Health, Safety & Wellbeing Guide

Christchurch Wastewater Treatment Plant

Health, Safety & Wellbeing
is how we do business

Christchurch City Council

This book belongs to: .....

Useful contact details:

Health, Safety and Wellbeing (HSW) Team Mailbox:
handsadmin@ccc.govt.nz

HSW pages on the Hub:
http://intranet.ccc.govt.nz/staff/health-safety-and-wellbeing

Duty Shift Engineer	Number	(03) 941 5705
	Radio	301 & 302
CWTP Process Engineer	Number	
	Radio	341 & 342
CWTP Operations Team Leader	Number	
	Radio	304
Maintenance Team Leader	Number	
	Radio	305
Name	Number	.....
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Let's all get home safe and well

M Map

Christchurch City Council has endeavoured to ensure material in this document is technically accurate and reflects legal requirements. However, the document does not override governing legislation. Christchurch City Council does not accept liability for any consequences arising from the use of this document. If the user of this document is unsure whether the material is correct, they should refer directly to the relevant legislation and contact Christchurch City Council.

Our commitment to your health, safety and wellbeing

Everyone has the right to a workplace that is free from harm. Together we can ensure everyone goes home safe and uninjured after a day's work.

We have great, enthusiastic and hardworking people. I know that you all want to do a good job and provide great service for our community. However, it is important that we work safely and look out for our health and wellbeing.

This guide summarises your responsibilities for key health and safety issues, to help you understand what is important when you are about to do work.

Make sure that you know what you are doing and are following safe working practices. Always take time to think about what you need to do a job safely.

If you think you need more training, or the tools aren't right for what you are doing, stop and speak to your manager.

We are all personally responsible for not only our own health and safety, but that of others (contractors and the public) on our sites. When you see something that's a problem, speak up and tell your site contact so we can sort it.

This booklet accompanies; CWTP induction, CCC Three Waters Handbook, WorkSafe and the Health and Safety at Work Act 2015; for more information please refer to these or contact **handsadmin@ccc.govt.nz**

Your health, safety and wellbeing responsibilities

Everyone working for, or on behalf of, Christchurch City Council has a duty to themselves and others to work in a healthy, safe and environmentally responsible manner.

At work, you must:

- Demonstrate you believe that everyone has a right to get home safe and well
- Develop and maintain a personal concern for your safety and that of others, and contribute to discussions and activities related to health, safety and wellbeing
- Make sure you consider your health, safety and wellbeing in all decisions you make at work
- Ensure the health, safety and wellbeing of colleagues, contractors and members of the public who may be affected by your activities
- Assess the hazards and risks associated with a particular task, work activity or location, applying appropriate health, safety and wellbeing and control measures
- Talk to your site contact about any problems or concerns you have with your health, safety and wellbeing
- Assist in the implementation of the health,safety and wellbeing management systems, supporting standards, processes and any systems within your team
- Follow the established work processes, procedures, systems of work and control measures and any applicable health, safety and wellbeing processes and rules
- Only carry out tasks which you are appropriately trained to do
- Support any measures put in place to improve your health, safety and wellbeing
- Co-operate with health surveillance as required
- Report health, safety and wellbeing incidents including accidents, injuries, dangerous occurrences, work-related diseases and unsafe acts/conditions (near misses) immediately to your line site contact, or via the QR code below.

Remember: If you identify areas for improvement regarding your health, safety and wellbeing at work, share these with your site contact and with the HSW team at handsadmin@ccc.govt.nz

Christchurch City Council

The golden rules of health

Contact with wastewater can cause severe illness and is a health hazard.

Wash your hands:

- Wash hands when exiting the process areas

Vaccinate against diseases:

- It is recommended that workers are vaccinated for Hepatitis A and B, Diphtheria, Polio and Tetanus

Cover injuries:

- Use gloves when working with wastewater and ensure all injuries are covered

Use designated areas:

- No eating, drinking, vaping or smoking in the process areas

The golden rules of safety

The plant is a large industrial site that operates 24 hours, 7 days a week, with many processes containing high risk, high consequence hazards:

Inductions:

- All workers must be inducted within the past 2 years. All visitors must be accompanied by a CWTP employee

Work approval:

- All work must be reviewed and approved by the Duty Shift Engineer or their delegated CWTP employee

Wear protective clothing:

- The minimum PPE standard is safety footwear, safety clothing (wrist-to-ankle and high-visibility)

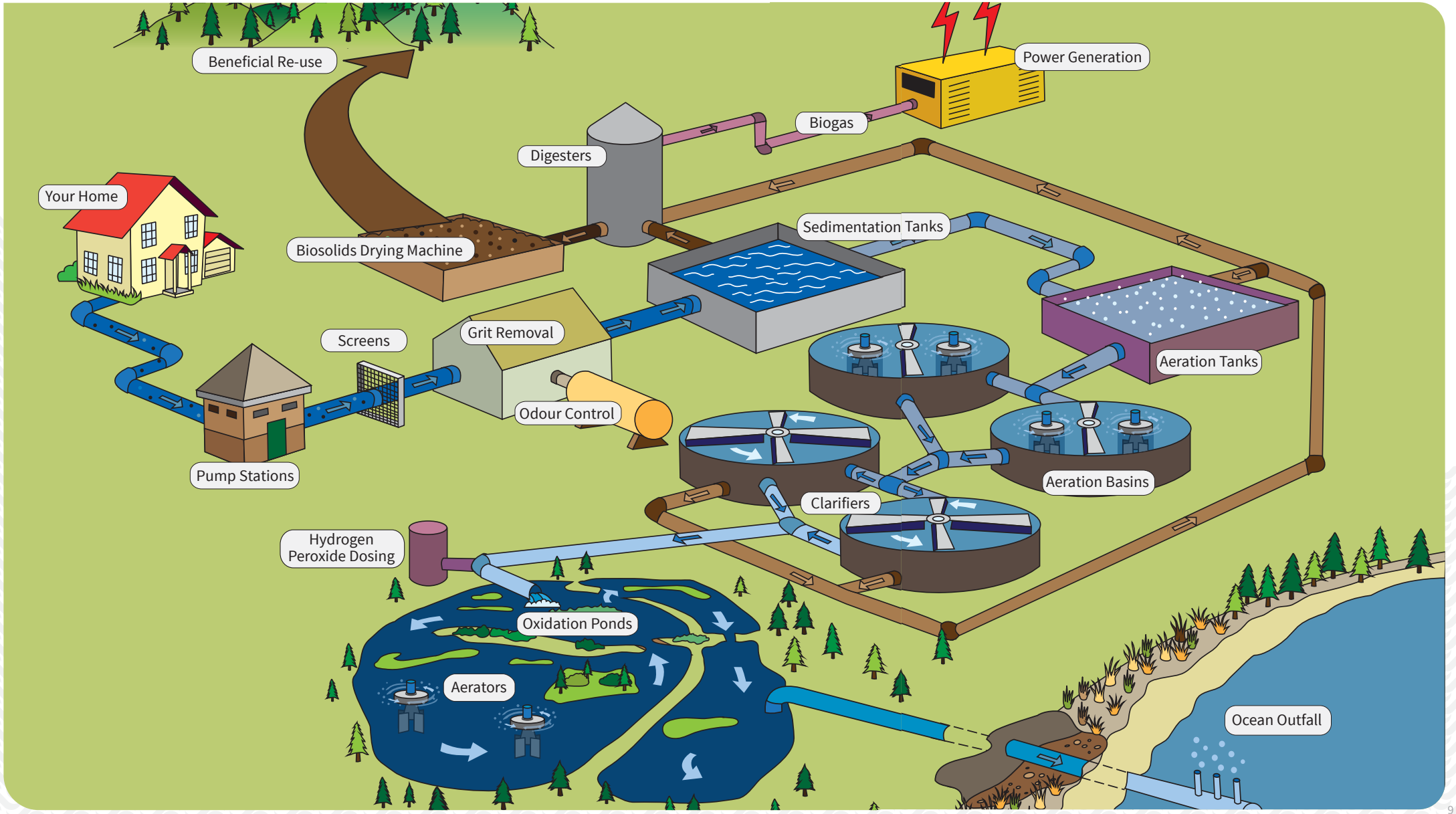
No animals or children:

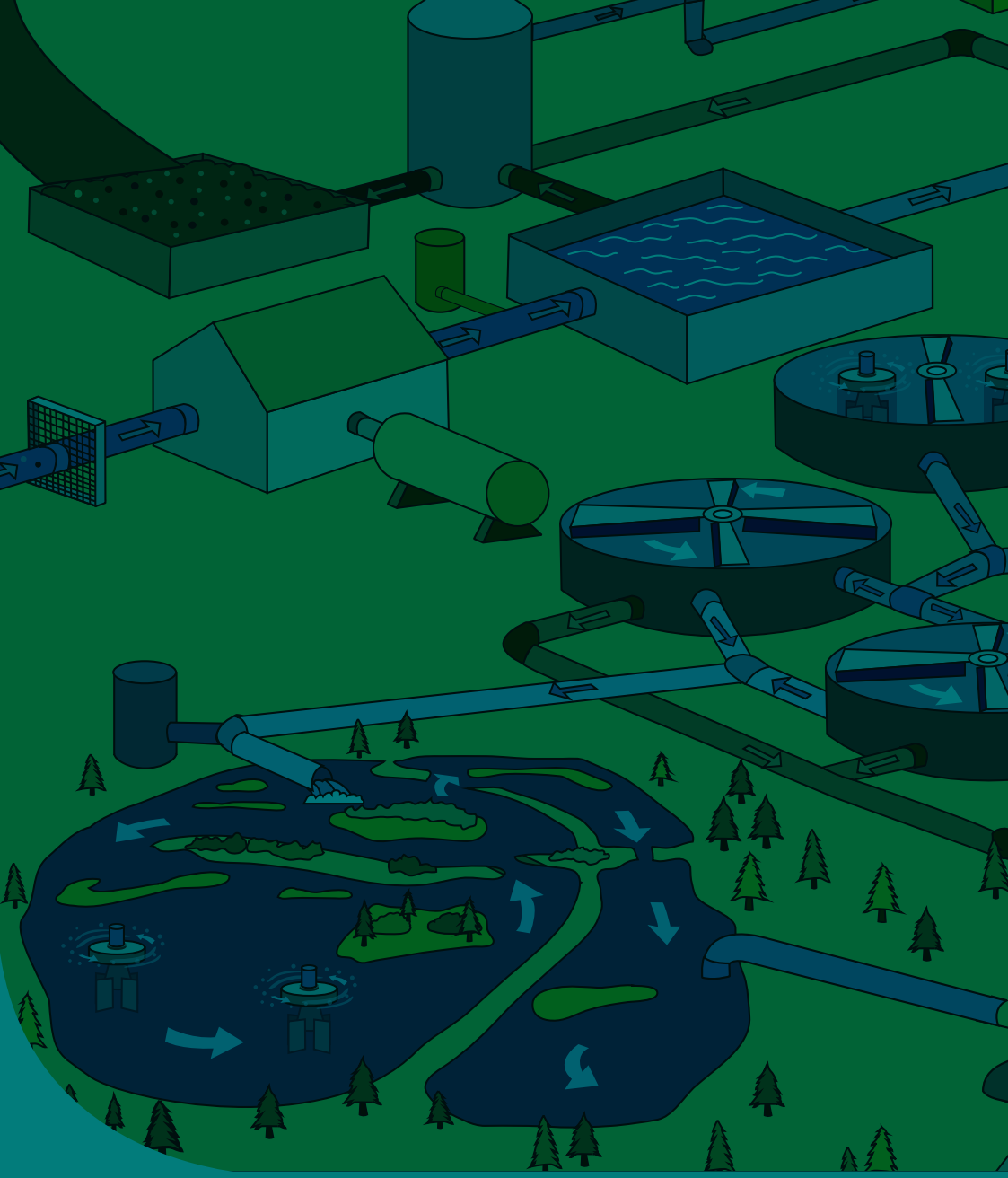
- No animals, pets or children under 16 years of age in the process areas

Christchurch City Council

Welcome to the Christchurch Wastewater Treatment Plant (CWTP)

The plant is a large industrial site that operates 24 hours, 7 days a week, with many processes containing high risk, high consequence hazards.

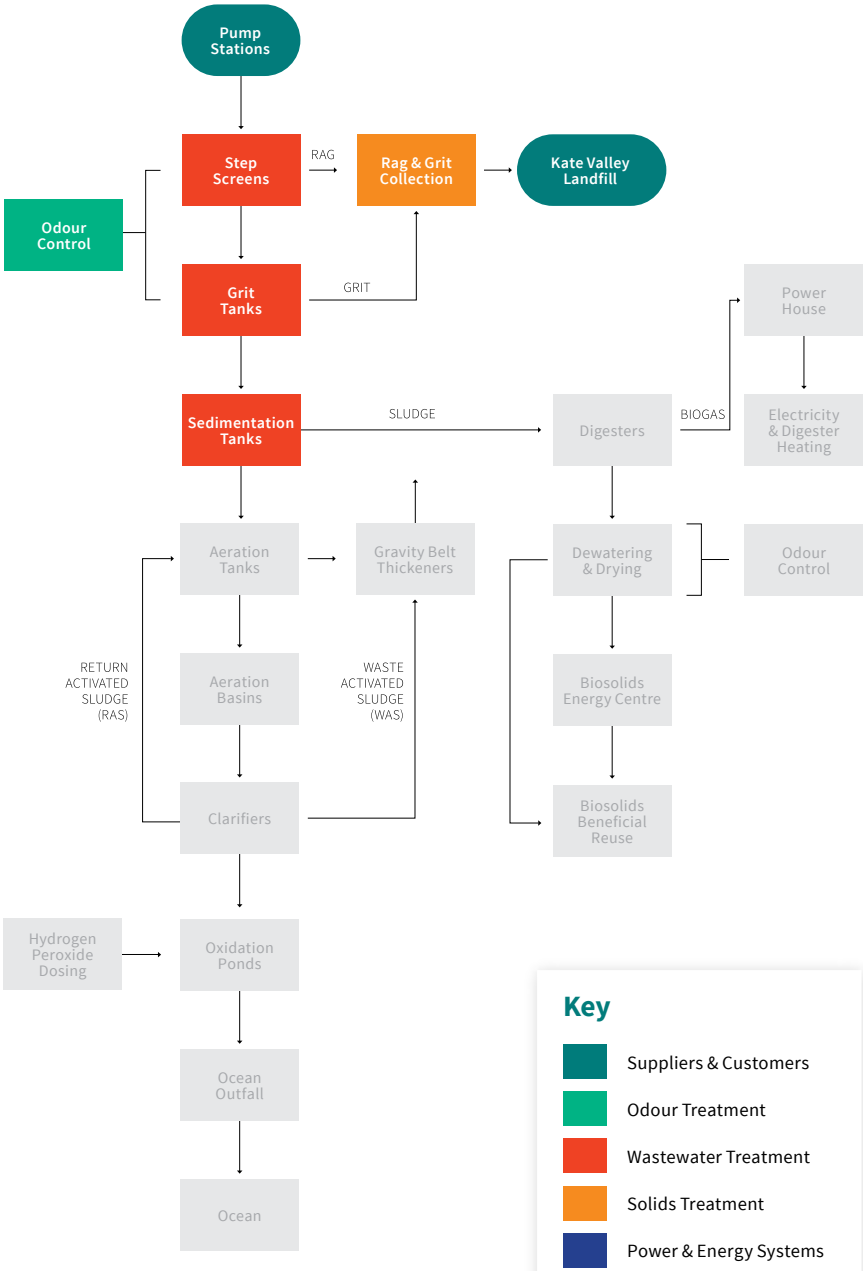




Environmental Statement

Christchurch City Council maintains wastewater systems to provide the community with a safe and healthy environment through the appropriate treatment and disposal of its wastewater.

Being a responsible Council means understanding that our activities have environmental impacts, both positive and negative. As operators of the largest wastewater treatment plant on the South Island, we are well aware of our responsibilities to protect and enhance our environment, now and into the future.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Primary Treatment Process

Pump Stations

The Christchurch Wastewater Treatment Plant (CWTP) receives wastewater from 239 pump stations, lift stations and vacuum stations located throughout Christchurch.

The wastewater flows to five terminal pump stations, which then pump all the flow to the treatment plant.

