

Fire Prevention Plan

Effective 20th October 2023

IN CASE OF A FIRE EMERGENCY GO TO EMERGENCY ACTIONS AT APPENDIX 11

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Fire Prevention Objectives

Sites that store combustible wastes are at risk from fires on sites. These events can pose an environmental risk to receptors off site, both from the smoke plume from the fire and from the firewater or foam/powder runoff created by any firefighting activities. Sites storing combustible materials such as paper, plastics, cardboard and scrap metal are required to have in place a fire prevention plan that follows the standards prescribed in the Environment Agency's (EA) guidance documents – updated 11th January 2021.

This fire prevention plan has been designed to meet the following three objectives:

- Minimise the likelihood of a fire happening;
- Aim for a fire to be extinguished within 4 hours; and
- Minimise the spread of fire within the site and to neighbouring sites.

This is a working document and must be reviewed and updated, in consultation with the EA and emergency services on at least an annual basis, or immediately after an incident or a change to operations.

Who This Guidance Applies to

The EA's Fire Prevention guidance applies to this site as Lincoln Storm stores combustible waste. The combustible wastes include non-hazardous waste and waste metals as detailed within this document.

Who This Guidance Does not Apply to

The EA guidance document does not apply to materials or waste that are: flammable; combustible liquids or gases; hazardous; or dangerous substances stored under the Control of Major Accident Hazards Regulations. The guidance states that these materials should still be considered within the fire prevention plan because of their potential to increase the impact of fire on site. Therefore, the following materials are considered within this plan:

Type	Storage Location	Storage Features
Diesel Oil for Road Vehicle (DERV)	See FPP Appendix 01: Site Plan (drawing 020.1_09_003)	1300L LLDPE Bunded Diesel Tank. Tank is double skinned (ie internally bunded) and capable of containing at least 110% of the volume of the tank (assuming 2000L in this storage tank and 2000 in the 6 diesel generators).
Maintenance Fluids/ Hydraulic Oil/ Engine Oil	See FPP Appendix 01: Site Plan (drawing 020.1_09_003)	4 x 25 litre drums stored within lockable unit away from the permitted area.

Non-permitted waste must not be accepted into the facility and therefore should not present a hazard.

Types of Combustible Waste

The types of combustible waste stored on site are limited to:

- Waste batteries, modules, cells, EV packs and ESS packs (EWC code 16 06 05 other batteries and accumulators);
- Dry cells (EWC Code 16 06 05);
- Aluminium & Copper (also EWC Code 19 12 03);
- Some fractions (eg steel handles) removed to enable processing (EWC Code 19 12 02);
- Polymer (EWC Code 19 12 12); and
- Storm Black product (treated as 19 10 05* for this purpose).

The locations and dimensions of the combustible waste stockpiles are presented within the waste table (**FPP Appendix 03: Table of wastes stored and pile sizes**).

Although the site is permitted to accept and treat a broad range of waste streams, the site currently only accepts a subset of these waste types, specifically those listed above.

Using the Fire Prevention Plan

This fire prevention plan forms part of Lincoln Storm Limited's (Lincoln Storm's) **Operating Techniques and Environmental Management System (OTEMS) (MA10)**. This fire prevention plan (FPP) is a standalone document – it contains all relevant information, site plans and information to be used in a time of emergency. A copy of the FPP is stored within the site office. It is stored in a clearly marked Red Folder, the site file is marked '**FIRE PREVENTION PLAN AND EMERGENCY ACTIONS**'.

All site staff must be able to access the site file at all times, including during an incident. All staff and contractors working on site must be instructed on the content of the FPP and what to do to prevent a fire occurring, including what to do during a fire if one occurs.

All staff must receive training on the FPP. Lincoln Storm must undertake regular exercises to test how well the plan works and they must make sure that all staff understand how to respond.

Table (1) below outlines the FPP related training that must be carried out on site:

All new site staff and contractors (and existing site staff and contractors when the plan is introduced on site)	To be trained on the FPP and emergency actions during site induction (see FPP Appendix 09: Fire Safety Training Programme)
Existing site staff and contractors	To be trained on the FPP and emergency actions every 6 months (on the nearest practicable date to the 1st of the month)
Site Manager to carry out a fire drill and test the fire prevention plan and emergency actions	Every 6 months (or the nearest practicable date to the 1st of the month)
Site TCM and Site Manager	Annual review each year, or earlier if in a response to an incident or change in operational procedures

In addition, the following two individuals are trained as Fire Marshals: Ray Wiggan and Steven Nash.

