Water Quality Monitoring Run Guide

LOWER RANGITKEI

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

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	PROTECTIVE GLOVES	PERSONAL FLOATATION DEVICE (PFD)
						
☒	☐	☐	☒	☒	☐	☒

HI VIZ	SAFETY HARNESS	WADERS	HAND SANITISER	VEHICLE BEACON		
						
☒	☐	☒	☒	☒		

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 – STP PONDS	✓			✓	✓		Pond edges and river banks 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 & 30]
Slippery Surfaces – RIVER ACCESS	✓			✓	✓		River banks can be slippery at any time. Care should be taken in all conditions. PFD's must be available to staff for use is deemed appropriate. [HMP18]
Drowning - STP PONDS	✓			✓		✓	The STP ponds can be deep, full of sediments, and have operating equipment on/within them. Typically, HRC staff do not need to sample from the STP pond/Pond edge. Sampling direct from 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 & 30]
Drowning - FLOWING WATER	✓			✓		✓	Staff should be trained in alignment with HRC's training requirements. PFD's must be available to staff for use is deemed appropriate [HMP18]
Machinery – mobile plant	✓			✓		✓	STP sample sites are typically 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.
Death - Anaerobic ponds Marton WWTP	✓			✓		✓	An anaerobic pond is located at Marton WWTP. Significant risk of injury or death. Location is separate from HRC's activities and fully locked. No need to go near an access location.
Traffic Vehicle movements – PLANT WWTP	✓			✓		✓	STP sample sites are typically within an operating waste water treatment plant with 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. [HM 6] [HMP20]

Known Hazard	Significant		Can it be Eliminated		Can it be Minimised		Method of control
	Yes	No	Yes	No	Yes	No	
Noise – plant and equipment	✓			✓	✓		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 [HMP4]
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]
General Waste		✓		✓	✓		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. [HMP30] [HMP35]
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. [HMP23]
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]

Known Hazard	Significant		Can it be Eliminated		Can it be Minimised		Method of control
	Yes	No	Yes	No	Yes	No	
Traffic Vehicle movements – ROADSIDE /GENERAL	✓			✓		✓	Some sample sites require 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. [HMP16] [HMP20]

