Pollution Incident Response Management Plan (PIRMP)

Byron Bay Sewage Treatment Plant

June 2021

This document was prepared by Hydrosphere Consulting on behalf of Byron Shire Council.

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21-011: BYRON POLLUTION INCIDENT RESPONSE PLANS
BYRON BAY STP PIRMP

REV	DESCRIPTION	AUTHORS	REVIEW	APPROVAL	DATE
0	Draft for BSC review	K. Menzies	R. Campbell	M. Howland	18 Jan 2021
1	Final	K. Menzies	R. Campbell	M. Howland	15 Mar 2021
2	External copy	K. Menzies			21 June 2021

POLLUTION INCIDENT RESPONSE MANAGEMENT PLAN
LICENCE NUMBER: EPL 3404

Approved by: <insert name>
Signature: <insert signature>
Position/Title: <insert position/title>
Date: <insert date>

PURPOSE:

Byron Shire Council (BSC) holds an Environment Protection Licence with the NSW Environment Protection Authority (EPA) for the Byron Bay Sewage Treatment Plant. As per the *Protection of the Environment Operations Act 1997* (the POEO Act), the holder of an Environment Protection Licence must prepare, keep, test and implement a pollution incident response management plan (PIRMP) that complies with Part 5.7A of the POEO Act in relation to the activity to which the licence relates.

If a pollution incident occurs in the course of an activity so that material harm to the environment (within the meaning of section 147 of the POEO Act) is caused or threatened, the person carrying out the activity must **immediately** implement this plan in relation to the activity required by Part 5.7A of the POEO Act.

A copy of this plan must be kept at the licensed premises, or where the activity takes place in the case of mobile plant licences and be made available on request by an authorised EPA officer and to any person who is responsible for implementing this plan.

Parts of the plan must also be available either on a publicly accessible website, or if there is no such website, by providing a copy of the plan to any person who makes a written request. The sections of the plan that are required to be publicly available are set out in clause 98D of the Protection of the Environment Operations (General) Regulation 2009.

NOTE: This plan must be developed in accordance with the *Protection of the Environment Operations Act 1997* and the Protection of the Environment Operations (General) Regulation 2009.

Licensees should also refer to the EPA's *Guideline: Pollution incident response management plans*.

WHAT IS A POLLUTION INCIDENT?

'*Pollution incident means an incident or set of circumstances during or as a consequence of which there is or is likely to be a leak, spill or other escape or deposit of a substance, as a result of which pollution has occurred, is occurring or is likely to occur. It includes an incident or set of circumstances in which a substance has been placed or disposed of on premises, but it does not include an incident or set of circumstances involving only the emission of any noise***.**' (POEO Act).

WHEN IS NOTIFICATION TO THE EPA AND RELEVANT AUTHORITIES REQUIRED?

Notification is required if a pollution incident causes or threatens to cause 'material harm to the environment' defined as:

'(a*) harm to the environment is material if:*

(i) it involves actual or potential harm to the health or safety of human beings or to ecosystems that is not trivial, or

(ii) it results in actual or potential loss or property damage of an amount, or amounts in aggregate, exceeding $10,000 (or such other amount as is prescribed by the regulations), and

(b) loss includes the reasonable costs and expenses that would be incurred in taking all reasonable and practicable measures to prevent, mitigate or make good harm to the environment.' (POEO Act)

Notification is required even where '*harm to the environment is caused only on the premises where the pollution incident occurs*'. (POEO Act).

Environment Protection Licence (EPL) Details	
Name of licensee:	Byron Shire Council ABN 14 472 131 473
EPL number:	EPL 3404
Premises name and address:	Byron (Bay) Sewage Treatment Works Bayshore drive Byron Bay NSW 2481 Lot 10 DP 1062883 (The premises also include the sewerage reticulation network associated with the sewage treatment plant)
Company or business contact details	**Position or title:** Manager – Utilities
Website address:	www.byron.nsw.gov.au/Services/Water-sewer
Scheduled activity/activities on EPL:	Sewage treatment
Fee-based activity/activities on EPL:	Sewage treatment processing by small plants (> 1000 – 5000 ML annual maximum volume of discharge)

Pollution incident – person/s responsible	
Contact details must include the names, position titles and 24-hour contact details. Details are to include alternative person/s, should the primary contact be unavailable.	
PIRMP activation	**Position:** Sewage Treatment Team Leader
Notifying relevant authorities Notification should be made by a person with an appropriate level of authority within the company.	**Position or title:** Manager – Utilities
Managing response to pollution incident	**Position:** Sewage Treatment Team Leader **Alternative persons responsible:** Sewage System Operators

Notification of relevant authorities

Identify any persons or authorities required to be notified as per Part 5.7A of the POEO Act in the case of a pollution incident that causes or threatens to cause material harm to the environment.

NSW Shellfish Operations (for pollution incidents in Brunswick River)	Contact number/s:	
Fire & Rescue NSW / Rural Fire Service	Contact number/s:	
EPA	Contact number/s:	
NSW Health	Area Health Service: Contact number/s:	
SafeWork NSW	Contact number/s:	
Rous County Council	Contact number/s:	
Byron District Hospital	Contact number/s:	
EPA Grafton	Contact number/s:	
Cape Byron Marine Park	Contact number/s:	
DPI Fisheries (Richmond)	Contact number/s:	
Water NSW (emergency reporting)	Contact number/s:	
Essential Energy (power outages)	Contact number/s:	
Lismore Chamber of Commerce	Contact number/s:	
Byron Shire Council (main office)	Contact number/s:	(02) 6626 7000 (02) 6622 7022 (after hours)

Notification of neighbours and the local community

Where there is a risk to human health and/or the environment due to a pollutant entering the environment:

- Contact potentially affected neighbours directly (door knocking/ letter dropping or phone) as soon as possible and update as necessary.
- The local community will be informed by BSC media releases as determined by General Manager.
- Monitor the incident closely and implement containment procedures as required.
- Update any community members who have contacted Council directly regarding the potential pollution incident.

