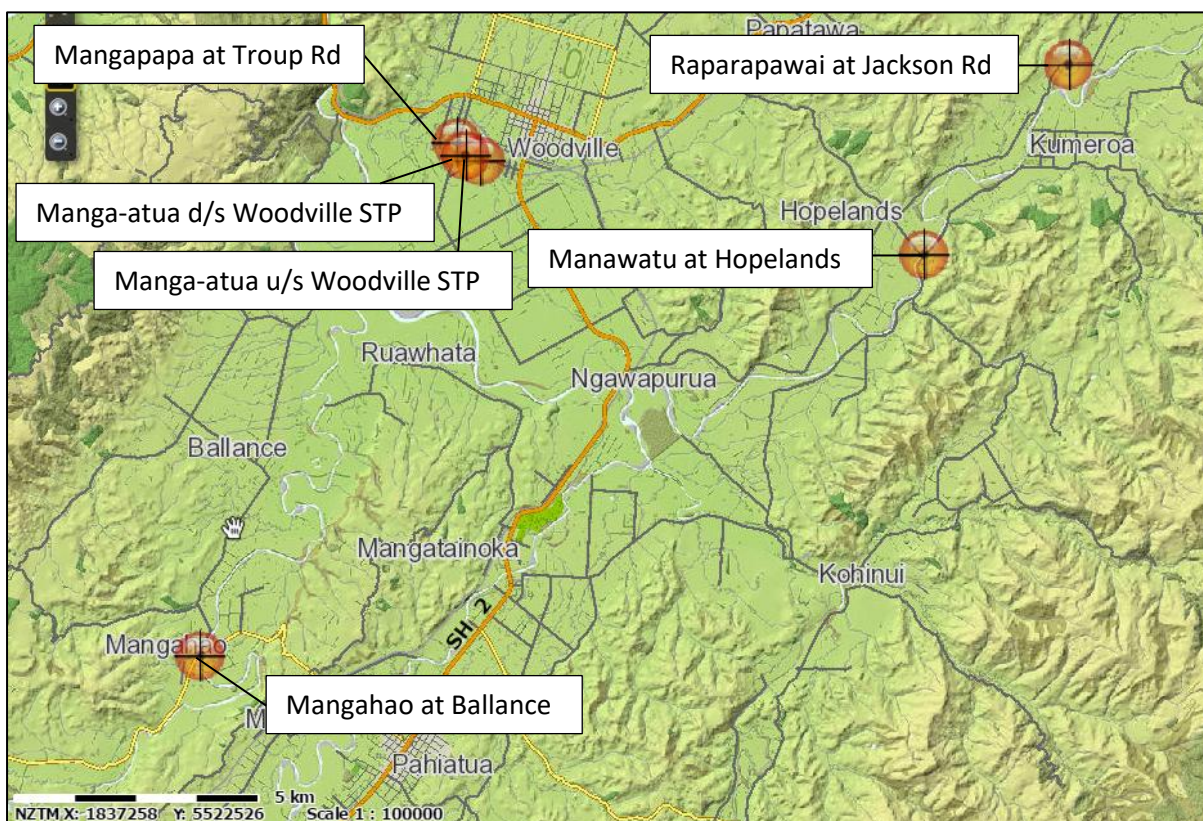
SAMPLING GLOVES	EAR PROTECTION	HARD HAT	SAFETY GLASSES / GOGGLES	WORK BOOTS / WADERS	PROTECTIVE GLOVES	PERSONAL FLOATATION DEVICE (PFD)
						
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<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]
Manual Handling	✓			✓	✓		Staff must wear sampling gloves, eye protection and have access to anti-bacterial hand-gel to sample treated effluent. Hepatitis B vaccinations are offered by HRC. [HMP 30] [HMP 35]

Known Hazard	Significant		Can it be Eliminated		Can it be Isolated		Method of control
	Yes	No	Yes	No	Yes	No	
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. 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

