
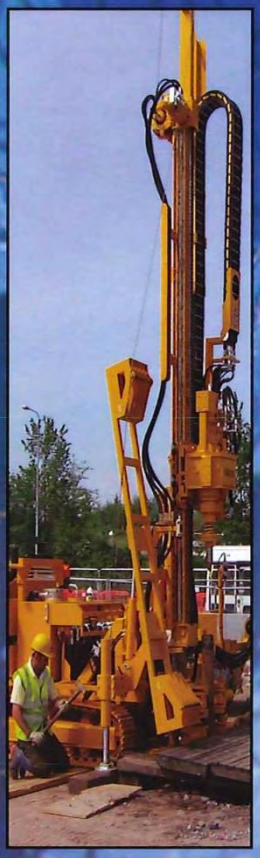


TerraConsult

February 2015
Report No 2177/R/003/1

WOOD TREATMENT PART A2 PERMIT APPLICATION

INSTALLATION REPORT

Carried out for: **Charles Ransford and Son Ltd**

TerraConsult

CHARLES RANSFORD AND SON LTD

WOOD TREATMENT PART A2 PERMIT APPLICATION

INSTALLATION REPORT

February 2015

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CHARLS RANSFORD AND SON WOOD TREATMENT FACILITY

PART A2 PERMIT APPLICATION: INSTALLATION REPORT

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RANSFORDS SAWMILLS WOOD TREATMENT FACILITY

PART A2 PERMIT APPLICATION: INSTALLATION REPORT

1 GENERAL INFORMATION

1.1 Regulatory Context

1.1.1 TerraConsult Limited (TerraConsult) was commissioned by Charles Ransford and Son (Ransfords) to prepare a Part A2 Environmental Permit application for their wood treatment activity within their Bishop's Castle sawmill site. Treatment of >75 m^3 of wood per day is a Part A(2) activity listed in Part 2 to Schedule 1 of The Environmental Permitting (England and Wales)(Amendment) Regulations (2013). This means the area of site where the wood treatment is currently carried out is classified as an installation and will require a permit to operate after 6th July 2015.

1.1.2 This report has been devised to comply with the relevant principles and requirements of a range of guidance including:

- DEFRA (2012) Environmental Permitting General Guidance Manual on Policy and Procedures for A2 and B Installations.
- Draft Sector Guidance Note SG11: Guidance for Wood Products Preservation with Chemicals. September 2013.
- WPC BREF – Proposed Structure
- Wood Preservation Association. Timber Treatment Installations: Code of Practice for Safe Design and Operation. 5th Edition October 2009.
- Shropshire Council Application Form for a Part A2 permit.

1.2 Installation Report Structure

1.2.1 The structure of this report will follow the draft Sector Guidance Note SG11. SG11 identifies all aspects of the wood preservation process and where applicable, proposes the Best Available Techniques (BAT) for managing an activity effectively and with the lowest potential environmental impacts. Each section of the draft SG11 contains a table with BAT references (e.g. BAT 45) and accompanying description of how that activity should be managed. Where an aspect of the activity currently meets or will meet a BAT requirement, the BAT reference is included in the text.

1.2.2 In referencing this document it is anticipated the requirements of Questions 1 and 2 of the Shropshire Council Application Form for an A2 permit will also be satisfied, namely:

- Reference to any water emissions and reference to discharge consents issued by the Environment Agency (Section 4.4);

- a description of the current or proposed technology or techniques employed to reduce the emission and impact on the environment (Section 2);
- identification of the raw and auxiliary materials, other substances and water used in the activity (Section 4.1);
- characterisation of each waste stream from the installation and current / proposed measures for minimisation, storage and handling of the wastes (Section 4.3);
- identification of any potential discharges of hazardous or non-hazardous (former List 1 and 2 substances) from the activity and description of how discharges to groundwater are reduced or prevented (Section 2.4);
- energy efficiency review (Section 4.5);
- a risk-based review identifying current / proposed systems to be used in the event of unintentional releases and their consequences (Section 3);
- a review of noise and vibration, including source, impact and mitigation (Section 2.3);
- measures to be taken on cessation of the activity to avoid pollution and return the site to a satisfactory state (Section 1.3); and,
- details of the environmental management techniques, procedures and policies relating to the activity (Section5.1).

1.3 Site Risk

Pre-operational Baseline Study

1.3.1 The operator has prepared a site report (referenced 2177/R/001 dated February 2015) to address Question B3 of the Shropshire Council form for an A2 permit application. The purpose of the site report was to provide information on conditions at the site prior to issue of the new permit. It determined there was a long history of industrial use at the site and a number potential sources of contamination. The primary receptor for pollution was determined to be the groundwater directly underneath the installation boundary. The operator currently abstracts water for the treatment process via a borehole but from a separate and much deeper geological horizon (> 62 m below ground level). It is likely the operator will install boreholes at a later date for other purposes (ground source heating and pre-development purposes) and they may choose to carry out further chemical and geotechnical testing at this juncture.

Measures to be undertaken on Cessation of Activity

1.3.2 The wood treatment activity is fundamental to the economic viability of the wider Ransfords site and is unlikely to cease independently. If the activity were to cease, the operator would prepare a detailed decommissioning plan which would be made available for discussion with the local authority at their request. The progression of site decommissioning is likely to be as follows:

- 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 gullysucker or similar equipment. 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 tanks in anticipation of future construction works. It may be more practicable however to fill them in with concrete or similar material. Any material removed from the site will be treated as waste and subject to appropriate regulatory controls.

1.4 Process Description

1.4.1 This installation report concerns only those processes carried out within the proposed permit boundary i.e.

- Storage of cut wood prior to treatment;
- Treatment using water-based preservatives; and,
- Storage of treated wood after treatment.

Raw Wood

1.4.2 The wood to be treated is prepared in another area of site from raw timber imported by road. Part of this process is subject to Local Authority (LA) controls under a Part B permit under The Environmental Permitting (England and Wales) Regulations (2010)(as amended) to control air emissions. The logs are stripped of bark, trimmed and cut to required size by a state of the art, fully automated process with appropriate controls to reduce fugitive emissions where practicable. The prepared wood is selected and transported across site for drying in a well-ventilated covered area immediately adjacent to the treatment building. The wood is then transferred by forklift into the treatment building as required. The storage of wood pre-treatment is not subject to BAT assessment in this report.

1.4.3 SG11 classifies the process of preservation of wood or wood products as having two key components:

- **the treatment vessel** which incorporates a loading system (a train of bogeys on rails at this site (BAT 26)) onto which the wood is loaded and moved into the vessel. This has fail-safes which prevent the process from starting until the doors are locked and vice-versa (BAT 20, 21, 23 and 24).
- **one or more storage vessels**, typically a working vessel (called the mixing tank at the Ransford Site) which hold the treatment agent when it is not being transferred to and from the treatment vessel. There is also a bulk tank which continually topped up to supply the mixing tanks.

