

| | | |
|----------------------------------------------------------------------------------------------------|----------------------------------------|-------------------------------------------------------------------------------------|
| Version No: 05 Issue Date: 25/09/2024 Portfolio: Discrete Water Quality | Horizons Regional Council | Section No: 15.7 Appendix No: 26 Page: 1 of 21 |
|  | Hydrology Operations Manual |  |

Water Quality Monitoring Run Guide

Coastal Streams
SoE

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 | <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 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 type="checkbox"/> | Manual handling | <input checked="" type="checkbox"/> | High pressure water | <input type="checkbox"/> |
| Hazardous substances | <input type="checkbox"/> | Sharp materials | <input type="checkbox"/> | Working near aircraft | <input checked="" type="checkbox"/> |
| Drowning | <input checked="" type="checkbox"/> | Line of fire | <input checked="" type="checkbox"/> | Air emissions – dust, fumes | <input 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 checked="" type="checkbox"/> | Hazardous waste | <input checked="" type="checkbox"/> |
| Electrical – low /high voltage | <input 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 checked="" type="checkbox"/> | Soil disturbance/erosion | <input checked="" 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"/> | Difficult site access/egress | <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 | PROTECTIVE GLOVES | PERSONAL FLOATATION DEVICE (PFD) |
|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
|  |  |  |  |  |  |  |
| <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| HI VIZ | SAFETY HARNESS | WADERS | HAND SANITISER | VEHICLE BEACON | | |
|  |  |  |  |  | | |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | | |

| 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 – 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 - FLOWING WATER | ✓ | | | ✓ | | ✓ | Staff should be trained in alignment with HRCs training requirements. PFD's must be available to staff for use is deemed appropriate [HMP18] |
| Machinery – mobile plant | ✓ | | | ✓ | | ✓ | KAITOKE AT VECTOR GAS LINE: Access is via the 'airside' of Whanganui Airport. Full induction required prior to access. |
| Noise – plant and equipment | ✓ | | | ✓ | | | KAITOKE AT VECTOR GAS LINE: Access is via the 'airside' of Whanganui Airport. Full induction required prior to access. Airport 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] |
| 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. [HMP 17] |
| 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] |
| Stock/Farm Animals | ✓ | | | ✓ | ✓ | | Although generally docile farm animals can still be hazardous. The risk should be isolated by finding alternative access routes |

| Known Hazard | Significant | | Can it be Eliminated | | Can it be minimised | | Method of control |
|---------------------------------------------------------|-------------|----|----------------------|----|---------------------|----|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| | Yes | No | Yes | No | Yes | No | |
| | | | | | | | 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] |
| Traffic Vehicle movements – WHANGANUI AIRPORT | ✓ | | | ✓ | ✓ | ✓ | KAITOKE AT VECTOR GAS LINE: Access is via the 'airside' of Whanganui Airport. Full induction required prior to entry. Staff to obey on site signage and instruction. HRC Vehicle to follow specified route. Use of truck beacon required. HRC Vehicle to be parked in a safe and appropriate location. [HMP 16] [HMP 20] |
| 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 truck beacon required. Hi-vis clothing must be worn. [HMP 16] [HMP 20] |
| Traffic Vehicle movements – ERNSLAW ONE FORRESTRY BLOCK | ✓ | | | ✓ | | ✓ | KOITIATA AT BEAMISH ROAD: Site is within a forestry block. Induction required. Block is to be considered active at all times. The vehicle must be parked as far off of the logging/forestry track as safe and practicable to do so. Use of truck beacon required. Hi-vis clothing must be worn. [HMP 16] [HMP 20] |
| Remote Area | ✓ | | | ✓ | | ✓ | KOITIATA AT BEAMISH ROAD: Cell phone signal is limited within the forestry block. Some intermittent signal at the clearing where the vehicle is parked for sampling. |
| Pressurized Air/Gas | ✓ | | | ✓ | | | KAITOKE AT VECTOR GAS LINE & KAIKOKOPU STREAM AT HIMITANGI BEACH sample locations are within a few meters of the main pressurised gas line (buried). The gas line is marked by white posts and signage. Do not undertake activities between any of the posts that involve digging! |
| Engulfment – Tidal and Tsunami Zones | ✓ | | | ✓ | | ✓ | Sites are all within Tsunami inundation zones. All sites can and should be accessed without entering any tidal zone |
| Line of fire | ✓ | | | ✓ | | ✓ | KOITIATA AT BEAMISH ROAD: Lake is actively used during duck shooting season. Contact Ernslaw One for access prior to visit. |