Actions to be taken during or immediately after a pollution incident

The person who first encounters a pollution incident or is notified by a member of the community of an incident must immediately follow the procedure summarised by the flow chart in Figure 1 in addition to the responses specific to each hazard described in the next section.

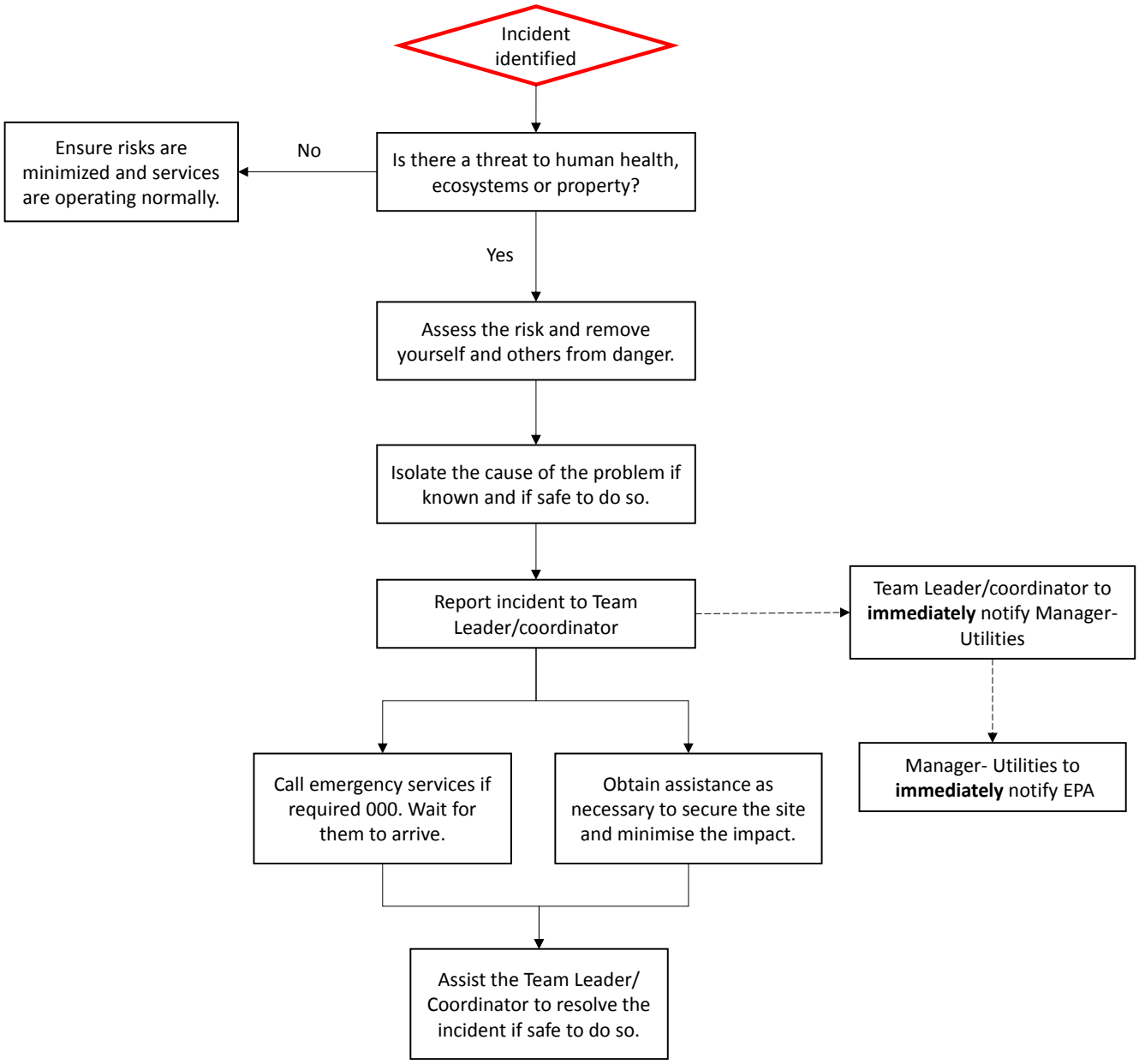

Figure 1: Pollution incident response flow chart

Containing, minimising and cleaning up hazardous substances may involve the following processes as required:

- Attempt to stop the flow of the substance at the container/source.
- Place sand or soil in the shape of a bund around the spill to contain it.
- Place absorbent material (preferably from a spill kit) over the spill to soak up the substance and store in a container.
- If a large quantity has been spilt, provide a bund or cut off walls at points along the flow direction to prevent the substance entering stormwater drains or waterways, this may need to be done in several places to store the quantity spilt.
- Remove any excess sewage spills using a pump out or vacuum tanker where practical.