1.4.4 Wood is stacked on bogeys at an angle to allow free draining of liquid as the vessel empties and to reduce the amount of free product draining in the drying area (BAT 14). The wood is also secured to the bogeys with strapping to prevent 'wood lift' when the vessels are flooded (BAT 18). The bogeys are stacked to the optimum capacity allowable to fill as much of the space inside the vessels as possible. Not only does this make the process more economical, but reduces the amount of treatment agent required and therefore associated risks (BAT 19).

1.4.5 The automated system manages the entire process, with human interaction limited essentially to its initiation, emergency intervention or general maintenance. This system reports to the operator when liquid is in the vessels, how much and whether it's being pumped in or out (BAT 23). Safety release valves fitted to the tanks (which are pressure tested annually) allow liquid to drain to the underlying mixing tanks in the event of an emergency or equipment failure (BAT 25). The wood treatment process is outlined by the attached Treatment Services Ltd process diagram referenced 517-200 (rev 2 08/02/2015): *Ransford Existing Arch Dosing Layout (Plan View).*

1.4.6 SG11 describes the key stages to the wood treatment process relevant to the Ransford activity. The stages apply after the wood has been loaded into the vessel.

1. **Initial vacuum.** Once locked in, air is drawn out of the vessel to enable the required uptake and penetration of the preservative. This initial vacuum is maintained for 0.5 hours at the Ransford activity.
2. **Flooding.** The preservative solution is allowed to flow into the vessel under vacuum.
3. **Pressure Period.** Upon complete filling of the vessel, the vacuum is released and positive hydraulic pressure is applied to ensure maximum penetration of the preservative. This period continues for 1.5 hours at the Ransford Activity.
4. **Initial Drain.** The pressure is released to atmospheric levels in a controlled manner and the liquid allowed to drain to the mixing tanks.
5. **Final Vacuum.** A final vacuum is then applied which draws out the remaining preservative and reduces the amount of free product running from the wood after the process.
6. **Final Drain.** The liquid that collected after the final vacuum is drained back to the mixing tank. The air pressure is returned to atmospheric levels and the wood removed.

After Removal

1.4.7 After its removal from the vessel and the bogeys, the treated wood is stacked and left to drain / air dry through evaporation on an impermeable surface inside the building (BAT 12 and 27). The impermeable surface is regularly inspected for signs of fatigue and maintained as required (BAT 13). Spacers are used to prevent capillary retention of liquids between the pieces of wood and shaped profiles in the wood or other traps are avoided to prevent accumulation of solution (BAT 15 and 16). Packs of wood are defined as dry if after being lifted by a forklift, no free product is observed to drip from the wood after 5 minutes (BAT 31). For practical purposes a representative pack is used as a sample of each batch of treated wood (BAT 32). The vehicles used in the treatment / or drying of wood are thoroughly cleaned before removal for service or use elsewhere (BAT 28 and 29).

1.4.8 This wood is stacked at an angle relative to enable better drainage from the wood (BAT 14). The residual free liquid runs back to a collection tank where it is reused in the treatment of wood with brown pigment (regardless of whether the reused liquid contained green pigments). The dried wood is then wrapped and exported as product from site (BAT 34).

1.4.9 The operator has developed a system (BAT 33) which details the following:

- Specific Pack or Batch Identifier;
- Date and time of addition to treatment vessels and removal; and,
- Signature of person accepting wood in a dry condition.

1.5 Process Vessel Cleaning and Maintenance

1.5.1 The operator washes down the process vessel during the annual 2 week-long whole-site shutdown. Rotary spray nozzles are used to minimise the volume of water used during the cleaning process (BAT 36). No water or liquids used in the wood treatment process enter external drains nor are they directed to sewer (foul or storm). All such water is reused in the treatment process and supplement fresh water (BAT 37).

1.5.2 Equipment is maintained on an ongoing preventative and as-required basis throughout the year. A thorough service including pressure testing of the treatment vessels is also carried out during the annual whole-site shutdown.

2 FUGITIVE EMISSIONS

2.1 General

2.1.1 Environment Agency Guidance Note: *H1 Amenity & Accident Risk from Installations and Waste Activities* (December 2011 v2.1) defines fugitive emissions as '*Uncontrolled hazards associated with an activity such as vapours, dust, litter, pests, vermin*.' This is not a definitive list and fugitive emissions can also apply to uncontrolled emissions of potentially harmful substances to groundwater or surface water, or could apply to odour or smoke resulting from a fire. The draft SG11 is concerned with fugitive emissions including noise and vibration and emissions to:

- Air (VOCs, particulates and odour);
- Surface water;
- Sewer; and,
- Groundwater.

2.1.2 All operations carried on at the facility are controlled with the intention to minimise fugitive emissions (BAT 59). Much of the activities are unlikely to result in fugitive emissions defined above. There is potential for accidents to occur at site during normal operation and these may result in potentially harmful fugitive emissions.

2.2 Fugitive Emissions to Air

VOCs (including Organic Solvent-borne surface cleaners and organic solvents)

2.2.1 The activity does not use VOC-based chemicals in its treatment process but does not use VOCs in its cleaning procedures. VOCs requiring the application of Emission and Fugitive limits or consideration against Total Emission Limit values are not used at site and BAT 61 does not apply.

2.2.2 Volatile liquids are not transferred around site and vent systems are not required. BAT 62 and 63 respectively do not apply.

Particulates

2.2.3 There are no activities carried out within the application boundary which will generate particulates and may result in a fugitive emission. BAT 60 does not apply.

Odour

2.2.4 The water-based treatment agents listed in Table 1 do not have a strong odour potential. No personal or vehicular respiratory measures are required when operating in the building and there is no distinct odour unless standing in the immediate vicinity of treated wood or the mixing tanks. What limited odour is present is not considered to be offensive in nature.

2.2.5 The large doors to the sheds are often open during normal site operations. There would be potential for odours to escape the building if a significant source were present. However the low odour potential of the treatment agent means that odour is not detectable immediately outside of the building. It is therefore very unlikely odour would

be detectable at adjacent receptors. BAT 73 is considered to have been be satisfied and BAT 74 is not currently applicable.

2.3 Noise and Vibration

2.3.1 SG11 requires the operator to consider and reduce the impacts associated with noise and vibration if they were to be detectable at the site boundary. Noise and vibration associated with this site would result primarily from the movement and operation of site plant and on site equipment during operational hours. All activities are carried out inside a building within the busy and potentially otherwise noisy sawmill complex. The plant has been operational on site in its current form for a number of years and the activities will not change as a result of this permit application. It is understood no noise complaints have been received by the operator or regulator.

2.3.2 The operator has acknowledged the potential for the vacuum pumps which manage the air pressure in the vessels to be a source of fugitive noise. To address this they will be installing internal wooden doors across the internal threshold of the treatment vessel outrigger and main building which will be closed when the treatment process is active.

2.3.3 The operator is considering expanding the surface area of the treatment vessel outrigger building (laterally) by approximately 70%. All future activities will also be carried out inside an extension to the shed and benefit from the same noise attenuation measures.