Site Information

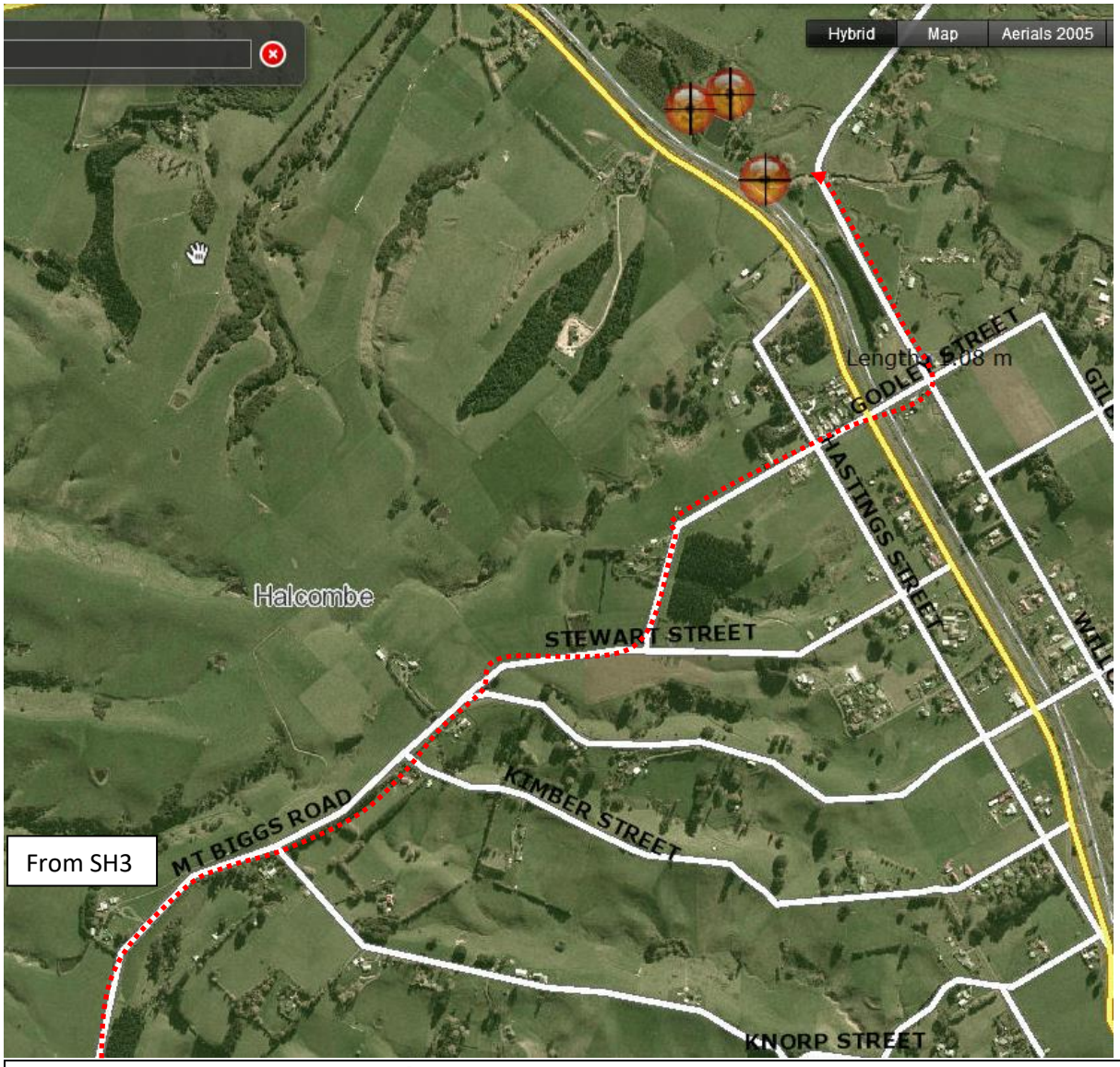
Hilltop Site Name	Easting	Northing	Comments
Halcombe STP at Secondary Oxpond	2721800	6116200	
Rangitawa Stream at us Halcombe STP	2721870	6116029	**Gauged**
Rangitawa Stream at ds Halcombe STP	2721721	6116170	
Marton STP at Rock Filtered oxpond waste	2713673	6119478	Anaerobic ponds on site – DO NOT ENTER
Tutaenui at us Marton STP	2713493	6119467	**Gauged**
Tutaenui at ds Marton STP	2713782	6119245	
Porewa at Onepuhi Rd	NZTM:1809199 WGS84:175.453496 NZMG: 2719220	NZTM: 5560588 WGS84: -40.079018 NZMG: 6122285	**Gauged**

Contact details can be found here.

Equipment Required

Sample Bottles	**Seven (7)sample bottle sets - refer to http://tqm.horizons.govt.nz/Hydrology/SOPs/cd_om_15.4_Appendix_4_ELS%20Bottle%20Guide.xlsx**
Sample numbers	**Seven (7)**
Equipment	• 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
Additional Comments/ Instructions	• **Halcombe STP** sites need Portfolio Holders **Key for Access** • **Marton STP** requires '636' key for access. • **Marton STP** - Anaerobic Pond onsite (behind separate locked gate). No need to be in area for sampling – DO NOT ENTER.

SITE LOCATION MAP – HALCOMBE STP, U/S and D/S



POSSIBLE SITE HAZARDS (this does not negate undertaking a hazard review prior to sampling on the day)**: These should link back to first page**			
Drowning – River	Traffic / vehicle movements – Roadside parking to open/shut access gate	Electric Fences	Stock/Farm animals
Trip hazards – cobbles ,uneven ground	UV Radiation	Hazardous Waste – treated Effluent	Slippery surfaces – mud, periphyton

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):

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

DIRECTIONS:

- From Palmerston North head out SH3 (Rangitikei Line)
- After around 10kms turn right into Mt Stewart-Halcombe Road (signs for Halcombe).
- Continue onto Mount Biggs Road (2.9km).
- Continue onto Stewart Road and then turn Left onto Sherwill Street (this becomes Godley St).
- Continue downhill straight over the Halcombe Road and Rail Line Junctions.
- After the rail line turn left onto Tokorangi Road.
- After approx. 400m on your left (before the bridge) is a gate leading (sign posted MDC) into a paddock and the STP.
- Use the appropriate key (Silver with light green insert on one side) – close the gate behind you.
- Your vehicle will be partially in the road whilst accessing the paddock. Keep your beacon on, wear hi-vis. Give way to other traffic, and give plenty of warning to other road users.