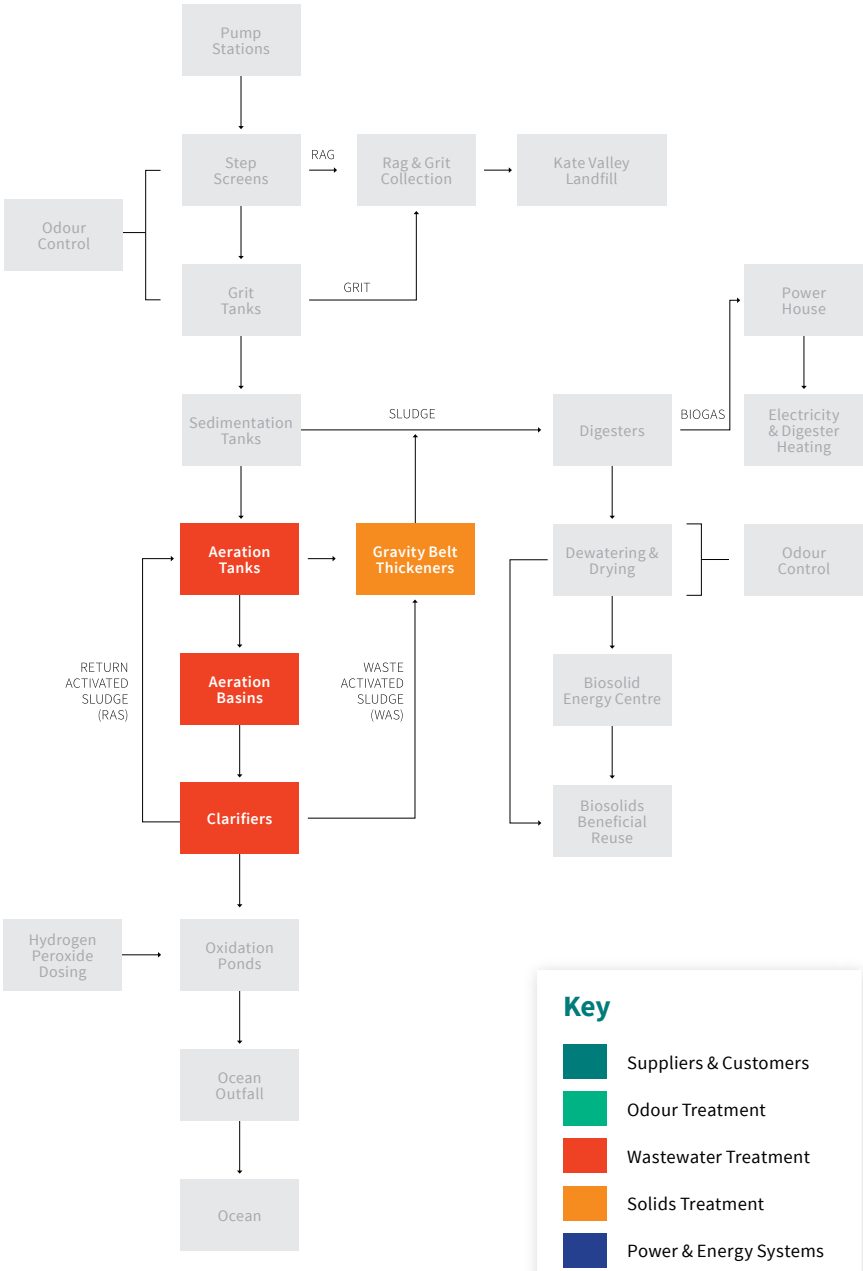
All the stations are monitored by network controllers, who are based at CWTP.

Screens, Grit Removal, Primary & Sedimentation Tanks

As wastewater flows into the plant, screens catch the rags and tanks then trap the grit before the flow goes into the sedimentation tanks.

The rag and grit is removed and disposed of at the Kate Valley Landfill. About two tonnes of rag and two tonnes of grit are removed every day.

The wastewater then passes through primary sedimentation tanks. Heavy organic matter settles to the bottom of the tanks and is scraped to one end and pumped to the digesters for treatment.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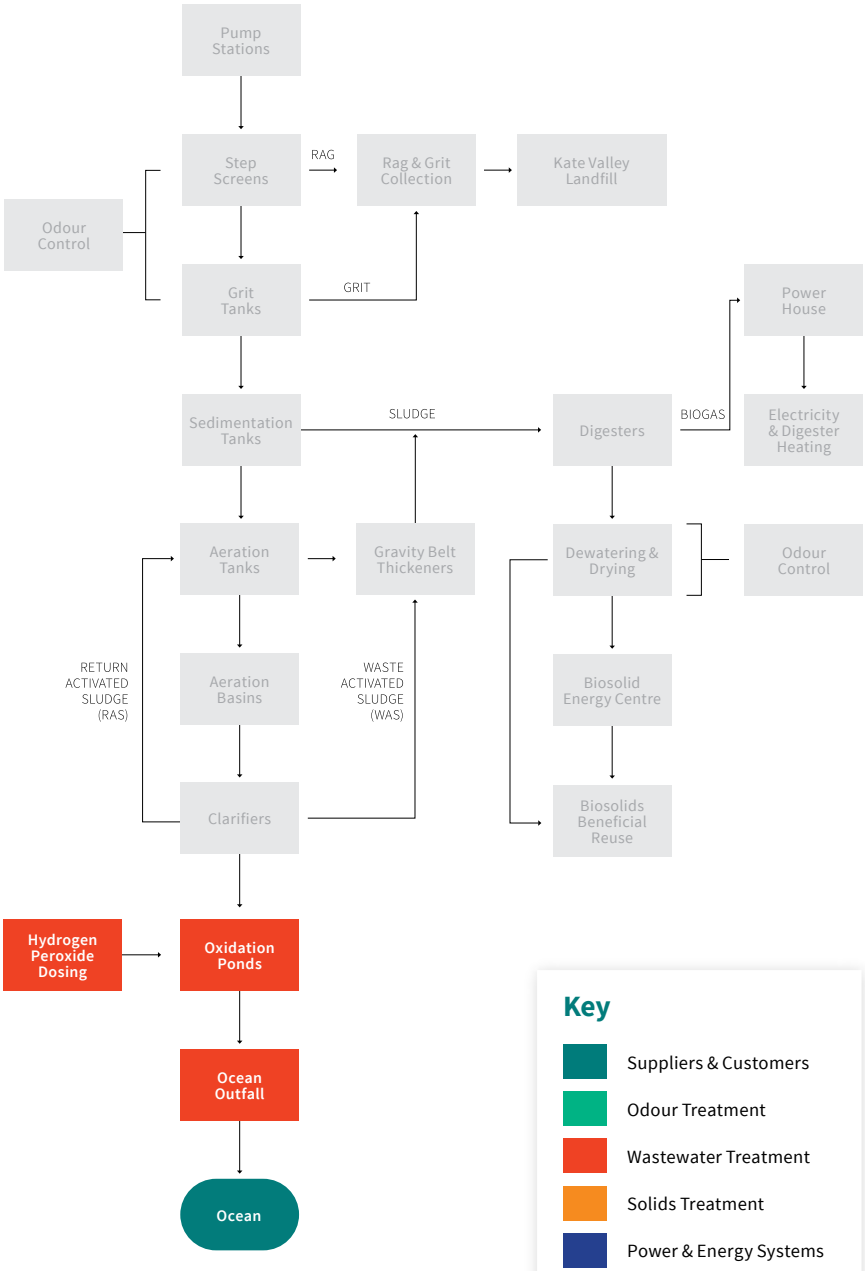
Secondary Treatment Process

Aeration Tanks, Aeration Basins & Clarifiers

The clear liquid at the end of the primary sedimentation tanks is pumped to the aeration tanks where it is mixed with helpful bacteria that consume the remaining nutrients in the wastewater.

Air is injected into the aeration tanks and basins as fine bubbles. This air allows the bacteria to breathe and form larger solids which settle to the bottom of the next tanks which are called clarifiers.

The bacteria solids are sucked off the bottom of the clarifiers leaving a clear liquid which then flows out to the oxidation ponds.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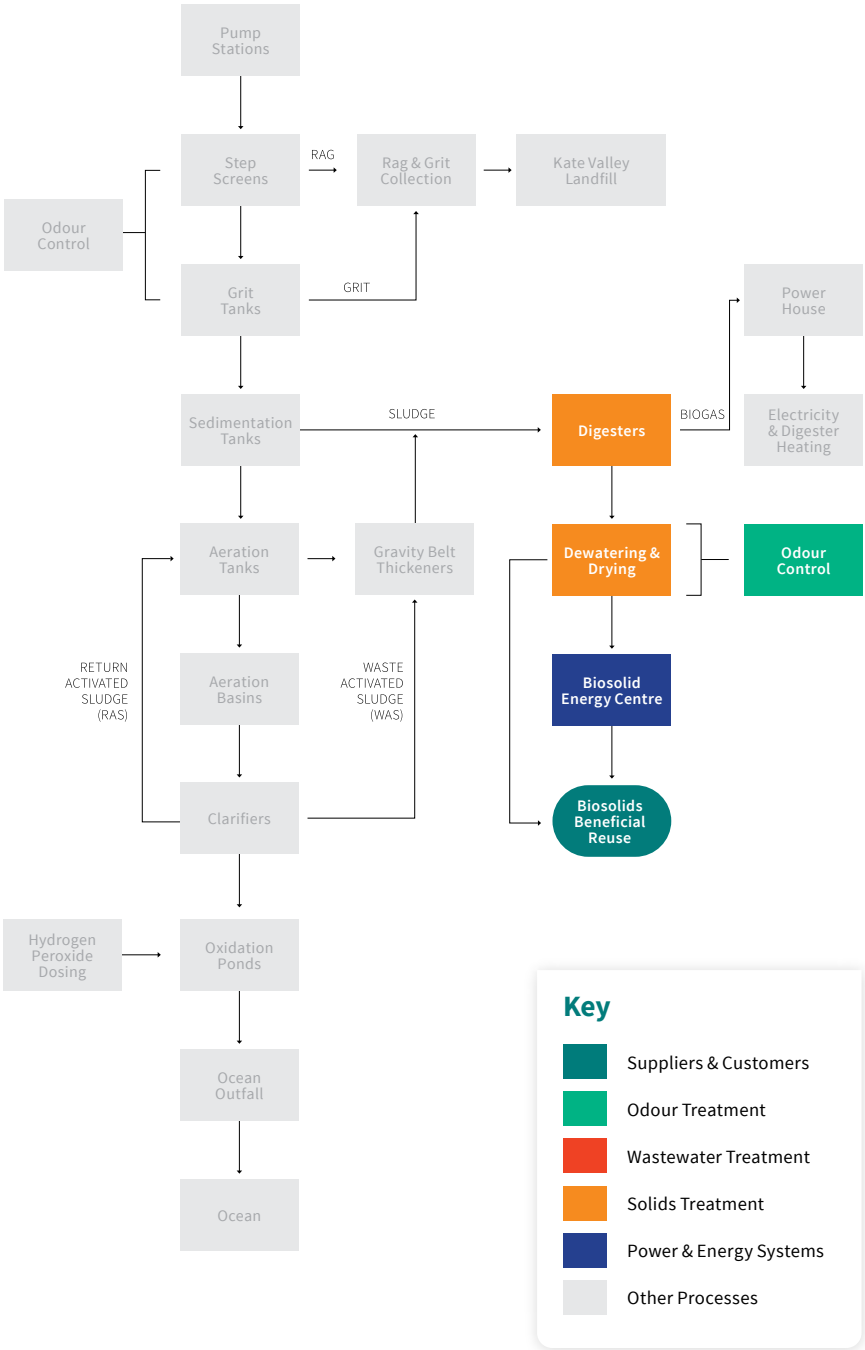
Tertiary Treatment Process

Maturation Ponds & Ocean Fallout

There are six maturation ponds and it takes about 17-30 days for the clear liquid from the clarifiers to flow through the oxidation ponds. Sunlight and natural processes kill the harmful bacteria and viruses without the need for artificial UV light.

The treated wastewater from the maturation ponds is discharged through a long outfall pipe which discharges 3km off New Brighton beach.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Solids Treatment

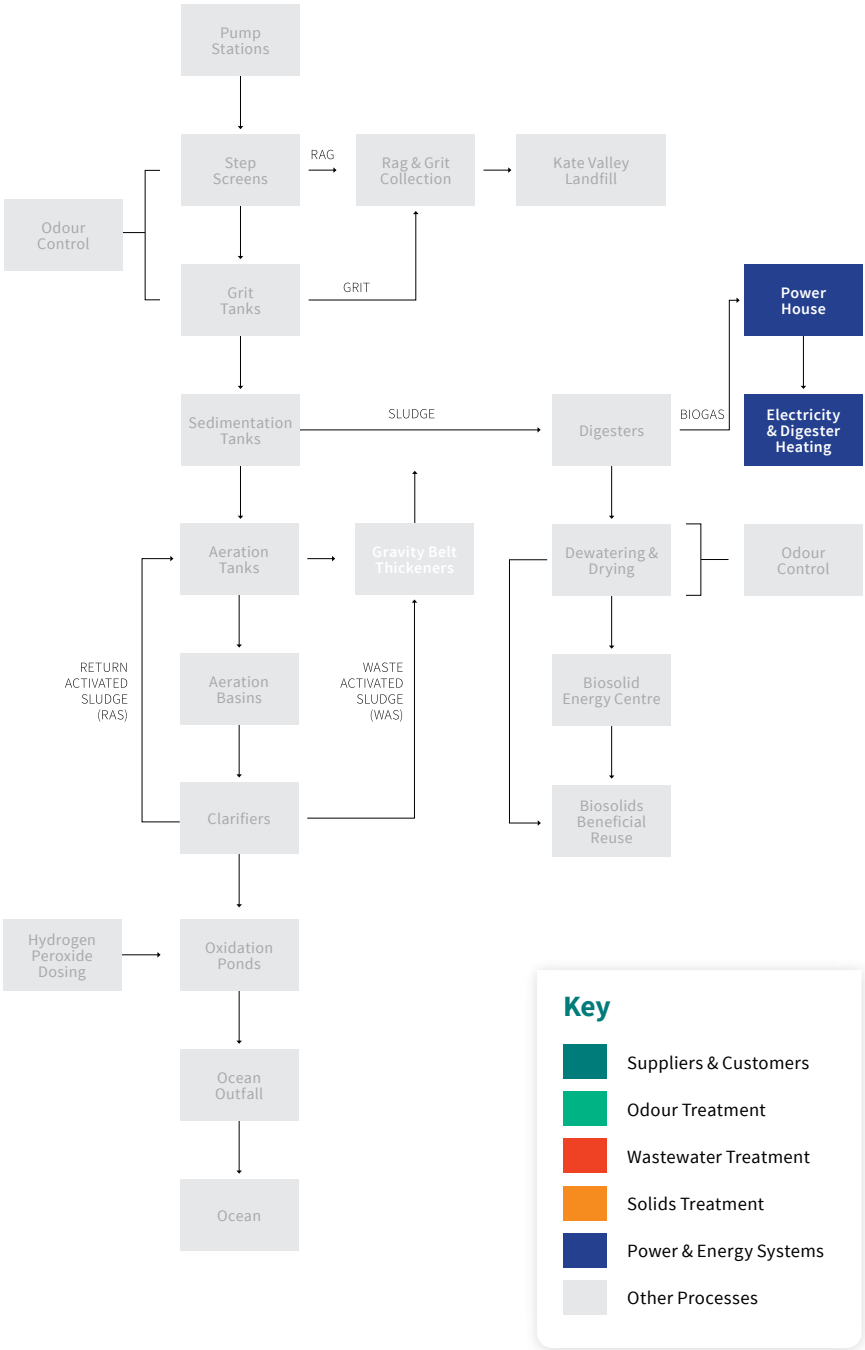
Digesters & Biosolids

The sludge from the primary sedimentation tanks and the clarifiers is pumped to the digesters for treatment.

During this treatment process helpful bacteria break down the sludge to form biosolids. This process produces a mixture of methane gas and carbon dioxide which is called biogas.

The wet biosolids (98% water and only 2% solids) are passed through a machine that squeezes most of the water out. The biosolids are then pumping into a biosolids dryer, which uses hot air to evaporate the remaining water and kill pathogens (bacteria and viruses). The treated biosolids now look like coarse dry sand. A biosolids energy centre, operated by Pioneer Energy, provides heating for the biosolids dryer.