2.3.4 The operator will conduct a review of all potential sources of noise at the site and consider if improvements can be made. The most likely sources would be fans, pumps and motors, along with general noise associated with vehicle movement or movement e.g. stacking of products pre and post-treatment. Mitigation measures such as but not limited to those listed in Table 5.3 of SG11 will be implemented (BAT 115).

2.4 Surface Water / Groundwater / Sewers

2.4.1 A diagrammatic representation of the internal drainage is detailed in Appendix A. There is no link to external drainage (BAT 64). This shows the location of subsurface pipework, sumps and storage vessels. The Operator keeps an ongoing inspection and maintenance programme for all the infrastructure associated with the treatment activity (BAT 70). External yard drainage (essentially the roof guttering) is inspected no less frequently than every 5 years, and annually for the internal treatment areas. This is implemented within a 2 week-long whole site shut-down where a thorough review of all site infrastructure is made. The main area of concern within the treatment area are the mixing tanks and associated pipework. This is drained of treatment agent and silt / sludge removed by gully sucker for off-site disposal.

2.4.2 The vulnerability of the underlying groundwater and adjacent surface waters has been characterised in the accompanying Site Report and Environmental Risk Assessment Reports. The site does not sit within a Groundwater Source Protection Zone. The historical quality of the water course to the south east is good with medium levels of nutrients (data from Environment Agency website). The nearest drinking water boreholes and water course (field drain) are approximately 825 m and 190 m to the southeast respectively. There are no deliberate point source emissions of hazardous or

non-hazardous substances to groundwater e.g. soakaways, nor is there a direct connection to the surface water or sewer systems where effluent could be discharged deliberately or accidentally (BAT 65)

2.4.3 There is sufficient capacity in the mixing tanks and bunded area (150% of total volume of liquid stored on site) to contain the liquid if one of the tanks or vessels were to fail and all liquid contained within was to discharge (BAT 68). The mixing tanks are impermeable and resistant to deterioration by the chemicals used in the process (BAT 67). The tanks are all fitted with high-level alarms / volume indicators to prevent over-filling during delivery and all filling connections are within the bunded area (BAT 69). No storage areas are located in the open nor are solvents used. BAT 66, 71 and 72 therefore do not apply.

2.5 Monitoring

2.5.1 There are currently no processes which produce emissions to air or discharge consents which require monitoring. BAT 116 to 133 and 135 to 139 does not apply.

3 ACCIDENTS

3.1 Requirements of SG11

3.1.1 Accident management requires a review of 3 key components:

- Identification of the hazards
- Assessment of the risks (hazard x probability)
- Implementation of measures to reduce the risk of accidents and contingencies to reduce the impacts should they occur.

3.1.2 SG11 identifies fire and spillage / loss of containment of raw materials as the key risks of concern.

3.2 Fires

Risk of Fire: Types of Combustible Materials on Site

3.2.1 The following combustible materials are consistently present at site:

- Prepared green / wet wood;
- Timber post-treatment;
- Packaging (plastic and wood);
- The control cabin and associated ancillary items (furniture, paper etc.); and,
- Compressed gas in fork lift trucks

3.2.2 The wood pre- and post-treatment represents the most significant proportion of combustible material on site. This wood is however fresh-cut timber with the moisture content associated with green wood. The timber post treatment will have a similar high moisture content and be potentially augmented with the non-flammable preservative and pigments used in the treatment process. Wood awaiting treatment and during treatment is bound together with plastic strapping. After drying has completed, the strapping is retained and the wood is enclosed in plastic wrap. The plastic wrap is not stored within the confines of the building. Lubricating oils are required to maintain the operational efficiency of the wood treatment vessels and other equipment. These are not stored in the building adjacent to the control cabin. The control cabin is of wooden prefabricated construction and contains other flammable items such as furniture, general stationary, documents and electronic equipment such as computer terminals. The fork lift trucks which operate within the building are powered by diesel. This diesel is not stored within the building.

Storage Capacity

3.2.3 The typical volume of product stored is likely to be 200 m^3. Additional quantities of untreated wood are stored in the undercover area external to the main treatment building. This is to enable additional air drying of the wood prior to treatment. Treated and plastic-wrapped wood is normally exported from site directly.

Causes of a Fire

3.2.4 Sources of fire ignition can arise from the following:

- arson or vandalism;
- plant or equipment failure;
- electrical faults;
- naked lights;
- discarded smoking materials;
- hot works, e.g. welding, cutting;
- industrial heaters;
- hot exhausts;
- damaged/exposed electrical cables;
- neighbouring site activities; and
- ignited materials received at the site.

3.2.5 Any of the causes detailed above has the potential to ignite flammable materials at the site, although the wood product represents the highest risk and adverse consequences. The consequences of a fire are discussed below with mitigation measures detailed in a further section.

Effect of a Fire

3.2.6 The effects of a fire may be both immediate and long term, presenting a significant burden for the operator and regulatory agencies:

- firewater run-off transporting pollutants to surface water and groundwater;
- thermal radiation harming nearby properties and residents leading to fire spread;
- creation of hazardous waste by the fire and impacts of firefighting;
- explosions and projectiles harming sensitive receptors and spreading the fire to unaffected areas;
- transport disruption resulting from road and rail closures;
- nuisance from smoke, odour and particulates; and,
- threat to life and property.

Preventing Fire - Procedures

3.2.7 The Fire Management Plan (FMP) for the site identifies roles and responsibilities for site staff and includes the following relevant procedures:

- Accident Investigation and Reporting
- Site Inspection, Audit and Reporting
- Managing Non-Conformance, Corrective & Preventive Action
- Control of Records
- Audits
- Disposal of Site Waste
- Surface Water Management
- Oil and Fuel Storage
- Emergency Preparedness and Response
- Emergency Preparedness & Response: Critical Incident Response for managing fire risk.

3.2.8 One of the principle objectives of the FMP is to ensure the efficient and safe operation of the site through the implementation of procedures that ensure define staff roles and responsibilities supported by provision of appropriate training. The FMP includes procedures that:

- control the source of ignition such as naked flames, space heaters to ensure adequate distance is maintained from stockpiles of combustible materials;
- ensure staff and contractors follow safe working practices when undertaking hot work;
- ensure staff, contractors and visitors are trained or inducted on correct safety and fire prevention procedures;
- defines a regular maintenance and inspection programme for all site areas including machinery and good housekeeping including maintaining levels of dust, fibre and litter to a minimum.

3.2.9 There is a no-smoking policy that will be enforced on site. Site security will include CCTV, alarms and out of hours security personnel attendance.

Fire Procedures – Equipment and Infrastructure

3.2.10 All site vehicles will be fitted with fire extinguishers. Portable fire extinguishers will be provided on site. A series of fire hose reels are located within the building envelope. The site's primary firefighting strategy in the event of a fire will be the utilisation of these hose reels. Operation of the facility, and associated fire protection and suppression systems, has been undertaken with consideration to the WPA code of practice for safe design and operation of timber treatment installations.