ACCESS:

- Follow the track – you should be able to see the fenced STP compound.

RANGITAWA STREAM at US HALCOMBE STP:

- Before the STP site, on your right will be an access gate onto a footbridge (converted from an old truck trailer). This is the upstream sample site – sample here first. Be careful when climbing down, it is steep.
- Sample and gauge here – during low flows you may need to create a channel to ensure flow for the handheld readings and for gauging (visual estimation of the flow is sometimes appropriate).
- Use of black disc at site is limited but to low flow conditions being prevalent – consider use of clarity tube in such cases.

HALCOMBE STP at SECONDARY OXPOND:

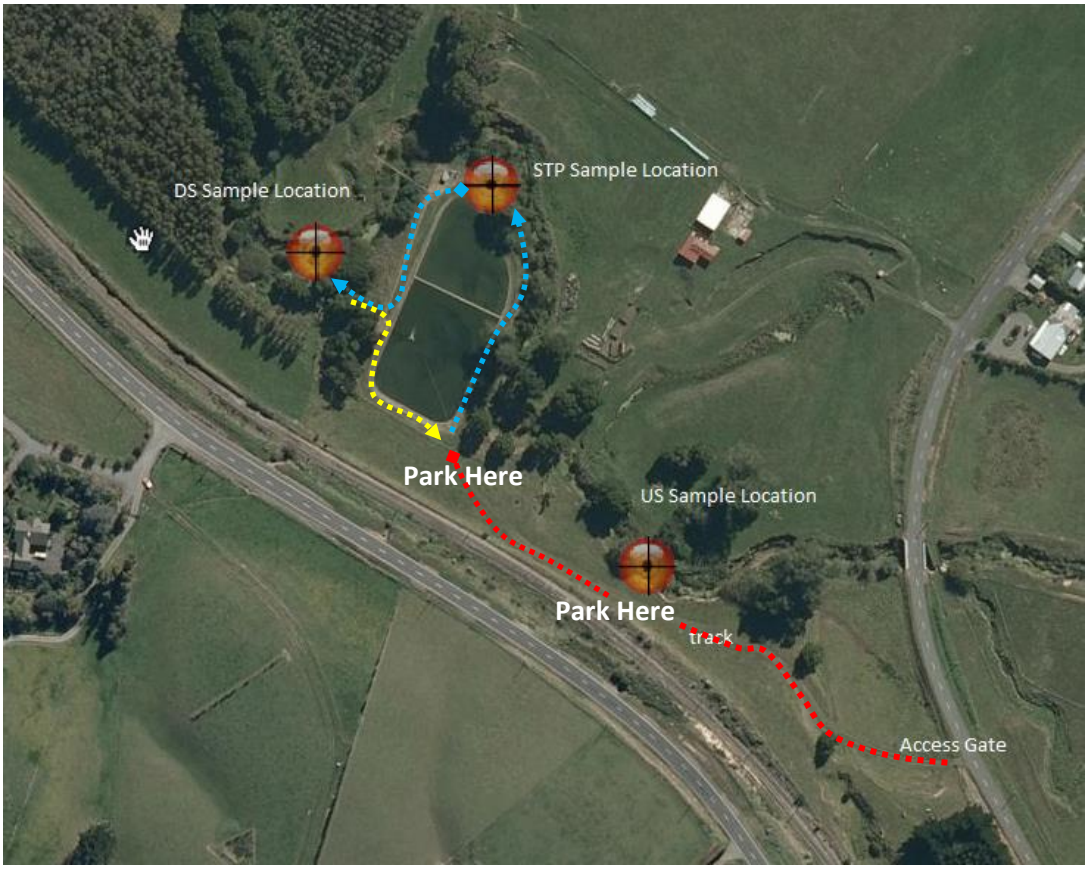
- Continue back on the track to the STP. Use the same key to get access to the compound.
- The STP sample point is from the pipe leading from the former V-notch weir in the far left corner. Be aware of slippery banks and the hazard the ponds represent. Do not drive to the sample point!

