Pontrilas Sawmills Limited

Substantial Variation to Existing Environmental Permit for the Operation of a Timber Preservation Installation

Permit Reference: IPPC/6.6/002

Installation address: Pontrilas Sawmills Limited,
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1.0 Clarification of the Substantial Variation

Due to commercial reasons Pontrilas Sawmills Ltd have procured a new timber treatment plant to be run concurrently with the current treatment plant. The site is currently permitted to operate a wood treatment facility exceeding 75m³ a day by an existing Part A2 environmental permit (reference: IPPC/6.6/002).

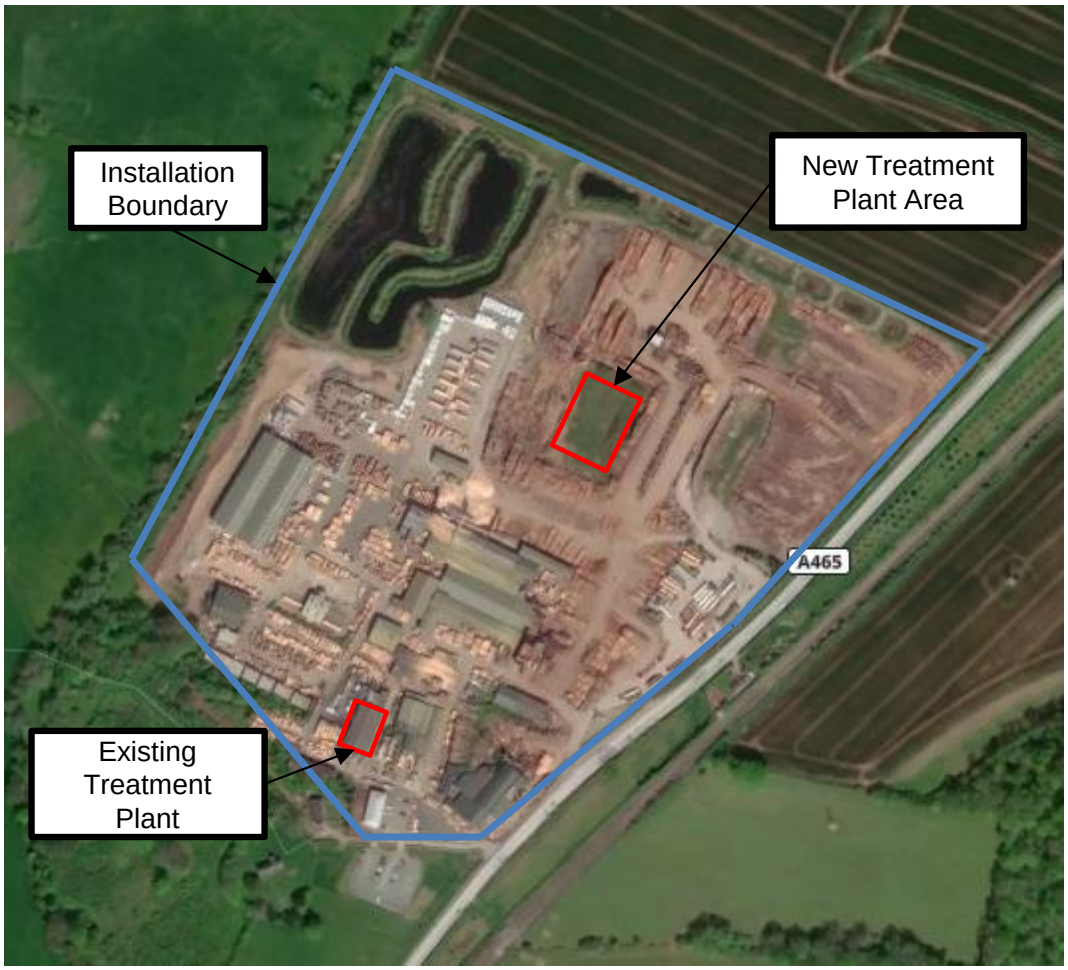

Figure 1 - Installation boundary and position of treatment plants

2.0 The Installation

2.1 The plant and its process

2.1.1 The treatment plant

The new timber treatment plant is a self-contained preservation process with a daily production capacity exceeding 75m³. The process consists of a single computer controlled high-pressure impregnation line. Chemicals used during the process are Tanalith E 9000 and Tanaguard water-based preservative and additives that are currently utilised in current activities. Tanalith E is a water-based wood preservative that contains copper and organic biocides (triazoles). When impregnated into the timber the preservative components bond with the wood structure and cannot easily be removed. The facility comprises of a fully automatic timber impregnation facility supplied by Stavelse Metaalbouw. The plant has been designed to operate without supervision with consideration of environmental performance meeting many of the Best Available Techniques (BAT). An annotated layout of the treatment plant can be seen in Figure 2 or refer to the manufacturer's drawings in Appendix A. The installation fundamentally consists of a pressure treatment vessel, an automated bogie system, two product tanks beneath the pressure vessel at the same level, 12 drying bays of which four can be titled longitudinally and a concentrate tank. The containment (bunded) area shown in Figure 3 is designed within the impermeable foundations of the building so that in the event of a release of environmentally hazardous material it is totally contained, technical drawings can be seen in Appendix B.