- Remove any solid wastewater material and contaminated soil and dispose of to landfill.
- Public areas contaminated with wastewater (not waterways) may require disinfection (confirm with the Environmental Health Officer).
- Seek advice from senior staff on method of removal that could involve specialist clean up.

Follow-up actions:	Responsibility
If directed by the EPA or Manager-Utilities, investigate and organise an inspection and sampling of waterways and/or soils and notify the Manager-Utilities of outcomes.	Environmental Health Officer
Resolve the incident and ensure that 'normal' operating or working conditions are resumed. If services cannot be resumed within four hours the Manager-Utilities must be notified.	The Team Leader / On-Call Coordinator
Provide the EPA with a written report of the incident within 7 days in accordance with the POEO Act	Manager-Utilities

Description and likelihood of hazards

Pollution hazards, their potential causes and responses to incidents are described in the following tables. Likelihood, consequence and risk ratings have been assigned using the methodology provided in Appendix 1. Actions to be taken during or immediately after a pollution incident are summarised on the flow chart in Figure 1 and should be undertaken for every incident in addition to the response actions provide in the following tables. A STP process flow diagram is included in Appendix 2.

Hazard: *Sewage overflow from sewerage reticulation network.*				
Potential causes	**Likelihood**	**Consequence**	**Risk**	**Response to incident (in addition to actions in Figure 1**
Wet weather/flood event	Possible	Moderate*	Medium	• Council staff to attend affected areas as soon as possible. • Restrict public access if required. • Contain sewage flows, prevent from entering stormwater system and natural drainage.
Overflow at boundary riser on residential property due to blocked or damaged pipe (e.g. blockages from fat or wipes or tree root damaging pipe).	Almost Certain	Insignificant	Medium	• Ask residents not to use water in the house. • Council staff to attend affected areas as soon as possible. • Contain and minimise sewage flows. • Clear blockage or repair pipe and return to normal services.
Blocked or broken rising main	Unlikely	Moderate*	Medium	• Council staff to attend affected areas as soon as possible. • Shutdown/isolate affected sewer infrastructure. • Contain and minimise sewage flows. • Repair pipe/remove blockage and normal services restored.
Blocked or broken gravity system pipe or low-pressure system pipe	Possible	Minor*	Medium	
Blocked or broken vacuum system pipe	Unlikely	Minor*	Low	
A power outage or electrical/mechanical failure of sewer pump station	Unlikely	Moderate*	Medium	• Council staff to attend affected areas as soon as possible. • Portable generator to power pump stations. • Contain and minimise sewage flows. • Pump stations repaired and normal services restored.

* The consequence of a pollution event caused by sewage overflow in the sewerage reticulation network would vary depending on the location of the overflow.

Hazard: *Untreated or partially treated effluent discharged from the STP to the wetlands resulting in licence exceedance at monitoring site EPA 1 (discharge to wetland).*				
Potential causes	**Likelihood**	**Consequence**	**Risk**	**Response to incident (in addition to actions in Figure 1**
Failure of treatment process.	Possible	Minor	Medium	• Direct flows to wetland cell F or G and isolate cell(s). • Follow response/ corrective actions for critical control point exceedances as per the *Wastewater Management System* (HydroScience Consulting, 2016). • If a satisfactory level of effluent treatment cannot be achieved, consider pumping the effluent back to the inlet works.
Wet weather	Unlikely	Minor	Low	• Direct flows to wetland cell G or J and isolate cell(s). • Follow response/ corrective actions as per the *Wastewater Management System* (HydroScience Consulting, 2016). • If a satisfactory level of effluent treatment cannot be achieved, consider pumping the effluent back to the inlet works.

Hazard: *Untreated or partially treated effluent discharged via Central Union Drain discharge point (exceedance at EPA 4).*				
Potential causes	**Likelihood**	**Consequence**	**Risk**	**Response to incident (in addition to actions in Figure 1**
Poor effluent quality due to failure of treatment process.	Possible	Moderate	Medium	• Isolate untreated flows in wetland cell (F or G). • Check operation of the wetland. • Undertake water quality monitoring. • Slowly release flows during rainfall events. • Follow response/ corrective actions for critical control point exceedances as per the *Wastewater Management System* (HydroScience Consulting, 2016).

Hazard: *Untreated or partially treated effluent discharged onsite.*				
Potential causes	**Likelihood**	**Consequence**	**Risk**	**Response to incident (in addition to actions in Figure 1**
Leak from process tanks (bioreactor, digestor or clarifier)	Rare	Major	Medium	• Isolate affected tank. • Contain, minimise and clean up sewage flows. • Arrange for tank repair.
Septage/ leachate /liquid spill during disposal at the inlet works	Rare	Minor	Low	• Alert contractor of any leaks. • Ensure leaks are hosed into the drain beneath the receival point.

Hazard: *Chemical spill*				
Potential causes	**Likelihood**	**Consequence**	**Risk**	**Response to incident (in addition to actions in Figure 1**
Failure of chemical storage tank	Unlikely	Moderate	Medium	• Wear appropriate PPE. • Open the valve from the storage bund to the digester (if safe to do so) and hose out bund to dilute the chemical. • Ensure any spills are contained and cleaned up spill in accordance with the Material Safety Data Sheet (MSDS). • If multiple tanks fail, empty one bund at a time and flush out drain with water in between to ensure chemicals do not mix within the drain from the chemical bund.
Leak from a chemical tanker unloading chemicals	Unlikely	Moderate	Medium	• Wear appropriate PPE. • Notify the chemical supply contractor of the leak. • Provide assistance to the contractor as necessary (e.g. provide additional spill kits and bunds). • Once leak has stopped and excess chemical cleaned up by the contractor, hose down truck area (using the appropriate PPE) ensuring chemical is directed into the drain beneath the truck delivery area to direct the flows to the digester.