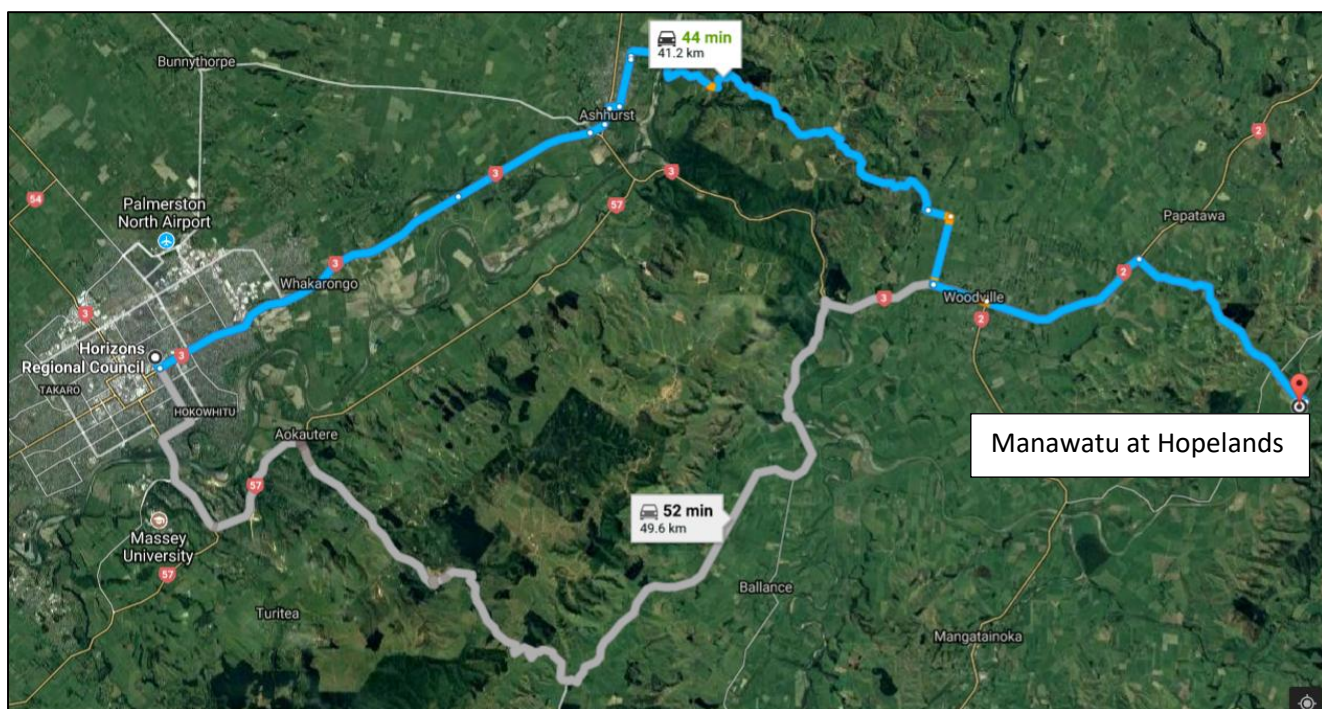
Hilltop Site Name	Easting/Long (NZTM)	Northing/Lat (NZTM)
Manawatu at Hopelands	1851498	5528097
Raparapawai at Jackson Rd	1854478	5531998
Mangapapa at Troup Rd + <b>NEMS</b>	1841895	5530397
Manga-atua d/s Woodville STP	1842069	5530135
Manga-atua u/s Woodville STP	1842368	5530024
Mangahao at Ballance	1836601	5519838