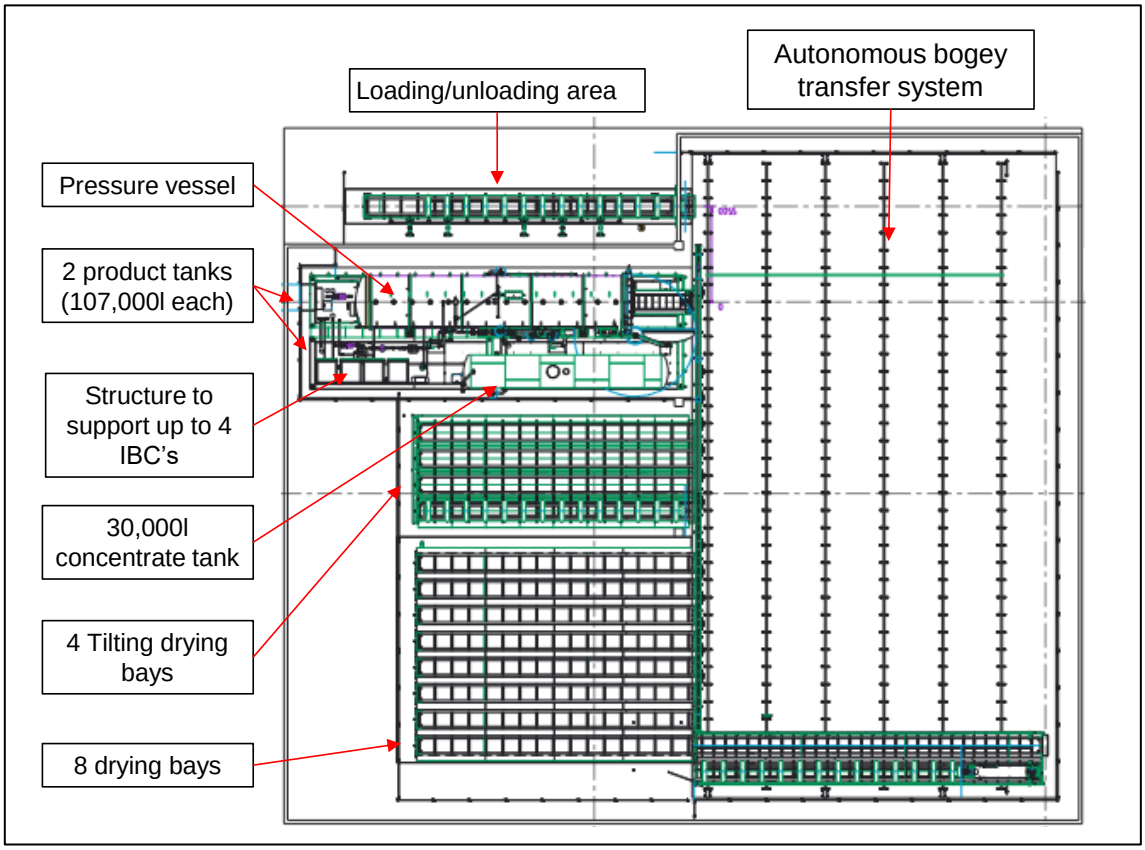

Figure 2 – Annotated treatment plant layout

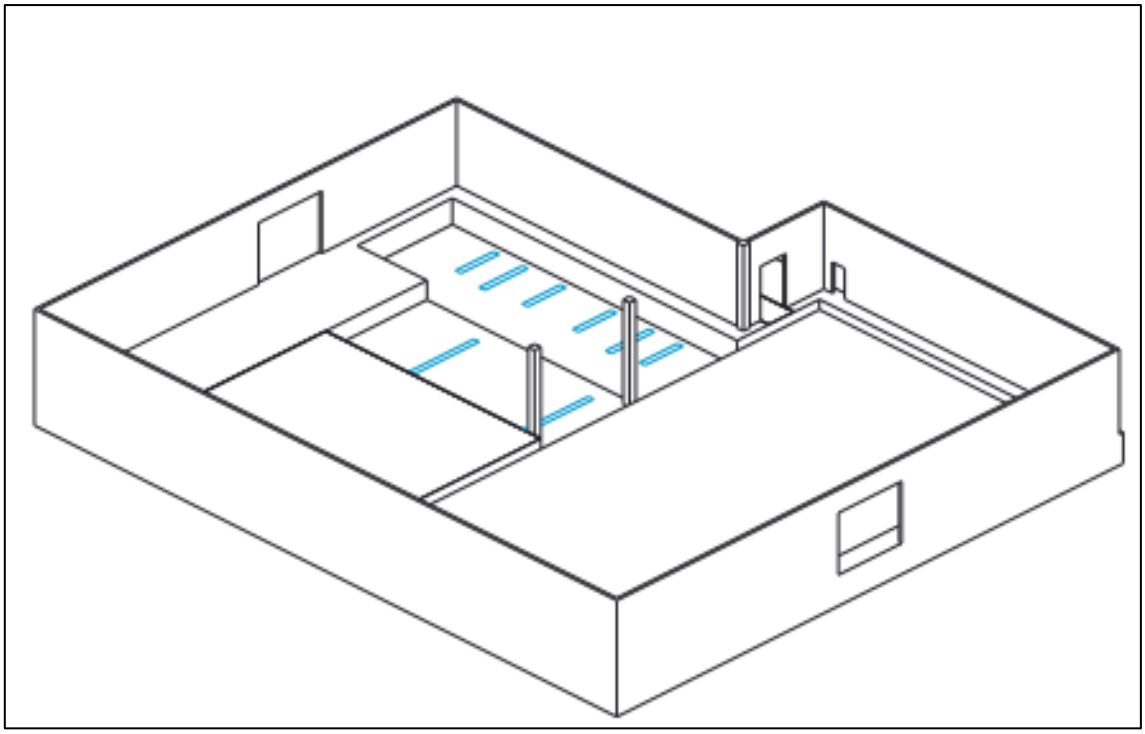

Figure 3 - Containment area within foundations of the building

2.1.2 The process

The process of each treatment cycle will be the following;

1. Timber loaded

Untreated timber is loaded onto a bogie in the loading area at the exterior of the treatment plant by a forklift operator. Spacers are present within the timber packs to prevent capillary retention and accumulation of treatment solution. The bogeys are loaded to the optimum capacity to enhance economic performance and energy efficiency also reducing the volume of treatment solution required in the treatment vessel.

