

Version No: 5 Issue Date: 21/10/2024 Portfolio: Discrete Water Quality	Horizons Regional Council	Section No: 15.7 Appendix No: 8 Page: 1 of 33
	Hydrology Operations Manual	

Water Quality Monitoring Run Guide

Whangaehu

POINT DISCHARGE

RUN2

(Monthly Sampling)










Job Hazard & Task Analysis

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 checked="" type="checkbox"/>
Difficult entry/exit	<input type="checkbox"/>	Falling objects	<input type="checkbox"/>	Communication – means of	<input 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 checked="" type="checkbox"/>	Temperature extremes	<input checked="" type="checkbox"/>
Explosive gas	<input type="checkbox"/>	Trip hazards	<input checked="" type="checkbox"/>	Reduced visibility	<input type="checkbox"/>
Flammable materials	<input type="checkbox"/>	Slippery surfaces	<input checked="" type="checkbox"/>	Unauthorized persons	<input type="checkbox"/>
Combustible materials	<input checked="" 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 checked="" type="checkbox"/>
Engulfment	<input checked="" type="checkbox"/>	Pressurized fluids	<input type="checkbox"/>	General waste	<input checked="" 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 type="checkbox"/>	Stock/Farm Animals	<input checked="" type="checkbox"/>		

Required PPE– 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 (inc. WADERS)	PROTECTIVE GLOVES	PERSONAL FLOATATION DEVICE (PFD)
						
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
HI VIZ	SAFETY HARNESS					
						
<input checked="" type="checkbox"/>	<input type="checkbox"/>					

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

Known Hazard	Significant		Can it be Eliminated		Can it be Minimised		Method of control
	Yes	No	Yes	No	Yes	No	
Trip Hazards	✓			✓	✓		Prior to sampling staff must check area is clear of any items that pose a risk. If there is any these 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	✓			✓	✓		Pond edges can be slippery at any time. Sampling from the pond edge must always be done from stable level ground using a sample pole. PFD's must be worn by staff. Vehicles must be driven a sensible distance from any pond edges. [HMP18]
Drowning	✓			✓		✓	STP PONDS: The STP ponds can be deep, full of sediments, and have operating equipment on/within them. Sampling of the pond must always be done from stable level ground using a sample pole. PFD's must be worn by staff. Vehicles must be driven a sensible distance from any pond edges. [HMP18] RIVERS/STREAMS: PFD's must be worn by staff. Vehicles must be driven a sensible distance from any river/bank edges. In unsafe conditions sample from a safe bankside location using sample poles and clarity tubes in place of black discs
Machinery – mobile plant	✓			✓		✓	Sample sites within an operating waste water treatment plant - plant and machinery may be on-site during sampling. Staff to wear appropriate PPE, obey on site signage and instruction, and give way to all operational traffic.
Traffic Vehicle movements	✓			✓		✓	STP PONDS: council and contractor vehicles liable to be present at any time. Staff to obey on site signage and instruction. HRC Vehicle to be parked in a safe and appropriate location. [HMP 16] [HMP 20] ROADSIDE: Sample site requires parking beside a main road. The vehicle must be parked as far off of the road surface as safe and practicable to do so. Use of hazards lights must be considered. Hi-vis clothing must be worn. [HMP 16] [HMP 20]
Noise – plant and equipment	✓			✓	✓		STP PONDS: Plant operation can create high levels of noise. Ear protection to be carried in HRC vehicle at all times. Ear protection to be worn when machinery is running [HMP 4]
Hazardous Waste – treated Effluent	✓			✓	✓		Sampling activities require the collection of a sample of treated effluent. Staff must wear sampling gloves, eye protection and have access to anti-bacterial hand-gel to sample. 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	
General Waste		✓		✓	✓		STP PONDS: General waste can be stored on site depending on operating activity. Sample staff have no need to interact with any waste. All waste created by HRC staff to be taken with them.
UV Radiation	✓			✓	✓		Horizons provide sunscreen and hats.
Manual Handling	✓			✓	✓		There should be no need for sample staff to move any equipment etc. in order to carry out sampling activities. Sampling activities require the collection of a sample of treated effluent. Staff must wear sampling gloves, eye protection and have access to anti-bacterial hand-gel to sample. Hepatitis B vaccinations are offered by HRC. [HMP 30] [HMP 35]
Electrical – low /high voltage	✓			✓	✓		Sampling activity does not require any interaction with live circuitry or equipment. Staff should check sample area is clear of any hazards (i.e. loose cables, live equipment etc.) before sampling. If access/safety is considered compromised sampling is aborted. [HMP 23] Live electric fences may be encountered at any time. Always assume any farm fences are live. Find alternative routes if necessary.
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]
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 of additional and appropriate clothing.
Temperature Extremes - Hypothermia: following emersion	✓			✓		✓	Staff must have access to suitable PPE and spare clothing within their vehicle. [HMP18] [HMP18]
Cuts & Abrasions - Plants		✓	✓		✓		Brambles /Vegetation – spray equipment available to keep sites and site access clear of any brambles etc. Alternative routes should also be used/considered if necessary.
Traffic Vehicle movements	✓			✓		✓	Mangaehuehu at u/s Rangataua STP – Very close to Rail line . No need to access the line itself, cross underneath the bridge. Hi-vis clothing must be worn.
Traffic Vehicle movements	✓			✓		✓	Mangaehuehu at u/s Rangataua STP – Sample site and gauging section is either side