There is always at least one Fire Marshal present on site during operational hours. The procedures for fires discovered on site are provided both in this FPP, the **OTEMS (MA10)** and on on-site notice boards.

Fire Prevention Plan Contents

This FPP ensures that Lincoln Storm does all that is reasonable to prevent fires on site. The plan forms part of the broader written **OTEMS (MA10)** and includes an assessment of the site's fire risk and the measures in place to prevent, detect, suppress, mitigate and contain fires. This FPP is intrinsically linked to the site's operations and provides the most robust set of actions required to protect from all reasonably foreseeable fire risks.

Site Activities

The activities that are currently carried out at the site as defined under Annex II of the Waste Framework Directive are as follows:

R13: Storage of waste pending any of the operations numbered R1 to R12 (excluding temporary storage, pending collection, on the site where it is produced).

Activities on site currently consist of the receipt, unloading, storage, and despatch of waste batteries for recovery. In practice, sorting does not take place as all waste types received are clearly documented, labelled and visually identifiable. This allows it to be directed easily to the appropriate part of the site for storage. Sorting only occurs, occasionally, to separate discharged cells from charged cells. The waste type itself must always be of the same chemistry (lithium Ion). Wider permitted waste types are not currently accepted on site. This document represents the current waste types only.

The site layout, including where these activities are located is shown at the site plan in **FPP Appendix 01: Site Plan**.

Site Plans and Maps

The site is located within the footprint of the former Worle Quarry, in the area of Kewstoke to the north of Weston-Super-Mare.

The National Grid Reference (NGR) for the site is ST 35142 63205 and the site location is illustrated on the in the sensitive receptor and location plan (**see FPP Appendix 02: Sensitive Receptor Plans (drawings 002.1_9_004/005/006)**). The site layout is shown in the **FPP Appendix 01: Site Plan**.

The site is located in a mixed-use area. The closest residential receptors lie within Worle approximately 25m to the east with further properties to the north, south, and west. Areas of woodland border the site above the quarry to the south and east. Worlebury golf course lies 60m to the west.

The main access to the site is via Lower Kewstoke Road which is located approximately 100m to the northeast of the site. An area of Ancient Woodland called Worle Wood lies 340m to the northwest of the site. The surrounding land-use and receptors are identified on **FPF Appendix 02: Sensitive Receptor Plans (drawings 002.1_9_004/005/006)**. Sources, Pathways and Receptors and are identified in the table below:

Boundary	Description
North	The wider disused Worle Quarry, Lower Kewstoke Road and residential properties within Kewstoke.
East	Areas of woodland and residential properties. Beyond this lies an area of open ground called Lynch Farm Park and allotment gardens
South	Areas of woodland and vegetation, beyond which lies residential properties and Worle Village Primary School.
West	Disused Worle Quarry and commercial/industrial premises, followed by residential properties and Worlebury Golf Course, including the Club House.

The immediate surrounding land use is described in further detail below:

Industrial/Commercial Premises

Industrial works located within the wider disused Worle Quarry site are located adjacent to the site to the north and northwest of the EP boundary. Further commercial/industrial premises are located approximately 400m south, 780m north, and 860m northwest.

Residential Properties

The main residential area of Worle is located to the north, south and east of the site, with the closest residential properties located approximately 25m to the east of the site. There are also further residential properties located within the area of Worlebury Golf Club, approximately 90m to the northwest and 400m to the west.

Holiday Park

Approximately 730m northwest lies Ash Tree Holiday Home Park.

Allotment Gardens

Allotment gardens are located to the east approximately 200m from the EP boundary and approximately 660m to the southwest.

Golf Courses

Worlebury Golf Course and Club House lie approximately 60m to the west of the site.

Educational Premises

Worle Village Primary School lies approximately 300m south. St Martin's C of E Primary School is located approximately 580m southwest, Mendip Green Primary School lies approximately 700m south and Worle Community School is situated approximately 920m south.

Recreational Areas

Playing fields are located approximately 320m northeast, within the residential area of Worle. Worle Recreation Ground lies approximately 780m southeast and a sports facility is located approximately 810m south of the EP boundary.

Agricultural Land/Open Space

Approximately 90m north lies an area of open ground and approximately 240m east lies an area of agricultural land/open space called Lynch Farm Park. A further area lies approximately 390m north.

Church and Graveyard

The nearest church and graveyard is located approximately 280m to the south.