2. Program selected

The suitable program is selected via a Human Machine Interface (HMI), the parameters of the process are dependent on the product to be treated and the specifications provided by Arxada Wood Protection.

3. Timber transported to treatment vessel

The timber is autonomously loaded into the vessel and the autoclave door is hydraulically closed and interlocked.

4. **Initial Vacuum**

Once the treatment vessel is confirmed to be locked and other pre-treatments checks approved an initial vacuum is created. The initial vacuum removes air which conditions the timber for optimum preservative penetration.

5**. Saturation**

The treatment vessel is flooded with preservative solution that is pumped from the mix tank. The vacuum is sustained during the transfer so that its effect is maintained.

6. Hydraulic Pressure Period

Hydraulic pressure is achieved by pumping further mixture into the vessel to force the preservative further into the timber structure. The duration of the pressure treatment that the timber is subjected to is approximately 60-120 minutes dependant on the product.

7. Pressure Release and Empty

Once the pressure treatment duration has concluded, the pressure is gradually released with the preservative pumped back into the storage tank.

8. Final Vacuum

A final vacuum is applied to the timber both to remove any excess preservative from the surface of treated timber which accelerates the drying. During this time the vessel has the capability of tilting to aid excess preservative to run off the timber.

9. Air Release and Drain

After the air is released any excess preservative leaving the treated timber is drained back into the storage tank for re-use. The air pressure is returned to atmospheric levels and the treated timber is then removed.

10. Drying

The drying process is completed within the fully contained treatment facility. Timber is firstly transferred automatically by the bogie system to one of four tilting bays. The impregnated timber is titled at an angle in the longitudinal direction for a set duration determined by the control program. Timber may be stored in one of the four bays for a minimum of six to eight hours to accentuate drying by encouraging excess preservative to run off. Once this set duration has elapsed, the bogie is transferred to one of eight storage areas to finish drying. The bogie will be kept in its bay for a minimum of 16 hours until dry. All free residual solution is captured by drip trays and transferred into the working tank for reuse. The configuration of the instalment does not enable a forklift to be present inside the containment area to mechanically lift the packs as BAT requires to ensure that packs are completely dry. However, from information provided by Arxada Wood Protection with the experience and tacit knowledge of our process and product, the control system will be programmed so that all charges will be completely dry before being removed from the plant. For instance, where feather edge boards, typically the product requiring the largest drying time, are present in the charge the duration of the drying process will be increased. Furthermore, as the process comes to its conclusion a visual inspection of the bogie will be completed to assess for dryness and identify any formation of treatment solution that may potentially drip. If the assessor deems the timber to be still wet, the duration of the drying process increased until the timber is dry. Data from each cycle is retained within the treatment system including;

- Batch and specific timber pack numbers
- Date and time of treatment

Appendix C consists of supplementary information on the high-pressure treatment process for Tanalith wood preservative.

2.1.3 Critical equipment

The equipment that is critical in environmental performance include;

- Treatment Vessel
- Concentrate tank
- Two Working tanks
- Pumps and pipe network
- Bulk tank delivery infrastructure
- Bund

2.2 Maintenance plan

A maintenance plan will be devised consistent with the manufacturer's recommendations that is likely to include general service visits from the manufacturer, pump maintenance as well as

lubrication and greasing. The plan will consist of periodic inspections for components such as tanks and bunds. A full inspection as recommended is to be completed at least once every four years with preventative maintenance completed and additional measures added where are required. Furthermore, in the event of machine breakdown, reactive maintenance will aim to implement corrective measures where possible. If corrective action cannot be completed immediately, then the process shall be made safe either through isolation, bypass or adjourning activities. All contractors that are to perform work on site will complete a health and safety induction. Additionally, any work to be completed will be assessed for potential environmental risks with necessary instructions provided and any mitigations implemented.

2.3 Considerations in the design and use of the plant

2.3.1 Autonomous operation

The installation operates autonomously once the packs have been loaded at the exterior of the building and the correct program chosen through the HMI. The process is managed entirely limiting human involvement to initiation, emergency intervention and maintenance decreasing the probability of human error that may be a causation of potential spillages. The system reports to the operator the current status of the process, how much solution is in the vessel and whether it is being pumped in or out. In the event of equipment failure or emergency the installation can stop the process and drain the solution back to the mixing tanks through safety release valves. Additionally, the automation lowers the requirement for manual handling, for instance the vessel door, reducing the risk of injury as well as removing the operator from the treatment area decreasing the potential of chemical burns caused by the treatment solution.

2.3.2 Door Safety

The treatment door is controlled automatically by a hydraulic system. The door is closed with a clamping ring driven by two cylinders, this ensures that the vessel is completely closed prior to filling. Safety pins prevent the door from opening during the cycle and the door is interlocked by means of sensors. If the door is detected not to be closed during a cycle, an alarm will sound and the cycle stop.