3.2.11 Fire detection equipment will be employed in key areas of the process plant and will be monitored constantly for signs of development of fire which may lead to combustion of materials. An indicative plan showing the proposed storage location for received and processed materials is provided in the FMP. Storage areas have been designed to ensure that access for fire brigade vehicles can be gained in the event of a fire at the site.

Fire Water Containment

3.2.12 The perimeter retaining works like a retaining bund to prevent any waters used in the control of a fire inside the building from escaping. It is proposed to utilise existing fire hydrants on site to operate the hoses from. Should fire water volume exceed the capacity of the building, fire water will be pumped and removed from site via tankers.

Water Supply

3.2.13 The operator has sole access to the water abstraction borehole at the application site. If this were not accessible due to the progression of a fire, there are a number of mains connections they can make via hydrant located around the wider site.

Storage

3.2.14 Imported and processed wood awaiting treatment will be stored inside the building on site and benefit from the fire prevention and control measures identified above.

Action Plan

3.2.15 The sites FMS details Emergency Preparedness & Response: Critical Incident Response for managing fire risk, it is this document that will be used to ensure appropriate response management. In summary, in the event of an outbreak of fire, all or some of the following actions will be undertaken as appropriate.

- Any outbreak of fire at the site shall be treated as an emergency. Where it is safe to do so, without endangering the safety of persons, immediate action shall be taken to extinguish the fire using the site fire extinguishers.
- If the fire cannot be controlled on site then the Fire & Rescue Service is to be contacted by telephone immediately.
- The site or operations manager is to be contacted immediately by telephone and informed of the situation.
- The area of fire must be evacuated without generating panic. All site personnel must make their way to the fire assembly points. Site personnel must ensure that no persons or vehicles re-enter the affected area.
- A check shall be conducted to ensure that all persons present on the site are safe and accounted for as required for Fire Emergencies. Using clock cards, staff and visitor signing in sheets.
- The site or operations manager is to contact the local autority or other relevant regulatory authorities immediately by telephone and in writing, as soon as reasonably practicable, after the outbreak of a fire to advise them of the incident and of the action taken.
- Upon the outbreak of fire the receipt of wood at the site is to be suspended and not resumed until authorised by the Site Manager.
- Communication with local businesses and residents identified in the sensitive receptor table above will be undertaken in the event of a fire to reduce any environmental damage and risks to human health associated with smoke and dust.
- Collected fire water to be retained within the site building via the internal walls and other appropriate bunds as necessary. Any retained firewater will be removed from site by tanker.
- Site operations will not be recommenced until deemed safe to do so by the Local Fire Authority and the local autority or other relevant regulatory authorities.

3.3 Loss of Containment

3.3.1 All areas of the impermeable concrete surface, covered buildings, roofed areas, fixed / temporary bays and containers will be visually inspected at least weekly to ensure continuing integrity and fitness for purpose. The inspection and any necessary maintenance required will be recorded. In the event that any damage breaches the integrity of the engineered containment so that it no longer meets the required standards, necessary remedial work will be completed as soon as practicable.

3.3.2 The drainage system at the site will be subject to weekly visual inspections to ensure effective operation and integrity of the system. Maintenance will be undertaken to ensure the effective operation and defects will be rectified as soon as possible.

3.4 Accident Management Plan

3.4.1 The operator will maintain an accident management plan which is subject to review by the regulator (BAT 109). This will include procedures for investigating incidents and near misses, and identifying the suitable corrective and follow up actions (BAT 108). Similar procedures will be in place to address abnormal fugitive emissions such as smoke or odour which may result from an accident, along with reporting lines internally and externally, and timeframes for making reports or notifications (BAT 110). It is likely conditions may be incorporated into permits to guarantee appropriate action and reporting after an incident. BAT 112 to 114 are not applicable to this site.

3.4.2 An overview of the likely components of the Accident Management Plan is detailed in the accompanying Habitats and Environmental Assessment report (referenced 2177/R/002).

4 TECHNIQUES TO CONSIDER IN THE APPLICATION OF BAT

4.1 Choice of Raw Materials

4.1.1 The draft SG11 currently requires the operator to demonstrate that they have taken measures to:

- Reduce the use of chemicals and raw materials
- Substitute with materials presenting lower risks to the environment; and,
- Understand the fate of by-products and contaminants and their environmental impact.

4.1.2 Selection of the following types of raw materials should be considered:

- Type of preservative (water-based, solvent-based, creosote etc)
- Sustainable use of water
- Fuel Oils
- Solvent usage

4.1.3 SG11 does not consider the wood to be treated as a raw material in the context of BAT. As no solvents are used in the wood preservation process, addressing the BAT requirements of solvents is not considered further (pending future annual reviews – see below).

Treatment Chemicals

4.1.4 The treatment agent is mixed to a 4% solution prior to use in the treatment vessel. The operator currently uses 4 main types of preservative / pigment in the wood preservation process (Material Safety Data Sheets (MSDS) are in Appendix D of the Site Report referenced 2177/R/001), these are summarised in Table 1.

Table 1. Key Chemical Treatment Agents

Chemical Name	Key Component	Property
Wolmanit ProAdd DF	Polydimethylsiloxan	Improves rheological (flow) properties
Wolmanit CX-10	Copper Carbonates / Boric Acids	Biocide
Wolmanit ProColor brown 2005	Azoic dye	Colour concentrate
Wolsit SP	5-Chloro-2-methyl-2H-isothiazol-3-one, 2-Methyl-2H-isothiazol-3-one	Chemical Additive

4.1.5 BAT 84 requires the adoption of procedures to control the specification of those types of raw materials which have the main potential to cause an adverse environmental impact i.e. the preservatives and pigments used. An annual review of alternative raw materials should be carried out with regard to environmental impact. The operator maintains contact with the supplier of the chemicals (BASF) to keep them aware and to allow recommendations for the use or otherwise of key components in the treatment process.

Where not carried out already, they will be instructed to review the treatment agents on an annual basis after issue of the A2 permit.

4.1.6 None of the chemical MSDS are assigned with the hazard statement designations of H340, H350, H350i, H360D or H360F and therefore do not require immediate replacement in accordance with BAT 85. The operator monitors the amount of component chemicals required to produce the preservative compound. This is monitored automatically by the dosing system and electronic records maintained of the volume of preservative used.

Water

4.1.7 Water used in the process is abstracted from a borehole located directly underneath the installation. This is categorised as a Secondary B Aquifer (see accompanying Site Report referenced 2177/R/001) and is not considered to yield significant amounts of water. This indicates that its use by the wood treatment activity is unlikely to adversely affect other users or put the resource at risk. For example, the nearby groundwater pumping station (described in accompanying Site Report referenced 2177/R/001) evidently draws water from the shallow aquifer and the two are therefore not in conflict.

4.1.8 The operator draws < 20 m^3/day into an above ground storage tank which is automatically topped up by a float switch to ensure enough water is available to sustain the process. The proximity of the borehole means the minimum amount of energy and resources are required to abstract and pipe the water to its required location. The operator may consider introducing water collected from the roofs in this tank, however there is currently insufficient space available to install a secondary tank.