Known Hazard	Significant		Can it be Eliminated		Can it be Isolated		Method of control
	Yes	No	Yes	No	Yes	No	
							of an occasional ford crossing point for 4WD and Horse Crossing . No need to sample or gauge at this exact location. Be aware and use caution when in this vicinity. Hi-vis clothing must be worn.
Combustible materials	✓			✓	✓		Winstone Pulp WWTP at Oxpond waste – working mill, lots of sawdust etc. No need to be near any of this. Adhere to induction. Site Induction required
UV Radiation	✓			✓	✓		Winstone Pulp WWTP at Oxpond waste – working mill, sources of radiation on site within mill. No need to be near any of this. Adhere to induction. Site Induction required
Noise – plant and equipment	✓			✓	✓		Winstone Pulp WWTP at Oxpond waste - working mill Plant operation can create high levels of noise. Ear protection to be carried in HRC vehicle at all times. Ear protection to be worn when machinery is running [HMP 4]
Air emissions – dust, fumes	✓			✓	✓		Winstone Pulp WWTP at Oxpond waste - working mill Plant operation can create high levels of noise. Sampling requirements should not lead to exposure, however caution is advised. Contact site point of contact for advice or additional PPE is deemed needed.
Live rails-gantry cranes	✓			✓	✓		Winstone Pulp WWTP at Oxpond waste – working mill, one of the access routes require crossing a private shunting/rail line connected to mill. Other route requires walking under overhanging objects. Refer to induction protocols. Site Induction required
Engulfment	✓			✓		✓	Winstone Pulp WWTP at Oxpond waste - within Lahaar Zone. Refer to induction protocols. Site Induction required Whangaehu at u/s Winstone Pulp - within Lahaar Zone. Refer to induction protocols.. Site Induction required Whangaehu at d/s Winstone Pulp - within Lahaar Zone. HRC Warnings would be in place and HRC protocol activated. Consult with manager at first instance –prior to any sampling being undertaken.
Traffic Vehicle movements	✓			✓		✓	Winstone Pulp WWTP at Oxpond waste – working mill, lots of activity. Adhere to induction. Site Induction required
Traffic Vehicle movements	✓			✓		✓	Whangaehu at u/s Winstone Pulp – working forestry block. Adhere to induction. Site Induction required
Noise – plant and equipment	✓			✓	✓		Whangaehu at u/s Winstone Pulp – working forestry block can create high levels of noise (although in reality you should not be allowed that close to any activity). Ear protection to be carried in HRC vehicle at all times. Ear protection to be worn when machinery is running [HMP 4]

Known Hazard	Significant		Can it be Eliminated		Can it be Isolated		Method of control
	Yes	No	Yes	No	Yes	No	
Acidic Water – Whangaehu sourced from Crater Lake		✓		✓	✓		Whangaehu at u/s Winstone Pulp & Whangaehu at u/s Winstone Pulp – waters can be acidic (recorded as low as 1.9pH). Employ caution and wear suitable PPE. Vehicle must have a first aid kit. Do not Swim – adhere to any additional signage on either site.
Remote Area- Waitangi Stream sample locations	✓			✓	✓		Waitangi at u/s Waionuru STP & Waitangi at d/s Waionuru STP – locations are within a valley with limited access routes. Ensure safe working practices re: communication with team is adhered to.
Electrical : low /high voltage - Waitangi Stream sample locations	✓			✓	✓		Waitangi at u/s Waionuru STP & Waitangi at d/s Waionuru STP – Access route is in close proximity to electricity pylons, with staff having to walk underneath them. Do not be alarmed by the noise. Do not carry any sample poles etc. fully extended. Use caution.

Site Information

Sampling Order	Hilltop Site Name		Easting /Longitude	Northing /Latitude	Comments
1	Waioruru STP at Oxpond waste	NZMG:	2739159	6190191	
		NZTM:	1829119	5628524	
		WGS84:	175.663207	-39.462383	
2	Waitangi at u/s Waioruru STP	NZMG:	2738873	6190430	
		NZTM:	1828833	5628763	
		WGS84:	175.659801	-39.460304	
3	Waitangi at d/s Waioruru STP	NZMG:	2738830	6190181	
		NZTM:	1828789	5628514	
		WGS84:	175.659381	-39.462564	
4	Winstone Pulp WWTP at Oxpond waste	NZMG:	2731144	6190152	WPI Induction Required – see Discrete WQ portfolio holder
		NZTM:	1821100	5628480	
		WGS84:	175.570105	-40.444747	
5	Whangaehu at u/s Winstone Pulp	NZMG:	2732389	6190400	Ernslaw One Inuduction required – see Discrete WQ portfolio holder
		NZTM:	1841212	5519830	
		WGS84:	175.843868	--39.464875	
6	Whangaehu at d/s Winstone Pulp	NZMG:	2731719	6190011	
		NZTM:	1821675	5628339	
		WGS84:	175.576824	-39.465996	
8	Rangataua STP at Secondary Oxpond	NZMG:	2722008	6194250	
		NZTM:	1811957	5632576	
		WGS84:	175.462615	-39.430295	
7	Mangaehuehu at u/s Rangataua STP	NZMG:	2722100	6194239	Gauging Required. Gauge and Sample before the STP
		NZTM:	1812048	5628339	
		WGS84:	175.463680	-39.430398	
9	Mangaehuehu at d/s Rangataua STP	NZMG:	2721969	6193662	
		NZTM:	1811917	5631988	
		WGS84:	175.462340	-39.435604	