## Equipment Required

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



**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
Engulfment	Communication- means of	Remote Area	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 drive out of town via Napier Rd (SH3) towards Ashhurst. When you reach Ashhurst turn left onto Cambridge Ave, then right onto Mulgrave St and left onto Salisbury St.
- Follow Salisbury St as it turns into Saddle Rd. After about 11.2km you will be on Oxford Rd. Turn right onto Woodlands Rd.
- After about 1.8km turn left onto SH3 (Napier Rd) and head towards Woodville. Drive straight Woodville; on the otherside you will be driving on SH2.
- Stay on SH2 for about 6km then turn right onto Hopelands Rd.
- Follow Hopelands Road for about 6.3km; you will cross a large bridge over the Manawatu River. Turn right once you are off the bridge onto River Road.
- Follow River Road for approximately 500 metres and on your right there will be a track that is signposted which leads down to Hopelands Reserve. Drive down here and park up somewhere next to the long drop toilet.
- From here there is a track leading down to the Manawatu River. Walk approximately 100 metres upstream. You will go around a bend in the river and will be able to see a small waterfall on the opposite (true right) side of the river. Find a suitable riffle to sample upstream of the waterfall.



Enter here and park on grassy area to right



Sample Upstream of Waterfall

## SITE LOCATION MAP – Raparapawai at Jackson Rd



**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
Communication- means of	Remote Area	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 Manawatu at Hopelands head back the way you came up River Rd, and then turn left back onto Hopelands Rd over the bridge.
- Stay on Hopelands Rd for about 1km then turn right onto Jackson Rd.
- Follow Jackson Rd for about 5.3km, you will go over a small bridge that goes over the Raparapawai Stream. Find a safe place to park and walk down to the stream to find a suitable riffle to sample.



*Raparapawai at Jackson Rd bridge, find a suitable spot to park up.*



*Raparapawai at Jackson Rd sample point.*

## SITE LOCATION MAP – Mangapapa at Troup Rd



**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
Communication- means of	Remote Area	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 Raparapawai at Jackson Rd head back the way you came down Jackson Rd. When you reach Hopelands Rd turn right towards SH2 (Napier Rd).
- Turn left on SH2 and head back to Woodville.
- Drive straight through Woodville on Napier Rd (SH2) onto Napier Rd (SH3).
- About 1.4km out of Woodville turn left onto Troup Rd.
- Follow Troup Rd for about 900m until you reach the first bridge which goes over the Mangapapa Stream. Park up somewhere out of the way and walk down to the stream. Find a suitable riffle to sample.