Public Footpaths and Areas for Public Use

There are no public footpaths within or immediately adjacent to the site boundary. The closest paths are located to the east of the site, associated with Lower Kewstoke Road and within the residential areas to the east, north and south of the site. A bridleway runs adjacent to the fence above the Southern quarry wall.

Surface Water Features

No surface water features are located within the EP boundary or within a 500m radius of the EP boundary.

Ecology - National Forest Inventory

Areas recorded on the National Forest Inventory are located adjacent to the south, east and west of the site.

Ecology - Local Wildlife Site

Worle Hill and Worlebury Golf Course Local Wildlife Site (LWS) is located approximately 60m west and extends to the west.

Ecology - Ancient Woodland

Searches on the MAGIC website confirm that there is one area of Ancient Woodland within 1km of the EP boundary. Worle Hill Woods is an area of ancient and semi-natural woodland, located approximately 340m to the northwest of the site.

Searches on MAGIC confirmed that there are none of the following within 1km of the site's boundary:

- Areas of Outstanding Natural Beauty (AONB);
- Special Areas of Conservation (SAC);
- RAMSAR sites;
- Special Protection Areas (SPA);
- Sites of Special Scientific Interest (SSSI);
- National and Local Nature Reserves;
- National Trust Properties;
- Woodland Trust Sites; and
- National Forest.

Cultural Heritage

The review of MAGIC revealed that there are twelve listed buildings within 1km of the site's EP boundary as illustrated on the **Sensitive Receptor and Location Plan (Appendix 2)**. The closest of which is the Grade II listed Worle Tower Observatory, located approximately 110m west at GR: ST 34984 63291.

The Observatory is thought to be late 18th Century, formerly a windmill and converted to an observatory in circa 1876. Further listed buildings are illustrated in Appendix 2. The search on MAGIC confirmed that the following features do not lie within 1km of the site:

- Scheduled Monuments;
- National Parks;
- World Heritage Sites;
- Registered Battlefields; and
- Registered Parks and Gardens.

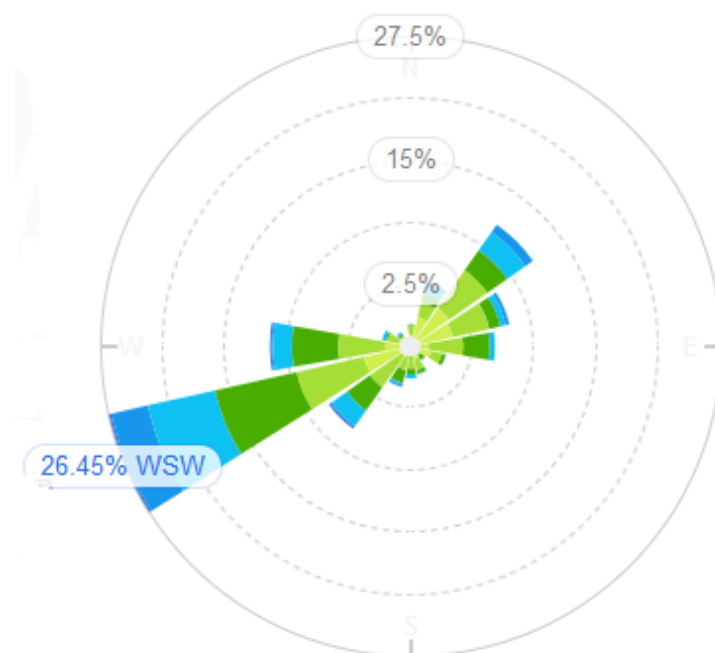
Identified Sensitive Receptors

See **FPP Appendix 02: Sensitive Receptor Plans (drawings 02.1_9_004/005/006)**.

Windrose

A windrose providing the frequency of wind speed and direction from the Bristol Airport Meteorological Station for the period of 2018 is presented in the figure below. The windrose shows that the most prominent wind direction is from the west to the east. Winds from the north, east and south are relatively infrequent. Smoke contains a multitude of combustion products including irritants and asphyxiants which are toxic. These toxic pollutants can impact anyone within 1km of the site and in certain circumstances must have an impact on public health at greater distances than 1km. Smoke will have a significant effect on human health, as detailed within research studies. The smoke would affect the immediate businesses, local houses and the wider industrial and residential areas.