The dry biosolids are then stored and transported to land remediation projects for beneficial reuse as a soil conditioner and as fertiliser.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Site Utilities

Electricity Generation

The biogas produced during the digester treatment process is used to power our gas engines.

The engines generate electricity for the treatment plant and hot water to warm the liquid in the digesters to the optimum temperature for sludge digestion.

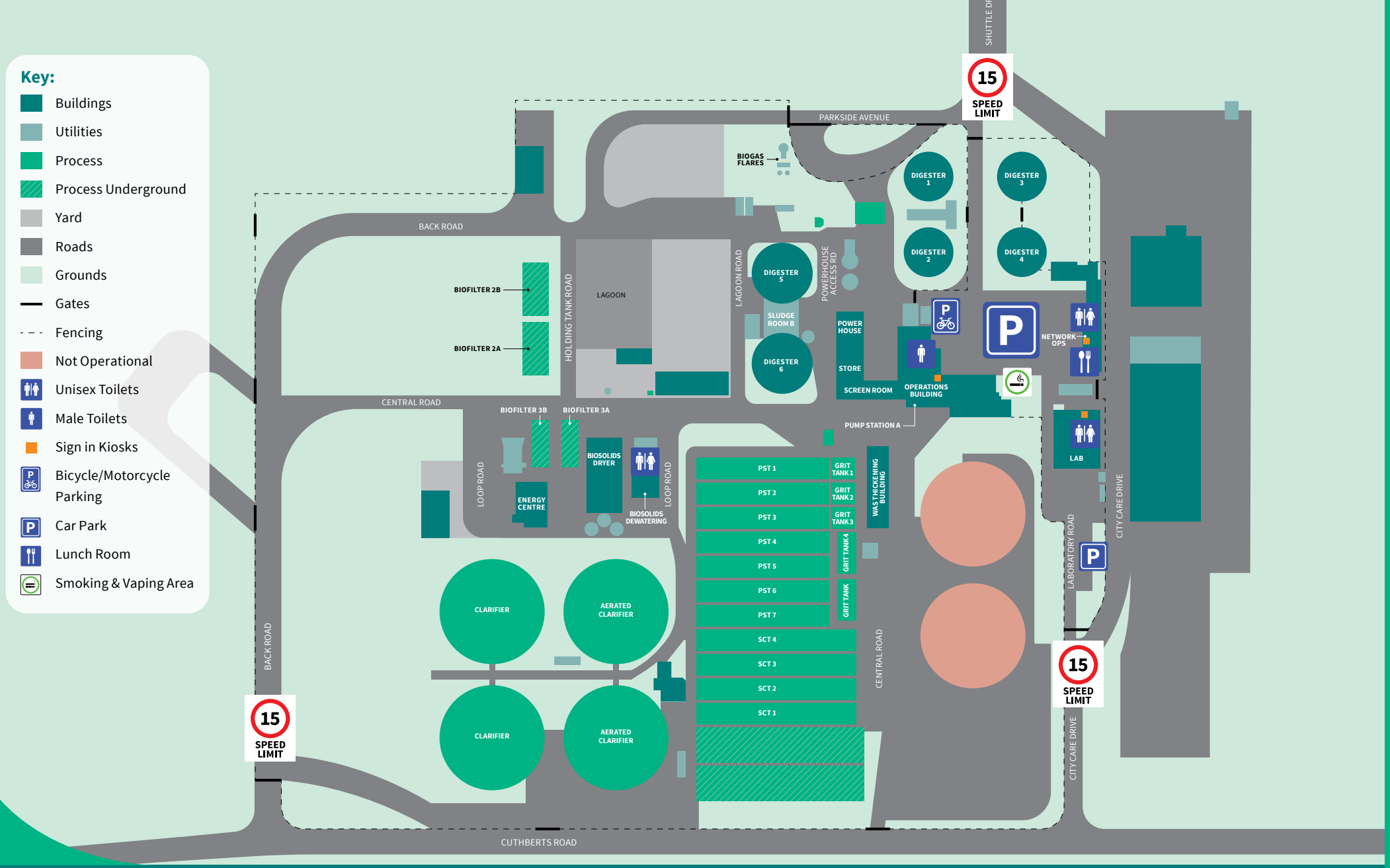
Odour Control, Hydrogen Peroxide Dosing & Pond Aerators

Any odour or 'foul air' produced during primary treatment, dewatering and drying is passed through large bark biofilters. The bark absorbs odour and helpful bacteria break down the odorous compounds to leave fresh air.

To reduce any pond odour during the winter, more air is provided. This helps algae treat the remaining nutrients in the wastewater. Air can also be added chemically by dosing hydrogen peroxide and mechanically by aeration.

Some of the main utilities onsite are:

- C1 (potable), C2 (bore), C3 (clarified)
- plant air
- 11kV
- LFG
- Bio Gas



Site Map & Amenities

Sign In Kiosks

All visitors and contractors to CWTP must sign in before entering our facilities. Sign-in kiosks are located at main reception, laboratory reception and the foyer to the network operations building. Alternately, the enclosed QR code can be used to sign in remotely.

Please ensure you sign into the right person for the work you are carrying out.

All visitors and contractors must sign out before leaving CWTP.

Toilets

Unisex toilets are available in the network operations building and the biosolids dewatering facility. Male-only toilets are also available in Pump Room A.

Arrival on Site & Parking

The site speed limit is 15 km/hr. Please be vigilant of other traffic at the main gate.

All vehicles on site are expected to reverse park.

Covered bicycle/motorcycle parking is available next to the boiler house.

Lunch Room

A lunch room is provided for the use of site workers and small contracting crews who are working for the site maintenance team.

Smoking Area

The site is committed to providing workers with a smoke-free/vape-free work environment in all buildings and process areas.

There is an uncovered smoking and vaping area opposite the main car park. All cigarette butts must be placed in the receptacle provided.

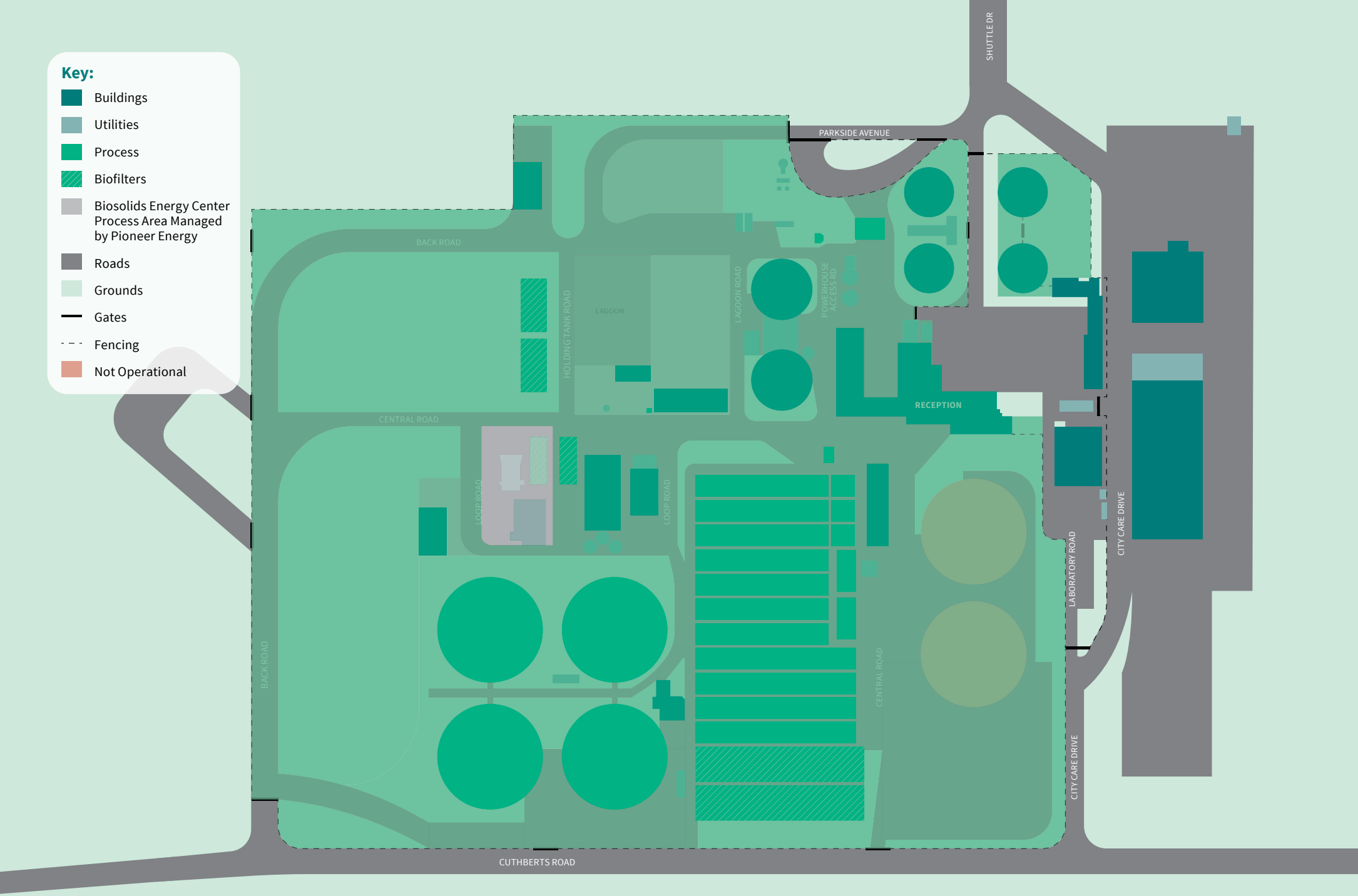
General

Larger contracting crews are expected to establish their own lunch room, locker room, laundering and toilet/shower facilities on site, in collaboration with their Council project manager.

Site working hours are on weekdays from 7:30 am to 5:30 pm. The site operates 24 hours, seven days a week. Being onsite outside of regular working hours will require notification to the shift engineers.

For more information, refer to the Emergency management plan located on the Three Waters Contractor Portal.

Site Process Areas



Site Process Areas – Treatment Plant

Site Process Areas – Treatment Ponds

Access to the Process Area

Access to the site process area will primarily be through the process area gate located beside the Operations building. This gate is locked using a swipe card (your site contact can provide you with a swipe card). The process area gate should be open for the minimum amount of time to enter/exit the site process area, and remain closed at all other times.

Alternative access through the back gate and laboratory gate is restricted to CWTP staff and contractors who need vehicle access (e.g. removal of biosolids and rag/grit, or polymer delivery) and is by swipe card only. Every vehicle must stop and swipe in, tailgating is not allowed. Contract workers must remotely sign in and out when entering/exiting the process area.

Access to the pond process area is restricted to CWTP staff and contractors who need vehicle access (e.g. servicing of ocean outfall pump station), and access is by key only. Ponds 1 and 2 are accessed from Cuthberts Road. Ponds 3 to 6 are accessed from Bridge Street.

Travelling within the Process Area

The speed limit is 15km/h. Vehicles have right of way.

Pedestrians should use site walkways wherever practicable. Before approaching any vehicle or mobile plant, ensure that the driver has acknowledged you and made their machine safe.

Site mobile plant/equipment

Use of site mobile plant/equipment is restricted to CWTP staff and authorised contractors. Operators of mobile plant must hold appropriate and current licenses for the work activity. Seatbelts must be worn where fitted.

Use of Other Site Access Gates

The use of all other site access gates is by permit only.

Process Areas & Tasks - Additional PPE

When working in some of our process areas, you will need to use additional PPE. This is indicated by safety signage, for example:

- Hard hats are required when working in all construction zones, underground galleries and under cranes (including all site gantry cranes)
- Hearing protection is required when working in the powerhouse

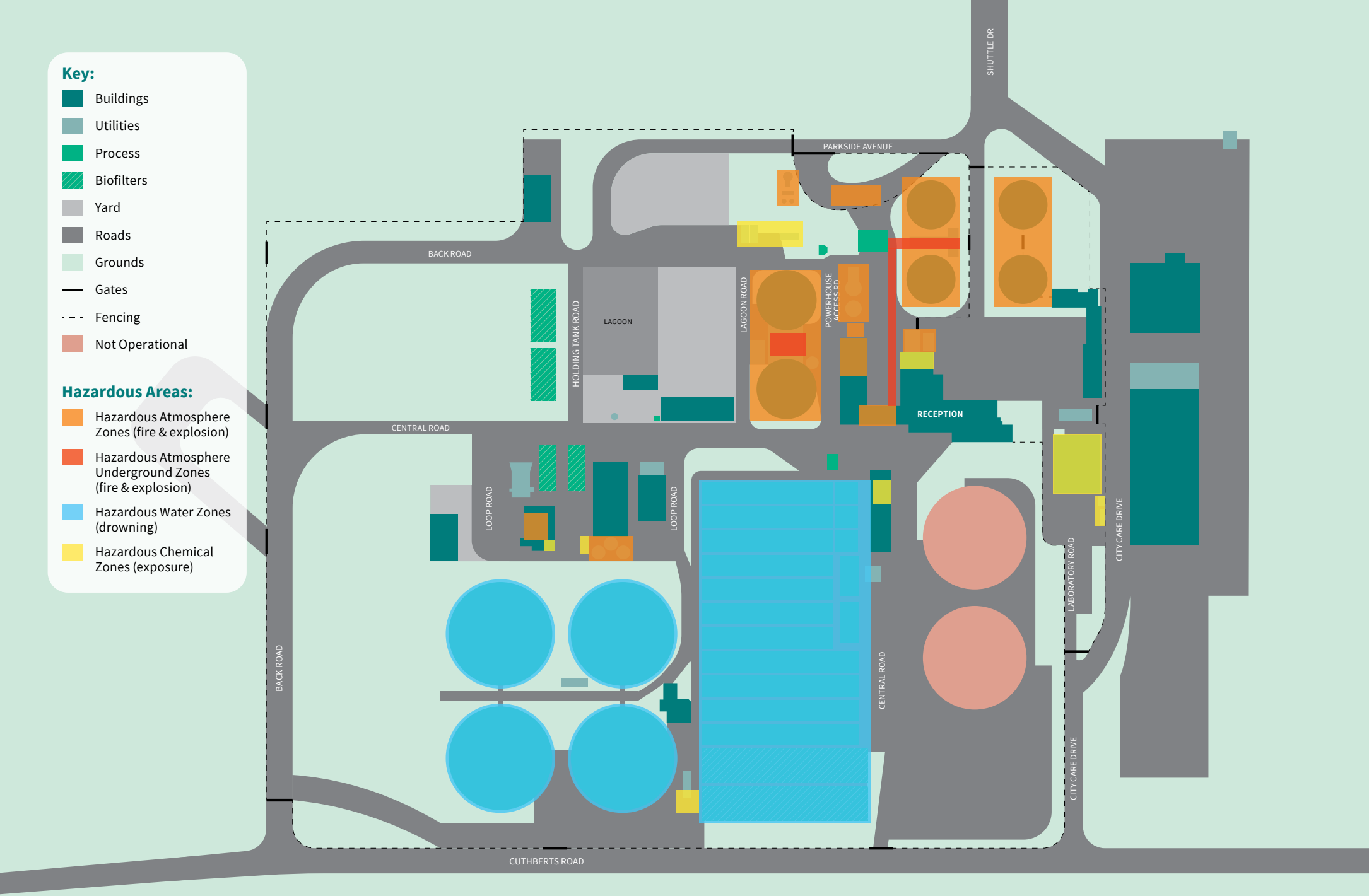
Your work activities may also require the use of additional PPE, for example:

- Working at height
- Confined space
- Hot work
- Working with chemicals (see the SDS or MSDS)

Remember to choose and use the appropriate PPE for the work area and the job that you are doing! When working with chemicals, read and follow the SDS or MSDS. This includes wearing the appropriate PPE and having the appropriate storage, and users must be trained and competent in the substance they are dealing with.

Some examples of signs you may see around sites.

Site Hazardous Zones



Site Hazardous Zones

Hazardous Atmosphere Zones – Risk of Fire and Explosion

Digesters carry a number of significant hazards including the creation of hazardous atmospheres (methane, carbon dioxide, hydrogen sulphide) that can cause fire and explosion

Take care to remove all sources of ignition when entering and working within hazardous atmosphere zones including cell phones, lighters, electronic car keys, cameras, smart watches and any other powered electronic devices that are not intrinsically safe, i.e. explosive atmosphere (Ex) rated.

Ensure all vehicles and mobile plant entering and operating within the hazardous atmosphere zones are fitted with spark arrestors.