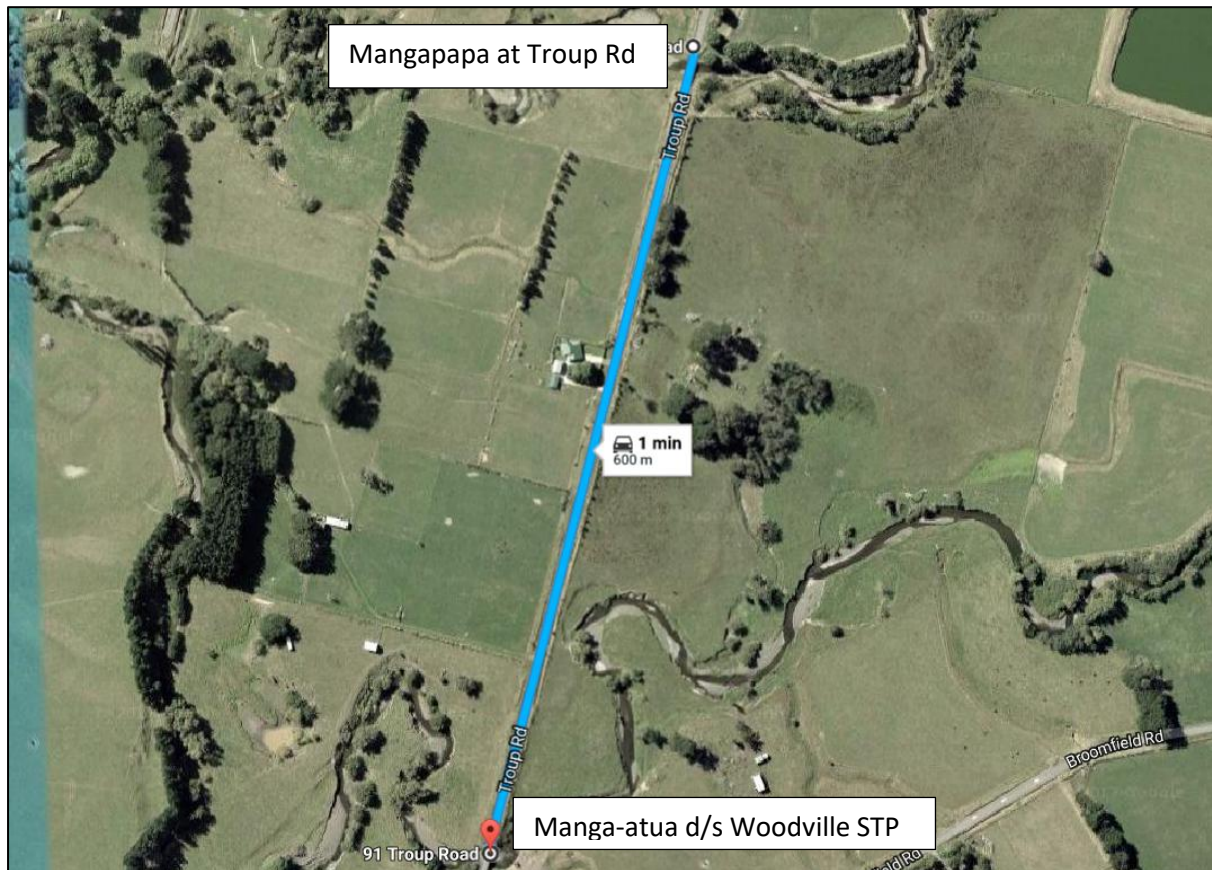


*Mangapapa at Troup Rd bridge.*



*Mangapapa at Troup Rd sample site.*

## SITE LOCATION MAP – Manga-atua d/s Woodville STP



**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
Communication- means of	Remote Area	Reduced Visibility	Stock/Animals

**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 Mangapapa at Troup Rd site continue on down Troup Rd another 600m until you come to another bridge. Find somewhere to park out of the way by the bridge.
- Walk down to the stream and find a suitable riffle to sample upstream of the bridge.