Fig 1



(www.willyweather.co.uk/)

Site Infrastructure Plan

The EA Guidance states that the site plan must show the following information:

- The location and layout of the site buildings, location of fire assembly area, fire extinguishers, fire hose, smoke detectors and PPE storage area. Any areas where hazardous materials are stored on site (location of gas cylinders, process areas, chemicals, piles of combustible materials, oil and fuel tanks). See **FPP Appendix 01: Site Plan**.
- Main access routes for fire engines and any alternative access, access points around the site perimeter to assist firefighting, hydrants and water supplies. See **FPP Appendix 01: Site Plan**.
- Areas of natural and unmade ground. **FPP Appendix 01: Site Plan** shows areas of unmade and impermeable areas.
- The location of fixed plant or where mobile plant is stored when not in use. See **FPP Appendix 01: Site Plan**.
- Drainage runs, pollution control features such as drain closure valves and fire water containment systems. **FPP Appendix 01: Site Plan** shows the site's drainage system, and firewater and spillage containment bunding.
- Storage areas with pile dimensions and fire walls (where applicable) – includes wastes stored in a building or containers. Including quarantine areas. **FPP Appendix 01: Site Plan** shows site layout, storage area configurations, including combustible waste storage and quarantine area¹.

Emergency Services:

- **Avon Fire & Rescue Service**, Milton Avenue, Weston-Super-Mare, Somerset, BS23 3JS, 2.4 miles from the site, 7 minutes travel time.
- **Town Hall Police Station**, Town Hall, Walliscote Grove Road, Weston-Super-Mare, BS23 1UJ, 3.3 miles from the site, 10 minutes travel time.
- **Weston General Hospital**, Grange Road, Uphill, Weston-Super-Mare, BS23 4TQ, 5.1 miles from the site, 15 minutes travel time.

Manage Common Causes of Fire

Arson

The site benefits from a continuous presence of staff during operational hours, currently between 7am to 7pm Monday to Friday. In addition, there is a nighttime security guard or member of staff resident on site on an on-call basis during 7pm to 7am Monday to Friday, as well as Saturday and Sunday (24 hours split shift between two security guards/staff – staff on rotational basis at weekends) which was a new measure introduced due to an arson attack that took place on the 18/03/2023.

¹ Please note that the storage plan for each ten and for the large shed are provided with the Site Plan in Appendix 1. These storage plans are provided for the current storage layout for stock as at 20th October 2023 and for the target layout for when material has been exited (expected to be by 31st December 2023) now that the ABE and TFS approvals are in place.

Security features on site includes:

- 1.8m high perimeter fencing surrounding the site, including above the quarry face (along the bridle way);
- Access gate controlled by Lincoln Storm staff with keypad access controls (passcode changed regularly);
- The site is enclosed by the sheer quarry face;
- CCTV system with intruder detection (motion) and thermal imaging, both of which notify staff on call remotely if activated and/or thresholds are triggered;
- Presence of a security guard or a resident member of staff outside of operational hours (rotational weekend presence on site); and
- Combustible waste is stored within the buildings and protected from external arson attacks.

All visitors and contractors are required to sign in and are escorted by a member of staff. CCTV is accessible to site operatives throughout the working day, and remotely viewable on mobile devices at all times. If a breach in security is detected site operatives/the security guard must contact the Site Manager or their deputy and the emergency services as appropriate, both inside and outside of operational hours.

All security measures on site are inspected at the commencement of every working day by site operatives to ensure their continued integrity.

Any defects or damage which compromise the integrity of the enclosure must be made secure by temporary repair by the end of the working day. Permanent repairs must be made within a maximum of 5 days.

In the event of a breach of security at the site, the cause is investigated, and appropriate mitigation measures implemented, such as repositioning of CCTV cameras, repair of security infrastructure, and/or additional deterrents. This is recorded in the site diary. Records maintained include inspections and maintenance of perimeter fencing and gates, doors and locks, breaches of security, investigations and actions taken.

There is a lockable maintenance storage unit building at the approach entrance at the North of the site containing paints, gas cylinders, oils and lubricants.

Mobile Plant and Equipment

Mobile plant and equipment consists of:

- x5 Forklift Trucks; and
- x1 Battery Handler Apparatus.

Mobile Plant and equipment are checked daily before use and regularly maintained as part of Health & Safety Procedures and in accordance with the manufacturers' guidelines. Maintenance is recorded daily and weekly (depending on the maintenance requirements) and recorded on the plant maintenance sheets. Any faults or problems noted during the daily checks are reported either directly to the manager, or in his absence, to the site manager so that the problem or fault can be rectified. Again, actions must be recorded using the sites defect sheet. Fire extinguishers are strategically located around the site to ensure that fires can be dealt with swiftly.