RANGITAWA STREAM at DS HALCOMBE STP:

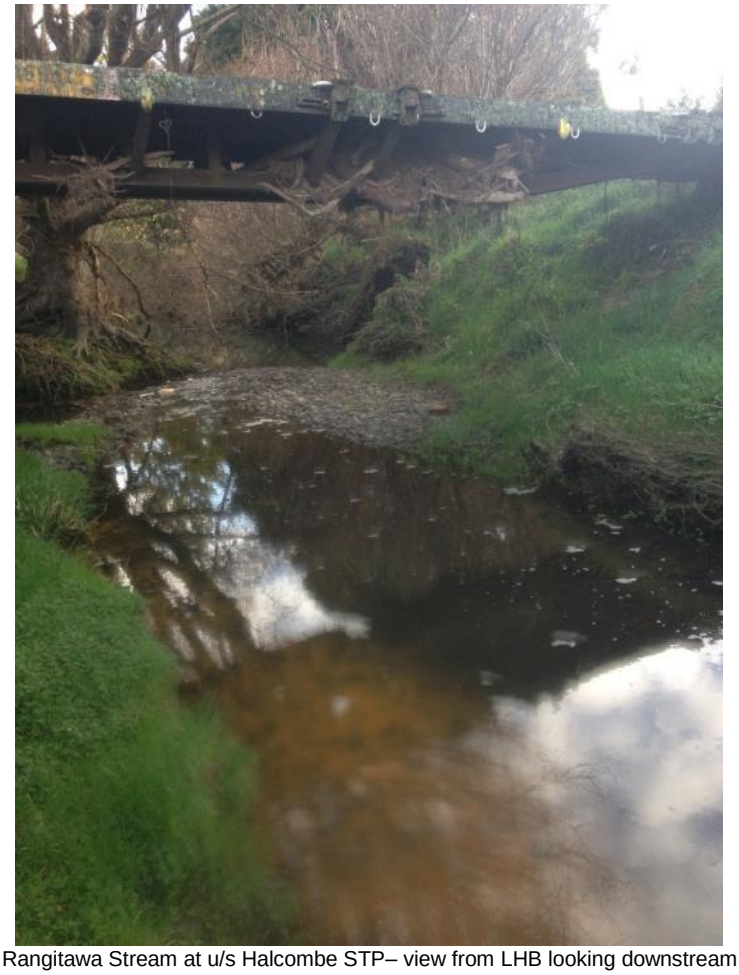
- Sample approx. 50m downstream of the STP discharge.
- Walk back along the stream-side edge of the ponds until you reach a stile about half way back. Go over the stile and carefully walk down to the stream – the grasses can get tall and the ground can undulate – be cautious.
- During low flow, you may need to search for an appropriate sample point.
- Use of black disc at site is limited but to low flow conditions being prevalent – consider use of clarity tube in such cases.
- If there is discharge from the STP, **do not** do visual clarity readings at the downstream site, as the volume of discharge is very high in relation to the flow of the Rangitawa

NOTE: The STP and downstream sites can be sampled in one 'walk' so take two sets of labelled bottles with you.

HALCOMBE STP SAMPLE LOCATIONS:



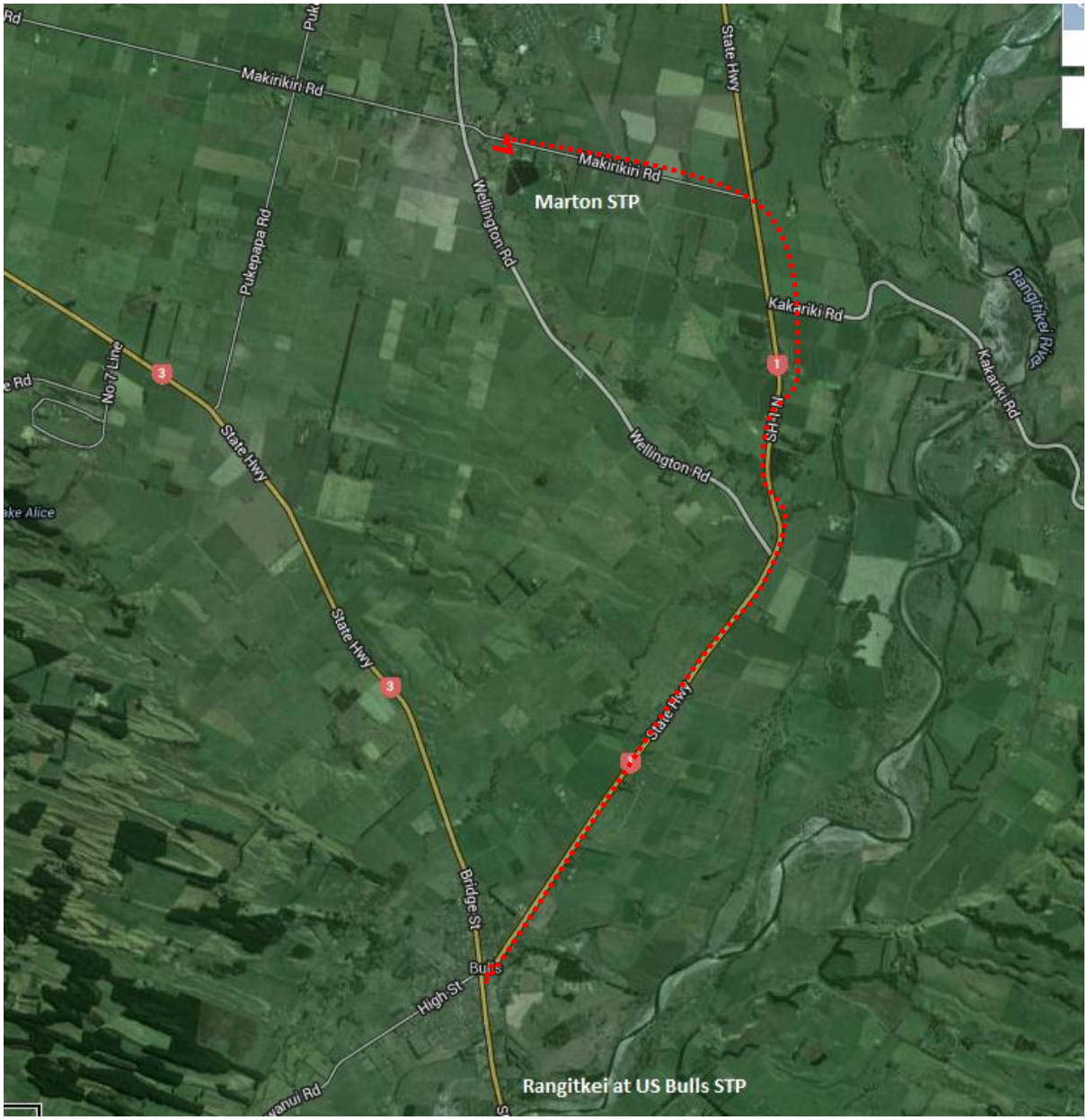
Halcombe STP at Secondary Oxpond – sample at pipe



Rangitawa Stream at u/s Halcombe STP– view from LHB looking downstream

Rangitawa Stream at d/s Halcombe STP– view from mid-channel looking downstream

SITE LOCATION MAP – MARTON STP, U/S and D/S



POSSIBLE SITE HAZARDS (this does not negate undertaking a hazard review prior to sampling on the day)**: These should link back to first page**			
Drowning – River	Traffic / vehicle movements – Roadside parking	Electric Fences	
Trip hazards – cobbles, uneven ground	UV Radiation	Hazardous Waste – treated Effluent	
Slippery surfaces – mud, periphyton	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):			

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

DIRECTIONS:

- Head back along SH3 toward the centre of Bulls (crossing the Rangitikei at the Bulls Bridge)
- Turn right onto SH1 (sign posted Taihape)
- Turn left onto Makirikiri Road
- The STP is on your **left;** immediately after the Goldings Line junction on your right.
- Take the track before the house.
- If the gate is locked use the correct key (The '636' – not the key used at the other MDC sites today).