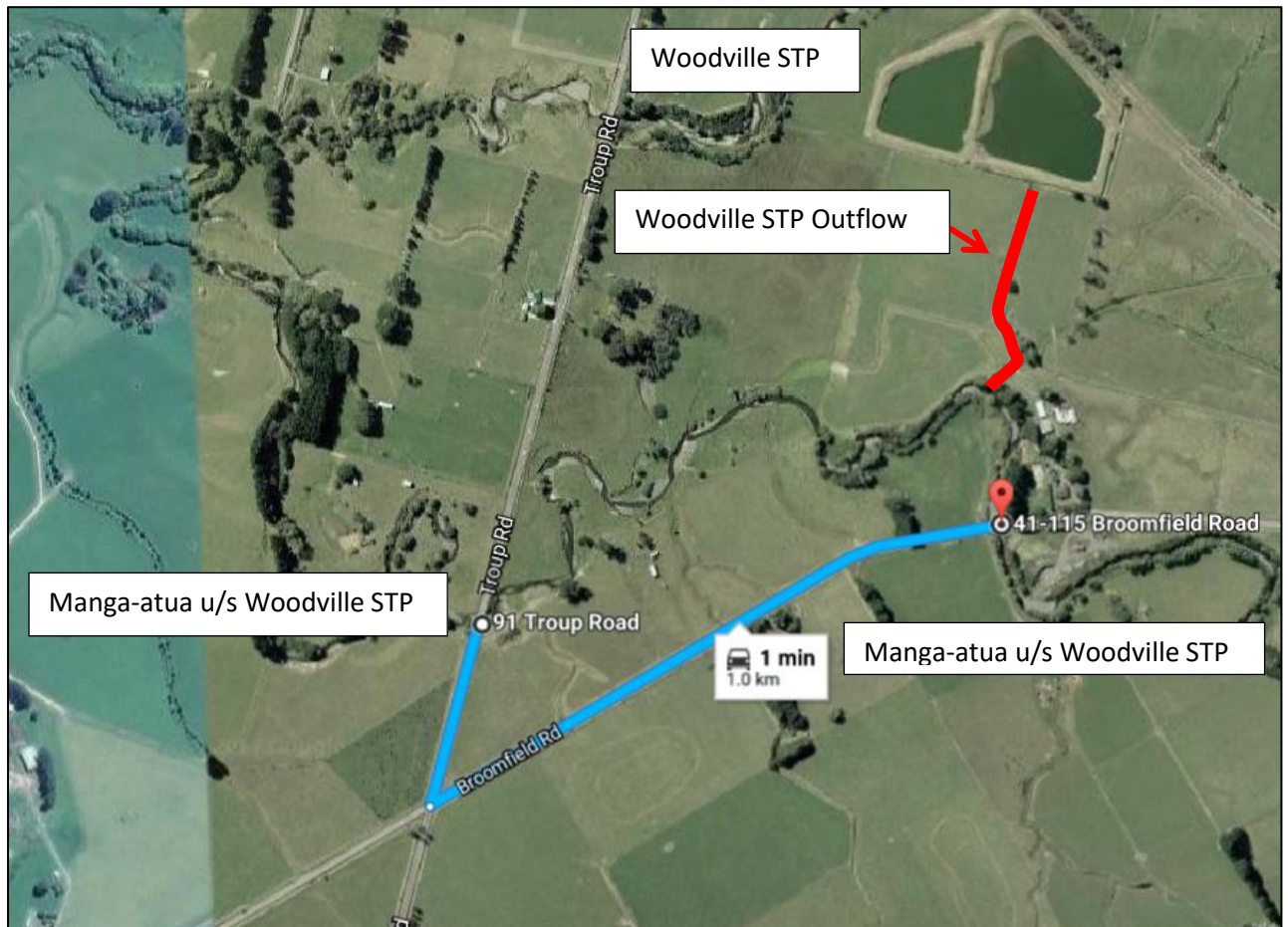


*Manga-atua d/s Woodville STP bridge.*



*Manga-atua d/s Woodville STP sample site.*

## SITE LOCATION MAP – Manga-atua u/s Woodville STP



**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
Communication- means of	Remote Area	Reduced Visibility	Stock/Farm Animals

**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 Manga-atua d/s Woodville STP site continue on down Troup Rd another 200m then turn left onto Broomfield Rd.
- Drive about 750m down Broomfield Rd. You will reach a bridge. Before going over the bridge park off the road to the left out of the way of any traffic.
- Walk down to the stream and find a suitable riffle to sample.