4.1.9 Water is used in the production of the treatment agent and washing down of surfaces only. Using water-based chemicals is considered to present the lowest risk in terms of emissions and additional abatement controls required for the environment and protection of human health. The treatment agent provides the required level of protection for the wood at the lowest effective concentration. A reduction of the proportion of water used therefore unnecessarily increases the amount of chemicals required and hence costs and risk to the environment.

4.1.10 Wash-down water is used sparingly as all the run-off will flow into the mixing tanks beneath the treatment vessels. This is then re-used in the treatment process. No water is discharged off site as waste effluent. Excessive volumes of wash-down water may dilute the chemicals and make the treatment process less effective. It is important to identify the minimum amount of water required to effectively clean the area and closely monitor the quality of the treatment solution.

4.1.11 The operator will carry out a water use audit within 24 months of permit issue in accordance with BAT91. It is unlikely water consumption can be reduced in the process without compromising the operational effectiveness of the treatment agent. Abstraction of water from the deep aquifer is considered to have the least impact on groundwater resources due to its low yield potential and overall volume used. The findings of the water use survey may be used to inform whether other sources of water could be used e.g. roof rainwater in accordance with BAT 92. The operator has installed a water meter

at the groundwater abstraction well and monitors the volume of water removed, retaining records as appropriate. The water audit will become a matter of routine and the data gathered during normal and abnormal operating conditions used to track improvements as per BAT93 and BAT94.

Fuel Oils

4.1.12 The activity draws its power from renewable sources on site or the mains connection. Fuel oils are not used in the activity. The forklifts are powered by diesel which is not stored within the building.

Solvent Usage

4.1.13 No VOC or other solvents are used in the process with the exception of negligible amounts used for essential maintenance or cleaning.

4.2 Delivery, Storage and Handling of Raw Materials

4.2.1 SG11 requires operators to consider the potential impact of the delivery, storage and handling of raw materials related to their activity. The accompanying Environmental Risk Assessment considers the source-pathway-receptor linkages of all the above in detail. This report assess whether the appropriate measures are in place to minimise the impacts in accordance with BAT as indicated and where applicable.

Treatment Chemicals

4.2.2 The chemicals used in the treatment process are delivered to the on-site tanks by direct transfer from a road tanker (BAT 4). Odours from the delivery of chemicals should be negligible due to the low odour potential of the chemicals. Air displaced by the transfer of liquids to the tanks is currently expelled externally. The operator is considering installation of a system where any odorous or potentially harmful headspace air (should such chemical be used on site in the future) is piped back to the headspace of the delivery tanker.

4.2.3 The storage area is located in the building on a sealed concrete floor. This floor slopes away from the perimeter of the building and toward the mixing tanks. If a spillage or loss of containment were to occur, all liquid would flow into the tanks (BAT 3). All delivery connections are within the catchment of the contained area (BAT 7).

4.2.4 To minimise the risk of spillages and subsequent contamination of surface water systems, all potentially polluting materials are stored in appropriate closed containers (BAT 10) in designated areas inside a building (BAT 2). The chemical tanks are clearly labelled with their content, associated hazards and necessary precautions for their correct handling. In addition to the automated system, regular estimates of their available capacity will be made. This is undertaken on at least a weekly basis and the results recorded. These systems warn of overfilling during liquid deliveries.

4.2.5 The loading and unloading of containers is carried out in accordance with the manufacturer's procedures to avoid spillages and overseen by trained on-site personnel to prevent spillages (BAT 9). In the event of a spillage, the site specific procedures will be implemented. In general, small spillages will be dealt with by appropriately trained

site personnel using sand, absorbent spillage media or specialist spillage kits, which will be located at defined points around the site. As a precautionary measure, drains and gullies will be isolated with proprietary rubber drain sealers, sand bags, booms or other similar devices kept on site. In the case of larger spillages, especially where there is a potential fire risk, the fire service or a specialist contractor will be employed to ensure the area is thoroughly cleaned.

4.2.6 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 stopping up gullies and drains to prevent contamination of the drainage system.

4.2.7 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:
  - Bunding and containment of the spilled material with sand or absorbent granules/pads
  - The application of absorbent granules
  - Suction to remove spilled material to secure container
  - Sweeping to allow collection of the materials and their placement in a secure container.
- Absorbent granules will be kept on site at all times for the purpose of dealing with liquid spills. Contaminated granules 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 spilled material and estimated quantity involved and remedial actions taken will be recorded.

4.3 Waste Management

4.3.1 SG11 requires operators to instigate effective waste management practices throughout the day-to-day operation of their activities. This should include as a minimum:

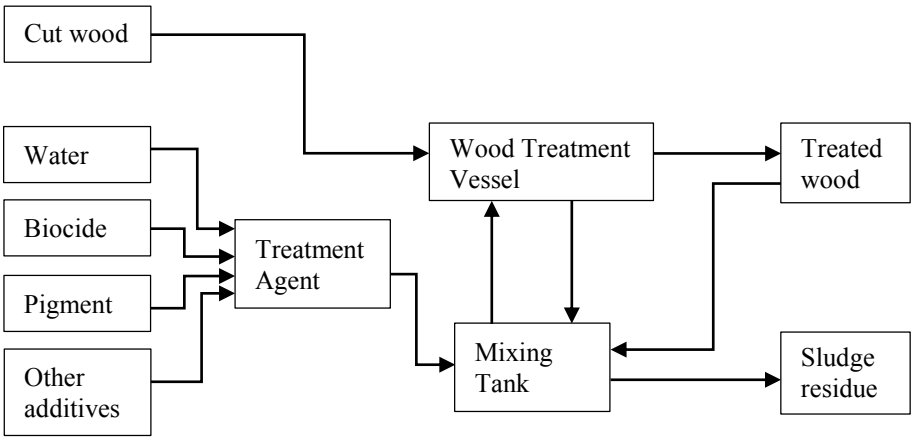
- ongoing identification and implementation of waste prevention opportunities;
- the active participation and commitment of staff at all levels; and,
- monitoring of materials' usage and reporting against key performance measures or benchmarks

Waste Minimisation

4.3.2 Figure 1 is a process flow diagram showing where raw materials are used or reused and where waste may be generated. This will be used an illustrative point of reference by the operator to quantify resources used and disposed of (BAT 87) in order to optimise efficiency and cost savings against a defined benchmark e.g. raw material used per tonne of product produced. The only waste generated by this process is the small amount of sludge residue that builds up in the base of the mixing tanks as a result of entrainment of

dust or other fines from the wood or building. There is no feasible use for this material and it is sent for recovery / disposal at an off-site facility.

Figure 1. Raw Material Usage and Waste Generation



4.3.3 This process of resource efficiency will be reviewed on at least an annual basis (BAT 88) and if not carried out previously within 18 months of A2 permit issue (BAT 89). This follows the general principles of Section 3.3 of Government Guidance document 'Changing Patterns - UK Government Framework for Sustainable Consumption and Production.' The operator will instigate any improvements identified within a timescale agreed with the regulator (BAT 90).