Powered electronic devices can only be used in hazardous atmospheres under permit to work, and always require the use of a gas detector. All electrical equipment must be intrinsically safe.

Wear antistatic clothing to further reduce the likelihood of ignition due to static discharge.

Hazardous Water Areas – Risk of Drowning and Exposure to Harmful Organisms

The processing of wastewater includes fast flowing water channels, deep water, aerated water with reduced buoyancy and the use of large water bodies.

Ensure there are adequate staffing levels to give assistance and check that you means of communication are working correctly in case of emergency. Always isolate all process equipment used for aeration PRIOR to working on aerated water systems.

Take care to work upwind of any water systems producing aerosol mist. Be vaccinated and practice good personal hygiene, including covering open cuts and sores.

SDS and signage can be found in hazardous areas or around hazardous chemicals. Please be careful when in these areas.

Hazardous Chemical Areas – Risk of Chemical Exposure

In addition to hazardous atmospheres, the processing of wastewater uses multiple chemicals including:

- diesel for the site generator,
- polymer for the gravity belt thickeners in pump room B & the dewatering plant
- hydrogen peroxide in the dosing shed
- bulk nitrogen gas for the dryer silo deluge system
- bulk and small quantities of hazardous chemicals for the laboratory
- water treatment chemicals in the Biosolids Energy Centre for the high pressure hot water loop
- Oils, grease, paint, oxyacetylene/ oxygen/inert gas bottles for site maintenance activities

When handling chemicals, take care to read and follow all requirements listed in the material safety data sheets. The site hazardous substances register is available on request (TRIM 18/85781)

Notify the site process engineer if your work activities introduce hazardous substances or chemicals onto site.

Always report all accidents, incidents and spills to your Council contact, including any use of a first aid kit or spill kit.

Remember: A detailed Hazardous Atmosphere report is available on request (TRIM 14/1056437)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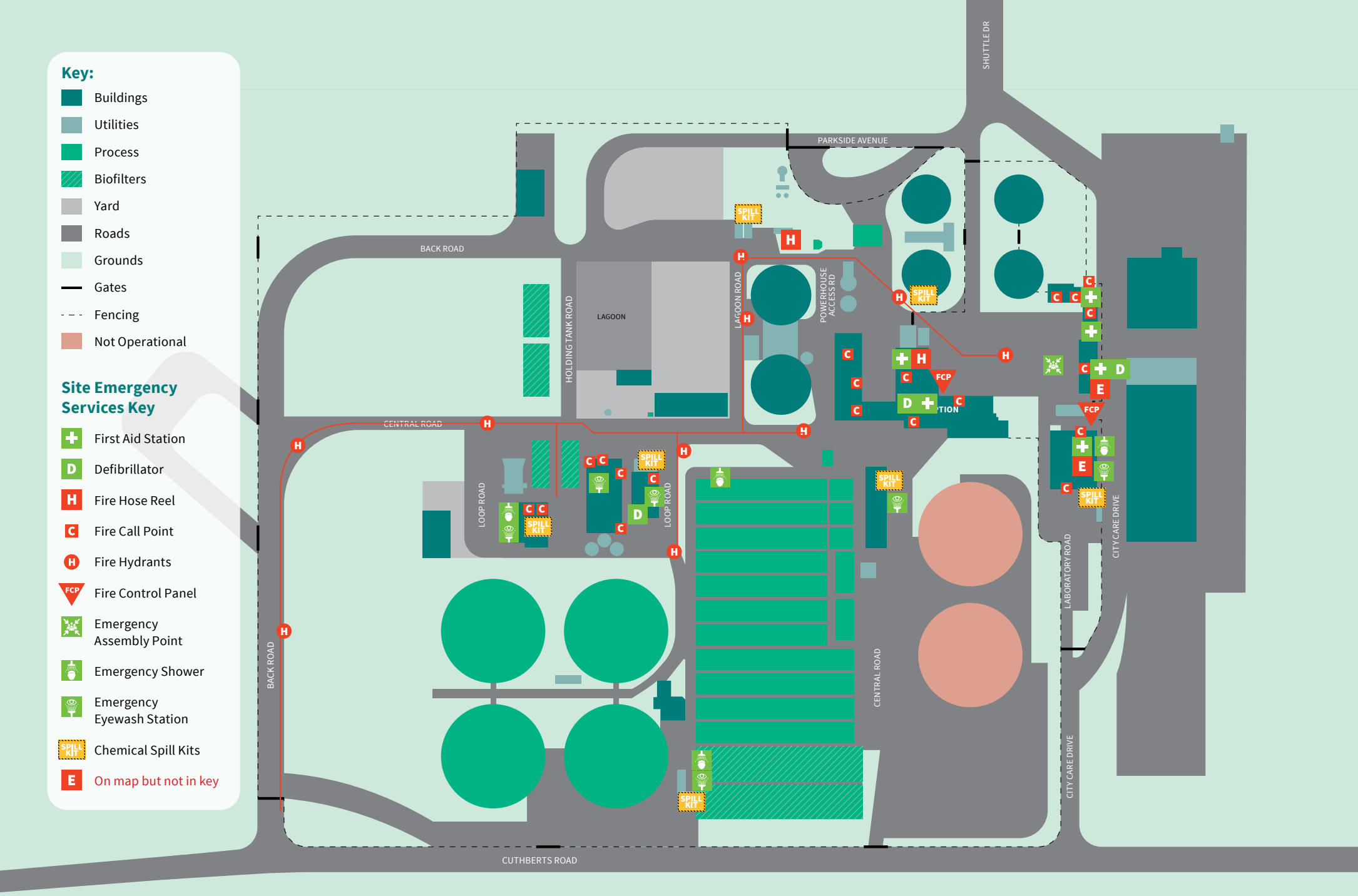
Site Emergency Services



Site Emergency Services

Contractors to Provide Own Emergency Equipment

Contractors are expected to provide suitable first aid equipment, fire extinguishers, hydrant hoses and spill response equipment for site work activities, unless prior arrangements have been made with the CWTP maintenance team leader.

First Aid Equipment

First aid equipment is located in the network operations building, at main reception, in the CWTP control room, in the workshop and in the laboratory. There are “grab-and-go” first aid kits in the workshop safety store.

The site has three defibrillator units located in the network operations building and at main reception.

Fire Fighting Equipment

Building fire extinguishers are for emergency use only, and are not to be used for supporting hot work activities. There are “grab-and-go” fire extinguishers in the workshop safety store for site work activities.

Site fire hose reels and hydrants can be used in support of hot work activities.

Chemical First Aid and Spill Response Equipment

Eyewash stations are located in the BEC, biosolids dryer building, dewatering building, hydrogen peroxide dosing shed, WAS thickening building and the laboratory.

Safety showers are located in the BEC, hydrogen peroxide dosing shed and the laboratory.

Spill kits are for emergency use only.

Always report all accidents, incidents and spills to your Council contact, including any use of a first aid or spill response kit.

Remember: The safest options when you have to work at height are tower and tubular scaffolds especially when working for extended periods of time. No work is to be done off a ladder.

For more information, refer to the Emergency management plan located on the Three Waters Contractor Portal.

Site Evacuation Procedure

Site Evacuation and Assembly Point

An emergency site evacuation will be indicated by a continuous alarm and flashing red lights.

When the alarm activates:

1. Safely shut down work activity and stop work
2. Exit any building and make your way to the emergency assembly point (main car park outside the network operations building)
3. Ensure you are accounted for by the Chief Fire Warden and stay there until the all clear is given

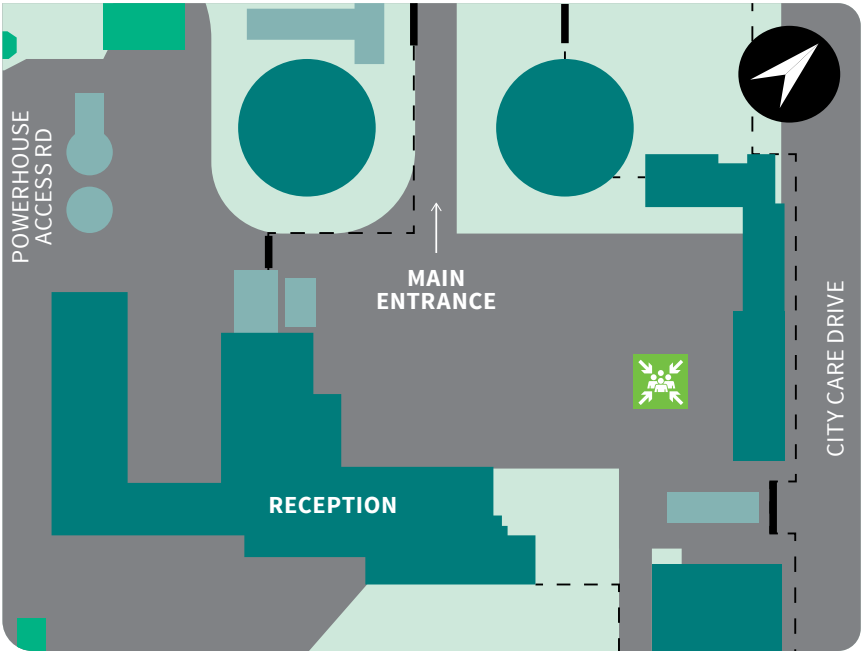
The Chief Fire Warden is the CWTP Operations Team Leader or the CWTP Maintenance Team Leader.

Plant Alarm

The plant alarm is a series of short alarms to highlight a plant issue for the duty shift engineer, accompanied by an orange flashing light.

Important:

- Do not re-enter buildings when the alarm is sounding
- Do not collect personal belongings
- Do not leave the site until you have been accounted for



Injury Response

Assess the situation and call the emergency services 111, **dial 1** for an outside line.

State the nature of the emergency, in case specialist equipment is required.

Give the location as:

"Christchurch Waste Water Treatment Plant, Shuttle Drive off Pages Road, Bromley"

Have a person at the gate of the Treatment Plant to direct the emergency services.

Alert the maintenance team leader or duty shift engineer immediately.

Stay with and reassure the injured party until the emergency service has arrived and administer first aid.

Secure the accident scene to ensure yours and others safety.

First Aid

Inform the CWTP maintenance team leader or duty shift engineer if additional first aid equipment is needed.

Defibrillators

There are three defibrillators on site, one is located in the Shift Control Room, one is located in the biosolids electrical room (MLCG) and one is located in the site cafeteria.

Emergency Response Numbers	
Emergency Services	111
Linwood Ave Medical Centre 279 Linwood Ave	389 2550
High St Medical Centre Dr Tim Wilson	366 0235
24 Hour Surgery Cnr of Bealy Ave & Madras St	365 7777
National Poison Centre	0800 764 766

Fire/Bomb Threat/Earthquake/ Chemical Spill Response

Fire

In the event of a fire the evacuation alarm will be activated, check your immediate surroundings for other personnel if it is safe to do so, then evacuate to the front entrance car park closing doors and windows behind you.

- Extinguish the fire if it is safe for you to do so
- Please follow the fire warden's instructions; the duty shift engineer is the allocated fire warden
- Maintenance employees currently within the workshop are also the allocated fire wardens
- Do not leave until you have been accounted for

Bomb Threat

In the event of a bomb threat, the evacuation alarm will be activated, evacuate as quickly as possible to the front entrance car park.

Follow the instructions of the maintenance team leader or the on duty shift engineer.

Do not leave until you have been accounted for.

Earthquake

In the event of an earthquake, the evacuation alarm will be activated.

- Protect yourself if able to do so
- Stay away from windows
- Help others if possible
- Make your way to the front entrance car park
- Follow the instructions of the maintenance team leader or the on duty shift engineer
- Do not leave until you have been accounted for

Chemical Spill Response

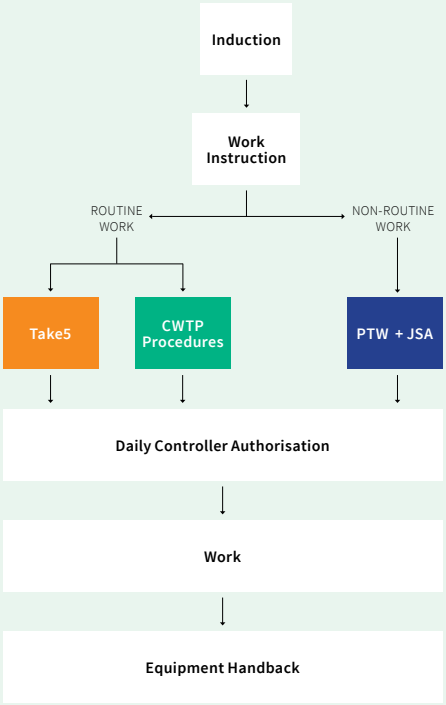
In the event of a bulk chemical spill, notify the duty shift engineer and CWTP maintenance team leader immediately.

- Identify the chemical and assess the risk
- Protect yourself first and use appropriate PPE (see the MSDS for more information)
- Stop the spill at its source
- Contain the spill using spill kits as needed
- Reduce the risk of exposure by neutralising reactive chemicals as needed
- Clean up the spill
- Decontaminate all equipment used, inclusive of PPE

Tsunami

In the event of a tsunami CWTP, ponds 1, 2A and 2B are outside the tsunami evacuation zone. This means no evacuation must be conducted during a long or strong earthquake or the official tsunami warning from Civil Defense Emergency Management.

Ponds 3-6 and the Ocean Outfall are in the orange zone. This means that you should evacuate if you feel a long or strong earthquake, see a sudden sea-level change, hear unusual noises from the sea, or receive an official warning from Civil Defense Emergency Management.



Permit to Work

CWTP Control of Work System

The CWTP Control of Work System protects you from harm and ensures the treatment plant can safely operate. Work cannot start until the duty shift engineer (or their delegate) has reviewed the work hazards & agreed controls. Workers must get daily authority to continue work.

Operating conditions at the Christchurch Wastewater Treatment Plant can change on a daily basis.

The operations manager (site controller) has established a control of work system, which the duty shift engineer uses to:

- Keep you and others safe from harm
- Ensure your work does not impact the site operations
- Ensure all equipment is safely returned to service when you complete work

Our definition of work:

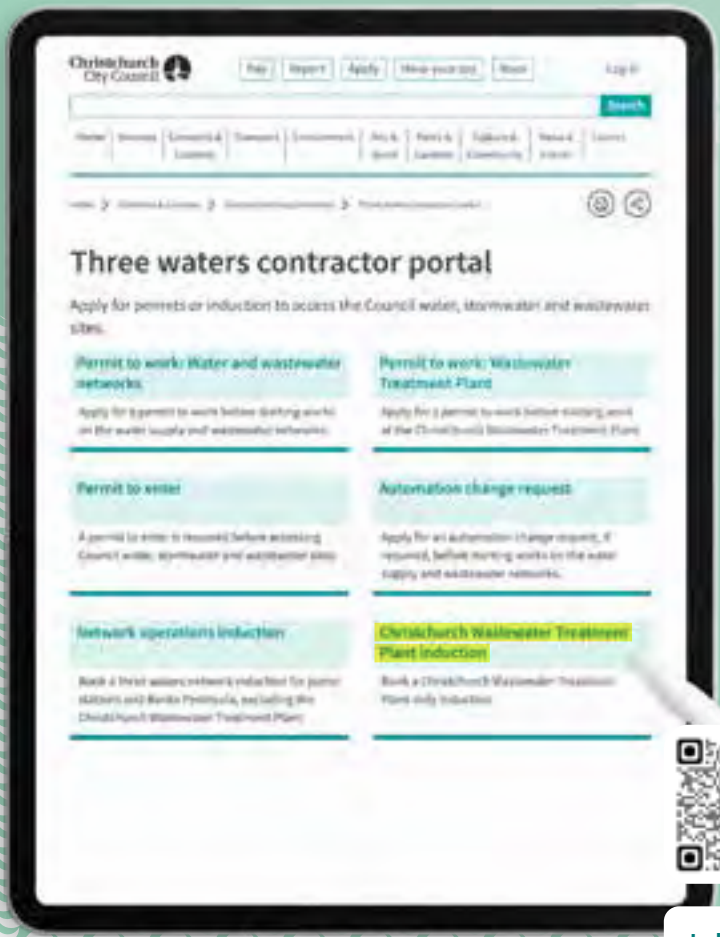
- **Routine work** are tasks that are carried out frequently with regular intervals
- **Non-routine work** are tasks that are performed irregularly or being performed for the first time

Before working at CWTP, you must:

- Ensure you and your workers are inducted
- Obtain the required site access for your workers
- Ensure you have prepared for the work instruction
- Review and implement the agreed health and safety controls, in discussion with the duty shift engineer or their delegate:
  - For routine work ensure a Take 5 or Standard Operating Procedure is completed and followed
  - For non-routine work ensure a Job Safety Assessment and Permit to Work is completed
- Obtain daily authority to work from the duty shift engineer (or their delegate)

When work is complete, you must:

- Inform the duty shift engineer
- Provide all information and documentation to enable safe return to service of all equipment



Inductions

The CWTP induction provides knowledge about the Christchurch Wastewater Treatment Plant, what to do in an emergency, and instructions on the CWTP health and safety requirements.