Mobile plant must be cleaned down daily to remove dust build up, fluff and any other potentially combustible materials.

Mobile plant that is not being used, is kept a minimum distance of 6 meters away from combustible materials. Mobile plant must be fully isolated at the end of every working day. Outside operational hours, mobile plant (other than the generator and battery handling apparatus) is kept offsite in the locked maintenance unit at the North entrance to the site approach road.

Fixed Plant (non-operational)

There is fixed plant on the site which is not currently operational except for maintenance. The layout of this plant can be seen in the site plan (bottom left). Maintenance is typically done weekly.

Fixed Plant (drainage and sealing)

The site's drainage and sealing arrangements are shown in the site plan at Appendix 1. These arrangements comprise:

- A surround (other than where the fall line does not require it) of sealed (bunded) concrete blocks which ensures any surface water runs into the drainage system.
- Aco drains leading to the sub-surface drains, which, in turn flow into two large concrete bottomed interceptors. These interceptors receive run off from all drains in the quarry.
- The final interceptor is fitted with a pump. The pump is activated by a float and when the float rises to the specified level (below the pipe leading to the – now sealed – soakaway) the pump activates.
- The pump pushes water through pipes to a 100,000-litre tank. The tank is emptied (by tanker) when it approaches 50,000 litres.

The Plant Manager is responsible for all aspects of plant maintenance for safety, preventative maintenance, and fire and pollution prevention.

Fixed plant: fire system

The site's certified supplier for all fire detection and suppression matters, Multi-Security, perform regular checks, at least annually and more frequently for some systems (eg ceiling mounted powder units). Certification is shown in [FPP Appendix 4](#).

Electrical faults including damaged or exposed electrical cable

All buildings have been wired by a qualified/certified electrician and daily checks are carried out on all portable hand tools and electricals. Fixed electricals are protected from the operation's activities but must undergo a full inspection every 2 years. In addition, an electrician must carry out annual checks on all electrical equipment as part of the PAT testing regime. This must also be recorded on the Maintenance Logs.

If cables are Identified as damaged, procedures are in place for reporting damage to cables to ensure isolation to these areas. The TCM or site manager is responsible for making these checks and instigating repair works.

Lincoln Storm uses the following Electrical Services contractors:

- Prestige Building Specialists Ltd - 8A The Glen, Weston Super Mare, BS22 9RN (Ph: 07713 675690)
- Mike Henderson Electrical Testing and Inspection – ECS Number C0216860
- Crawfords Electrical Repairs Limited

Discarded smoking materials

A no smoking policy is enforced on site with clear signage prohibiting it. The designated smoking area is a safe distance away from combustible wastes to prevent accidental ignition. Smoking materials, lighters and matches must not be taken in to the storage tents, or treatment buildings. The location of the smoking area is illustrated on [FPP Appendix 01: Site Plan](#).

Hot Works

Hot works are not an intended activity for the site. They should be carried out offsite in the maintenance unit.

However, if for any reason hot works need to be undertaken (e.g. using cutting equipment for engineering works on the fixed plant) then this activity must be carried out in a controlled setting due to it giving rise to sparks and through generation of heat. A permit to work system is in operation to factor in the risks and to plan and approve any activities that may involve ignition and heat sources.

Such works must only take place when all shut down procedures in the building have been performed, cleaning has been carried out and a full visual inspection of the plant and work area(s) has been carried out ('two pairs of eyes'). Lithium fire extinguishers must be manned and on standby during the works.

A fire watch must take place after the hot works are complete, operating until residual heat has dissipated. A hand-held thermal imaging camera must be used to detect any residual heat. Once the heat has dissipated, the components must be placed into storage. The permit to work must dictate what firefighting equipment will be needed. Waste and other combustible materials must be placed a minimum of 15 metres away from any hot works. Heat/spark screens/curtains must be erected around the hot works area.

Industrial space heaters

No industrial space heaters are to be utilised on site.

Hot Exhausts

Vehicle engines are turned off when not in use and stored outside, at least 6m away from combustible waste storage areas. Consideration is given to the high-risk time for hot exhausts (one hour after switching off when dust can settle on hot surfaces). Vehicles and plant are switched off at least 30 minutes before the end of the day, for them to cool down prior to site staff leaving site. They are also cleaned daily to remove any dusty materials. A fire watch is conducted via visual assessment at a minimum frequency of twice every working day to detect any signs of fire caused by dust settling on hot vehicle exhausts or engine parts. A visual assessment is also conducted at the end of the working day.