2.3.3 Energy efficiency

The treatment plant is fitted with pumps utilising the latest motor types to ensure maximum efficiency. Being PLC controlled, pumps and motors will only run when required, being started and stopped dependant on the state of the process. This particularly applies to the pressure and vacuum pumps.

2.3.4 Timber preservative

Tanalith E preservative is one of the most effective and efficient products on the UK market for wood preservation. Its efficacy is such that product retentions are low and therefore the amount of product required to be impregnated into the wood is also minimised. This has the added advantage of reducing processing times and therefore electricity consumption. Working closely with our supplier and through the use of the control system, the amount of preservative subjected into the timber will be optimised which also helps to reduce post treatment dripping. Further information on Tanalith E is included in Appendix D.

2.3.5 Automatic mixing and dosing system

The plant has an automatic solution mixing and dosing system. The system controls the concentration of the treatment solution, ensuring the correct dose of preservative is present in the treatment mix. The automatic system not only ensures the process is producing quality product but also regulates the amount of preservative in the mixture meaning there is no excessive use of the preservative only the amount required.

2.3.6 Tilting vessel and clamping system

The treatment vessel has a tilting facility which can be activated during the final vacuum stage of the process. The treatment vessel may tilt laterally up to 8° to allow excess preservative to run off the timbers inside the vessel and hence recovered directly back to the working tank. This aims to improve the efficacy of the drying process and minimise any post treatment dripping within the plant. Within the vessel there are pneumatically operated clamps that will secure the timber during the process, negating the possibility of 'wood lift' when the vessel is flooded. The addition of the clamps also removes the need for securing the timber with straps subsequently reducing the possibility of any emission from the straps.

2.3.7 Alarms

Large vessels within the process will have their contents continuously monitored and alarmed to prevent overfilling and in the case of any leaks they may be identified and attended to in an efficient manner. As mentioned previously, the treatment vessel is alarmed ensuring the automatic door is secured. The levels of the tanks are monitored and if a level increases above the process parameters an alarm is given. If the level of the work tanks become too high, the dosing valves are stopped, preventing any further liquid being added. If an alarm sounds during a process cycle, the cycle will stop.

2.3.8 Forklift involvement

The design of the plant is such that a forklift is not required within any zone where it may become contaminated. The forklift loads and unloads timber outside the total containment area, therefore the only potential threat to contamination is contact with treated timber that is still wet. The comprehensive drying process should prevent this occurring. Furthermore, any IBC's inside the plant that require forklift handling are situated in an area where no contamination should occur, above the preservative run-off area.

2.4 Prevention of spills and/or leaks

2.4.1 Training and procedures

All operators of the treatment plant will complete training, only being authorised to use the plant once competent. The manufacturer will provide on-site training during the commissioning stage of the installation with a safe working procedure being derived from their instructions. An example of a safe working procedure for the existing treatment plant is provided in Appendix E with an operator training evaluation form in Appendix F. A general risk assessment for the facility will also be completed, Appendix G evidences a similar assessment for the existing plant.

2.4.2 Bunds

The whole development is designed for total containment. The foundations of the building in Appendix B, act as the bund. The walls and base of the bund are impermeable and have the facility to be pumped back to the working tank. All valves, pipes, taps and the entirety of each container present shall be within the bunded area with vent pipes positioned such they are directed downwards into the bund. The maximum capacity of the bunded area in the treatment plant as shown in Table 1 is 883,000 litres. All the vessels and storage tanks within the treatment plant are detailed in Table 2 . The volume of the bund conforms with the regulations as its volume exceeds the requirements in Table 3. In the event of any spills, the bunds contents will be pumped out as soon as practically possible.

Table 1 - Volume of bunded area

Volume of Bunded area	Volume (l)
Capacity of bund at -550mm level	289,000
Capacity of bund at zero level (worst case)	883,000

Table 2 - Preservative storage vessels within the timber preservative plant

Vessel	**Quantity**	**Volume (l)**
Pressure Vessel	1	110,000 (34,000 stored in baffle tanks within vessel)
Concentrate storage tank	1	30,0000
Working/mixing tank	2	107,000 - (12,000 Mixing, 95,000 Working)
IBC's	(up to) 4	1,000
Total Potential Storage Volume		358,000
Actual Process Storage Volume		282,000

Table 3 - Required volume of bund for compliance

Factor for Compliance	Volume (l)
110% of the capacity of largest container	121,000
25% of the total capacity	89,500

2.4.3 Drip trays

Below the four longitudinal tilting drying bays that the timber is initially transferred to are drip trays. The drip trays will catch any product discharged returning to a container before being pumped back into the storage tank.

2.4.4 Treatment solution deliveries

To ensure safe bulk tank deliveries there will be operational procedures in place. The procedures will be developed using the manufacturers guidance. Only trained personnel with the correct personnel protective equipment (PPE) will participate in the deliveries with a safe bulk delivery checklist to be completed for every transfer. The current safe working procedure for bulk deliveries and the checklist for the existing treatment plant can be seen in Appendix H and Appendix I respectively. A risk assessment will also be concluded, similar in nature to Appendix J for the current treatment plant. Furthermore, the location of the connection that the lorry will make with the plant, shown in Figure 4 and Figure 5, will be in a bunded area so if there was a failure in the connection, no chemicals would be emitted to the environment. Manufacturers drawings showing the positions can be seen in Appendix K.