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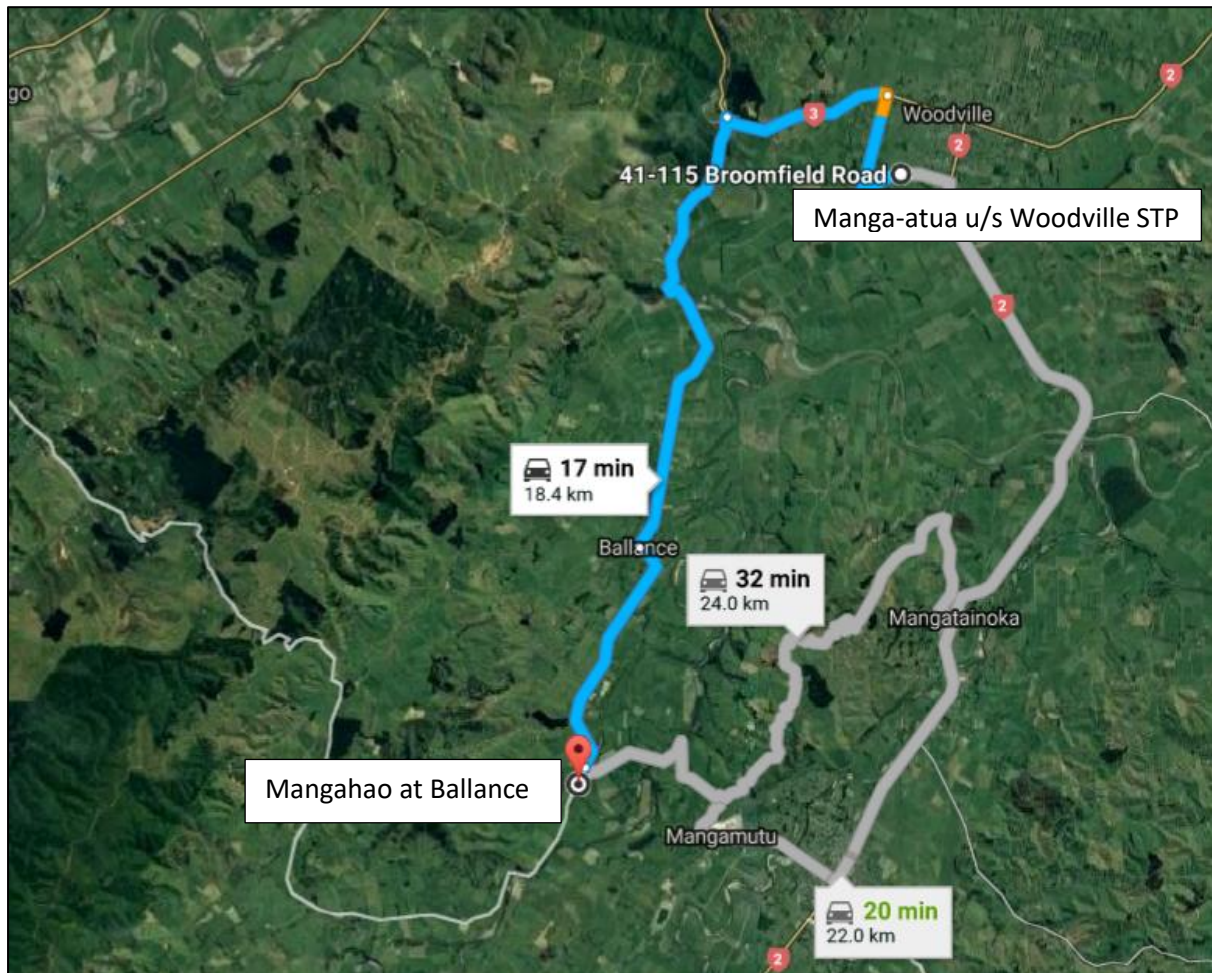


*Manga-atua u/s Woodville STP bridge.*



*Manga-atua u/s Woodville STP sample site.*

## SITE LOCATION MAP – Mangahao at Ballance



**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
Communication- means of	Remote Area	Reduced Visibility	Stock/Farm Animals

**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 Manga-atua u/s Woodville STP site head back the way you came down Broomfield Rd and then right back onto Troup Rd.
- Follow Troup Rd to Napier Rd (SH3), turn left onto Napier Rd (SH3).
- Follow SH3 for about 3km then turn left onto Gorge Rd across a large bridge over the Manawatu River.
- Follow Gorge Rd which eventually becomes Ballance Rd for about 12.7km.
- You will go past a road which turns off on the left to Pahiatua (Pahiatua-Mangahao Rd), continue on straight ahead onto Makomako Rd, about 250m past this turn-off pull over to the left side of the road and make your way down to the Mangahao River.
- Find a suitable riffle to sample.