Hazard: *Adverse health or environmental impact from irrigation using recycled water*				
Potential causes	**Likelihood**	**Consequence**	**Risk**	**Response to incident (in addition to actions in Figure 1**
Partially treated water enters the reuse buffer tank and recycled water distribution system.	Rare	Moderate	Medium	• Refer *Wastewater Management System* (HydroScience Consulting, 2016) for response to exceedances

Hazard: *Adverse environmental impact from biosolids transport*				
Potential causes	**Likelihood**	**Consequence**	**Risk**	**Response to incident (in addition to actions in Figure 1**
Biosolids spilled while being transported	Rare	Minor	Low	• Alert contractor/transporter of any spills. • Clean up any spilt biosolids while wearing appropriate PPE.

Pre-emptive actions to be taken	
Hazard	**Pre-emptive actions**
Sewer overflow	• Staff available 24 hours. • Planned maintenance schedule. • Community education program (e.g. “Don’t put wipes in our pipes”). • Trade waste management. • Pump stations have chamber which provides some storage for overflows. • SCADA system which gives alarm for power failures, all critical process units and water quality parameters and is monitored 24/7. • Backup generators readily available. • Most pump stations have duty/standby pumps and spare pumps are available. • Customer action request system.
Untreated sewage released onsite or discharged to wetland or union drain.	• All treatment equipment is subject to routine inspections. • All critical process units have redundancy built in and critical spares are available in case of failure. • Wetland cells G and J are available for storage of untreated effluent. In case of catastrophic failure untreated effluent can be captured and isolated in a wetland cell. This can then be pumped back to the STP for further treatment if required or slowly released through Cell I and J during rainfall events. • All tanks except the digestor were constructed with reinforced concrete to relevant Australian Standards. • All tanks are subject to routine maintenance inspections.
Chemical spill	• Chemical storage tanks and bunds are inspected daily by the site operator and formal inspections undertaken every 2 months. • All materials, chemicals and services are procured using Councils Purchasing and Tender Guidelines (document #1068115). • Chemical suppliers have approved safety and environmental management systems in place. • Valve within chemical storage bund can be opened to underground spill containment tank and flows directed into the digestor. Any overflows from the digestor can be stored in the digestor overflow storage. • Spill kits are available to absorb spilt chemicals. • Portable containment bunds are available to contain spills.
Adverse health or environmental impact from irrigation using recycled water	• SCADA system gives an alarm for critical parameter exceedances. • Reuse buffer tank can be emptied and pipes flushed if reuse water quality parameters exceed critical limits. • No public access during irrigation. • Signage in place at areas irrigated with recycled water. • Irrigation systems are water efficient and managed to ensure no spray drift beyond the boundary of each site. • User agreements in place.

Inventory of pollutants

Details on the potential pollutants that are stored at the Byron Bay STP for use in wastewater treatment are given below. Their locations are shown on the map in Figure 4.

Chemical	Maximum quantity on site	DG Class	Packing Group	UN No.	Poison Schedule	Storage location
Aluminium sulphate - liquid alum	20,000 L	NA	NA	NA	NA	Chemical storage tanks (see Figure 4)
Ferric sulphate hydrated	12,000 L	8	2	1760	NA	
Liquid caustic soda 25 - 50%	10,000 L	8	2	1824	S6	
Sodium hypochlorite	10,000 L	8	3	1791	S6	

Safety equipment

The location of safety equipment and devices available at the Byron Bay STP which may be used to minimise the risks to human health or the environment or to contain a pollution emergency are given below and shown in Figure 4.

Equipment	Description	Location(s)
Personal Protective Equipment (PPE)	Staff will be issued with the appropriate PPE based on their role upon commencement.	
First Aid kit	Supplies maintained by Site Supervisor. Audit and restock conducted by a First Aid supplier annually.	Main office Electrician's Office Site vehicles
Defibrillator	Used by appropriately trained staff in emergencies only.	Main Office
Fire extinguisher	Used to extinguish fires.	Main Office Electrician's Office
Fire Blanket	Used to extinguish fires.	Electrician's Office
Caustic soda neutraliser	Applied to skin in the case of contact with caustic soda.	SDS box at entry to main office SDS box in electrician's office.
Safety shower	Used in case of contact with chemicals, pollutants or chemical fumes.	Chemical loading bay (x3) Mechanical shed (near plant entrance)
Material Safety Data Sheets (MSDS)	Contain information on chemical hazards and clean up and first aid procedures. Referred to in the event of a chemical spill.	SDS box at entry to main office SDS box in electrician office
Portable containment bunds (plastic)	Used to contain chemical or sewage spills to prevent their spread.	Blower room
Spill kit	To absorb chemical or sewage spills.	Dewatering shed Blower room

Communicating with neighbours and the local community

Neighbours who may be impacted by a pollution incident or potential pollution incident will be advised of risks and given regular updates by phone (if number available) or by door knocking/ letter drops.

Council will record the number of anyone who calls regarding a pollution incident to update them as required.

The local community will be informed and updated about pollution incidents via warning signs, site visits/door knocking, letter drops, media releases or other methods as required by the situation. The need for media releases will be determined by the General Manager.