[Contact details can be found here.](#)

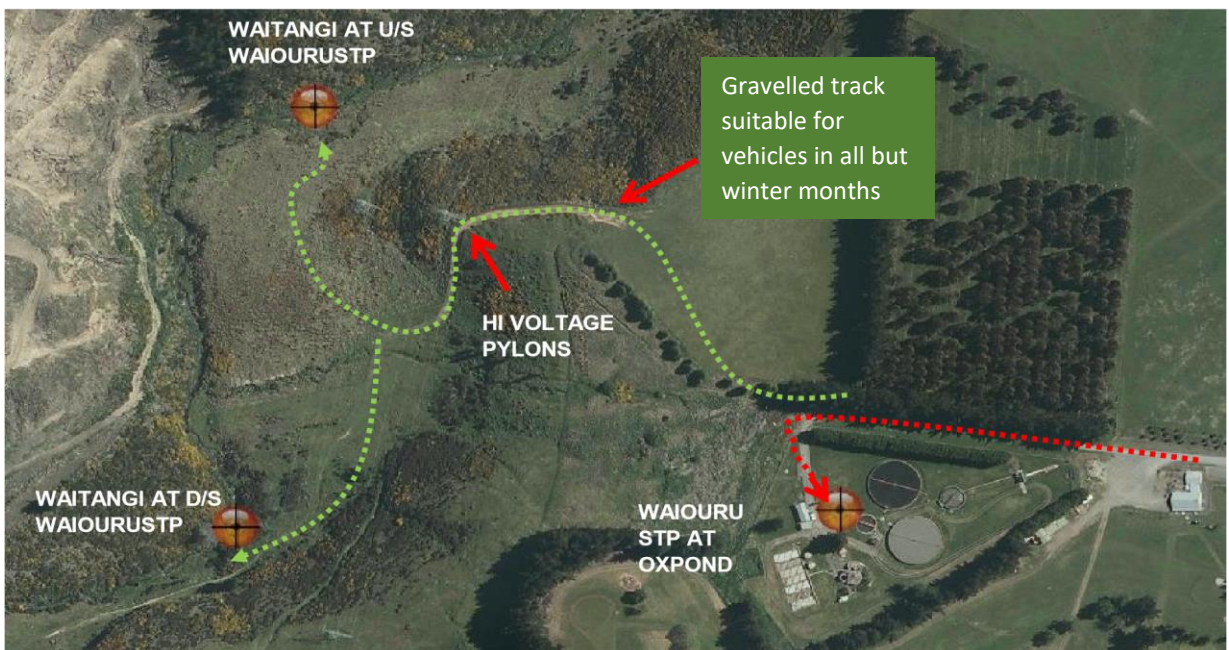
Equipment Required

Sample Bottles	See Bottle Guide.
Equipment	<ul style="list-style-type: none"> • Handheld multi-parameter instrument (calibrated) – including iPad/screen • Black disc, viewer, tape measure • Clarity Tube • Sampling pole • Chilly bins and ice-packs • Bags for isolating samples • Disinfectant equipment for sampling equipment • Field sampling books • Sampling ID labels (created using Hilltop Sampler) • Use gloves for wastewater and effluent samples • Alcohol gel
Miscellaneous	<ul style="list-style-type: none"> • Waitangi at u/s Waouru STP & Waitangi at d/s Waouru STP – Access is via a steep track that has been gravelled and the rest is farm paddocks with uneven ground. Mobile coverage is ok but take a SPOT as back up. • Waitangi at u/s Waouru STP & Waitangi at d/s Waouru STP – Access takes staff close to electrical pylons – noise from these is normal. • Whangaehu River contains Crater Lake water – be aware of low pH • Whangaehu River often very turbid - caution • Mangaehuehu at u/s Rangataua STP – flow gauging required (gauging site name = Mangaehuehu at Rail Bridge) • Mangaehuehu at u/s Rangataua STP – close to rail bridge, be-aware of this being a working line. • Mangaehuehu at u/s Rangataua STP – Gauging section is very close to an occasional ford for vehicles and horse trail.
Additional Comments/ Instructions	<p>Winstone Pulp WWTP at Oxpond Waste:</p> <ul style="list-style-type: none"> • Access is through the Winstone Pulp Mill. • WPI Contractor Induction required. <p>Whangaehu at u/s Winstone Pulp WWTP:</p> <ul style="list-style-type: none"> • Site induction required. • Programmed Radio needed, protocol for use needs to be strictly followed • Adhere to all on-site instruction and signage. • Give way to Logging operations/equipment/vehicles at all times • Access tracks can be icy in winter conditions • Access tracks are unsealed • Site is within a Lahar Zone <p>Whangaehu at d/s Winstone Pulp WWTP:</p> <ul style="list-style-type: none"> • Site is within a Lahar Zone