The CWTP induction provides you with knowledge and instruction to keep you and others free from harm while working at the Christchurch Wastewater Treatment Plant.

Inductions are valid for two years.

Before working at CWTP, you must:

- Attend the site induction and pass the induction quiz
- Follow the site's health and safety requirements
- Obtain site access. If you require your vehicle onsite to access tools or equipment then you will need to apply for vehicle access. Pedestrian access will be given to all staff and contractors.

Appendix 2

Information for tenderer

1. Key information

2. Specific information

Work Instruction

Work Instructions: Planning & Preparing for Work

Work instructions can range from simple tasks through to complex projects. It is important to take the time to fully understand, plan, and prepare for work instructions in collaboration with CWTP staff.

The Christchurch Wastewater Treatment Plant issues work instructions through:

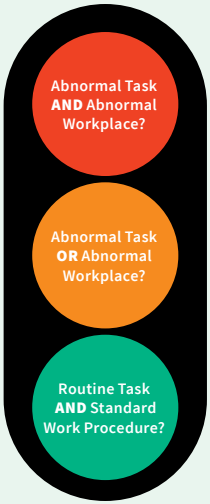
- Direction from the duty shift engineer or their authorized delegate
- Contract agreements
- Purchase orders
- Standard operating procedures
- Maintenance work orders

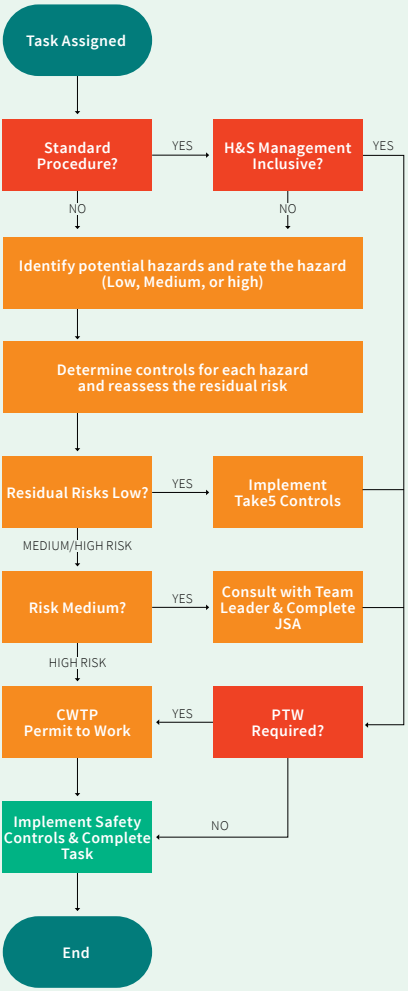
When receiving work instructions, there may be need for additional planning and preparatory works such as:

- Submit the permit to work at least 5 days before work is scheduled to begin
- Clarifying any special requirements (e.g. laydown areas, temporary site offices, etc..)
- Seeking authorization for planned automation changes
- Preparing Site Specific Safety Plans
- Requesting access to site services
- Agreeing processes for liaising and coordinating with site staff to manage health and safety

When receiving a work instruction, you must:

- Ensure you fully understand the work instruction
- Ensure you and your workers hold all appropriate qualifications for the work
- Collaborate with CWTP operations to safely establish offices on site, site laydown areas, introduce hazardous materials or make use of site amenities and services (e.g. site cafeteria, electricity/water supply, mobile plant)
- Provide emergency response equipment (e.g. first aid kits, fire extinguishers, spill kits) for the work instruction
- Obtain written pre-approval* for:
  - Any changes to site automation or instrumentation systems (i.e. lodge an ACR request)
  - Any transfer of a CWTP work area into the care of another HS management system (i.e. lodge a permit to work + transfer of control request)





Risk Assessment: Routine Work

This is a simple risk assessment tool for assessing the hazards of routine work for which no approved Standard Operating Procedures (SOP) or approved Standard Work Procedures (SWP) exist.

Risk assessments are used for routine work activities for which no approved SOP/SWP exists

It prompts people to STOP and THINK about health and safety hazards; and IMPLEMENT appropriate safety controls before commencing work

It also ensures that the following routine work activities always require consultation (i.e. medium residual risk):

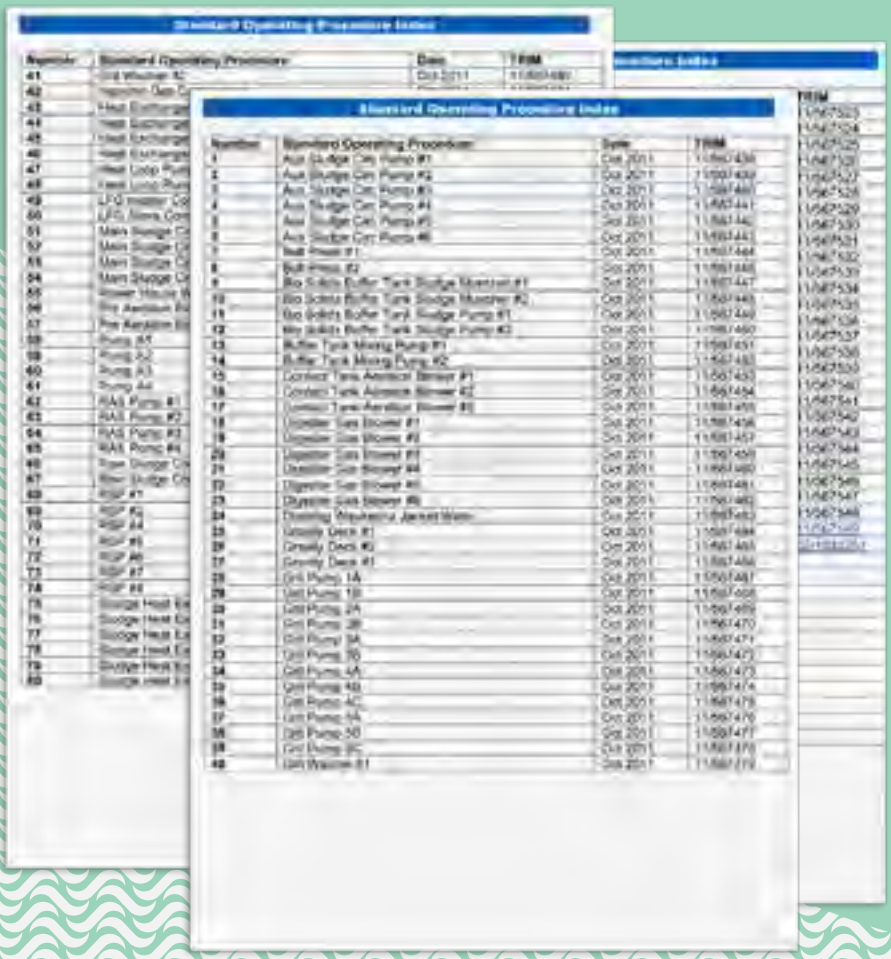
- Single isolation of plant equipment
- Working at height <3m

Following routine work activities always require a permit to work (i.e. high residual risk):

- Multiple or Group isolations
- Confined space entry
- Excavations
- Hot Work
- Crane lifts
- Working at height >3m
- Asbestos removal

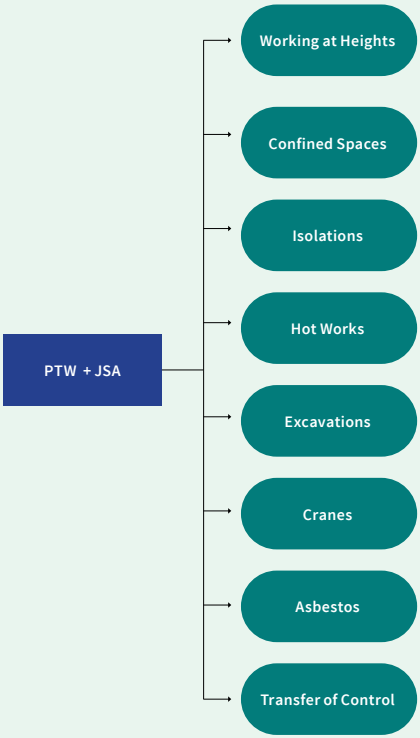
Before commencing a routine work, you must:

- Check whether an approved SOP/SWP exists
- Complete a risk assessment to identify the hazards and assess the risk
- For work with low risks, implement the identified controls
- For work with medium risks, consult with the duty shift engineer (or their delegate) to establish agreed controls
- For work with high risks, obtain a permit to work
- Obtain daily authority to work from the duty shift engineer (or their delegate)



CWTP Procedures: SOP & SWP

CWTP uses Standard Operating Procedures (SOP) and Standard Work Procedures (SWP) to provide step-by-step instructions for routine work. An SOP is designed for operational work. An SWP is designed for maintenance work.



Permit to Work

Permit to Work System

The permit to work system at CWTP controls both operational and safety risks associated with non-routine work. An approved permit documents the scope of the work agreed between the duty shift engineer (or their delegate) and the worker, the operational and work hazards and the agreed controls to safely complete the work.

The Permit to Work (PTW) system allows you to apply to work on the Christchurch Wastewater Treatment Plant (CWTP) for non-routine work.

The PTW system ensures that we:

- Identify all hazards and risks for the process area and your work
- Document the agreed controls
- Confirm all isolations are planned and effective

Permit applications can be:

- **Approved:** Work can commence once all agreed controls are complied with
- **Rejected:** The work may not go ahead, either because risk is too high or due to operational demands
- **Deferred:** The work is deferred due to operational constraints

Approved permits may change:

- **On hold:** The work is deferred due to other reasons
- **Suspended:** The work is suspended due to non-compliance with agreed controls

CWTP permits also detail any special conditions and precautions to be taken for high risk activities.

Before commencing non-routine work:

- Submit a **Job Safety Assessment and Permit to work** application*
- Attach the relevant permits for any defined high risk work activities (see the Permit to Work decision tree on next page)

Important:

- **Allow for five days to process permit application**
- **Comply with all requirements for the approved permit to work**
- **Permit to work applications must be submitted by the Head Contractor**

PERMIT TO WORK

Christchurch City Council

This form is to be filled out in accordance with Operating Procedure: CWTP Permit to Work Procedure

TRIM 221125389

Permit number _____ Start Date _____

Work Order Number _____ End Date _____

ADF required (circle) Yes No ADF number _____

1 JOB DETAILS

Description and reason for work

EMERGENCY RESPONSE

Ambulance 111

Fire Brigade 111

Nearest site First Aid _____

WORK SITE DETAILS

Site Name CDC Wastewater Treatment Plant

Site Phone (03) 941 8356

Site Address Kinsley Drive, Bromley, Chch

List additional emergency response requirements if necessary

2 Controls: Isolations WAH CSE HW EEC CRANE Transfer of Control

WORK PARTY

Controls – Done between the JSA and Isolations

3

	Name	Signature
1		
2		
3		
4		
5		
6		
7		

4

Person in Charge of work	
Name	
Position	
Company	
Hours Worked	
Safety Observer	
Name	
Hours Worked	

ISSUE

The Issuer ID (JSA) has been completed for the Personal, All Isolations (if required) are in place and the work is safe to commence

Operations sign-off _____ Date/time issued _____

Maintenance sign-off _____ Signed by Permit Receiver _____

Signed by GJEC team when required _____

5 List any hazards to the worksite, operations, other personnel, or environment

6 List potential events that could stop work

CLOSE OUT

The Permit is closed. All hazard Certificates have been closed by the Safety Observer. The worksite has been left in a safe and tidy condition

Signed by Permit Issuer _____ Signed by Permit Receiver _____

Signed by GJEC team when required _____

Permit to Work

Permit to Work Form

The Permit to Work (PTW) form documents the scope of the non-routine work instruction, inclusive of any emergency response and specialist certificates.

The form also documents who is the Person in Charge of the work and any Safety Observers.

1. State the description and reason for the work.

Description of work includes the following:

- What building e.g. MLC-P
- What equipment e.g. aerator VSD
- What type of work e.g. hot work
- E.g. Heat shrinking aerator VSD cabling in MLC-P using a heat gun.

2. Confirm whether any specialist certificates are needed such as Isolations, Working at Height, Confined Space Entry, Hot Work, Excavations, Craneage or Transfer of Control.

3. Identify all workers and confirm they have read and understood the JSA form.

4. Identify the Person in Charge of Work and provide email/phone contact details. Identify any Safety Observers for specialist work.

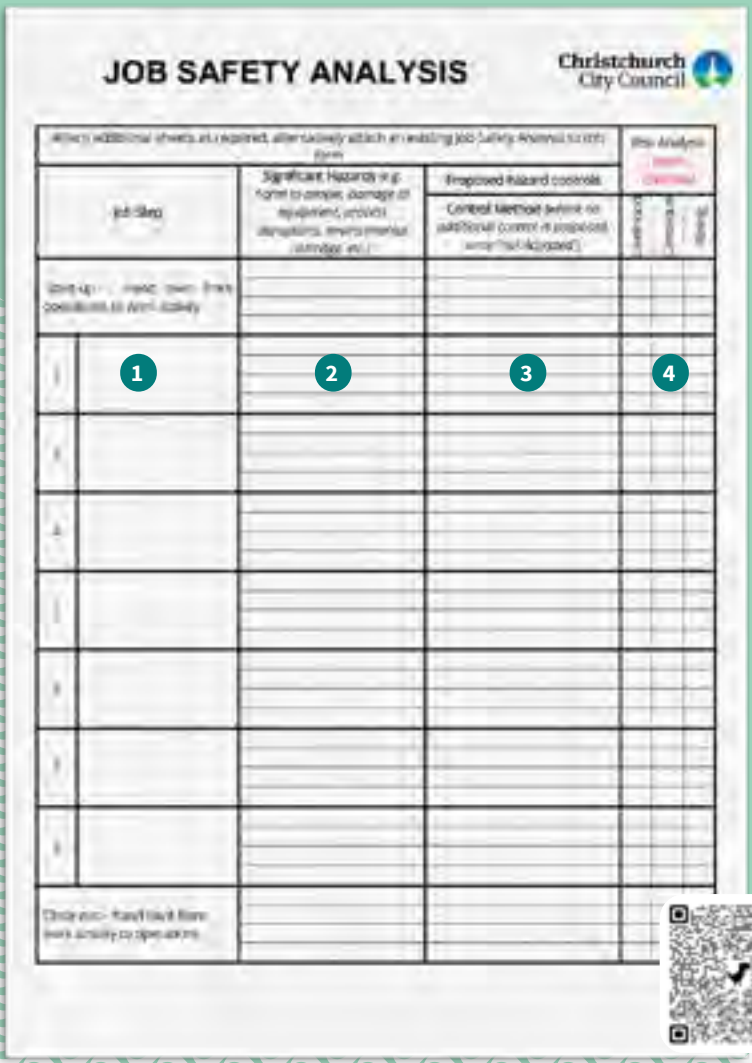
5. Identify any impacts to operations or other workers (e.g. plant shutdowns/reconfiguration, temporary traffic management, manual operation during automation work, establishment of work areas, etc…)

6. Identify events that could stop work (e.g. high inflows, rainfall, high winds, etc…)

Refer to the permit to work decision tree to determine the need to apply for specialist certificates.

On submission (accompanied with JSA) the Permit to Work application will be assessed by the duty shift engineer or their authorised delegate.

Important: Commencing non-routine work at CWTP without an approved permit can lead to significant operational and safety impacts for other workers and the community. Any violation may result in disciplinary action, up to and including contract termination and removal from site.



Permit to Work

Job Safety Analysis Form

The Job Safety Analysis Form breaks down the work instruction into logical job steps, and then identifies hazards and establishes agreed controls to manage the health and safety risks.