Site Information

| Sampling Order | Hilltop Site Name | | Easting/ Longitude | Northing/ Latitude | Comments |
|----------------|---------------------------------------|--------|-----------------------|-----------------------|--------------------------------------|
| 1 | KAITOKE AT VECTOR GAS LINE | NZMG: | 2683531 | 6135334 | Full induction required |
| | | NZTM: | 1773500 | 5573628 | Access notified prior to site visit. |
| | | WGS84: | 175.031605 | 39.969708 | GAUGE |
| 2 | KOITIATA AT BEAMISH ROAD | NZMG: | 2696700 | 6119646 | Full induction required |
| | | NZTM: | 1786676 | 5557941 | Access notified prior to site visit. |
| | | WGS84: | 175.190302 | 40.108131 | ED site inspection GAUGE |
| 3 | KAIKOKOPU STREAM AT US HIMATANGI TOWN | NZMG: | 2700767 | 6090257 | GAUGE |
| | | NZTM: | 1790748 | 5528549 | |
| | | WGS84: | 175.246790 | 40.371824 | |
| 4 | WHITEBAIT CREEK AT EDINBURGH TERRACE | NZMG: | 2700076 | 6079641 | ED site inspection |
| | | NZTM: | 1790059 | 5517931 | GAUGE |
| | | WGS84: | 175.241844 | 40.467564 | |

[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 • Sample bottles (including spares) • Black disc, viewer, tape measure • Clarity Tube • Sampling pole • Chilly bins and ice-packs • Bags for isolating effluent 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 | <ul style="list-style-type: none"> • Kaitoke at Vector Gas Line: Access is via the 'airside' of Whanganui Airport. Full induction required prior to entry. • Kaitoke at Vector Gas Line: Advance notice of entry (when leaving the HRC offices) and notice of leaving site needs to be sent to Port Manager via text. • Koitiata at Beamish Road: Full Ernslaw one Induction required prior to access – contact the Discrete Water Quality portfolio holder. • Koitiata at Beamish Road: Advance notice of entry (when leaving the HRC offices) and notice of leaving site needs to be sent to Contact via text. • Kaikokopu Stream at us Himatangi Town: Bankside access to site liable to change due to private owners input. Bank material can be loose and uneven. |

Kaitoke at Vector Gas Line

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

| | | | |
|-------------------------------------------------------|----------------------------------------------------------------------|-----------------------------------------|-----------------|
| Drowning – River, Tidal Zone, Tsunami inundation zone | Traffic / vehicle movements – public road access and airfield access | Slippery surfaces – cobbles, periphyton | Electric Fences |
| Trip hazards – cobbles, uneven ground | UV Radiation | Airfield –aircraft in operation | |

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 | AIRCRAFT | | | |
|  |  |  |  |  | | | |

DIRECTIONS:

- From Palmerston North head for Whanganui along SH3,
- At the Putiki roundabout take the first exit; Wikitoria Road (sign posted airport),
- Continue to the airport on Airport Road,
- Park in airport carpark.
- Check in with staff and obtain pass from Manager's office.