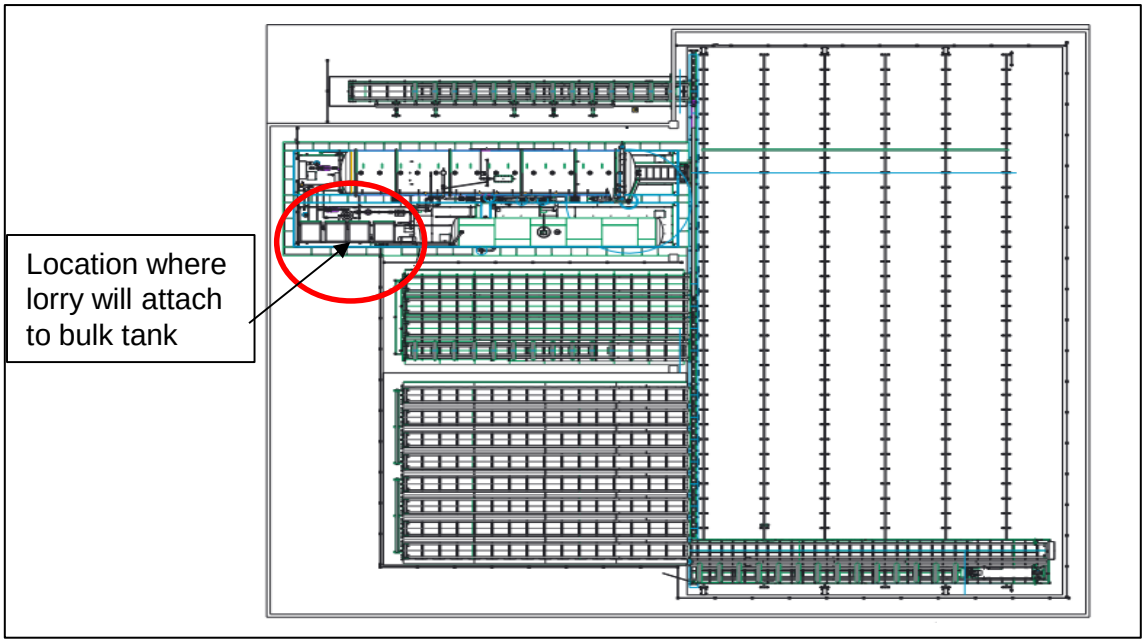

Figure 4 - Location of lorry attachment to bulk tank

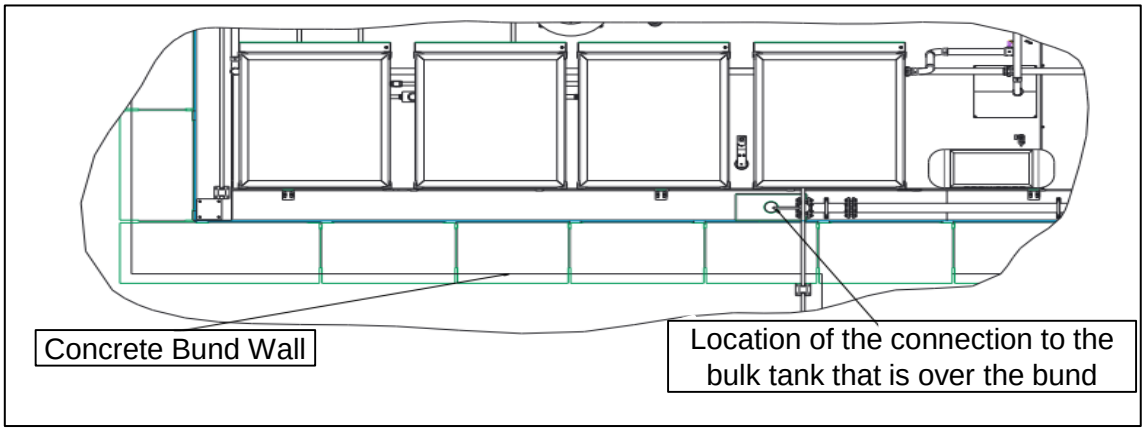

Figure 5 - Close-up of lorry connection showing that the attachment will be over the bund

3.0 Emissions and waste

3.1 Air

Tanalith E wood preservative is typically used as a 3% w/v working solution in water. The high percentage of water combined with the special formulation of the Tanalith E product means that releases to atmosphere are negligible. The main release point is the vacuum pumps exhaust, giving a displacement of air with an initial high flow rate from the treatment vessel containing some water vapour and trace amounts of product components. Historical atmospheric monitoring on treatment plant installations has shown negligible emissions. The air displaced to atmosphere while filling preservative storage tanks on filling has shown negligible emissions during monitoring. Atmospheric monitoring of fugitive emissions from treated timber packs during drying reported negligible emissions and are free from offensive odours. In summary, there should be no requirement for release monitoring to air and is not undertaken at any timber treatment sites in the UK. The diluted water-based preservative in use does not pose a risk to the environment in terms of atmospheric release.

3.2 Noise and vibration

The nature of the installation is such that the noise emissions will be lower than other processes onsite. The installation will be within a totally contained building with an insulated roof that will reduce the noise emitted. The main sources of noise will be the pumps used during the process and the transportation system of the bogies, both of which will be used intermittently within the process. Once the process is operational a comprehensive noise assessment will be completed with the findings recorded and repeated periodically.