1. Break down the non-routine work instruction into logical job steps for the work, from shutdown/handover of equipment to commissioning and handback of equipment.
2. Document the work hazards for each job step.
3. Using the hierarchy of controls, document the proposed controls for each job step.
4. Assess the residual risk, using the risk analysis criteria, on the basis that agreed controls are in place.

If very high risk: Work cannot proceed, work with your Council contact to reduce risk.

If high risk: Work instruction must be reviewed by a trained and competent Council staff member. Work with your Council contact or seek further assistance from:

handsadmin@ccc.govt.nz

If medium to low risk: Work must be reviewed by the permit issuer (the duty shift engineer or their authorised delegate).

Important:

- **Job Safety Analysis and Permit to Work applications to establish group isolations should list the process or energy hazards/risks that each isolation is protecting against**
- **Other job safety analysis and permit applications then reference the group isolation itself**

WORK ASSESED AS HIGH RISK USING THE MATRIX BELOW MAY NOT PROCEED 4

RISK ANALYSIS CRITERIA (Analyse BOTH business continuity AND H&S) **Risk = [Likelihood] x [Consequence** Note: Likelihood and consequence to be rated with **controls in place.**	
Very High (vh)	Work cannot start as risk is too high. Must change hazard controls to reduce risk.
High (h)	Work must be reviewed by another CWTP staff member with appropriate H&S training (eg, confined space, working at heights, electrical ticket).
Medium (m)	Work must be reviewed by a site permit issuer.
Low (l)	Work must be reviewed by a site permit issuer.

LIKELIHOOD DETAILS	RISK RATING	DETAILS	CONSEQUENCE Insignificant (i)	Minor (mi)	Moderate (mo)	Major (ma)	Extreme (e)
			Near miss/no illness or injury or minor injury (no first aid treatment reuiqred).	First aid injury, onsite first aid treatmentsufficient. No lost time.	Medical attention offsite, short-term injury or illness. May be some lost time (days off work required).	Long term illness or serious injury that may result in hospitalisation. Long term effects.	Serious injury resulting in permanent effect to person's quality of life. One or more fatalaties.
Virtually guaranteed to occur. There is a history of it happening in the past.	Almost certain (ac)	LIKELIHOOD	Medium	High	High	Very High	Very High
Will probably occur in most circumstances. There is a history of frequent occurrence at the Council or similar industries (daily/weekly).	Likely (l)		Medium	Medium	High	Very High	Very High
Could occur and has occurred in the past (once a year).	Possible (p)		Low	Medium	High	High	Very High
Not expected but it could occur at some stage.	Unlikely (u)		Low	Low	Medium	High	High
Highly unlikely but it may occur under exceptional circumstances.	Very unlikely (vu)		Low	Low	Medium	Medium	High

MOST EFFECTIVE

LEAST EFFECTIVE

ELIMINATION

MINIMISATION

Substitution (wholly or patyl) and/or

Isolation/Preventing contact and/or

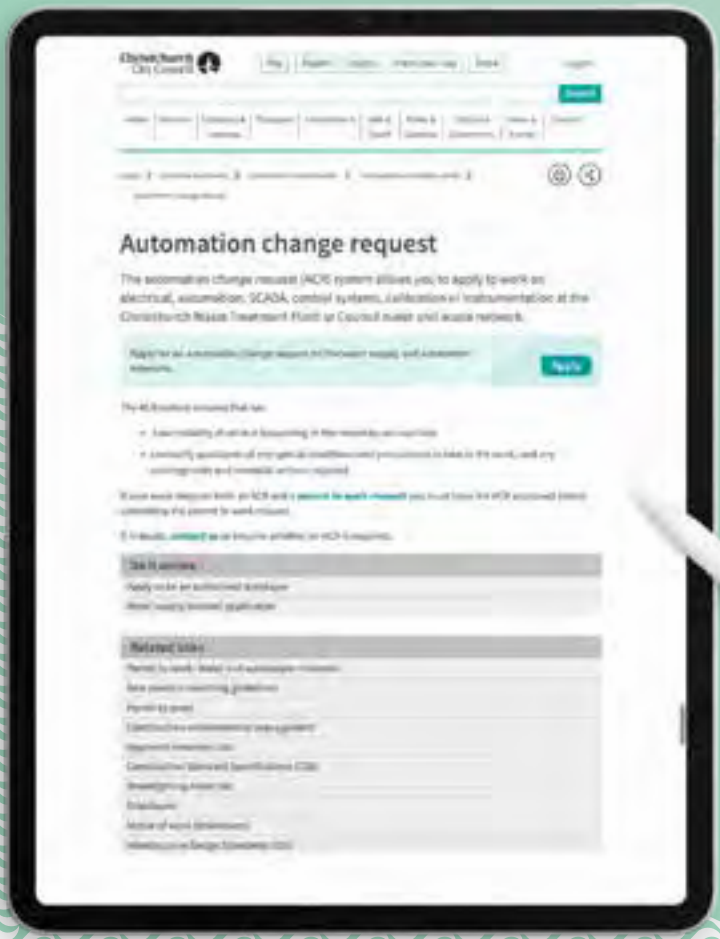
Engineering control measures

IF RISK REMAINS

Administrative control measures

IF RISK STILL REMAINS

Protective personal equipment (PPE)



Automation Change Request

An Automation Change Request (ACR) is used for any work that involves changing any of the following:

- Electrical
- Instrumentation
- SCADA

ACR are submitted before completing a Permit to Work It documents any changes that have occurred within the system and Supervisory Control and Data Aquisition (SCADA) and is used to control instrumentation, equipment and the overall process at CWTP.

An ACR must submitted with the permit to work, at least 5 workings days before work is scheduled to begin or 20 working days for processing a SCADA template change.

How to fill out the form:

1. Fill out your contact information for yourself if you are the main contractor or the information if you are the main contractor. (As main contractors are the only ones to submit a permit)

2. Requested location, date and time. This is the location of what equipment and where onsite the work will be. Only one location per request is accepted. This is to make sure that each job has a separate ACR. The start and end date of when work is expected to be should be enter. These should take into account the processing time for permits (5 working days) and SCADA template changes (20 working days)

3. Reason for change. This includes the name of person and or company requesting the work to be completed, and who will be completing the work. In-depth description of work that is to be completed.

4. State what is changing:
- Electrical
- Instrumentation
- SCADA
- Other

5. Attach all relevant documentation to support application. This many include any of the following:
- Wiring diagram
- I/O test
- FAT documents
- Sign off

Permit to Work: Decision Tree

Use the Permit to Work Decision Tree to help identify any risks associated with your activities and whether certificates for specific work activities are required.

Specialist permit applications are mandatory where a “YES” column has been listed in the PTW column. Where a YES is indicated the Permit Receiver and Permit Issuer must agree on controls.

Confined Space Certificate	PTW required?	PTW required AND notify Mahi Haumaru Aotearoa (Worksafe)
Are you entering a restricted space that is enclosed or partially enclosed that is not intended or designed as a regular place of work?	YES	NO
Are you entering a restricted space that is enclosed or partially enclosed that could have harmful levels of contaminants, oxygen deficiency or excess, or could cause engulfment or drowning?	YES	NO
Will your head enter the confined space?	YES	NO
Will the entry require the use of Breathing Apparatus?	YES	YES

Hot Works Certificate	PTW required?	PTW required AND notify Mahi Haumaru Aotearoa (Worksafe)
Will you be applying heat, using a naked flame, an open heat source, or work that produces sparks?	YES	NO
Will you be cutting with a rotary disc or grinding equipment, soldering, brazing or using a heat gun?	YES	NO
Will you be using gas, welding, arc welding, or oxy-acetylene welding equipment, including cutting with the equipment?	YES	NO
Is there a potential source of ignition?	YES	NO

Excavation Certificate	PTW required?	PTW required AND notify Mahi Haumaru Aotearoa (Worksafe)
Will you be digging, excavating, or breaking the ground in any way?	YES	NO
Are you doing any demolition to any building or structure that involves non-minor structural alterations?	YES	NO
Is there potential to break through into a wall cavity or through the wall thickness?	YES	NO
Are you digging trenching or shaft more than 1.5m deep and which has a depth greater than the horizontal width at the top?	YES	YES
Are you working in an excavation where groundcover will be overhead?	YES	NO
Will the excavation have a face with a vertical height of more than 1.5m, and an average slope steeper than a ratio of 1 horizontal to 2 vertical?	YES	YES

Working at Heights Certificate	PTW required?	PTW required AND notify Mahi Haumaru Aotearoa (Worksafe)
Will you be working at a height less than 3m?	NO	NO
Will you be working at a height of 3m and above?	YES	NO
Will you be working at a height of 5m or more?	YES	YES

Craneage Certificate	PTW required?	PTW required AND notify Mahi Haumaru Aotearoa (Worksafe)
Will you be using a crane or any lifting appliance including a Hiab (or equivalent)?	YES	NO
Will you be using a hoist block on a fixed rail or wire?	YES	NO
Will you be using a stacker or conveyor whereby a load is moved by means of a belt or platform?	YES	NO
Will you be using earth-moving or mineral-moving or excavating appliance not fitted with a grab unless it has been specifically designed to lift loads?	YES	NO

Working at Height >3m Certificate

Before undertaking Work at Height:

This certificate is to be completed by the Permit Receiver apart from where it is stated otherwise.

1. Tick if stated conditions and/or actions have been performed or met. Remedy conditions that have not been met before continuing
2. Tick if worksafe has been notified, strike through if they do not need to be notified
3. All team members must sign here and all must understand the rescue plan in order to sign
4. List all the equipment to be used and may be used in accordance to the rescue plans. The equipment's expiry date must written and can only be used if not expired. The rating of the equipment must also be written here.
5. Add the job description with precautions to be used here as well as the rescue plan
6. Circle yes if there has been a change in the hazards, circle no if there hasn't been a change in the hazards since the JSA was made. If you circle yes, a new JSA will have to be completed.
7. Write the issue time and date required and sign on the line
8. Once the job has been completed add the closure time and date then sign off on the work

For work longer than 12 hours revalidation dates will need to be included and signed off on a daily basis.

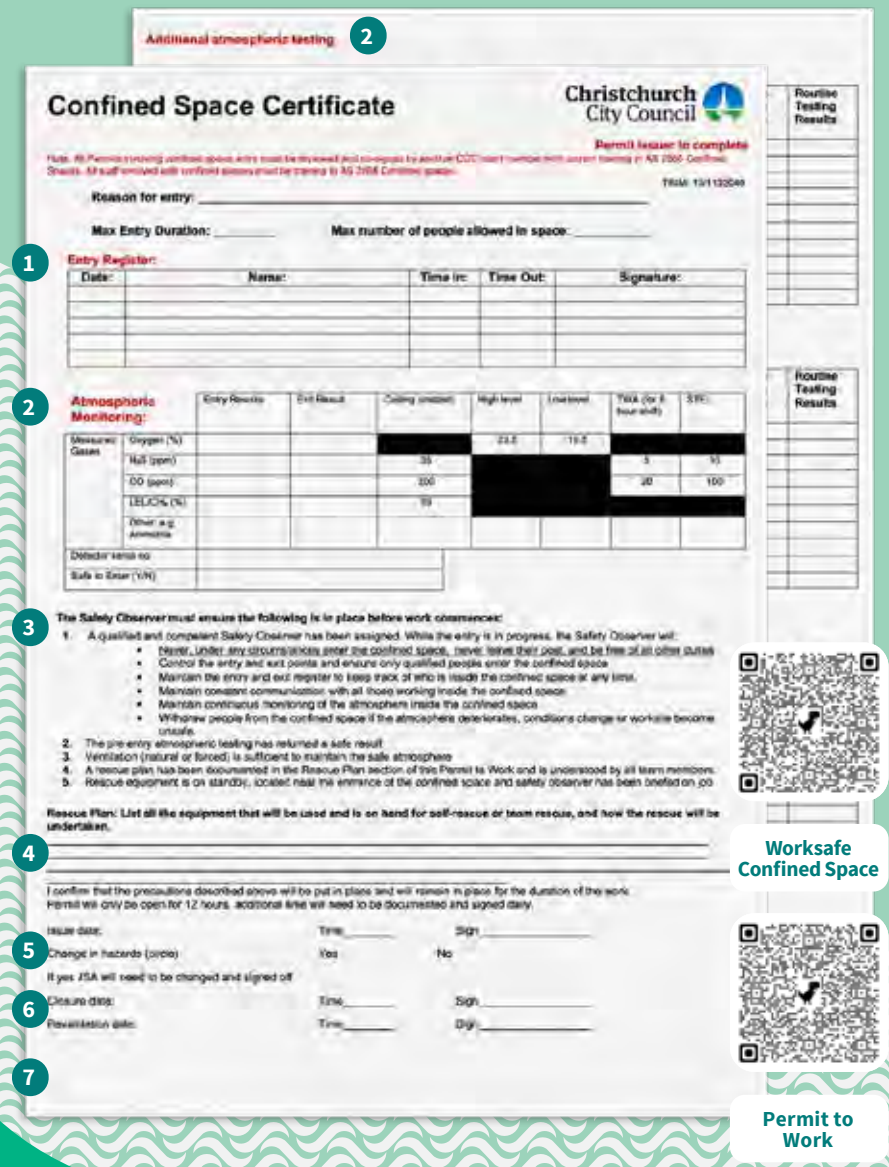
9. Safety observer must sign the bottom of the permit

Submit the certificate with the Permit to Work application, for assessment by the duty shift engineer or their authorised delegate.

More information on the hazards and expected controls for Working at Heights can be found in the Three Waters Health, Safety and Wellbeing Booklet, which is available on request.

The purpose of this certificate is to identify and ensure appropriate controls are established for Working at Heights.

Important: Ensure that everyone has completed NZQA 17600 within the last 2 years, all safety equipment is current and certificates have been provided.


Additional atmospheric testing 2

Confined Space Certificate

Christchurch City Council

Permit Issuer to complete

Reason for entry:

Max Entry Duration: Max number of people allowed in space:

1 Entry Register:

Date:	Name:	Time In:	Time Out:	Signature:

Routine Testing Results

2 Atmospheric Monitoring:

		Entry Results	Exit Result	Ceiling (maximum)	High level	Low level	TWA (for 8 hour shift)	STEL
Measure Gases	Oxygen (%)				23.5	19.5		
	H2S (ppm)			35			5	10
	CO (ppm)			200			30	100
	LEL/CH4 (%)			10				
	Other e.g. ammonia							
Detector serial no								
Safe to Enter (Y/N)								

Routine Testing Results

3 The Safety Observer must ensure the following is in place before work commences:

1. A qualified and competent Safety Observer has been assigned. While the entry is in progress, the Safety Observer will:
   - Never, under any circumstances enter the confined space, never leave their post, and be free of all other duties
   - Control the entry and exit points and ensure only qualified people enter the confined space
   - Maintain the entry and exit register to keep track of who is inside the confined space at any time.
   - Maintain constant communication with all those working inside the confined space
   - Maintain continuous monitoring of the atmosphere inside the confined space
   - Withdraw people from the confined space if the atmosphere deteriorates, conditions change or worksite become unsafe.
2. The pre-entry atmospheric testing has returned a safe result
3. Ventilation (natural or forced) is sufficient to maintain the safe atmosphere
4. A rescue plan has been documented in the Rescue Plan section of this Permit to Work and is understood by all team members.
5. Rescue equipment is on standby, located near the entrance of the confined space and safety observer has been briefed on job

Rescue Plan: List all the equipment that will be used and is on hand for self-rescue or team rescue, and how the rescue will be undertaken.

4

I confirm that the precautions described above will be put in place and will remain in place for the duration of the work.
Permit will only be open for 12 hours, additional time will need to be documented and signed daily.