Waste Handling

4.3.4 The only waste generated from the process is very limited quantities of sludge which builds up outside the metal liner of the mixing tanks. This is expected to be a mixture of treatment agent dripping from the drying wood and dust or other detritus washed from the inner surface of the building. No chemical containers are disposed of from the process, although small amounts of office waste are generated: paper, disposable gloves etc.

4.3.5 The nature of the small number of waste steams generated by the process or associated activities mean they are unlikely to require intervention for segregation (BAT 96). Dry office waste is incorporated into the wider waste recycling scheme of the site. Disposable PPE or cleaning products are unlikely to be directly recyclable and exported from site in the general waste. Sludge is removed from the mixing tanks by direct transfer to a gullysucker on an annual basis. This is exported from site under Duty of Care Regulation where it is treated as waste (with appropriate classification) prior to its onward recovery or disposal.

4.3.6 Duty of care requires the operator to keep records of the amount of sludge removed from the mixing tanks as required. This information will be used to assess the amount of this waste produced, over what time frames and how it can be reduced by for example better housekeeping (dust, dirt build up) or raw material management (BAT 95). The operator will ensure that the containers used for storage of waste and the areas these containers are located are be fit for purpose. This will include clear labelling of the types of waste stored to ensure effective segregation and incompatible wastes are kept separate (BAT 97). The containers themselves will be sufficiently robust and suitable for the waste

intended. If loss of containment or accidental spillage were to occur, procedures are in place to contain the waste (BAT 98). The disposal route will be chosen on the basis of cost and proximity, however the rural location of the site means choices will be limited (BAT 99). BAT 100 (solvent waste) does not apply to this activity.

Waste Reuse, Recovery, Recycling or Disposal

4.3.7 Waste is removed from site by 3rd Party contractor. A review of the best environmental management options for the waste streams generated will be carried out annually. A review of waste streams currently taken to landfill will be carried out every 2 years to explore viable alternatives (BAT 102). Records will be maintained to monitor the following characteristics of waste produced at site in addition to Duty of Care where applicable (BAT 134):

- Quantity nature and origin of the waste
- the physical description of the waste
- a description of the composition of the waste
- any relevant hazardous properties (hazard and risk phrases)
- European Waste Catalogue code
- Handling precautions and substances with which it cannot be mixed
- Disposal routes for each waste category

4.4 Water Use / Waste Water Management

Water Emissions / Discharge Consents

4.4.1 There are no direct emissions to water that require a discharge consent from the LA or Environment Agency. The water abstraction borehole used at site draws groundwater from the underlying bedrock of interlaminated siltstone and sandstone which comprise the Baily Beds. The volume of water removed is < 20 m^3/day and therefore does not require a groundwater abstraction licence. BAT 53 to 57 do not apply at present.

Point Source Emissions to Groundwater

4.4.2 There are not intentional point source emissions of hazardous or non-hazardous substances under the Water Framework Directive (formerly defined as List 1 and 2 substances) to groundwater. BAT 58 does not apply to this activity.

4.5 Energy Efficiency

Basic Energy Efficiency Requirements

4.5.1 The operator will produce a report annually on energy consumption at the activity (BAT 103). Consideration may be given to the installation of meters to measure consumption at that part of the wider site. This will enable targeted reductions in usage or improvements in energy efficiency (BAT 104). In order to support this drive, all plant and equipment will be operated and maintained accordingly to maximise energy efficiency (BAT 105).

4.5.2 The operator installed solar panels on the roof of the main saw mill building. Subject to optimum weather conditions, it is anticipated these panels will have the potential to meet the entire sites energy needs. The operator is in the process of gathering reference

information but expects solar energy will reduce dependency on mains electricity by 25 %. The operator has also introduced a biomass plant which uses the heat from wood chip to reduce the moisture content and hence combustibility of wood chip destined for biomass export elsewhere.

Additional Energy Efficiency Requirements (BAT 106)

4.5.3 The operator is considering installation of a ground source heating system to reduce energy usage in the heating of the treatment agent. They will also consider improvements in insulation and incorporating targeting of energy drops into the preventative maintenance programme. Control of motors and fans is already optimised by the fully automated management system, as are pumping distances under the current set-up. There may however be scope for improvement if the activity is expanded at a future date.

5 MANAGEMENT SYSTEMS AND REPORTING

5.1 Environmental Management Systems

5.1.1 Ransfords is committed to managing its activities in an environmentally responsible manner and is in the process of developing an Environmental Management System (EMS) to recognised industry standards. This will form the basis of the management and operational procedures including plant / vehicular maintenance or emergency drills to be used at the site and will address BAT requirements BAT 75 to BAT 83. Table 2 summarises the likely component parts of the EMS for the wood treatment activity.

5.2 Additional Information

5.2.1 The operator may reasonably request to view records associated with the EMS either directly or via sent copies as required. This is likely to be the same sort of information required by the auditor of an EMS.

Table 2. Environmental Management System

Section	Proposed EMS Manual Elements	Description of Content
1	**Scope**	This defines the company's commitment to carry out activities in an environmentally responsible manner as detailed within the operating documents.
2	**Normative reference**	Specifies which references should be accepted
3	**Terms and definitions**	Defines key points of reference in relation to chosen EMS standard
4	**OH&S Management System Requirements**	
4.1	General Requirements	This defines how the company will manage their customers' and other stakeholder expectations in terms of delivery of services / products by implementation of the collective policies and procedures associated with the EMS
4.2	OH&S Policy	This cross-references the company's environmental policy
4.3	**Planning**	
4.3.1	Hazard Identification, Risk Assessment and Determining Control	Details how the company routinely and proactively identifies the environmental aspects its activities may potentially impact and how the potential impacts are identified, quantified and controlled or eliminated.
4.3.2	Legal & Other requirements	Definitions of the regulatory requirements associated with the site. A comprehensive register of all environmental legislation relevant to the site will be maintained by the operator to ensure the operators continued awareness and compliance with legal requirements.
4.3.3	Objectives and Programmes	This considers the responsibilities for the management of the company's environmental performance targets or objective, the programme implemented in order to achieve them, the timescales required and individual / department responsibilities.
4.4	**Implementation & Operations**	