3.3 Land

There is a risk of soil contamination if there were to be an emission of treatment solution. To prevent this occurrence, the plant will be a total containment operation. All necessary equipment will be situated in a bund and alarmed for malfunction, drip trays present for the collection and recovery of excess treatment chemicals. The design of the treatment facility also reduces the likelihood of cross-contamination.

3.4 Water

The water management considerations for the installation includes surface run-off and sewers. There is no link from the installation to external drainage. The installation prevents the ingress of rainwater so that it does not become contaminated by being fully contained in a suitable building with a roof and guttering. The subsequent surface run off water is managed by drainage channels which feed into a substantial system of existing attenuation ponds and basins located along the north and western site boundaries. These were specifically designed to deal with surface water run-off from the wider site. A flood risk and drainage assessment completed for the planning application for the facility can be seen in Appendix L.

In the event that water has potentially been contaminated, the drainage system will be bunged with the contaminated water collected and reused within the preparation of the water-based preservative. In the event of water contamination, where reuse is non-feasible, the water will be collected and treated in a waste water treatment plant or worst-case scenario disposed of as hazardous waste.

3.5 Waste

There are no direct waste streams from the normal operation of the timber preservation installation. Before treatment any debris will be removed from the surface of the timber as best as possible. Where possible, bulk delivery of treatment solution will be used to reduce the use of packaging such as Intermediate Bulk Containers (IBC's). Where used, additives supplied in IBC's are recycled through a recycling system provided by Schutz who operate a collection service with stringent environmental and safety standards for empty IBCs for later re-use or recycling therefore reducing any environmental impact from packaged products. Figure 6 shows the fundamental raw materials used in generating waste, where recovery of treatment solution from treated timber is pumped back to the mixing tank for reuse. The only waste that may be generated by the process is a small amount of sludge residue that may build up in the base of the mixing tanks as a result of the accumulation of dust or other matter from the timber. There is no feasible use for this material and it is sent for disposal at a regulated off-site facility.

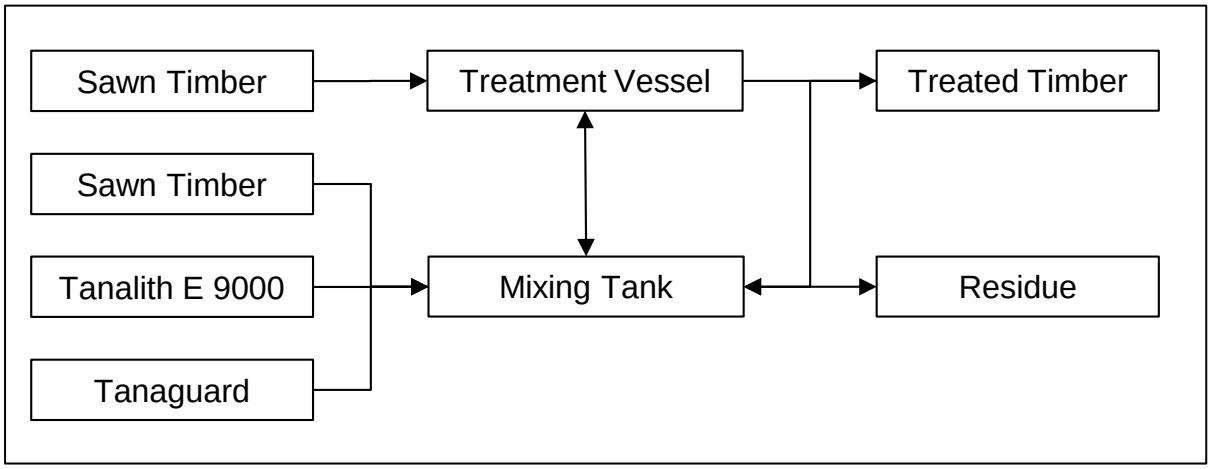

Figure 6 - Process waste generation

The nature of the small number of waste steams generated by the process or associated activities mean they are unlikely to require separation. Office waste is incorporated into the wider waste recycling scheme of the site with PPE and cleaning products recycled where possible or disposed of in the general waste. A waste audit will be completed annually to ensure that the best environmental options are utilised for dealing with the waste identified.

3.6 Monitoring

The installation process as proposed does not produce emissions to air or discharge contents which require continuous monitoring as referred to by the Industrial Emissions Directive. Any periodic analysis or reporting is as mentioned in Section 5.2.

4.0 Site Condition

The site condition will be analysed prior to the commencement of the operation. The analysis will include both soil and groundwater, establishing a baseline of the contaminants for use in future assessments.

4.1 Baseline soil analysis

The soil analysis will be completed concomitantly with the construction and completed prior to the plant becoming operational. The soil analysis will assess for baseline pollutants. Any analysis to be completed will be in accordance to BS 10175 with the locations based on access and known former land use. As recommended by BAT, soil analysis will be completed at a frequency of once every ten years.

4.2 Baseline groundwater analysis

The groundwater infrastructure and analysis are being completed concurrently with the submission of the permit application. To analyse the groundwater, boreholes around the plant have been planned. Their position can be seen in Figure 7 or in Appendix M. Analysis of groundwater pollutants will be completed in accordance with BS ISO 5667-11:2009 to ensure that the provision of data is of an equivalent scientific quality with a frequency of at least once every 6 months. The monitoring frequency may be reduced in the future based on the conclusions of an environmental risk assessment or if pollutant levels are proven to be sufficiently stable after the recommended duration of at least 4 years.