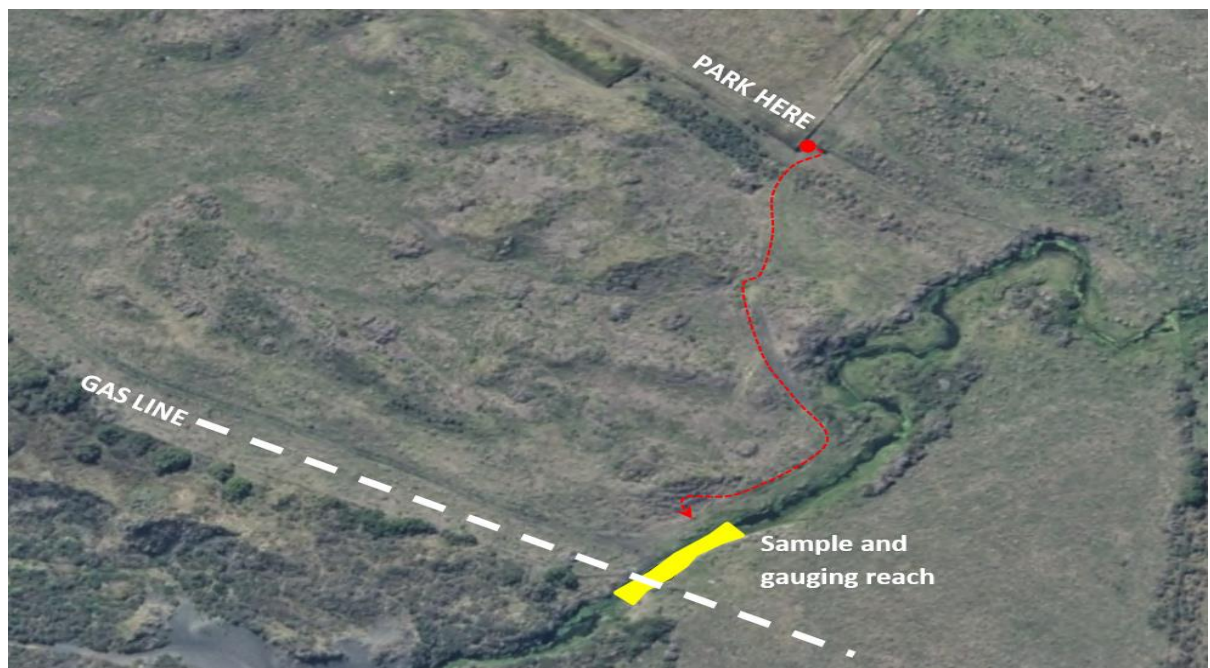
INDUCTION:

- Access is 'Airside' of the Whanganui Airport perimeter.
- Prior arrangement needs to be made before each visit- Contact Port Manager.
- Formal site induction needs to be undertaken prior to access.
- Contact details need to be exchanged.
- Be aware - working airport.

ACCESS:

- Follow the route as per below plan – *NOTE any instruction on the day via Port Manager overrules the guidance contained within this document.*
- Follow route along edge of airfield, vehicle beacon and hi-vis on at all times.
- Park in the far corner as close to the perimeter as possible.
- Hop the fence and follow the stream edge downstream.
- Stock usually present and overly friendly.
- Sample site is above the fence line/gas-line.
- Gauge site.