Table 2. Environmental Management System

Section	Proposed EMS Manual Elements	Description of Content
4.4.1	Resources, Roles, Responsibility, Accountability and Authority	This describes how the company has defined, documented and communicated the roles, responsibilities and authorities of personnel in order to ensure the site activities and the EMS is implemented and maintained in accordance with the chosen standard
4.4.2	Competence, Training & Awareness	This explains the communication strategy to ensure competency for all roles necessary for the effective running of the facility and how training requirements are identified, implemented and maintained. This will also ensure the employees at the facility are aware of the importance of the EMS and the potential consequences of not following the procedures and policies.
4.4.3	**Communication, Participation & Consultation**	
4.4.4	Documentation	Standard operating procedures are referenced in this section which describe how the company and facility define the scope of the EMS, how the various aspects interact and how / what procedures are in place to effect the requirements of the EMS. Document control is defined further in earlier sections.
4.4.5	Control of Documents	
4.4.6	Operational Control	This site-specific section addresses how the facility will be operated in an environmentally responsible manner and in compliance with the environmental permit and other regulatory requirements. This will include controls on waste acceptance, waste treatment and export. It will also address how nuisance emissions of dust, odours, noise, vibration, mud and debris will be prevented and controlled. Plant maintenance and management is considered as is handling of potentially polluting substances such as fuels.
4.4.7	Emergency Preparedness & Response	
4.5	**Checking**	
4.5.1	Performance Monitoring and Measurement	This section considers the management of EMS and will contain procedures that ensure compliance with permit conditions e.g. environmental monitoring and reporting. It also includes internal procedures for optimising the energy / resource efficiency of the facility.
4.5.2	Evaluation of Compliance	
4.5.3	Incident Investigation, Nonconformity, Corrective Action and Preventive Action	Reference is made in this section to accident risk assessments, emergency action plans for incidents such as fire and spillages and appropriate emergency numbers / contact details. This section also addresses non-compliance with the permit or other regulatory requirements and handling / recording complaints actual events and near misses.
4.5.4	Internal Audit	The company will maintain an audit programme to ensure that the EMS continues to be effective by meeting policies and objectives and to identify opportunities for improvement at the site. This section sets targets and objectives, and identifies how and when management reviews / site audits shall take place.
4.6	Management Review	

5.3 Reports or Notifications

5.3.1 The current relevant reporting provisions for the site required by BAT are listed in Table 3.

Table 3. Recording and Reporting Requirements Under BAT

BAT Reference	Provision	Information Category	Frequency
30	The drainage systems related to the treatment operation should be recorded on a clear diagrammatic record and should be inspected on an annual basis.	Internal Inspection	Annually
33	Operators should develop a reporting system which records the movement of a pack onto and off of the post treatment drying area	Internal Reporting	As required
78	Records of breakdowns should be kept and analysed by the operator in order to eliminate common failure modes.	Internal recording / reporting	As required
79	Notification of appointed competent person to liaise with the regulator and the public with regard to complaints	Notification	Reactive
81	Details of training and instruction should be entered into an appropriate record and be made available for inspection by the regulator.	Internal recording / reporting	As required
87	The operator should record materials usage and waste generation in order to establish internal benchmarks.	Internal recording	As required
88	The operator should carry out a waste minimisation audit at least as frequently as the permit review period.	Internal recording / reporting	TBC
89	Audit for optimising the use of raw materials should be submitted to the regulator.	External reporting	With 18 months of permit issue**
91	The operator should carry out a regular review of water use (water efficiency audit).	External reporting	Within 2 years of permit issue**
95 / 134	The operator should produce an inventory 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.	Internal recording / reporting	As required
101	The operator should carry out an annual review to demonstrate that the best environmental options are being used for dealing with the waste streams listed in Table 5.2.	Internal recording / reporting	Annually
102	The operator should investigate potential markets for the recovery/re-use of wastes that are currently disposed of to landfill.	Internal recording / reporting	Every 2 years
103	The operator should produce a report on the energy consumption of the installation.	Internal recording / reporting	Annually
109	The operator should maintain an accident management plan covering the matters listed above and to the satisfaction of the regulator. The plan should be available for inspection by the regulator.	Internal recording / reporting	As required
110	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*	Notification	Reactive

Notes

*Without delay. In most cases it should be enough to notify the local authority (by telephone or facsimile or email) within an hour of the start or detection of the emission. Local authorities will wish to consider what notification arrangements to require outside working hours.

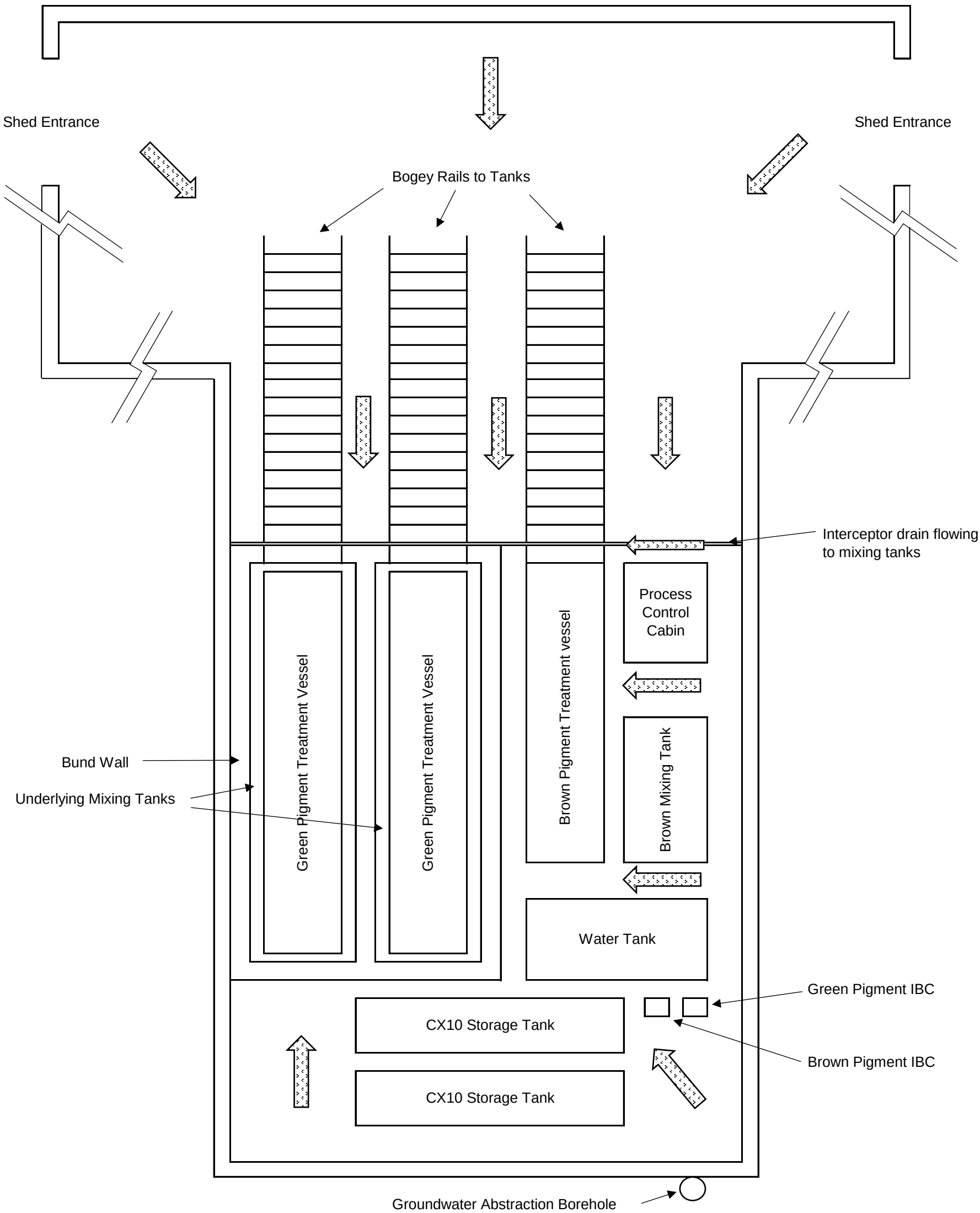
** Unless carried out in the 2 year period prior to permit issue.