**SITE LOCATION MAP – Waiouru STP at Oxpond Waste;
Waitangi at u/s Waiouru STP; Waitangi at u/s Waiouru STP**



Overview map



Waiouru STP at Oxpond Waste

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

Drowning - ponds	Traffic / Vehicle movements – access from state highway	Traffic / Vehicle movements – Site works movement	
Trip hazards – equipment, pipe, channels etc	UV Radiation		

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 	HI VIZ 	PFD 	SAMPLING GLOVES 	HAND SANITISER 	SAFETY GLASSES / GOGGLES 		
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DIRECTIONS:

- From the Palmerston North office, head to Waiouru via SH1.
- Drive straight through Waiouru.
- After approx. 1.3km (& passing the Army camp) turn LEFT onto the track leading to the STP – this is also signposted for the golf course.
- Park on left grass verge outside the STP gates.

ACCESS:

- Sample from the manhole (lid will need to be lifted off).
- Wear hi-vis while in STP compound.



Waiouru STP – Access/park area



Sample from the manhole – lift
lid off (and replace afterwards)




Waioruru STP Sample Location

Waitangi at u/s Waouru STP

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

Drowning – River / stream	Electrical Pylons – access track is very close to them - caution	Slippery surfaces access track & river banks	
Trip hazards – cobbles uneven paddock/ground, access track	UV Radiation	Stock – Sheep in paddocks	

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):

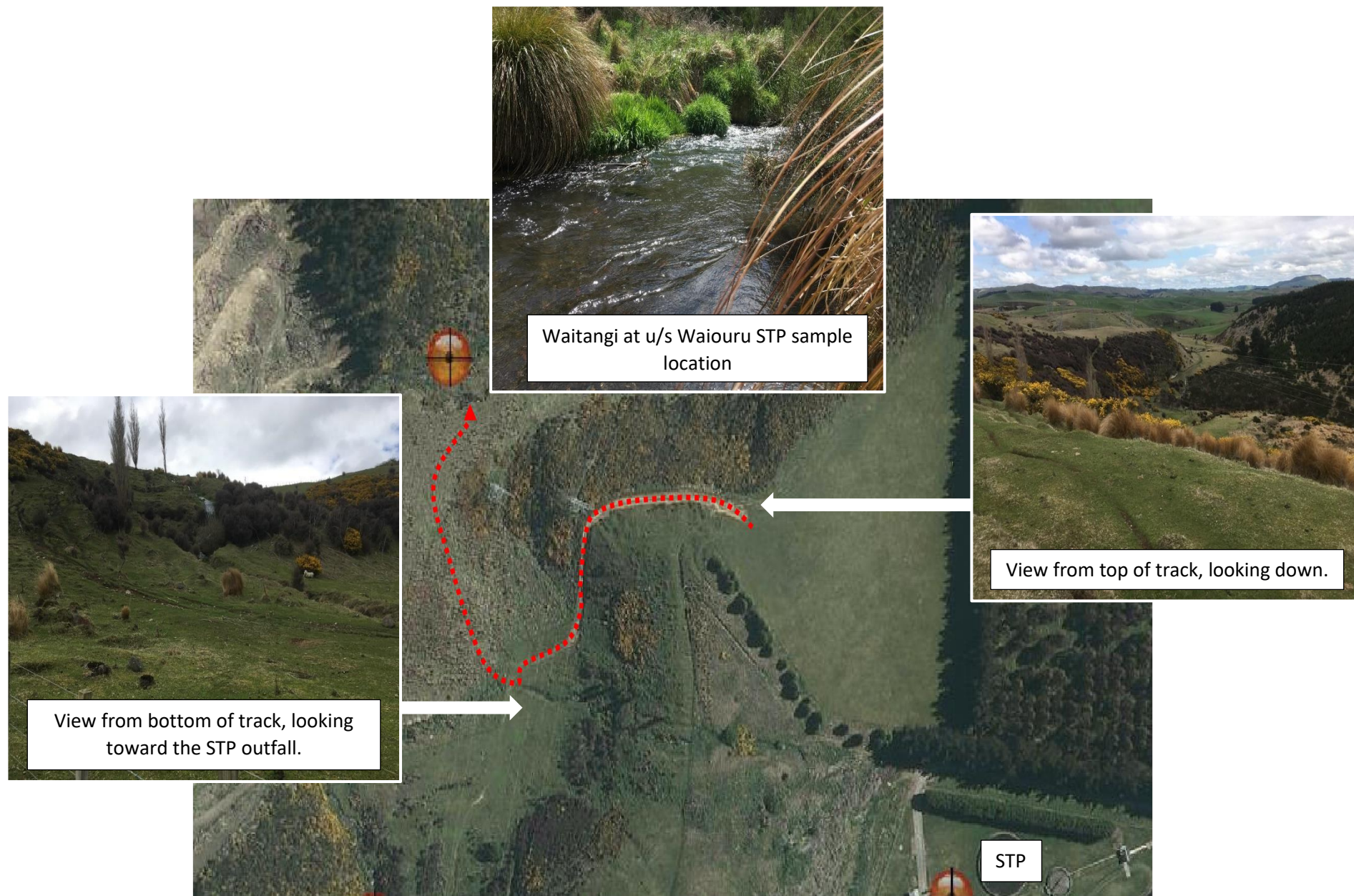
WORK BOOTS/ WADERS	HI VIZ	PFD					
							

DIRECTIONS:

- To the right of the end of the track there is a locked gate. The gate code is 0265. In winter months park just through the gate. The rest of the year it should be ok to drive across the paddock and down the gravelled path to the bottom of the hill. Assess this when on site.