Regular communication and notification will be provided to the community until the incident has been resolved and the affected areas have been cleaned up. BSC will advise the public when there is no longer any risk to the public and regular activities can be resumed.

Minimising harm to persons on the premises

The following measures are in place to minimise harm to persons on the premises:

- All personnel whose work involves potential contact with raw sewage are immunised for Hepatitis A & B.
- PPE is provided for work involving potential contact with sewage.
- PPE and safety showers are provided for staff working with chemicals on site.
- Caustic soda neutraliser is available at main office to use in case of contact with skin.
- In the event of an emergency, staff and site visitors will assemble at the Main Emergency Assembly Point (front gate) or the Alternate Emergency Assembly Point (back gate).
- All site visitors including Council staff, contractors, consultants, temporary staff, representatives from government agencies etc. must be either accompanied by a member of staff at all times or inducted/instructed in site safety measures.
- Evacuation procedure (document #322939) is visible at various locations onsite. If an emergency evacuation is necessary, persons on the premise are required to walk to the main assembly area at the front gate OR if unsafe to do so, the back gate.

Maps

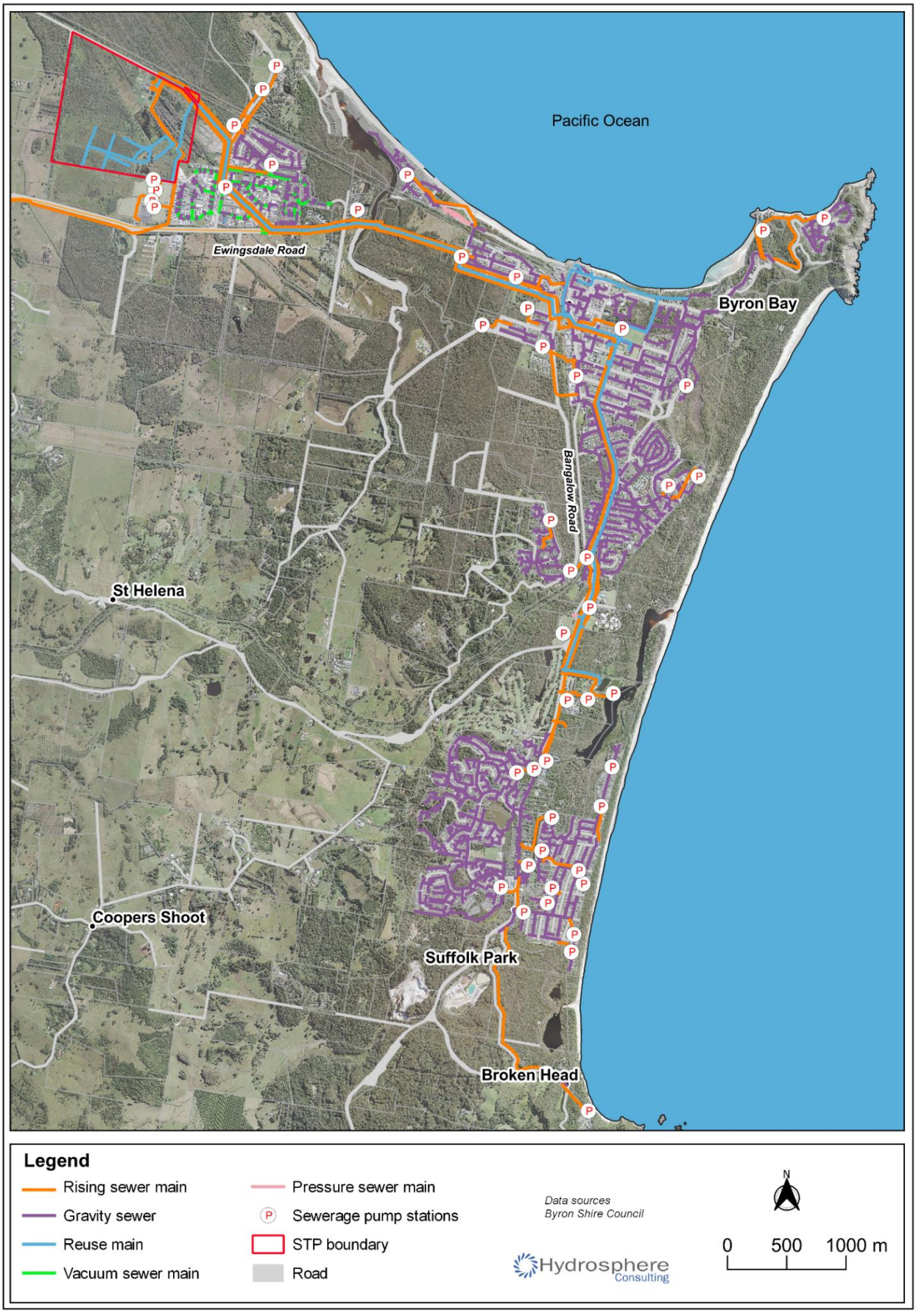

Figure 2: Byron Bay sewerage network

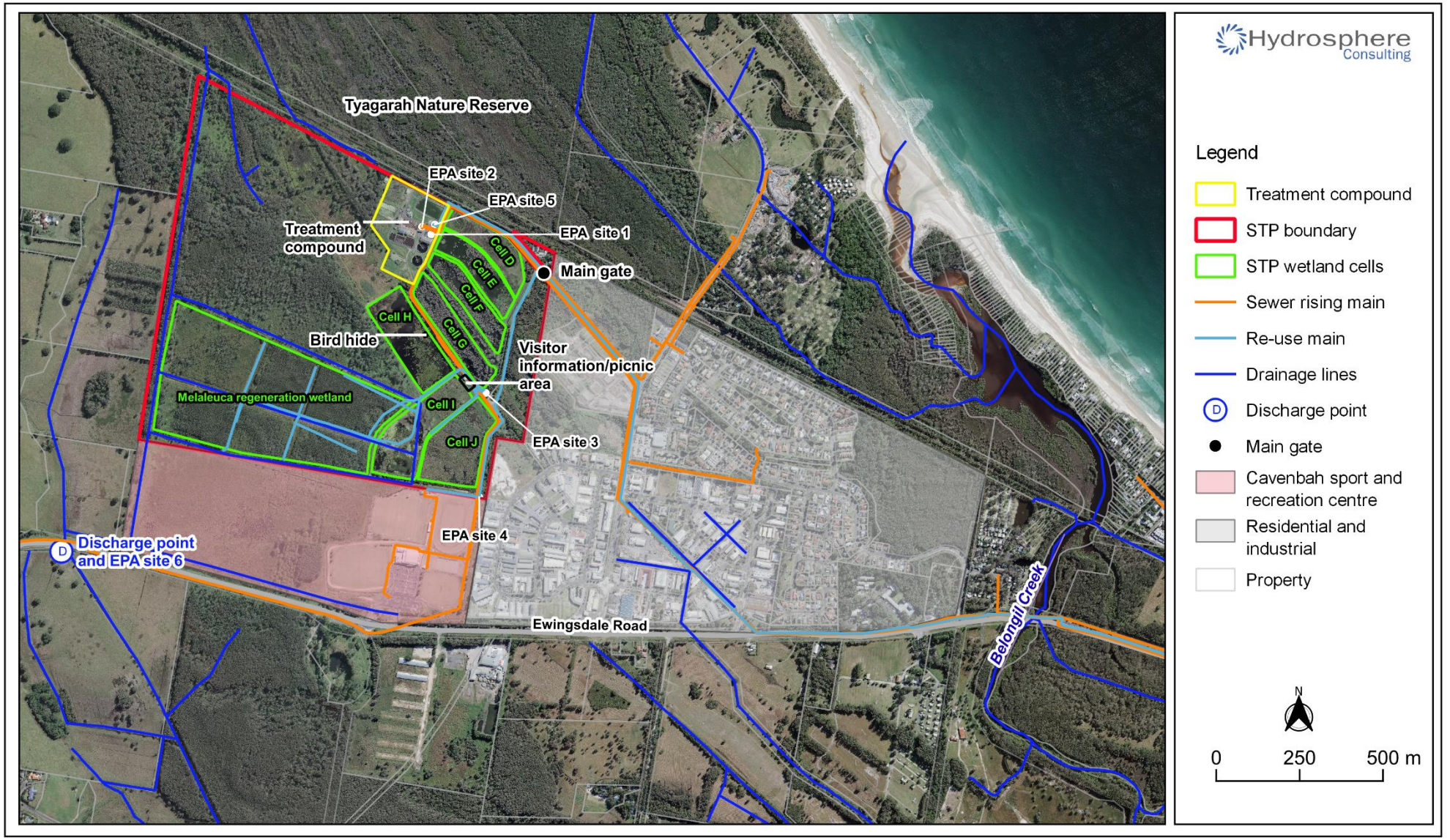

Figure 3: Byron Bay STP and surrounding area

Figure 4: Emergency equipment

Coordinating with persons

In the event of a pollution incident, notify the Team Leader or escalate as required adhering to the following escalation levels. If any person cannot be contacted after 15 minutes, the incident must be escalated to the next level.