SITE LOCATION MAPS – Kaitoke at Vector Gas Line



ACCESS PLAN – Kaitoke at Vector Gas Line



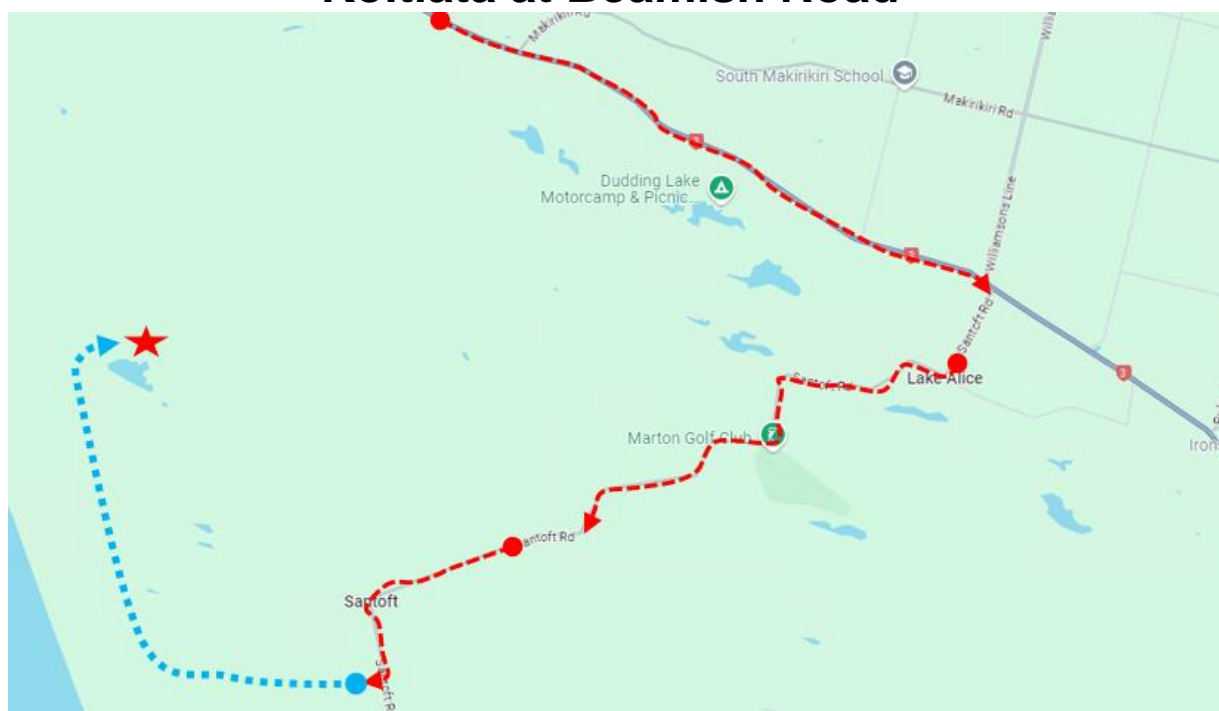


View looking downstream toward fence line. The exposed gas line is in-cased in wooden planking the centre right of photo.



View looking upstream toward typical gauging section

Koitiata at Beamish Road



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

| | | | |
|----------------------------------------------------|-------------------------------------------------------------------|---------------------------------------------------------|---------------------------------------------------------------------|
| Drowning – River, Lake | Traffic / vehicle movements – logging trucks and machinery | Slippery surfaces – cobbles, periphyton | Traffic / vehicle movements – public road access and farm machinery |
| Trip hazards – cobbles, uneven ground, tree debris | UV Radiation | Forestry block in operation – induction required | Lake - used during duck hunting season |

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):

| | | | | | | | |
|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|--|
| ACTIVE FORRESTRY | HI VIZ | PFD | WADERS | VEHICLE BEACON | VEHICLE HEADLIGHTS ON | SECONDARY COMMS | |
|  |  |  |  |  |  |  | |

DIRECTIONS:

- Head back from Whanganui until you reach Santoft Road on the Right. Turn down Santoft Road.
- You will reach an intersection with Alice Road; turn right to stay on Santoft Road.
- Follow Santoft Road for around 10 minutes (10km) until you reach Beamish Road on the right (look for the old school house). Continue on Santoft road, approx. 200m around the corner after to intersection is the access to the forest on your right.

ACCESS:

- Follow the track taking the first right (this is not labelled but is inland Road 32).
- Follow this track as it curves around toward the lake (note the trees have been cut which doesn't show on the map).
- Take a right at the intersection signposted inland Road 27. You should be facing the forest, the Lake is on your left.
- For the SoE site continue past the lake and head towards a cross-road intersection posted inland road 34 and inland road 27. Head straight over this intersection.
- Culvert has blown out and is fenced off – you cannot drive past this point. Sample location is upstream of destroyed culvert.
- Banks are steep and uneven.
- Sample and gauge upstream of the former culvert at the ESG.
- Complete an ED site inspection.