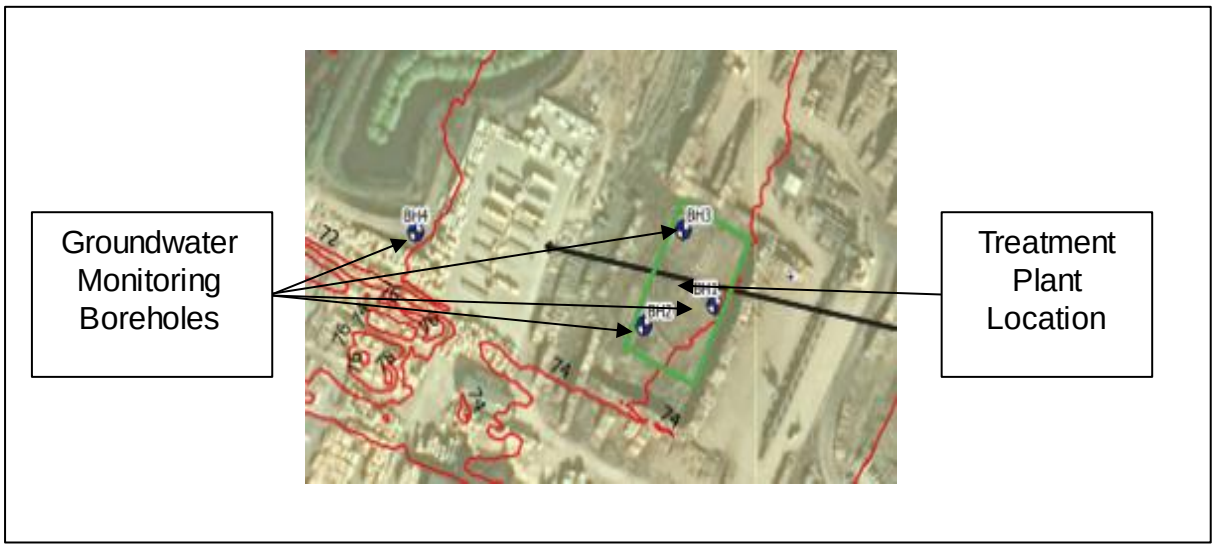

Figure 7 - Borehole locations

5.0 Environmental Management System and reporting

5.1 Environmental management system

Pontrilas Sawmills Ltd is committed to managing its activities in an environmentally responsible manner as the organisation ultimately works towards achieving ISO 14001. The Environmental Management System (EMS) for the installation will form the basis of the management and operational procedures. At present, Pontrilas Sawmills Ltd are concurrently producing an EMS alongside the application and installation to ensure operational procedures are up to date and finalised to ensure the current regulations are fully reflected within the system.

5.2 Recording and reporting

To ensure compliance and transparency in the operations, the following will be recorded and available for the regulator to review in accordance with BAT.

Table 4 - BAT Recording and reporting requirements

Provision required under BAT	Frequency
The drainage systems related to the treatment operations on site recorded and inspected on an annual basis.	Annually
Breakdowns should be recorded and analysed to eliminate common failure modes.	As required
Details of training and instruction should be entered into an appropriate record.	As required
Complete a waste minimisation audit and a review to demonstrate that the best environmental options are being used for dealing with the waste streams.	Annually
Raw material use should be recorded and audited.	Within 18 months of permit issue
Review of water use and efficiency.	Within 2 years of permit issue
A record of the quantity, nature, origin and where relevant, the destination, frequency of collection, mode of transport and treatment method of any waste which is disposed of or recovered.	As required
Report the energy consumption of the installation.	Annually
Investigation of abnormal emissions arising from an accident. Remedial action taken immediately. Prompt recording of the events and actions taken. Notification of the regulator without delay.	Reactive

N.B. Without delay would refer to notification of the regulator within an hour of the start or detection of the emission through the median of telephone or email. The regulator will wish to consider what notification arrangements are necessary for outside working hours.

6.0 Incident response

6.1 Loss of containment and inadvertent emission

In the event of a spillage, site-specific procedures will be implemented. In general, small spillages will be dealt with by trained site personnel using absorbent spillage media (sawdust) that is abundant and easily accessible onsite. As a precautionary measure for use at the discretion of the trained personnel, drains can be isolated with rubber bungs, sand bags, or other similar devices kept on site.

In the case of larger spillages, a specialist contractor will be employed to ensure the area is thoroughly cleaned with the area assessed for contamination. In the event of a spillage on site, it will be the responsibility of the site personnel to minimise its effect by ensuring the area of contamination is kept to a minimum and blocking drains to prevent contamination of the drainage system. In the unlikely event of a leak or spillage from on-site plant, storage tanks or wastes received, the following procedure will be undertaken:

- The cause of the spillage will be identified and recorded so that further leaks or spillages may be prevented.
- Remedial actions may include one or more of following:
  - Containment of the spilled material with absorbent media
  - Spilled material pumped to secure vessel.
  - Collection of the spoilt absorbent materials and containment in a secure container.
- Absorbent material (sawdust) is kept on site at all times for the purpose of dealing with liquid spills. Contaminated sawdust will be loaded into an appropriate container for removal to an appropriate licensed waste management facility as soon as practicable following containment of the spill.
- Details of the spill will be recorded including spilled material, estimated quantity involved and remedial actions taken.

There is not an inherent risk of fire if loss of containment occurs due to the preservative used and its concentration within the water-based solution, however if there is deemed to be a potential risk the fire service will be notified. Any incident that has or might have impacted on the condition of the soil or groundwater especially those requiring further investigation and/or remediation work will be recorded and kept until the permit is surrendered.