1. Team Leader or On-Call Coordinator
2. Manager - Utilities
3. Director of Infrastructure Services

The Mayor and/or General Manager will be contacted by the Director of Infrastructure Services when pollution threatens human health and the media is required to be notified.

The Manager-Utilities will immediately notify the EPA and relevant authorities.

Escalation level	Role	Name	Contact number	Site
1	Sewage Treatment Team Leader			Byron Depot
	After Hours			Offsite
	Environment and Recycling Systems Officer			Byron Depot
	Team Leader Mechanical Maintenance			Byron Depot
	Team Leader Electrical Maintenance			Offsite
	Asset Maintenance System Officer			Byron Depot
	Reticulation & Pump Station Leader			Byron Depot
	Water Team Leader			Byron Depot
2	Manager-Utilities			Byron Depot
3	Director of Infrastructure Services			Mullumbimby

It is the Manager-Utilities responsibility to provide written details of pollution incidents (which cause harm or threaten to cause harm to the environment and/or human health) to the EPA within 7 days of the pollution incident. This should include relevant information about the pollution incident including:

- The time, date, cause, nature, duration and location of the incident.
- Details of the pollutant:
    - Chemical/s name.
    - Estimated quantity/ volume/ concentration.
    - UN code (if available).
    - For sewage discharge, the level of treatment the sewage had received.
    - Classification of wet weather or dry weather bypass (if sewage bypasses treatment plant).
- The location of the pollution.
- The name address and business hours telephone number of employees and any other persons who witnessed the event.
- Any actions taken by the licensee in relation to the event including follow-up contact with any complainants.
- Details of any measures taken to or proposed to be taken to prevent or mitigate a reoccurrence of such an event.