ACCESS:

- Follow the paddock toward the valley (left).
- Follow the track toward the Waitangi Stream. The track is steep in places. You will also pass very close to some pylons – it is normal to be able to hear them humming.
- At the end of the track looking back up the valley you will see the STP effluent ‘waterfall’.
- Access the paddock to your right using one of the strainers. The sample point is approx. 250m upstream of the STP outfall (the waterfall continues into a drainage ditch and into the Waitangi Stream). Follow the rough track toward the sample point.
- The sample point should be marked by a warratah – sample here.






Waitangi at u/s Waioru STP – Sample Location Plan

Waitangi at d/s Waouru STP

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

Drowning – River / stream	Electrical Pylons – access track is very close to them - caution	Slippery surfaces access track & river banks	
Trip hazards – cobbles uneven paddock/ground, access track	UV Radiation	Stock – Sheep in paddocks	

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):

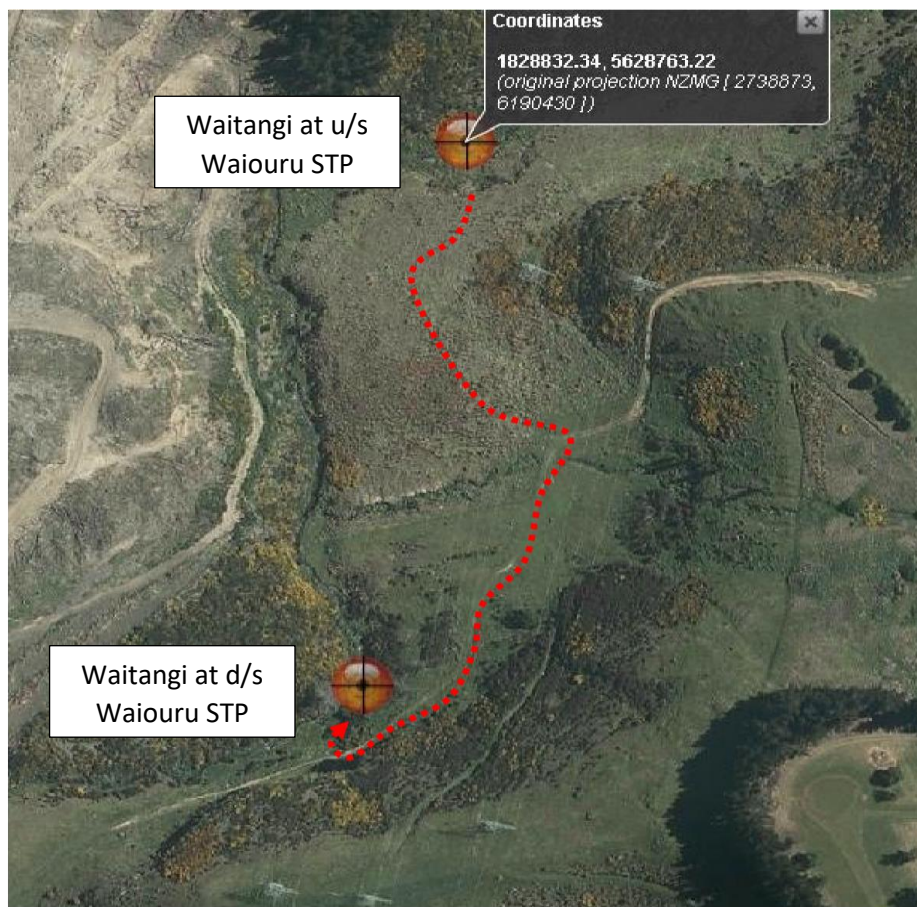
WORK BOOTS/ WADERS	HI VIZ	PFD					
							

DIRECTIONS:

- From the U/S site, cut back across the paddock to the bottom of the access track (by the STP waterfall).

ACCESS:

- Follow the track downstream (you should walk over the discharge channel – piped below the ground at this point).
- Follow this for approx. 70m downstream of the discharge ditch.
- Sample site is marked by a warratah on the left hand bank.