ACCESS:

- Follow the track between the two ponds, park up by the plant.

MARTON STP at ROCK FILTERED OXPOND WASTE:

- Follow the track to the right of the plant (when facing the plant).
- Immediately past the fence line of the plant itself, you can get access to the sample point.
- Sample from the pipe(s) as they enter the wetland – use a 'dirty' sample pole.
- Marton STP has an anaerobic pond within a separate locked compound on site. There is no requirement to go near the compound. However, this area poses significant risk – DO NOT ENTER/

TUTAENUI STREAM at US MARTON STP:

- The us and ds samples can be taken in one 'walk' from the truck – label up two sets of sample bottles.
- Follow the track between the pond and plant; you should pass through a cyclone gate after less than 10 metres. The discharge stream/channel should be on your left.
- Follow the track to the corner – here the fence is gone and you can cut through the paddock toward the fence-line/stream. Look for a stile to your right to gain access to the stream.
- The discharge pipe is obvious –sample 25m upstream of the pipe. The sample location will vary according to flow.
- The dam in Marton controls the flow of the Tutaenui, therefore over summer periods it is not uncommon for the stream to dry up completely.
- **Only sample if flow is observable** - avoid stagnant pools.
- Generally, Black disc readings are not possible due to limited flows– typically; you will use a clarity tube to record the visual clarity.
- Also gauge this site at an appropriate x-section (it is normal for the section to run dry in low flow). Typically, above the upstream meander is a descent gauging section

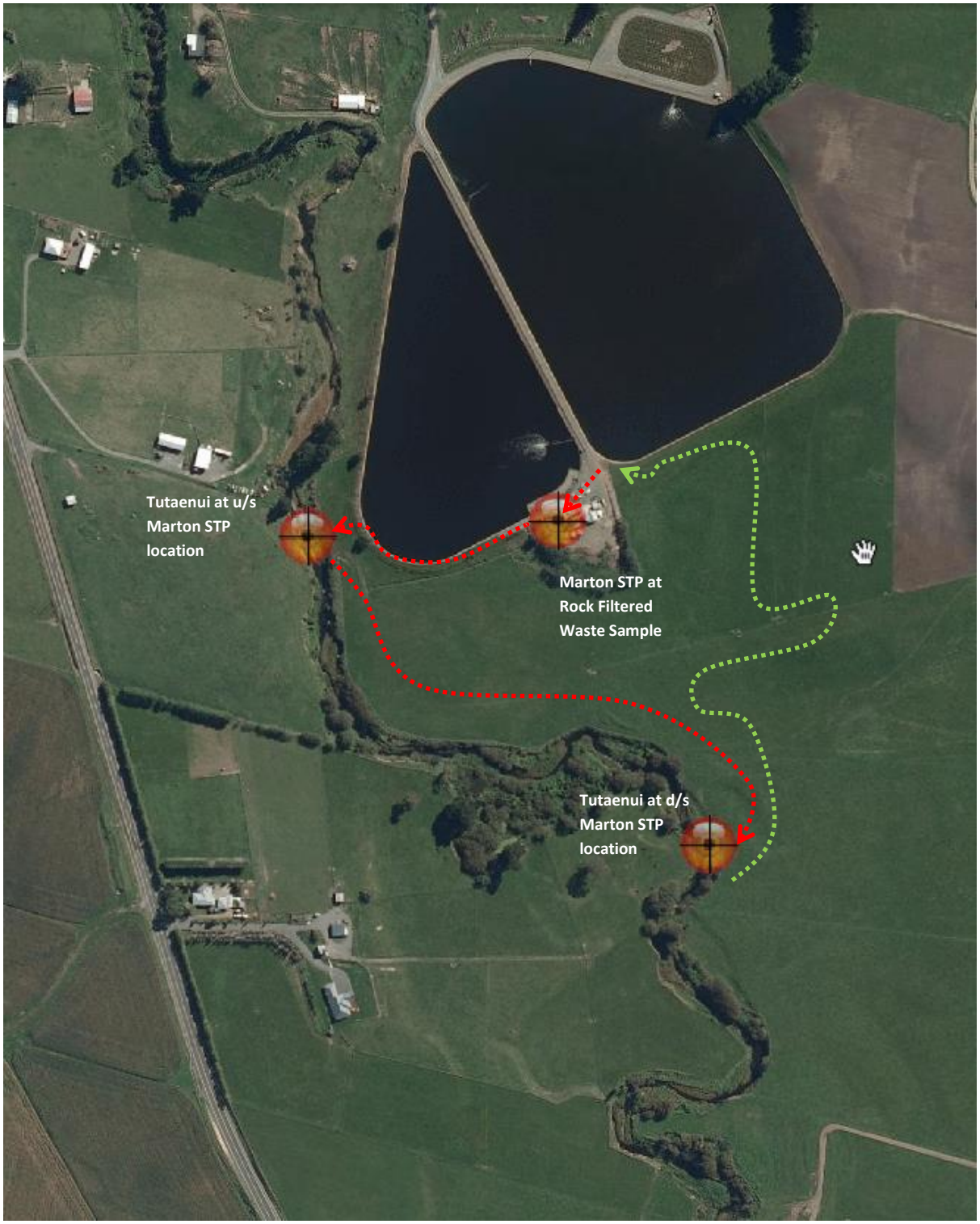
TUTAENUI STREAM at DS MARTON STP:

- Head back over the stile into the paddock.
- Facing the ponds there is an access gate to the neighbouring paddock to your right, quite a long way away, past the outfall.
- Go through gate to the neighbouring paddock
- Continue toward downstream – there are a couple of double strand fences to go over.
- Eventually you'll find a stile next to a sign marking a gas pipe line – there is a newish built house on the other side of the stream,

- Sample here. In low flow, there will be flow at this point (irrespective of u/s) due to the discharge!
- If there is discharge from the STP, do not do visual clarity readings at the downstream site, as the volume of discharge is very high in relation to the flow of the Tutaenui

Marton STP at Rock filtered Oxpond Waste - detail map

Marton STP at Rock filtered Oxpond Waste - detail map



Marton STP at Rock filtered Oxpond Waste; Tutaenui Stream at u/s Marton STP and Tutaenui Stream at d/s Marton STP - detail map

Tutaenui Stream at u/s Marton STP - view from approx. sample location looking downstream (note the STP discharge middle background.

Tutaenui Stream at d/s Marton STP - view from approx. sample location looking upstream.

LOCATION MAP – Porewa at Onepuhi Rd

POSSIBLE SITE HAZARDS (this does not negate undertaking a hazard review prior to sampling on the day)**: These should link back to first page**			
Drowning – River	Traffic / vehicle movements – Roadside parking	Electric Fences	
Trip hazards – cobbles ,uneven ground	UV Radiation		
Slippery surfaces – mud, periphyton	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):

VEHICLE BEACON	HI VIZ	PFD	WADERS				
							

DIRECTIONS:

- From the Marton STP sites, retrace your steps toward SH1.
- At the SH1 junction turn Left onto SH1 (away from Bulls) after a couple of kilometres turn Right onto Onepuhi Road.
- Follow Onepuhi Rd for approximately 4.2km and at the fork in the Rd go to the right.
- Continue along Onepuhi Rd for approximately reach the small road bridge.
- Park as far off the road as possible to the left

ACCESS:

- Access the river from the track on the left. If this is not possible, you can access the stream from the farm track on the opposite side of the road and walk upstream to the sample location
- Sample upstream of road bridge (if safe to do so – if conditions prevent access above bridge i.e. high flows, sample where safe near the access point to river)
- Bed substrate can be very slippery.
- Gauge where safe to do so.

Porewa at Onepuhi Road viewed from Onepuhi Road bridge looking upstream. Gauging X-section opposite green chair in left middle distance of image

Porewa at Onepuhi Road viewed from underneath Onepuhi Road bridge looking upstream