For environmental health concerns not related to pollution incidents (e.g. protection of wildlife) contact the Council Environmental Health Officer.

Staff training

Staff training on Pollution Incident Response Management shall be undertaken every 5 years or sooner if deemed necessary by management (e.g. to train new staff) and shall include desktop scenarios of pollution incidents followed by debriefing and discussion.

The objectives of the training shall be as follows:

1. Ensure employees understand their roles and responsibilities in the case of a pollution incident.
2. Ensure employees understand the response procedures to be undertaken during and after pollution incidents.
3. Ensure employees know the locations of safety equipment.
4. Identify further training needs such as first aid training.

Informal toolbox talks will be used to refresh staff knowledge of Pollution Incident Response Management as appropriate.

Records of the training shall be kept at the main office of the Byron Bay STP together with this PIRMP.

Testing and updating of the PIRMP

It is a legal requirement to test the plan every 12 months and within one month of any pollution incident.

This testing should include simulation of desktop scenarios including practical exercises and incident drills. All contacts including names and numbers are to be reviewed and updated as required. Testing must cover all components of the plan.

The PIRMP should be tested and updated within 1 month of a pollution incident. In this case it should be considered whether the information in the PIRMP is accurate and up to date and whether the plan is adequate and effective for managing the response to pollution incident.

PIRMP testing details

Date tested	Participants	Details of test (e.g. nature of the test, involvement of other agencies)	Finding of test (including issues identified)	Next scheduled testing date
January 2016		Simulation provided and assessed by external reviewer		

PIRMP update details

Date updated	Updated by	Reason for update	Details of update	Date uploaded to website	Date of completion
15/10/2003		Initial preparation	-		
04/05/2004		Outdated items identified in PIRMP	Update NSW Shellfish Program contact person. Delete departed Council employees contact details.		
01/03/2006					
18/04/2008		Outdated items identified in PIRMP	Update contacts. Delete departed Council employees contact details.		
12/2008		Outdated items identified in PIRMP	Update contacts. Delete departed Council employees contact details.		
03/2011		Outdated items identified in PIRMP	Update contacts. Delete departed Council employees contact details. Update positions and titles to reflect water and sewer operations restructure. Removed Mayor from escalation protocol.		
08/2012		Outdated items identified in PIRMP	Update contacts. Update protocol to include EPA requirements for Pollution Incident Response Management Plans		
01/2016		Outdated items identified in PIRMP	Update contacts (Council restructure). Update protocol to include annual testing regime.		
06/2021	Hydrosphere Consulting	Updated to meet new EPA guideline requirements.	Update contacts Update response flow chart and actions. A premise-based plan prepared for each treatment plant as per EPA guidelines.		

References

HydroScience (2016) *Byron Shire Council Wastewater Management System*

BSC (2007) *Byron Shire Council PRP 100 Sewer Overflow Investigations Report Licence No's 2522; 3404; 572; 784; 830*

Appendix 1. RISK ASSESSMENT METHODOLOGY

The following methodology was applied to complete the risk assessment:

- Review of current knowledge and information available on the Byron Bay STP.
- Review of *Byron Shire Council PRP100 Sewer Overflow Investigations Report (BSC, 2007)* and risk assessment.
- Review of *Byron Shire Council Wastewater Management System (HydroScience, 2016)*
- A site visit to the Byron Bay STP and discussions with operators.
- Assess the risk of each issue to human health and the environment. The risk assessment process identifies plausible hazards, the likelihood of the hazard occurring given existing controls and pre-emptive actions, the consequences to environment, human health, STP operations, regulatory compliance and economic costs and applies a risk rating. The methodology uses the risk assessment process outlined in Table 1, Table 2 and Table 3 which uses scales to assess the risk of identified hazards impacting the environment and human health under current management practices.
- The likelihood of each threat took into account the site setup, previous pollution incidents and current controls and pre-emptive actions in place.
- In all circumstances, the potential highest consequence level to any asset or value was used for the assessment.

A risk assessment of each sewer pump station within Byron Shire was undertaken and documented in the *Byron Shire Council PRP 100 Sewer Overflow Investigations Report (PRP 100) (BSC, 2007).* The risk assessment assigned scores to each pump station to quantify the following aspects:

- Potential public health/amenity consequences in the event of a sewage overflow at that pump station.
- Potential environmental consequences in the event of a sewage overflow at that pump station.
- The likelihood of an overflow occurring during dry weather.
- The time taken for an overflow to occur during ADWF, PDWF and PWWF assuming no pumping from the pump station.

Using these scores, a priority level was assigned to each pump station (insignificant, low, moderate, high or very high). Of the 27 pump stations in the Byron Bay sewer network assessed in the report, one is assigned a ‘high’ priority level, eight ‘moderate’, 16 ’low’ and two ‘insignificant’. The information from the *PRP 100* (BSC, 2007) risk assessment was used to inform the consequence and likelihood of a pollution event occurring within the sewer network for this PIRMP.