Waitangi at u/s Waouru STP – Sample Location Plan



Waitangi at d/s Waouru STP – Sample Location

SITE LOCATION MAP – Winstone Pulp WWTP at Oxpond Waste; Whangaehu at u/s Winstone Pulp; Whangaehu at d/s Winstone Pulp



Winstone Pulp WWTP at Oxpond Waste

FULL ANNUAL INDUCTION REQUIRED TO ACCESS SITE
Need to let staff know day before you go on site

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

Drowning - pond	Traffic / Vehicle movements – STP traffic	Slippery surfaces – pond edges, grass slopes	
Trip hazards – cobbles uneven ground	UV Radiation	Working Facility – INDUCTION required	

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	HI VIZ	PFD	SAMPLING GLOVES	HAND SANITISER	SAFETY GLASSES / GOGGLES	HARD HAT	
							

DIRECTIONS:

- From the Waiouru STP head back to Waiouru.
- Turn RIGHT onto SH49 towards Ohakune.
- Just after the Tangiwai Rail Bridge Memorial, you will come across the WPI mill entrance on your RIGHT.
- Turn in here and drive towards WPI.
- Use your access card provided during induction to gain access and drive to the sampling point (see map below).

ACCESS:

- WPI Contractor Induction required. Induction must be within date.
- Need to email staff the day before to let them know you are going to be on site.
- All onsite procedures (as detailed in induction) must be followed.
- Give way to operations/equipment/vehicles at all times.
- Must have hazards and beacon on.
- Must be wearing a hi-vis vest and helmet.
- Beware of the active rail line on site.
- Note, a sampling pole is required to take sample.







Location of Winstone Pulp WWTP at Oxpond Waste Sample Point (follow red line).



Winstone Pulp WWTP at Oxpond Waste sample location.

Whangaehu Discharge Run 1

Whangaehu at u/s Winstone Pulp

Known to Ernslaw One as Karioi Forest							
FULL ANNUAL INDUCTION REQUIRED TO ACCESS SITE							
POSSIBLE SITE HAZARDS (this does not negate undertaking a hazard review prior to sampling on the day):							
Drowning – River	Traffic / vehicle movements – access from State Highway		Traffic / vehicle movements – logging trucks and plant		Slippery surfaces – pond edges, pipes		
Trip hazards – cobbles uneven paddock/ground	UV Radiation		Acidic water		Working Forestry block – INDUCTION required		
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	HI VIZ	PFD	SAMPLING GLOVES	SAFETY GLASSES / GOGGLES			
							
DIRECTIONS: <ul style="list-style-type: none">Leave the WPI car park and turn RIGHT towards the forestry block.							
ACCESS: <ul style="list-style-type: none">Txt Forestry Contact prior to getting on site & again when leaving site.Access is through Forestry owned by Ernslaw One.Full Ernslaw One induction required by a minimum of at least one individual of any sample team. Induction must be within date.All onsite procedures (as detailed in induction) must be performed during activity on site.Programmed Radio needed, protocol for use needs to be strictly followed – see hazard map.Adhere to all on-site instruction and signage.Give way to Logging operations/equipment/vehicles at all times.Access tracks can be icy in winter conditions.Access tracks are unsealed.The Whangaehu includes Crater lake surface water – be aware of high acidity.The Visual clarity of the Whangaehu is often low – be aware of associated risks.Site is within a Lahar Zone.Sample site is marked by a warratah on RHB.Park off of the road in clearing opposite sample site.Sample from River opposite warratah (you should be upstream of some metal pipe work on the LHB – this is the WPI discharge).							

To get to the sample site you need to access Ernslaw One forestry land. All movements must be stated on the radio frequency (see the discrete WQ portfolio holder to get a radio sorted PRIOR to the sampling run. Access to sample site is via the McCarthy workshop, Rail-siding and WPI Discharge site along Whangaehu road.

Select the Forestry block radio sub-channel by pressing P2 three times.
Use the volume/frequency knob to select the radio channel: Karioi Forest
Hold down the side button to talk across the network.

Radio Instructions TO site:

On passing the truck area:

"Horizons light vehicle at Work Shop heading to Rail Siding via Whangaehu Road"

On reaching the rail siding:

"Horizons light vehicle at Rail Siding heading to Winstone Pulp Discharge point via Whangaehu Road"

On reaching the Winstone Pulp Discharge point:

"Horizons light vehicle at Winstone Pulp Discharge point, parked off of the road...OVER"

Radio Instructions FROM site:

On leaving sample site:

"Horizons light vehicle at Winstone Pulp Discharge point heading to Rail Siding via Whangaehu Road"

On reaching the rail siding:

"Horizons light vehicle at Rail Siding heading to truck stop via Whangaehu Road"

On reaching the truck stop:

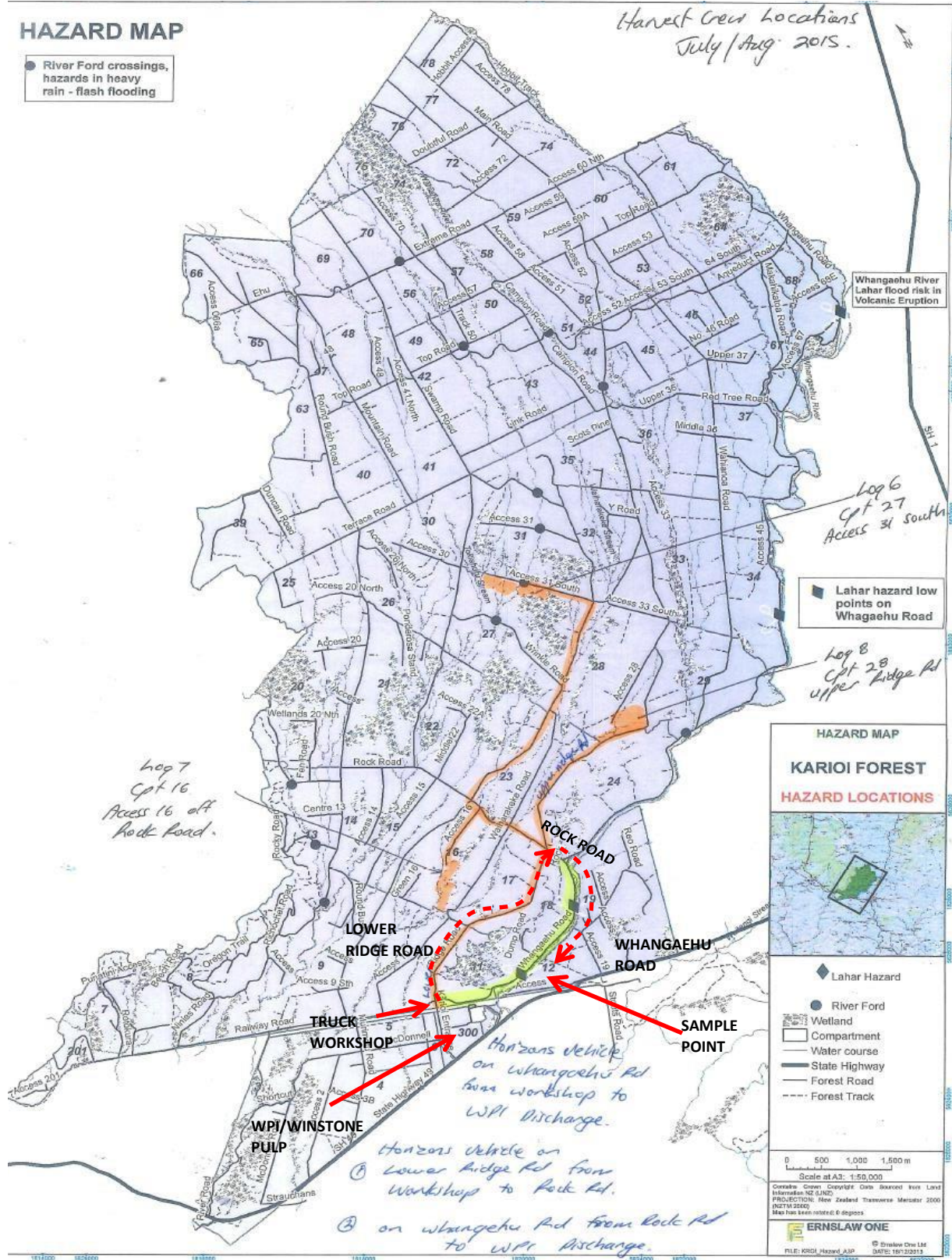
"Horizons light vehicle at Work Shop, leaving site...OUT"



HAZARD MAP

- River Ford crossings, hazards in heavy rain - flash flooding

Harvest crew Locations
July / Aug 2015.





Whangaehu at u/s Winstone Pulp – view of warratah site marker from parking location.






Whangaehu at u/s Winstone Pulp looking downstream from sample point.

Whangaehu at d/s Winstone Pulp

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

Drowning – River	Cuts/Abrasions –brambles	Slippery surfaces – mud, periphyton, banks	
Trip hazards – cobbles uneven paddock/ground	UV Radiation	Acidic Water	

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	HI VIZ	PFD					
							

DIRECTIONS:

- From the *Whangaehu at u/s Winstone Pulp* site, head back to SH49.
- Turn left onto SH49.
- After about 800m and before the road bridge turn left.
- This track should take you to the Tangiwai Rail Crash Memorial.
- Park up here.

ACCESS:

- Head for the Whangaehu and sample from a suitable location – avoid white water /riffles.
- The Whangaehu includes crater lake surface water – be aware of high acidity.
- The Visual clarity of the Whangaehu is often low – be aware of associated risks.
- Site is within a Lahar Zone.
- You should be upstream of the SH49 road bridge.



Whangaehu at d/s Winstone Pulp – view of sample location looking upstream



Whangaehu at d/s Winstone Pulp – view of sample location looking downstream

Whangaehu Discharge Run 1

**SITE LOCATION MAP – Rangataua STP at Secondary
Oxpond Waste; Mangaehuehu at u/s Rangataua STP;
Mangaehuehu at d/s Rangataua STP**



Rangataua STP at Secondary Oxpond Waste

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

Drowning – River	Traffic / Vehicle movements – STP traffic	Slippery surfaces – pond edges, grass slopes	
Trip hazards – cobbles uneven ground	UV Radiation		

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	HI VIZ	PFD	SAMPLING GLOVES	HAND SANITISER	SAFETY GLASSES / GOGGLES	VEHICLE BEACON	
							

DIRECTIONS:

- From the Tangiwai disaster memorial drive towards Ohakune on SH49 (turn RIGHT).
- At approx. 5km before Ohakune, turn right onto Marino Street (Rangataua).
- Follow this street to the end and turn right onto Nei Street.
- Follow this to the end and follow the gravel track off to the left.
- Park up by the gate at the STP entrance to the ponds.