6.2 Failure of a critical process

In the event of a machine malfunction or another abnormal event where emission to the environment is probable the following will be completed;

1. An immediate investigation completed
2. Appropriate corrective measures implemented
3. If corrective action cannot be completed immediately, then the process shall be made safe either through isolation, bypass or adjourning activities.
4. If there are likely to be emissions to the environment the regulator is to be informed immediately.

To abate any potential impact a failure of a critical process may have, particularly emission to the environment, alarms and warning systems will be in place where possible. To attend to a mechanical failure an essential spares list is to be procured and stored onsite so that issues

can be rectified rapidly. All critical components will be regularly inspected and maintained in accordance with the manufacturer guidelines.

6.3 Accident management plan

Incidents such as fire may pose a threat to the local environment. The accident management plan below in Table 5 identifies potential incidents and hazards of the treatment facility and their planned mitigations.

Table 5 - Accident management plan

Hazard	Receptor	Pathway	Probability	Consequence	Overall risk	Risk Management/ mitigation	Residual Risk
Chemicals Chemical reaction of treatment agents	Site Personnel Local environment	Airborne	Low	Medium – Odour emission High – Site personnel injury	Low	The treatment facility will not operate with chemically reactive treatment solutions. Working closely with the supplier, it will be ensured that the solutions used will not generate noxious gasses.	Low
Fire Uncontrolled burning of timber or facilities	Surface water/ groundwater	Site drainage/ Run-off	Low	Medium – Emission of contaminated firewater run-off or leaks caused by the fire	Medium	Treatment facility to be operated in accordance with standard operating procedures. Fire detection system will be installed and control equipment accessible with emergency services contacted in cases of major incidents. Smoking onsite is prohibited unless within one of the designated smoking areas. The treatment facility will typically store damp treated wood that has a lower potential to combust. The treatment facility will have an appropriate maintenance plan to be carried out including inspections. In the case of a fire, the fire-waters will be contained within the building's bund. External drainage may be bunged to negate the possibility of emission to groundwaters	
	Site Personnel Local environment	Airborne	Low	High – Smoke/odour emission High – Site personnel injury			
Fuel / oil leak	Surface water/ groundwater	Site drainage/ Run-off	Low	Medium – Contamination of surface water	Low	Site vehicles receive regular maintenance.	
Adverse weather damage Damage to site infrastructure	Surface water/ groundwater	Drainage/ Run-off	Low	Medium - Damage to building may lead to the ingress of rainwater resulting in contamination. Damage to equipment may result inleaks	Low	Regular inspections of the building infrastructure, including roof, guttering, drainage, walls and foundations	
Vandalism Damage to site infrastructure	Surface water/ groundwater	Drainage/ Run-off	Low	Medium – Contamination from leaks caused by damaged equipment	Low	Only authorised personnel will have access to the facility.	

7.0 Environmental consideration of the Installation's Lifecycle

7.1 Construction and installation

A construction management plan has been submitted for the completion of the structure Appendix N. The installation of the plant will be managed by the manufacturer following their internal procedures.

7.2 Operation

The manufacturer will provide onsite training during the commissioning of the plant. Using this training and the procedures to mitigate environmental harm following the best available techniques, a safe working procedure will be written. Training and operational records will be kept to demonstrate that the personnel are trained and aware of current best practise. The plant will be maintained to ensure both operational and environmental performance. Maintenance will be completed as per the maintenance plan derived from the manufacturer's recommendations.

7.3 Decommissioning

The wood treatment activities are fundamental to the economic viability of the organisation and thus are unlikely to cease independently. If one of the timber treatment activities were to cease, a site decommissioning plan shall be drafted and made available to the local authority. The decommissioning plan will be followed meticulously so potential emission to the environment is mitigated. This will ensure the installation can be decommissioned without any pollution risk and returning the site to a satisfactory state such that soil and groundwater conditions are comparative to the period the site was installed. If the installation activities are intended to be ceased for any period exceeding 12 months the regulator will be informed within 3 months to the proposed date. The site decommissioning plan will be similar in nature to the existing process as documented in Appendix O is likely to consider;

- Removal of all liquids from their respective storage tanks or sumps. These liquids will be exported from site via road tanker. If the liquids cannot be re-used in a similar process, they will be treated as waste and subject to the appropriate regulatory controls e.g. duty of care until disposal / recovery at a suitably permitted facility.
- Where possible, the tanks and associated pipework will be removed for off-site decontamination, re-use, recovery or disposal. It would not be preferable to decontaminate the tanks on site, however appropriate precautions will be made to prevent escape of contaminating liquids or residues during removal. This may require construction of temporary bunds and / or heightened spillage contingency measures. Appropriate measures will be taken to protect the integrity of the water abstraction borehole from damage or contamination.
- All residue will be removed from the underlying mixing tanks using a licensed and approved company. Any residue will be exported from site as a waste and subject to appropriate regulatory controls. Complete removal of all residue from the tanks will be independently verified.
- The tanks will be inspected for damage. If their integrity has been compromised during their prior use or during the decommissioning works, the operator may instigate further investigations to determine the extent of any contamination and the requirement for remedial measures.
- Subject to the next use of the site, it may be appropriate to break-out the concrete substructure in anticipation of future construction works. It may be more practicable

however to fill the bunds in with concrete or similar material. Any material removed from the site will be treated as waste and subject to appropriate regulatory control.