The hot exhaust fire checks must be recorded as follows:

Fire watch visual inspection on plant and exhaust parts (and using heat detection camera on stockpiles)	Date	Time	Actions Taken	Signature
Fire Watch 1		12:00		
Fire Watch 2		16.30		

Sunlight and hot/dry weather

Due to the possibility of heating of waste by the sun, no wastes must be stored outside or inside in direct sunlight. Activities must only take place within the buildings or 4-sided tents to prevent access, rain ingress, direct sunlight and to prevent windblown wastes escaping. Temperature checks are taken 3 times daily in all storage areas, using a handheld thermal scanner, and monitored by remotely accessible thermal imaging cameras.

Ignition Sources

Potential ignition sources include hot exhausts and engine parts and discarded smoking materials (all described above). All ignition sources must be kept a minimum of 6m away from the storage of combustible and flammable wastes. A risk assessment must be made on all new sources of ignition to ensure that they are required on site or if other items of equipment should be used instead (to reduce requirement for items which carry inherent risks).

Batteries

The site accepts, stores and processes waste batteries (EWC code 16 06 05, other batteries and accumulators) and other materials as set out in the waste table (**FPP Appendix 03: Table of wastes stored and pile sizes**). Batteries are stored on impermeable surfacing, undercover in sealed buildings and tents and in appropriate packaging to prevent them from coming into contact with any liquids or being damaged. Storage locations are illustrated on **FPP Appendix 01: Site Plan**. Appropriate packing includes: boxes, bags (loose material) and sealed plastic or metal drums (220L) for portable lithium ion batteries (drums may be stored four to a pallet).

Damaged batteries are minimised/identified by:

- The site's waste acceptance procedures which require operatives to visually inspect every battery module prior to placing it into storage.
- Contracts with the Original Equipment Manufacturers (OEMs) to supply undamaged batteries.
- Good handling techniques during the offloading process to ensure batteries are not damaged by the forklift.
- Site operatives are trained to identify characteristics of damaged batteries.
- Thermal Checks carried out on each battery module during the offloading process.
- All transported batteries comply with strict ADR regulations.

If a battery is identified as damaged or potentially damaged, it is immediately moved to the designated quarantine area. Batteries identified as unsafe for storage are processed as a priority. Further details of battery storage arrangements are described below.

End of Life Batteries in Plant

All staff must ensure that batteries are disconnected in plant that is not being used for the foreseeable future to eliminate the risk of the plant short circuiting and causing a fire. All end-of-Life batteries from plant must be placed into suitable lidded battery boxes with an acid resistant base. Batteries must be stored upright (contact points facing upwards).

If batteries are identified as damaged, they must be isolated away from other batteries of the same chemistries. These batteries (likely to be lead acid) must be stored separately from lithium-Ion batteries. It is not intended that batteries of non-lithium ion chemistry will be stored at the site and so any lead acid or other battery chemistry types will be only associated with mobile plant or other vehicles.

Leaks and spillages of oils and fuels

All fuels and lubricating oils/fluids are appropriately stored. The DERV tank is surrounded by an internal leakage containment bund capable of containing at least 110% of the volume of the tank. Bunds are impermeable and resistant to stored materials. Inspection of any spillages or leaks from containment must be completed at least once per shift by a site operative. The results of all daily and weekly monitoring must be recorded in the site diary, as well as any remedial actions. In the event of any potentially polluting leak or spillage occurring on site following actions must be taken:

- Minor spillages must be cleaned up immediately, using sand or proprietary absorbent. The resultant materials must be placed into containers and must then be removed from site and disposed of at a suitably permitted facility. The incident must be logged in the site diary.
- In the event of a major spillage, which is causing or is likely to cause polluting emissions to the environment, immediate action must be taken to contain the spillage and prevent liquid from flowing outside the EP boundary. The spillage must be cleared immediately and placed in containers for offsite disposal, and the EA must be informed by calling the EA incident hotline. The site's bunded barrier is critical to the management of major spillages and its structure and operation is described later in this document.

All equipment and plant are inspected on a daily basis for leaks. The bunded steel storage tank is shown in the photograph below.