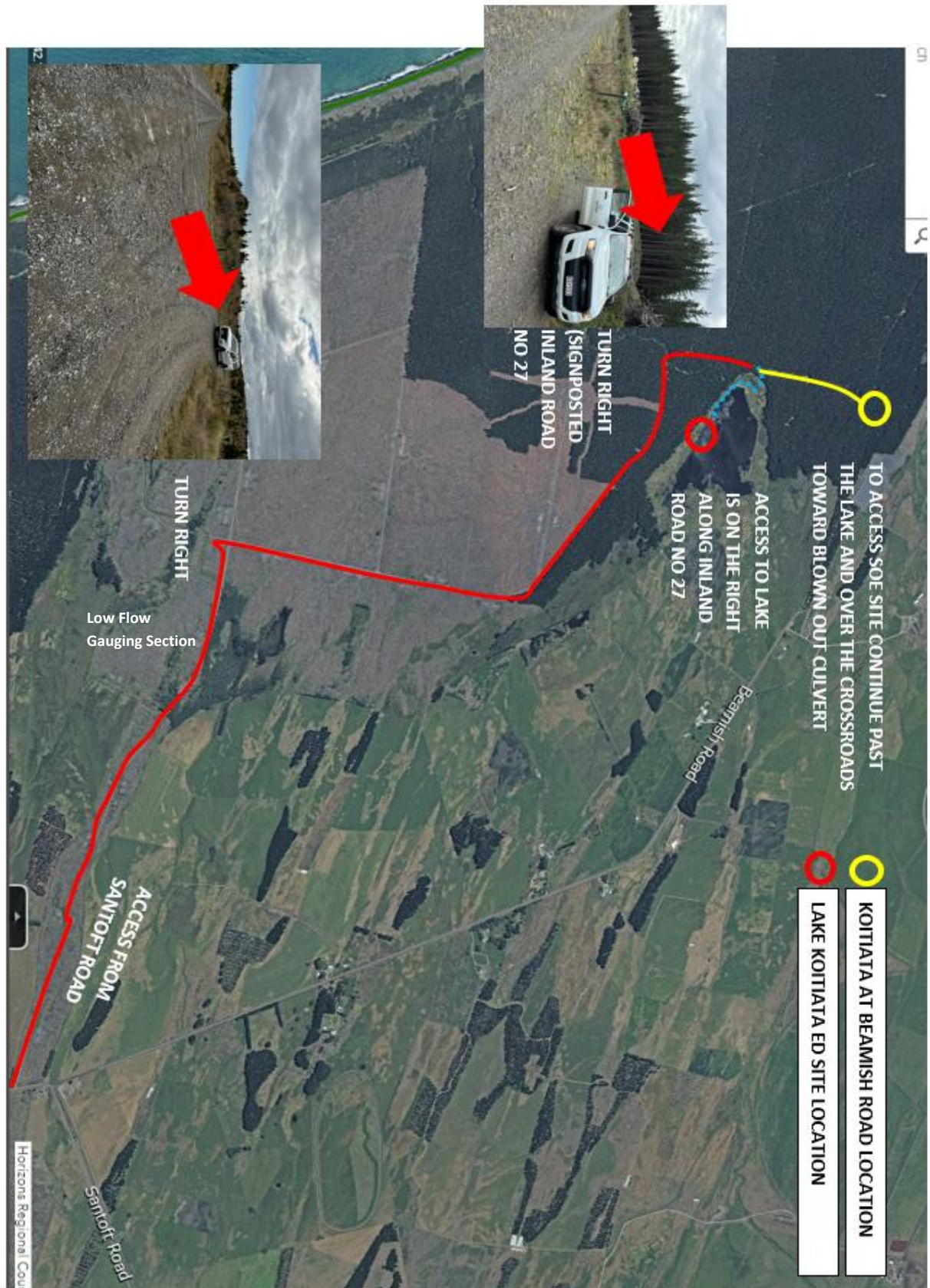
INDUCTION:

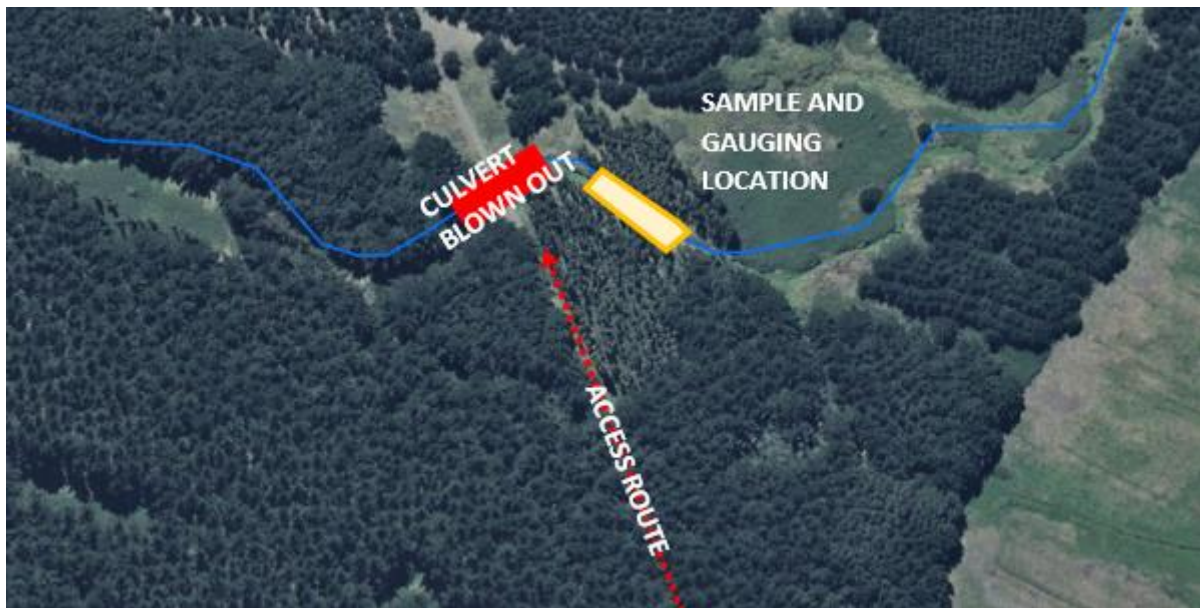
- **A site induction is required from Ernslaw One** for HRC staff/contractors (a minimum of one staff member of the field team if in a group) prior to accessing either the sample or lake sites(s). Inductions last for 2 years. **Contact the Discrete WQ Portfolio holder prior to accessing the site.**
- **Detailed onsite instructions are details in the site folder and Sampling Run guide**
- Adhere to all on-site instruction and signage.
- Consider the site to **always** be an active forestry block - **Always** consider Logging trucks are active on site
- The forestry roads have limited visibility splays – use caution and drive at a sensible speed (max 50km/h) – **use headlights & roof mounted flashing truck lights at all times on site.**
- Ernslaw One require: (i) a minimum of 2kg ABE or Foam fire extinguishers to be within the vehicle at all times, (ii) First Aid Kit within vehicle at all times, (iii) Additional Comms – Horizons policy suffices, (iv) Staff wear hi-vis at all times.
 - **Radio calling no longer required.**

LAKE KOITIATA:

- **If time allows get a site inspection at the ED site.**
- Beware of Lake especially during **duck hunting season**
- Access track crossed outlet and can be wet – wear waders!
- Access can be affected by tree-falls etc.
- **Appropriate HMP's: 2/9/16/17/18/20/22/24/34/35**

ACCESS PLAN – Koitiata at Beamish Road





Site plan



Sample and Gauge near the ED site – Grab a site inspection





Kaikokopu Stream at us Himatangi Town



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

| | | | |
|---------------------------------------------------------------|--------------------------------------------------|-----------------------------------------|--------------------------------------------|
| Drowning – River, Tidal Zone, Tsunami inundation zone | Traffic / vehicle movements – public road access | Slippery surfaces – cobbles, Periphyton | Fences and fence lines around banks/access |
| Trip hazards – cobbles, uneven ground, uneven banks and spoil | 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).

| | | | | | | | |
|-------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------|--|--|--|--|
| VEHICLE BEACON  | HI VIZ  | PFD  | WADERS  | | | | |
|-------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------|--|--|--|--|

DIRECTIONS:

- Head back along Beamish road toward Bulls.
- At the Beamish and Santoft road intersection continue straight on Santoft road (not left back to SH3).
- Turn left onto Raumai road.
- Turn left onto Parewanui Road this takes you into Bulls.
- Once into Bulls turn right onto SH3 toward Sanson/Palmerston North.
- At Sanson turn right onto SH1.
- At the SH1 & SH56 intersection follow the signs for Himatangi Beach via Himatangi Beach Road.
- Carry on straight along Himatangi Beach Road until you are approx. 330m before the 50 km zone signs
- The sample site and gauging section is immediately upstream of the driveway crossing on your right hand side.
- This is opposite #651 Himatangi Beach Road.
- Park off the road and away from the driveway (see below site plan).

ACCESS:

- Sample upstream of the crossing at a suitable location.
- Gauging section is in the run immediately upstream the driveway crossing - this can be a trying site for flow gauging.

- ACCESS:**
- Sample upstream of the crossing at a suitable location.
 - Gauging section is in the run immediately upstream the driveway crossing - this can be a trying site for flow gauging.



Site Plan – Kaikokopu Stream at Himatangi Beach.