APPENDICES

APPENDIX A

Drainage Drawings

Wood Treatment Facility
Internal Drainage Layout

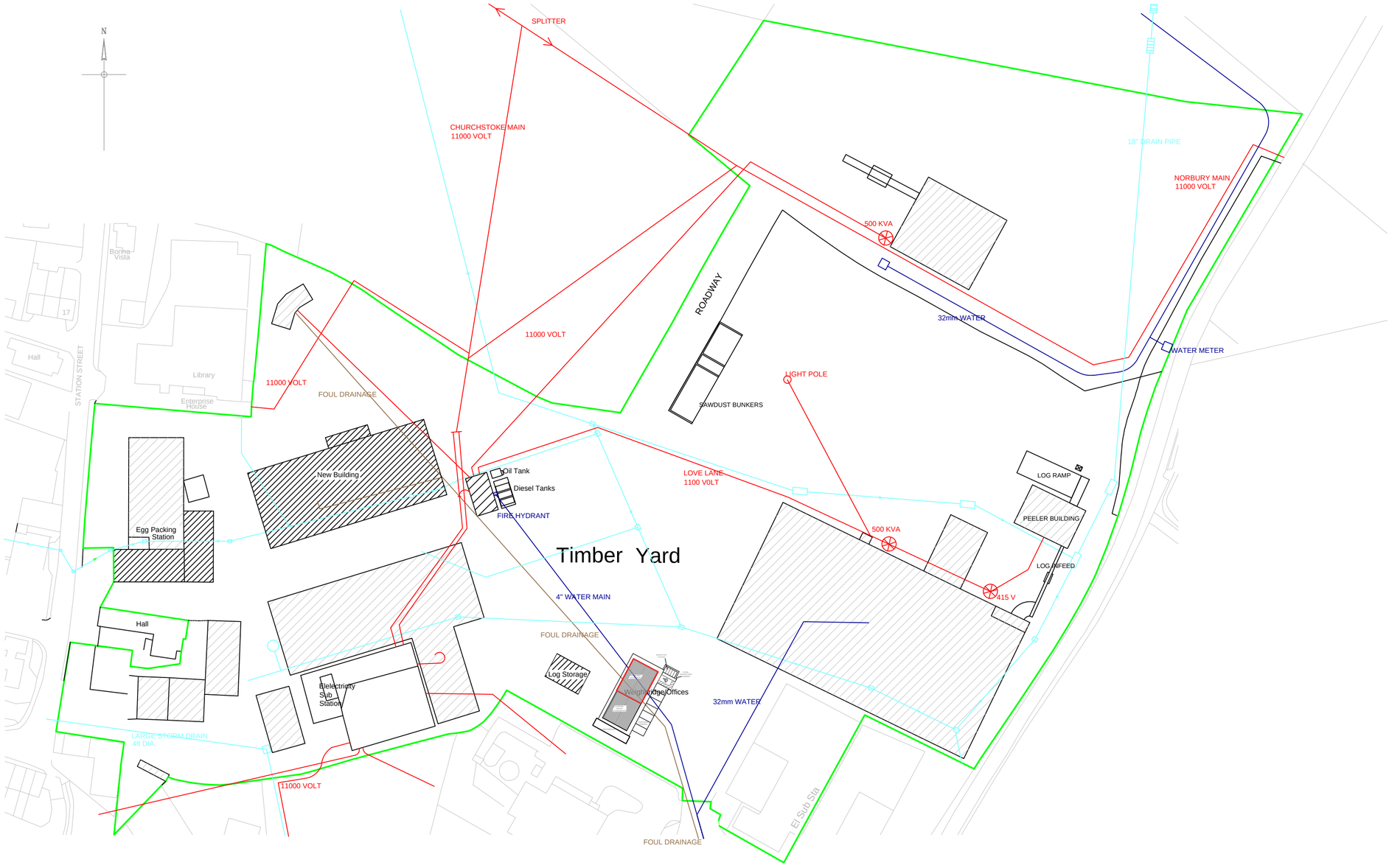


Notes

Position and size of drawing objects are indicative and not to scale

See drawing refenced 517-200 (rev 2 08/02/2015): Ransford Existing Arch Dosing Layout (Plan View) for process feeds

Downslope fall direction



GREEN = SITE BOUNDARY
LT BLUE = STORM WATER DRAINAGE
RED = UNDER GROUND POWER CABLES
BLUE = WATER MAIN
LT GREEN = FOUL DRAINAGE
LT ORANGE = COMMUNICATION

GENERAL NOTES & SPECIFICATIONS

MATERIALS, WORKMANSHIP AND CONSTRUCTION ARE TO CONFORM WITH CURRENT STANDARDS, CODES OF PRACTICE, AGREEMENT CERTIFICATES AND MANUFACTURERS RECOMMENDED SPECIFICATIONS AND ARE TO FULLY COMPLY WITH THE BUILDING REGULATIONS 1991, RELATED APPROVED DOCUMENTS AND LEGISLATION.

ALL SERVICES ARE TO BE INSTALLED IN ACCORDANCE WITH STATUTORY AUTHORITY REGULATIONS AND BY-LAWS.

SAFETY

STATUTORY INSTRUMENT 2007 No 320 - THE CONSTRUCTION (DESIGN AND MANAGEMENT) REGULATIONS 2007

THE CONTRACTOR IS TO COMPLY WITH THE DUTIES IMPOSED ON HIM BY THE ABOVE REGULATIONS AND LIAISE DIRECTLY WITH THE CDM COORDINATOR AS APPOINTED BY THE CLIENT

IMPORTANT

DO NOT SCALE FROM THIS DRAWING. WRITTEN DIMENSIONS ARE IN ALL CASES TO BE PREFERRED TO SCALED DIMENSIONS. ANY DISCREPANCIES ARE TO BE NOTIFIED TO THE DESIGNER AT ONCE.

RETENTION OF TITLE

LICENCES

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7 BROAD STREET
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SY8 5AQ

CLIENT:
MR C RANSFORD & SONS LTD

TITLE:
SITE PLAN

REVISIONS:	DATE:
UPDATED SITE PLAN	07/02/2011
SCALES:	DATE:
SITE PLAN - 1:1250	February 2011
DRAWN BY:	ORIGINAL SHEET SIZE:
JY/ DH	A2
DRAWING NUMBER:	