Buildup of loose Combustible Waste, Dusts, and Fluff

The site must be inspected regularly for the build-up of loose combustible waste, dust and fibres. This material must be removed from site on a regular basis, and immediately if near a source of ignition or heat. The frequencies, and recording format, are outlined below, and records held by the Site Manager:

Inspection to assess the build up of loose wastes, dusts and fluff	Date	Time	Actions Taken	Signature
Loose waste inspection 1		12:00		
Loose waste inspection 2		16.30		

- The risk of the build-up of combustible waste, dust and fluff is low due to the following measures implemented on site.
- All incoming waste is off loaded directly into the storage areas to minimise unnecessary handling and transport distance therefore minimising the potential for wind-borne dust.
- All plant and equipment is subject to a programme of planned preventative maintenance which follows the inspection and maintenance schedule recommended by the manufacturer. This includes corrosion prevention where applicable.
- All areas are cleaned frequently (scheduled to be daily) using H Class Vacuum Cleaners.
- Site access roads and external operational areas are maintained and swept regularly to reduce dust generation.
- Daily visual inspection of the site and site boundary is carried out by site personnel.

Reactions Between Wastes

All batteries are stored in appropriate weather resistant boxes on pallets, under cover to prevent them from coming into contact with any liquids or being damaged. The waste storage areas are engineered to be impermeable and sealed.

The location of the storage areas is illustrated on FPP Appendix 01: Site Plan. Strict waste acceptance procedures implemented on site ensure that only permitted wastes are accepted. All incoming loads are booked in advance with the logistics manager who records the source category and chemistry of the load to be delivered (all batteries are lithium ion). When the waste arrives on site the load list and paperwork are checked against the received waste, and the weight and description of goods is verified against the load list, at the incoming weighbridge. Incoming loads and packages are visually inspected for quality, damage and discrepancies by opening the packaging to check that the material conforms with the EWC codes and description of the material on the weighbridge. Thermal readings are also taken. Unauthorised wastes are immediately placed into a quarantine area (and marked with a quarantine sign). The site manager notifies the customer of the non-conforming material within 24 hours of receipt, and where the material is not permitted, arrangements must be made to return the material to the customer at the customer's expense. This will be notified to the EA.

The environmental permit is broad in nature. However, Lincoln Storm only accepts a small subset of codes. The site does not accept loose combustible wastes (in which/where non-compliant waste could be disguised) therefore the risk of a reaction between the wastes is negligible. Care must be taken to ensure that any non-conforming wastes found within loads are stored in an appropriate manner; for example, by avoiding the storage of incompatible wastes such as oxidisers and flammable material together. The quarantined wastes must be checked daily as a precaution.

Additionally, the small subset of waste streams accepted by Lincoln Storm are extremely valuable. Lincoln Storm only accepts waste on a contractual basis. It is not an open disposal site.

Deposit of Hot loads

No burning, reactive/reacting or visibly hot (producing steam, smoke or heat) loads are accepted on site. Each load is visually inspected at the incoming weighbridge to ensure compatibility with accompanying delivery notes. Site operatives undertake a visual inspection for signs of heating such as steam and smoke and take thermal readings

at the incoming weighbridge. This minimises prohibited wastes and the acceptance of hot loads. Instructions are given to suppliers to ensure no hot loads are accepted on site. Should a hot load be deposited on site, it must immediately be removed to the dedicated quarantine area and extinguished immediately. Any fire damaged waste must be removed from site as a matter of priority to a suitably licensed facility for disposal.

Hot loads are only expected to arrive on site if a battery module is damaged in transit. Damaged batteries are minimised/identified by:

The site's waste acceptance procedures which require operatives to visually inspect every battery module prior to placing it into storage.

- Contracts with the OEMs to supply undamaged batteries.
- Good handling techniques during the offloading process to ensure batteries are not damaged by the forklift.
- Site operatives are trained to identify characteristics of damaged batteries.
- Thermal Checks carried out on each battery module before offloading begins and during the offloading process.
- All transported batteries comply with strict ADR regulations.
- The site primarily accepts discharged cells which carry a negligible level of risk.

If a battery is identified as damaged or potentially damaged, it is immediately moved to the designated quarantine area. Batteries identified as unsafe for storage are processed as a priority. Further details of battery storage arrangements are described below.

Storage of Fuel, Oils and Maintenance Fluids

Procedures must be in place to ensure safe storage of fuels and fluids associated with maintenance. Guidance must be taken from the HSE and the fire and rescue service.

Hazardous materials such as maintenance fluids must be stored within the offsite maintenance unit - to reduce the associated risks. Fluids must be stored in appropriate containers and must be located within bunds. They must be located away from likely sources of ignition, away from the perimeter of the site, away from processing areas and out of the direct line of traffic. Maintenance Flammables and oxidizing wastes must not be stored together.