View from driveway access looking upstream during winter



View of Gauging cross-section looking downstream from RHB





Whitebait Creek at Edinburgh Terrace



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

| | | | |
|-------------------------------------------------------|--------------------------------------------------|------------------------------------------------|--|
| Drowning – River, Tidal Zone, Tsunami inundation zone | Traffic / vehicle movements – public road access | Slippery surfaces – cobbles, periphyton | |
| Trip hazards – cobbles, uneven ground | UV Radiation | Public active in area during White bait season | |

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):

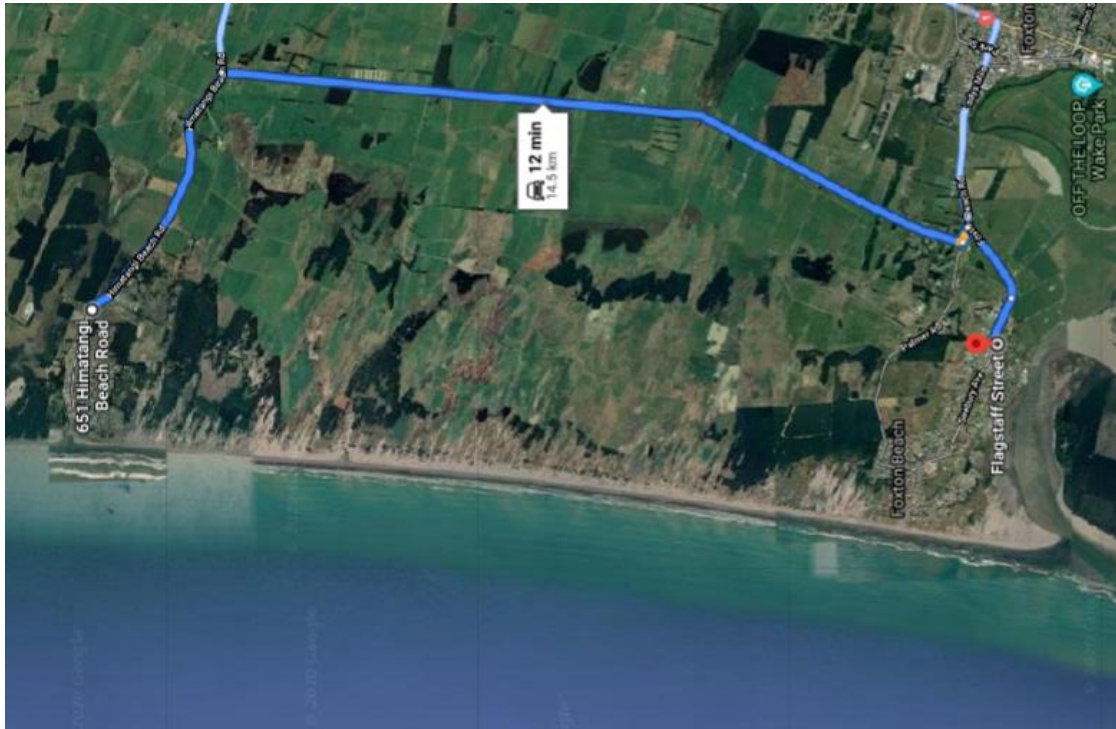
| | | | | | | | |
|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|--|--|--|--|
| VEHICLE BEACON | HI VIZ | PFD | WADERS | | | | |
|  |  |  |  | | | | |

DIRECTIONS:

- From Himatangi head back towards SH1.
- Take the first RIGHT onto Wylie Road & follow until the end.
- Turn LEFT onto Palmer Road.
- Turn RIGHT onto Foxton Beach Road.
- Continue on this road – the name changes to Seabury Avenue.
- Turn right onto Flagstaff Street (toward the water treatment plant).
- The sampling site is straight ahead at the end of Flagstaff Street.

ACCESS:

- Park up off of Flagstaff Street alongside the stream.
- Sample upstream of the box culvert running under Edinburgh Terrace (see below).
- Be aware of public during whitebait season.
- Flow gauging x-sections are viable both above and below the box culvert



Site Plan - Whitebait Creek at Edinburgh Terrace





View of Sample site looking downstream, sample us the box culvert. Gauge at a suitable location either above or below box section



View of ED site at downstream side of culvert. Undertake a site inspection.