ACCESS:

- The STP sample is taken from the perforated T Pipe located in the ditch/wetland to the right of the ponds.
- Access is via a cyclone gate.
- Note: Sample the upstream site first.



Rangataua STP – location map



View of Rangataua STP Sample Point looking downstream toward wetland.



View of wetland looking upstream from culvert/track. Wetland discharges into the Mangaehuehu approx. 5m behind where the photo was taken.

Mangaehuehu at U/S & D/S Rangataua STP

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

Drowning – River	Cuts/Abrasions –flax and vegetation	Slippery surfaces – mud, periphyton, banks, stream bed	Trampling, injury - Stock in paddock(s)
Trip hazards – cobbles uneven ground	UV Radiation	Traffic / vehicle movements – Rail line, Occasional Ford, Horse Trail	

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	HI VIZ	PFD	SAMPLING GLOVES				
							

UPSTREAM ACCESS:

- Sample this site FIRST followed by the STP and then the downstream site.
- The sample site is marked by a warratah.
- Follow Nei Street to the stream, go to the left down the path and under the rail bridge (you will need to duck), and the access to the stream is on your right – you should see the warratah.
- This site needs Gauging. Sample site and Gauge site are the same approx. 7m upstream of the rail bridge (note the site name for the gauging's is Mangaehuehu at Rail bridge)

DOWNSTREAM ACCESS:

- Collect a sample 150m downstream of the discharge point.
- Follow the stream past the ponds – use the style at the pond perimeter fence.
- Continue across the paddock.
- Cross the small footbridge/culvert – this is the Pond/Wetland discharge channel – **note if it is discharging into the stream on the paperwork.**
- Continue on to the warratah.
- Sample by warratah
- Access can also be made from the other bank by crossing the footbridge immediately downstream of the STP ponds.



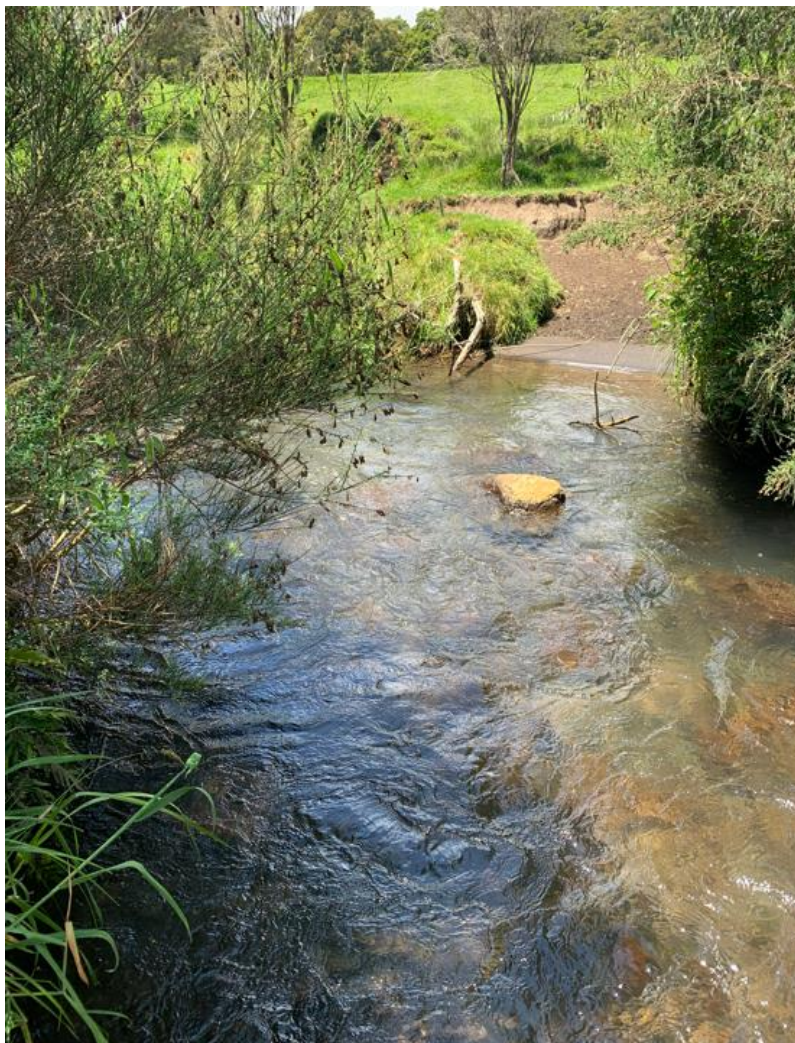
View of Mangaehuehu at u/s Rangataua STP – looking downstream to the rail bridge



View of Mangaehuehu at u/s Rangataua STP - looking upstream



View of Mangaehuehu at d/s Rangataua STP warratah – sample opposite the warratah.



View of Mangaehuehu at d/s Rangataua STP looking upstream.