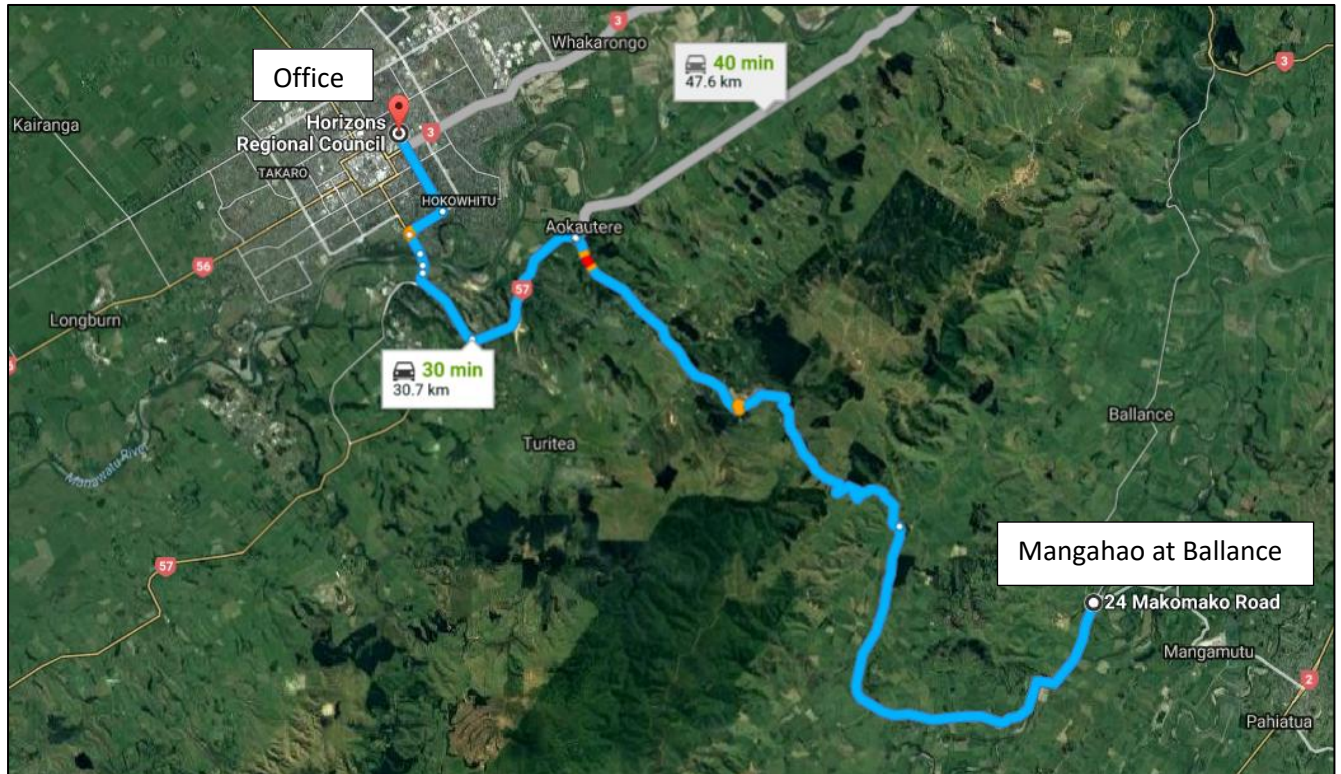


*Mangahao Bridge – drive another 250m down the road past this.*



*Mangahao at Ballance sample site.*

## RETURNING TO THE PALMERSTON NORTH OFFICE



### DIRECTIONS:

- From the Mangahao at Ballance site continue on down Makomako Rd for another 10.4km.
- At the end of Makomako Rd turn left onto Pahiatua-Aokautere Rd and follow for about 11.3km.
- At the end of Pahiatua-Aokautere Rd turn left onto Aokautere Dr (SH57). Follow Aokautere Drive into Palmerston North (the name of the road will change to Summerhill Dr after you have driven through Aokautere, and then to Fitzherbert Ave after you drive over the Fitzherbert Bridge into Palmerston North).
- At the first set of lights turn right onto Te Awe Awe St. Follow for about 900m then turn left onto Victoria Ave.
- Drive down Victoria Ave until you reach the Horizons Office.