Issue date: Time: Sign:

5 Change in hazards (circle) Yes No

If yes JSA will need to be changed and signed off

6 Closure date: Time: Sign:

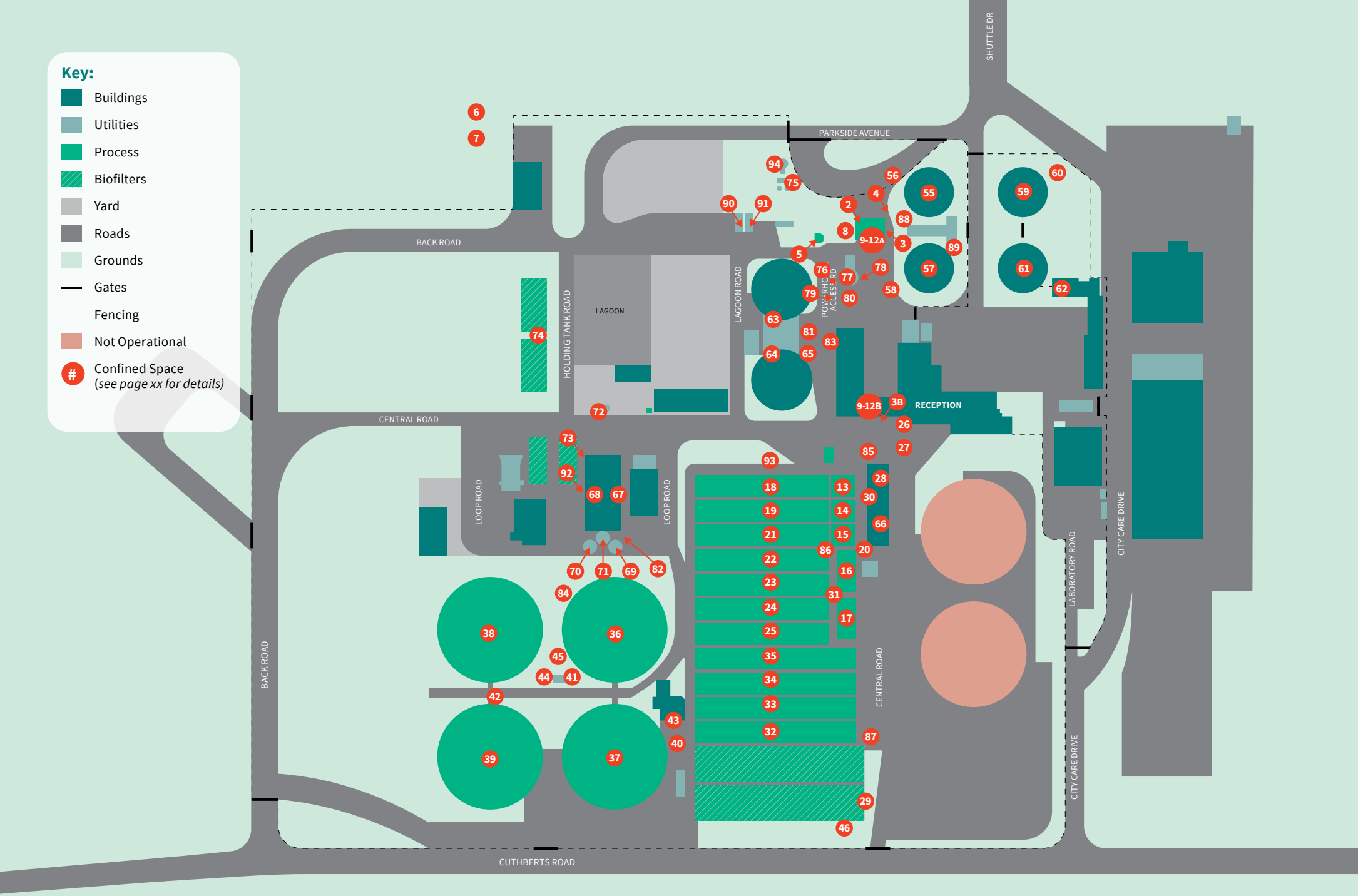
Revalidation date: Time: Sign:

7

Worksafe Confined Space

Permit to Work

Confined Space Certificate



Confined Spaces – Treatment Plant

Confined Spaces – Treatment Ponds

Before undertaking work in Confined Spaces:

This certificate is to be completed by the Permit Receiver apart from where it is stated otherwise.

Fill out the certificate with the required information:

1. Fill in the entry register when the worker enter and leaves the confined space. The worker must sign to confirm they've left the confined space.
2. Fill in table with atmospheric conditions on workers initial entry and re-entry.

Atmospheric testing must be performed every 15-30 minutes and additional tables can be found on the back.

3. Ensure safety Observer understands these conditions and has equipment/resources available to meet these conditions
4. Document rescue plan and equipment to be used. If additional space to write is required, attach another page to the confined space certificate.
5. Circle yes if there has been a change in the hazards, circle no if there hasn't been a change in the hazards since the JSA was made. If you circle yes, a new JSA will have to be completed.
6. Once the job has been completed add the closure time and date then sign off on the work

For work longer than 12 hours revalidation dates will need to be included and signed off on a daily basis.

7. Safety observer must sign the bottom of the permit

Submit the certificate with the Permit to Work application, for assessment by the duty shift engineer or their authorised delegate.

More information on the hazards and expected controls for confined spaces can be found in the Three Waters Health, Safety and Wellbeing Booklet, which is available on request.

The purpose of this certificate is to identify and ensure appropriate controls are established for confined spaces.

Important: Ensure that everyone has completed NZQA 18426 within the last 2 years, all safety equipment is current, certificates have been provided, atmospheric testing is completed every 15-30 min and a record is attached to the permit.

Register of Confined Spaces

1. All channels, large pipes & deep service ducts (general, not marked on map)
2. Influent structure – Stone traps and Fat traps – Tag: 005.0 TZ001
3a. Over flow channel Manual Raked Screen, entrance at influent structure – Tag: 005.0 SI001
3b. Over flow channel Manual Raked Screen, entrance outside screen room – Tag: 005.0 SI001
4. PM 36 Valve Chamber – No tag
5. PM 11 Discharge Chamber – Tag: 005.0 TZ002
6. PM 1A Valve Chamber – No Tag
7. PM 15 Valve Chamber – No Tag
8. Dall Flow Meter Room (in Galley below ground level) – No Tag
9-12A. Inlet Screening Channels 1-4, entrance at influent structure
9-12B. Inlet Screening Channels 1-4, entrance in screen room
   - **9:** Inlet Screening Channel 1 – Tag: 015.1 SI001
   - **10:** Inlet Screening Channel 2 – Tag: 015.2 SI001
   - **11:** Inlet Screening Channel 3 – Tag: 015.3 SI001
   - **12:** Inlet Screening Channel 4 – Tag: 015.4 SI001
13. Entry into Grit Tank Number 1 – Tag: 020.1 TT001
14. Entry into Grit Tank Number 2 – Tag: 020.2 TT001
15. Entry into Grit Tank Number 3 – Tag: 020.3 TT001
16. Entry into Grit Tank Number 4 – Tag: 020.4 TT001
17. Entry into Grit Tank Number 5 – Tag: 020.5 TT001
18. **Primary Sedimentation Tank Number 1 – Tag 105.1 TT001**
19. **Primary Sedimentation Tank Number 2 – Tag 105.2 TT001**

Restricted Area

20. Entry into void between Grit Tanks 3 & 4 – No Tag
21. **Primary Sedimentation Tank Number 3 – Tag 105.3 TT001**
22. **Primary Sedimentation Tank Number 4 – Tag 105.4 TT001**
23. **Primary Sedimentation Tank Number 5 – Tag 105.5 TT001**
24. **Primary Sedimentation Tank Number 6 – Tag 105.6 TT001**
25. **Primary Sedimentation Tank Number 7 – Tag 105.7 TT001**

Restricted Area

26. Entry into Pump Station A – Wet Well and Discharge Chamber – No Tag

Register of Confined Spaces

26 Entry into Pump Station A – Wet Well and Discharge Manifold – No Tag

27 Entry into Pump Station A – Penstock Chamber 01 – Tag: 206.0 CT001

28 Entry into Pump Station B – Wet Well and Discharge Manifold – No Tag

29 Entry into Bark Filter 1A & 1B Valve Chamber – No Tag

30 Entry into PST 1-3 Primary Sludge Sump 1 – Tag: 105.0 UT006

31 Entry into PST 4-7 Primary Sludge Sump 2 – Tag: 105.0 UT007

32 Entry into Solids Contact Tank Number 1 – Tag: 220.1 TT001

33 Entry into Solids Contact Tank Number 2 – Tag: 220.2 TT001

34 Entry into Solids Contact Tank Number 3 – Tag: 220.3 TT001

35 Entry into Solids Contact Tank Number 4 – Tag: 220.4 TT001

36 Entry into Aerated Clarifier 1 – Tag: 225.1 TZ001

37 Entry into Aerated Clarifier 2 – Tag: 225.2 TZ001

38 Entry into Clarifier 3 – Tag: 225.3 TZ001

39 Entry into Clarifier 4 – Tag: 225.4 TZ001

40 Entry into Clarifier 1, 2, 3 & 4 Scum Sump Valve Chamber – No Tag

41 Entry into Clarifier 1 & 2 Scum Sump – Tag: 225.5 UT001

42 Entry into Clarifier 3 & 4 Scum Sump – Tag: 225.5 UT002

43 Entry into Clarifier Drain Sump – Tag: 225.6 UT001

44 Entry into Clarifier 1 & 2 Back up Sump (out of service) – Tag: 225.6 UT002

45 Entry into Clarifier Dewatering Sump (out of service) – No Tag

46 Entry into Old Effluent Structure – Tag: 220.0 TT003

Confined spaces at Oxidation Ponds, not on plant map (47 - 54)

47 Entry into Ocean Outfall Valve Chamber 2 – Tag: 315.7 CT001

48 Entry into Ocean Outfall Air Release Valve Chamber – Tag: 315.4 PV003

49-51 Inlet Screening Channels 1-4, entrance in screen room

49: Entry into Ocean Outfall Pump Station Stilling Well – No Tag

50: Entry into Ocean Outfall Pump Station Interceptor Chamber – No Tag

51: Entry into Ocean Outfall Pump Station Wet Wells – No Tag

52. Entry into North Toe Drain Wet Well – Tag: 310.2 UT001
53. Entry into South Toe Drain Wet Well – Tag: 310.1 UT001
54. Entry into Estuary Discharge Structure – Tag: 305.6 TZ001
55. Entry into Digester 1 - Roof Space – Tag: 410.1 RZ001
56. Entry into Digester 1 – Side Access – Tag: 410.1 RZ001
57. Entry into Digester 2 - Roof Space – Tag: 410.2 RZ001
58. Entry into Digester 2 – Side Access – Tag: 410.2 RZ001
59. Entry into Digester 3 - Roof Space – Tag: 410.3 RZ001
60. Entry into Digester 3 – Side Access – Tag: 410.3 RZ001
61. Entry into Digester 4 - Roof Space – Tag: 410.4 RZ001
62. Entry into Digester 4 – Side Access – Tag: 410.4 RZ001
63. Entry into Digester 5 – Side Access Hatch – Tag: 415.5 RT001
64. Entry into Digester 6 – Side Access Hatch – Tag: 415.6 RT001
65. Entry into Sludge Buffer Tank – Tag: 407.0 TT001
66. Entry into Thickened WAS Hopper – Tag: 405.0 UT001
67. Entry into Dryer 1 – Tag: 450.1
68. Entry into Dryer 2 – Tag: 460.1
69. Entry into Dried Biosolids Storage Dry Silo 1 – Tag: 450.5 ST001
70. Entry into Dried Biosolids Storage Dry Silo 2 – Tag: 460.5 ST001
71. Entry into Dewatered Biosolids Storage Silo – Tag: 440.3 ST001
72. Entry into Dryer Building Storm Water Pump Station & Valve Chamber – Tag: 815.6 UT002
73. Entry into Dryer Sump 2 – Tag: 815.6 UT102
74. Entry into Bark Filter 2A and 2B Drain Sump – No Tag
75. Entry into Flare 3 Condensate Sump – Tag: 505.3 UT001
76. Entry into Low Pressure Gas Tank Valve Chamber (Digesters 1-4) – No Tag
77. Entry into Low Pressure Gas Tank Valve Chamber (Digesters 5 & 6) – No Tag

78. Entry into Low Pressure Gas Tank (Digesters 5 & 6) – Tag: 505.2 TT001
79. Entry into C2 Holding Tank Suction Tank – No Tag
80. Entry into C2 Water Tank Holding Tank – Tag: 815.0 TT001
81. Entry into Digesters 5 and 6 Drainage Sump – No Tag
82. Entry into C3 Wet Well – Tag: 815.4 UT001
83. Entry into C3 Water Tank – Tag: 826.9 TT001
84. Entry into Stormwater Pump Station near Biosolids Building – No Tag
85. Entry into Drainage Sump 1 (in Galley below ground level) – No Tag
86. Entry into Drainage Sump 2 (in Galley below ground level) – No Tag
87. Entry into Drainage Sump 3 (in Galley below ground level) – No Tag
88. Entry into Drainage Sump 4 (in Galley below ground level) – No Tag
89. Entry into Drainage Sump 5 (in Galley below ground level) – No Tag
90. Entry into Diesel Tank 1 – Tag: 830.1 TT001
91. Entry into Diesel Tank 2 – Tag: 830.2 TT001
92. Entry into C2 Valve Chamber near Drying Building – No Tag
93. Entry into Deep Service Duct near PST 1 – No Tag
94. Entry into Biogas UniFlare 3 – No Tag

Hot Work Certificate

Before undertaking any Hot Work:

This certificate is to be completed by the Permit Receiver apart from where it is stated otherwise.

1. Tick if stated conditions and/or actions have been performed or met. Remedy conditions that have not been met before continuing.
2. Add the hot work job description with precautions to be used here. Tick conformation box if conditions have been met and remedy conditions that have not been met. The safety observer must sign in the box provided.
3. Write the issue date and sign on the line
4. Circle yes if there has been a change in the hazards, circle no if there hasn't been a change in the hazards since the JSA was made. If you circle yes, a new JSA will have to be completed.
5. Once the job has been completed add the closure time and date then sign off on the work
6. For work longer than 12 hours revalidation dates will need to be included and signed off on a daily basis

Submit the certificate with the Permit to Work application, for assessment by the duty shift engineer or their authorised delegate.

Important information

A thorough examination of the hot works area for any signs of combustion immediately after completion of the job and again, an hour after.

The area in which hot work is to be carried out is a radius of no less than 10 meters, including the area beneath such hot works.

More information on the hazards and expected controls for Hot Work can be found in the Three Waters Health, Safety and Wellbeing Booklet, which is available on request.

The purpose of this certificate is to identify and ensure appropriate controls are established for Hot Work.

Important: Ensure all safety equipment is up to date and all precautions are taken into account.

Christchurch City Council

Excavation Certificate

1

2

3 Description of work

4

5

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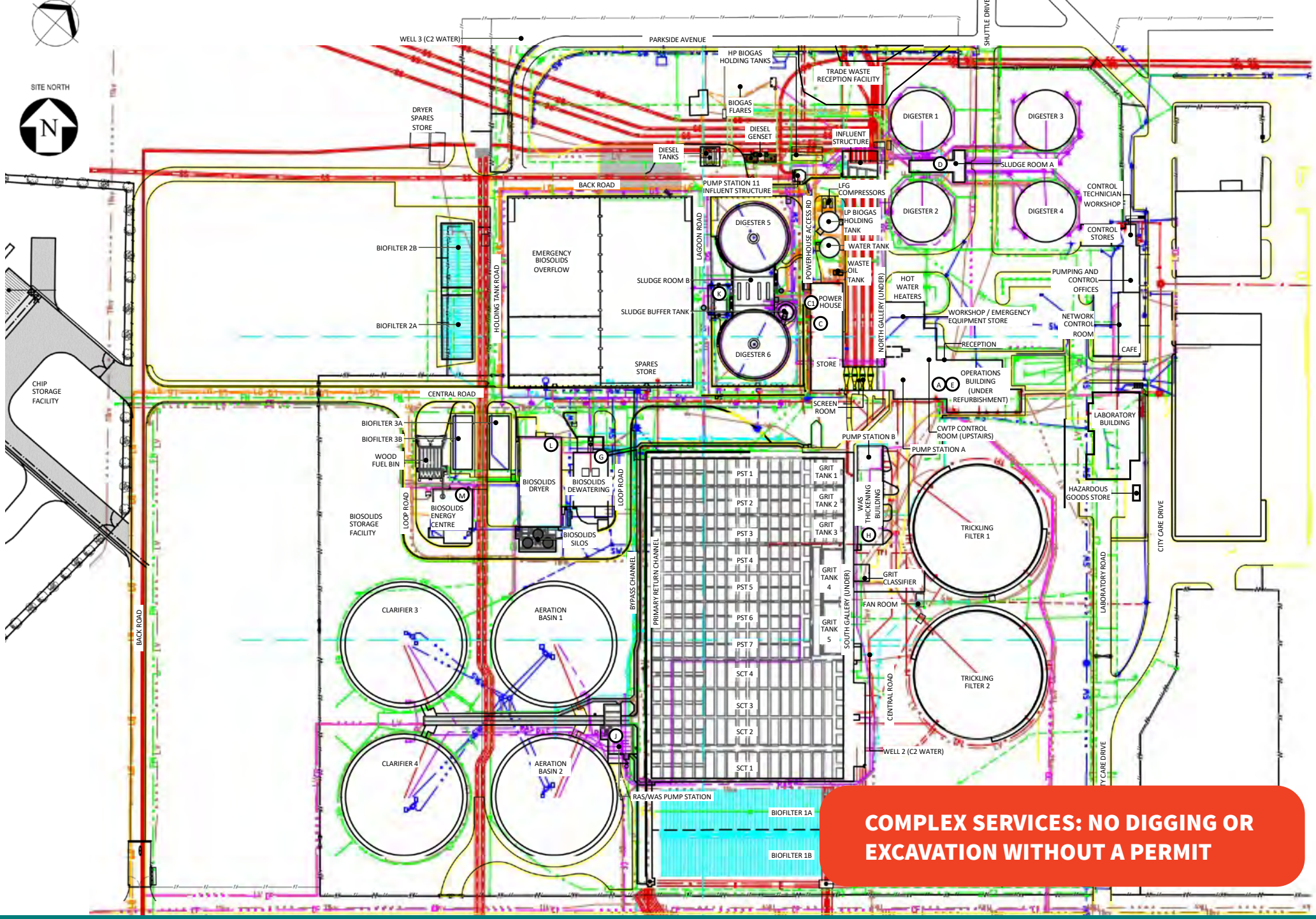
7

Worksafe

Permit to Work

Excavation & Demolition Certificate



Excavation Map – Underground Services

Before undertaking Excavation:

Permit Receiver must complete this form if any job steps require excavations 150mm or deeper or that involve demolition.