Table 1: Measures of consequence

Consequence	Description (incident results in one or more these)
Insignificant	No noticeable impact on operational functions Negligible impact on the environment Loss of < $5k No statutory or regulatory breach Potential for minor injury requiring first aid treatment.
Minor	Short-term disruption to operational functions (<4 hours) Minor environmental harm Loss of $5k - $25k Statutory or regulatory breach with warning or small fine issued Potential for injury or illness requiring professional medical attention or time off work.
Moderate	Significant disruption to operational functions (>4 hours) Short term environmental harm Loss of $25k - $100k Statutory or regulatory breach and moderate fines Potential for injury or illness requiring professional medical attention and time off work.
Major	Extended significant disruption to operations and delivery of service to the community Long-term environmental damage Potential for serious injury or illness and/or hospitalisation Loss of $100k - $500k Serious statutory or regulatory breach and penalties
Catastrophic	Irreparable long-term environmental damage Potential for death, permanent disability or ill-health Loss of > $500k Collapse of operational functions

Table 2: Measures of likelihood under current operational practices

Likelihood	Definition
Almost certain	Expected to occur every year.
Likely	Expected to occur within 5 years.
Possible	Possible to occur within a 10-year timeframe.
Unlikely	Uncommon, but is known to occur elsewhere. Could occur under certain circumstances within a 15-year timeframe.
Rare	Never reported, not likely to occur but plausible to occur within a 20-year timeframe.

Table 3: Risk estimation

Likelihood/Consequence	Insignificant	Minor	Moderate	Major	Catastrophic
Almost certain	Medium	High	High	Extreme	Extreme
Likely	Medium	Medium	High	Extreme	Extreme
Possible	Low	Medium	Medium	High	Extreme
Unlikely	Low	Low	Medium	High	High
Rare	Low	Low	Medium	Medium	High

Appendix 2. STP PROCESS FLOW DIAGRAM

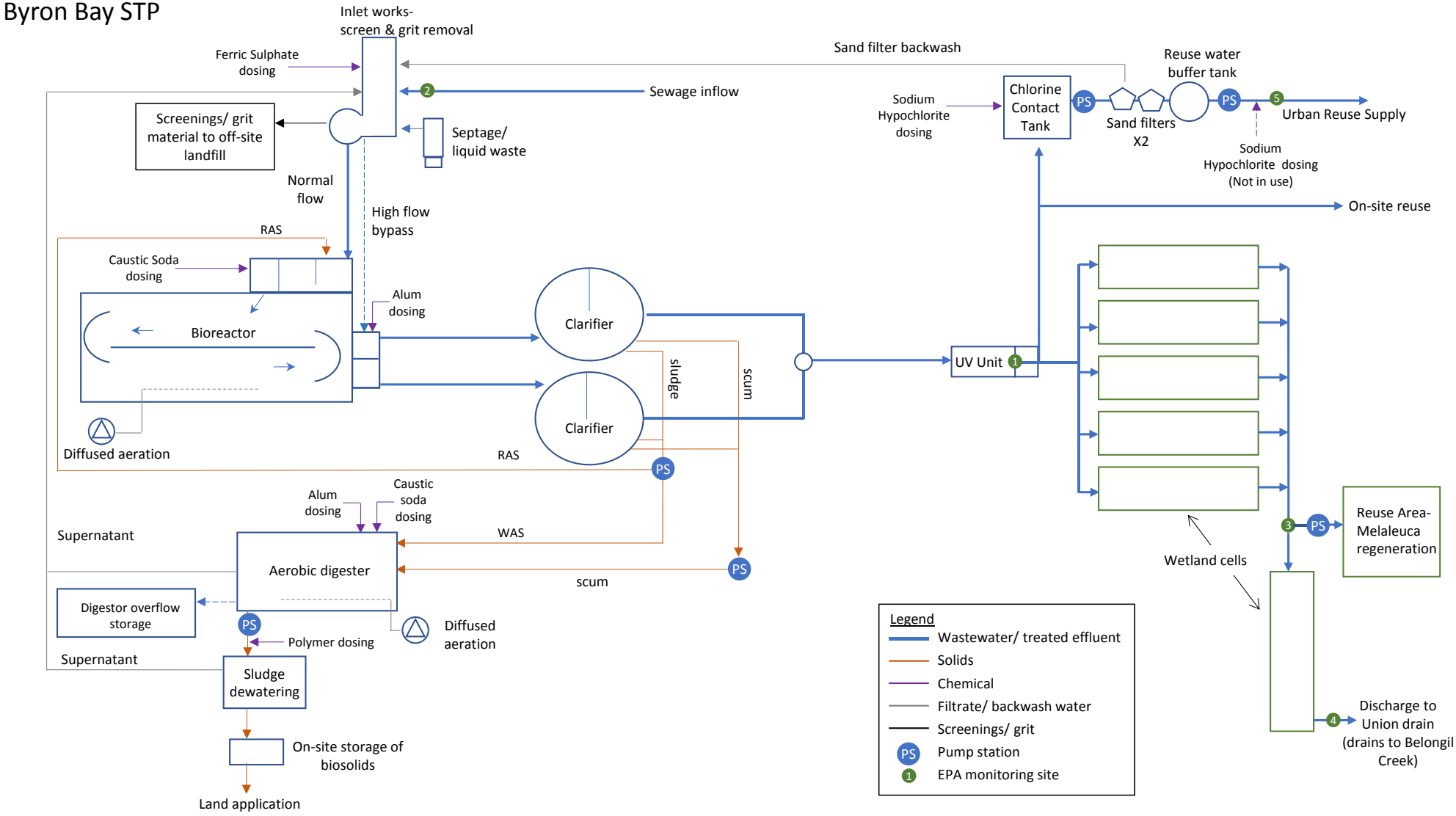

Figure 5: Byron Bay STP process diagram