1. Tick if stated conditions and/or actions have been performed or met and remedy conditions that have not been met.
2. Tick if worksafe has been notified, strike through if they do not need to be notified.
3. Add the job description with precautions to be used here. Tick conformation box if conditions have been met and remedy conditions that have not been met.
4. Write the issue date and sign on the line.
5. Circle yes if there has been a change in the hazards, circle no if there hasn't been a change in the hazards since the JSA was made. If you circle yes, a new JSA will have to be completed.
6. Once the job has been completed add the closure time and date then sign off on the work.
7. Safety observer must sign the bottom of the permit.

Submit the certificate with the Permit to Work application, for assessment by the duty shift engineer or their authorised delegate.

More information on the hazards and expected controls for Excavation can be found in the Three Waters Health, Safety and Wellbeing Booklet, which is available on request.

The purpose of this certificate is to identify and ensure appropriate controls are established for Excavation.

Important: All services drawings must be attached to the permit and consulted with CWTP Team Leaders. Excavations must be appropriately guarded to prevent injury.

Excavation Certificate

Excavation: Underground Services

As this is an industrial site we have many underground services. A brief list of the underground services can be found below. The full underground services map is overwhelming and can be seen on the following page.

If you plan to do any digging or demolition please contact CWTP staff and drawings before starting work.

There are also a lot of abandoned or unused pipework across this site and so an excavation form must be completed if any job steps require excavations 150mm or deeper or that involve demolition.

Below is a brief list of the different services found underground:

Fuel and Water

- LPG
- Landfill gas
- Biogas
- Water (C1, C2, C3, potable, hot, fire, storm water, high pressure hot water)
- Condensate
- Compressed air
- Aeration air
- Foul air
- Diesel

Electrical

- Telecom
- Electrical (240/440 V, 11kv, 66kv)
- Comms copper, Comms fiber
- Cable duct

In addition we may require projects to radar and service locate to ensure that all the underground services in the area are found. It is also worth noting that not all the underground services are located on the map and, completing your own maps of your work area is highly recommended.

The major hazardous underground services are:

- 11kv
- 66 kv
- Gas pipes
- Water pipes

The water pipes across site have a range of different pressures, so it is worth checking what pressure the water pipes you are connecting too or digging/ demolishing near.

Important: Before starting any digging or demolition please contact CWTP staff and drawings before starting work.

Christchurch City Council

Cranage Certificate

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Worksafe

Permit to Work

Crane Lifts Certificate

Before undertaking Cranage:

This certificate is to be completed by the Permit Receiver apart from where it is stated otherwise.

1. Tick if worksafe has been notified, strike through if they do not need to be notified
2. Tick if stated conditions and/or actions have been performed or met. Remedy conditions that have not been met before continuing.
3. If it is a critical lift, complete this section by ticking if stated conditions and/or actions have been performed or met. Remedy conditions that have not been met before continuing. If it is not a critical lift, draw a line through and continue to "Job description and diagram of work site if appropriate".
4. Add a job description and attach diagram of work site if appropriate
5. Tick confirmation box if conditions have been met and remedy conditions that have not been met before continuing
6. Write the issue time and date and sign on the line
7. Circle yes if there has been a change in the hazards, circle no if there hasn't been a change in the hazards since the JSA was made. If you circle yes, a new JSA will have to be completed.
8. Once the job has been completed add the closure time and date then sign off on the work

For work longer than 12 hours revalidation dates will need to be included and signed off on a daily basis.

Submit the certificate with the Permit to Work application, for assessment by the duty shift engineer or their authorised delegate.

More information on the hazards and expected controls for Cranage can be found in the Three Waters Health, Safety and Wellbeing Booklet, which is available on request.

The purpose of this certificate is to identify and ensure appropriate controls are established for Cranage.

Important: Ensure the appropriate precautions are taken for the machinery being used.

CWTP Isolation Schedule & Certificate

Christchurch City Council

1

2 Scope of Work.

2 ZES / IES Comments

3 PTW / LOTO ID:

4 Group Lockout Y/ N LOCKBOX #

5

Lock #	Isolation Point Tag & Description	Made (Over/Close)	Applied By	Removed By

6

7

Worksafe Isolations

Permit to Work

Isolations Certificate

Before undertaking Isolations:

This certificate is to be completed by the Permit Receiver apart from where it is stated otherwise.

1. The person performing the isolations must read and under stand this section
2. Write the scope of work. Fill in a comment on the zero energy state/isolated energy state.
3. Write the PTW/LOTO ID number
4. Circle “Y” if it is a group lock out and add the lockbox number. Circle “N” if it is not a group lock out and continue.
5. Fill in the table with the lock number, Isolation Point Tag and description, who it is checked by, who it was applied by, and if the state of the lock is in the open or closed position. Write “Yes” if personal lock has been added, write “No” if it has not. When the lock has been removed, write who it was removed by.
6. Tick confirmation box if conditions have been met
7. Isolation Coordinator signs in highlighted box. Additional CWTP Team Member signs below.

Submit the certificate with the Permit to Work application, for assessment by the duty shift engineer or their authorised delegate.

More information on the hazards and expected controls for Isolations can be found in the Three Waters Health, Safety and Wellbeing Booklet, which is available on request.

The purpose of this certificate is to identify and ensure appropriate controls are established for Isolations.

Important: Isolations can only be completed by the Duty Shift Engineer or their authorised delegate.

Asbetos: Worksafe

Asbestos Removal: Control Plan

More information on the hazards and expected controls for Asbestos Removal can be found in the Three Waters Health, Safety and Wellbeing Booklet, which is available on request.

The purpose of this certificate is to identify and ensure appropriate controls are established for asbestos removal

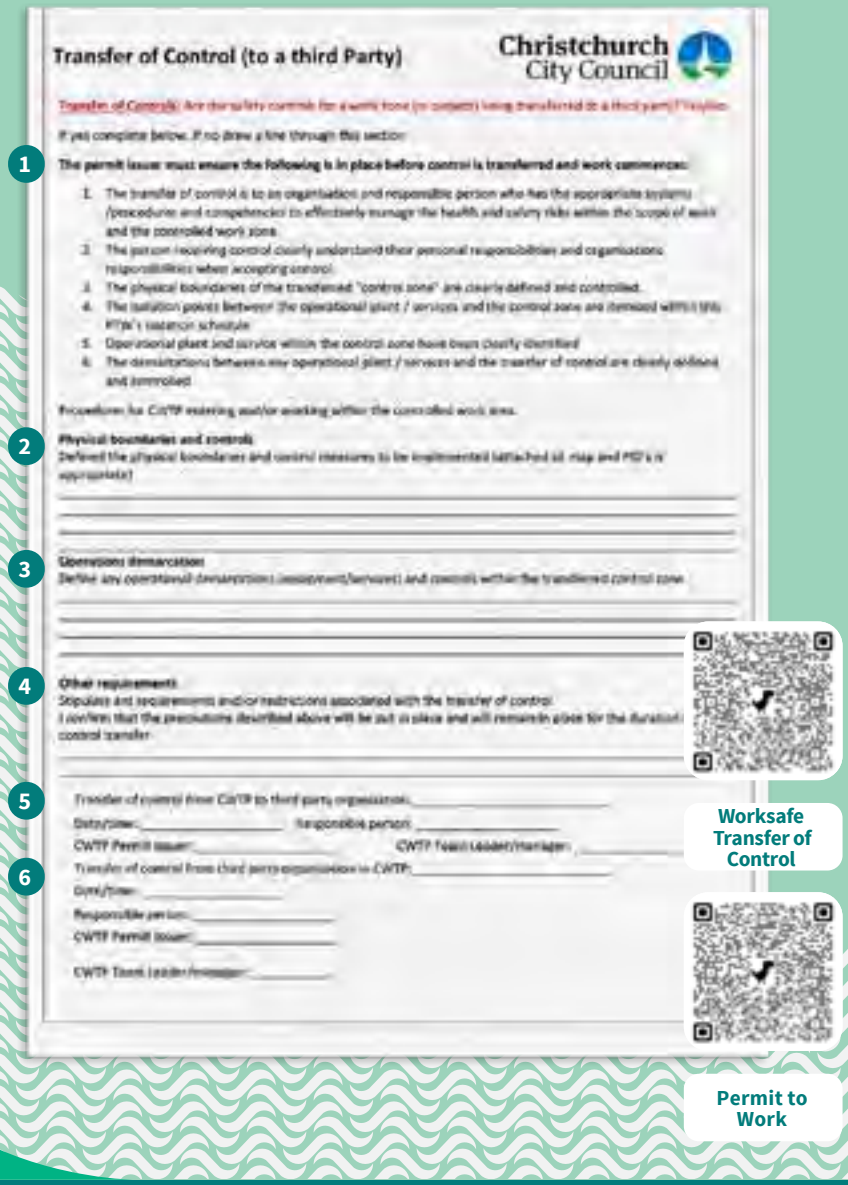
You must be Certified to remove Asbestos and comply with the Worksafe Code of Practice.

I think I've disturbed asbestos...what do I do now?

- Stop and walk away!
- Tell your site contact where you think you may have disturbed asbestos
- Stop others going near the area until it is proven safe to work in

Before removing asbetos:

- Complete a control plan (pages 248 to 265 of the Worksafe Good Practice Guideline)
- Submit the control plan with the Permit to Work application, for assessment by the duty shift engineer or their authorised delegate



Transfer of Control (to a third Party)

Christchurch City Council

Transfer of Control: Are the safety controls for a work zone (or system) being transferred to a third party? Yes/No

If yes complete below. If no draw a line through this section

1 **The permit issuer must ensure the following is in place before control is transferred and work commences:**

1. The transfer of control is to an organisation and responsible person who has the appropriate systems /procedures and competencies to effectively manage the health and safety risks within the scope of work and the controlled work zone.
2. The person receiving control clearly understand their personal responsibilities and organisations responsibilities when accepting control.
3. The physical boundaries of the transferred "control zone" are clearly defined and controlled.
4. The isolation points between the operational plant / services and the control zone are itemised within the PTW's issuance schedule
5. Operational plant and service within the control zone have been clearly identified
6. The demarcations between any operational plant / services and the transfer of control are clearly defined and controlled

Procedures for CoTP entering and/or working within the controlled work area.

2 **Physical boundaries and controls**
Defined the physical boundaries and control measures to be implemented (attached sit. map and PEP's if appropriate)

3 **Operations demarcation**
Define any operational demarcations (equipment/services) and controls within the transferred control zone

4 **Other requirements**
Stipulate any requirements and/or restrictions associated with the transfer of control
I confirm that the precautions described above will be put in place and will remain in place for the duration control transfer

5 Transfer of control from CoTP to third party organisation:
Date/time: Responsible person:
CWTP Permit issuer: CWTP Team Leader/manager:

6 Transfer of control from third party organisation to CWTP:
Date/time:
Responsible person:
CWTP Permit issuer:
CWTP Team Leader/manager:

Worksafe Transfer of Control

Permit to Work

Transfer of Control Certificate

Before transferring asset responsibility:

This certificate is to be completed by the Permit Receiver apart from where it is stated otherwise.

1. Tick if stated conditions and/or actions have been performed or met. Remedy conditions that have not been met before continuing.
2. Define the Physical boundaries and controls to be implemented. Attach site drawings as appropriate.
3. Define any operational demarcations (equipment/ services) and controls within the control zone.
4. Stipulate any other requirements and/ or restrictions. Tick conformation box if conditions have been met and remedy conditions that have not.
5. This section is for when control is being given from CWTP to the third party organisation. Fill in this section with required details with appropriate signatures in the slots.
6. This section is for when control is being given back to CWTP from the third party organisation. Fill in this section with required details with appropriate signatures in the slots.

On the back of the form there is a site map. On this map, draw the boundary of the area which control is being transferred and any additional information as well.

Submit the certificate with the Permit to Work application, for assessment.

The CWTP operations manager controls all work on site to ensure the plant can safely operate at all times, and assesses any requests for transfer of control on site.

The purpose of this certificate is to identify and ensure appropriate safety controls are established for any work zone (or project) are being transferred to a third party.

Important: This is full transfer of an asset to an organization. All appropriate measures are to be taken to ensure this goes smoothly. Transfer of Control can only be released by a Team Leader or Management.

Daily Authorisation to Work

Daily Authorization is the communication and coordination of site on a daily basis.

This is to allow CWTP staff to have an understanding of projects and work onsite that may overlap or potentially require a shutdown of an essential piece of the process

It also helps us manage contractors and our overall site security

All work onsite must be discussed daily with a member of the CWTP staff. This ensures that work can be coordinated to ensure all hazards are managed as well as ensuring the Duty Shift Engineer is aware of work going on, on their site

Information that is required for daily authorization:

- **Where you will be:**
  - Building
  - Section of plant
  - Treatment process
- **What you will be working on:**
  - Equipment
  - Section of equipment is necessary
- **What you will be doing:**
  - Permit to work
  - Special permit
  - Equipment being used
- **Who will be there**
- **How long you are working till (e.g. after site hours?)**

Commissioning and Handback

Commissioning of equipment is expected to be completed before the site or equipment is handed back to CWTP.

- A commissioning plan will need to be provided before commissioning starts.
- Before handback the site will be checked over and any defects noticed will be documented.
- Once all parties are ready the site or equipment will be handed back to CWTP
- On Handback the area of work must be clean and tidy with all rubbish removed from site
- All contracted work must be completed and signed off by the permit issuer, CWTP Team Leaders and permit receiver

On handback the following documents may be required:

- P & ID
- As-built
- Testing information
- Operations and Maintenance manual
- Maintenance information
- Underground services drawing
- Lift plans
- Safety information
- Specified set points
- Site/equipment risk register
- Additional information related to the project or required by CWTP staff

Glossary of Terms

Term	Explanation (add your own in the spaces below)
ACR	Automation Change Request
BEC	Biosolids Energy Centre
CWTP	Christchurch Wastewater Treatment Plant
HSW	Health, Safety & Wellbeing
JSA	Job Safety Analysis
P&I or PID	Process & Instrumentation Diagram
PPE	Personal Protective Equipment
PTW	Permit to Work
RAS	Return Activated Sludge
SDS	Safety Data Sheet
SSSP	Site Specific Safety Plan
WAS	Waste Activated Sludge
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Produced by Christchurch City Council,
Christchurch Water Treatment Plant.

If you have questions or recommendations on the content of this book, please contact Council's Health, Safety and Wellbeing team at handsadmin@ccc.govt.nz

Revision 1.0; November 2023
This booklet created with help from Beck & Caul.

Christchurch City Council