DERV is Stored within a 1300L tank within a secondary container (ie it is internally banded), to comply with the relevant oil storage regulations. Situated to the outside of the building the storage must be covered by CCTV. A fire within this zone must be deemed an emergency and the emergency services must be called immediately, and the site evacuated).

Prevent Self-Combustion

The most effective way to reduce the impact from fires on site is to prevent them from occurring in the first instance. Managing storage times, pile volumes and height, and the temperature of the wastes can prevent the self-combustion of wastes.

The locations, sizes and composition of the stockpiles are presented within **FPP Appendix 03: Table of Wastes Stored and Pile Sizes** and **FPP Appendix 01: Site Plan**. The tables show the current (October 2023) and target (December 2023) storage configurations.

Self-combustion of waste on site is not considered to be a significant risk due to the storage times (under normal operational conditions) and because waste is held in dedicated storage areas. All waste types are stored in dedicated storage tents. All wastes stored within the tents are either stored in boxes, ADR compliant bags or within the OEM's purpose-built battery storage rack or (for portable lithium-ion batteries) 220L sealed plastic or metal drums.

The controls in place to reduce the risk from fire are summarised as follows:

- No loads are removed without an onsite operative in supervision;
- No material is stored in direct sunlight.
- Remote automatic monitoring with thermal imaging cameras
- Schedule of manual thermal checks
- A visual fire watch is performed as the loads are received and unloaded; and
- Quarantine areas are kept available. Should the wastes be found not to conform during the initial visual inspection, then the details must be recorded, and the vehicle turned away. If wastes have already been discharged and are deemed not to conform or otherwise not be permitted, then the waste must be:
 - Removed to a designated quarantine area and marked with a quarantine sign; and
 - The site manager must notify the customer of the non-conforming material within 24 hours of receipt and arrangements must be made to return the material at the customer's expense.

Storage Times

All storage times are detailed in **FFP Appendix 03: Table of wastes stored and pile sizes**).

Waste Storage

Incoming Batteries are delivered and unloaded into the designated area via a forklift truck. The waste is then transported to the storage area. The traditional 'stock rotation' to dissipate heat from the waste is not required due to the inorganic nature of the waste. It is also considered to heighten the risk because the battery modules could get damaged if continually handled unnecessarily. The storage areas for all materials are shown in the storage plans in Appendix 1. A photograph of a storage tent is provided below (showing the quarry wall). Where storage tents are within 6 metres of other buildings, fire barriers (in the form of fire sails) will be installed. Where waste is stored adjacent to the quarry face (for temporary storage only) this is considered appropriate as the quarry wall is not combustible.



Containers

Batteries are stored in two forms: (a) in the packaging supplied by the manufacturer or supplier, which is fibreboard with the batteries inside each box surrounded by packaging material (this is critical to ensure terminals are separated) and which have the UN ID Number UN3480; and (b) for Electric Vehicle batteries ('EV packs'), these are contained as a steel unit (entirely weatherproof) and stored in a metal frame with a fibre board or wooden side. **No batteries are stored in bags.** UN approved Fibreboard packaging used by our suppliers is coded as follows: 4G/Y43/S/23/D/BAM, 4G/Y35.6/D/BAM, 4G/Y110/S/22/ROK/KOMDI, 4G/Y210/S/22/CN/C232507. The first section of the UN code (4G) confirms these are fibreboard boxes, and the section (packing code Y) confirms that the contents are in packing group II ('medium degree of danger')². Note that the use of fibreboard and/or wood is a deliberate safety measure given lithium-ion battery fires will melt plastic and steel and will mean the fire burns for longer.

This packaging provides a very limited containment for each battery and does not exacerbate the fire risk (even given the combustibility of fibreboard or, in the case of EV batteries, the wooden or fibreboard sides). In practice the alternative to this packaging, which is industry standard for these batteries as products and for dangerous goods / ADR purposes, would be to put each box in another fireproof container. We do not consider that this is necessary, particularly as the packaging does not exacerbate the fire risk and for reasons why this material is used as explained above. These boxes all have interior packaging, as mentioned above. No fibreboard boxes will be stored outside a tent or building (unless empty and not for further use at the site). Where fibreboard storage boxes are used, they are stored on pallets in the storage area. We have not yet detected any water ingress through the interior packing. As part of our improvement programme, we will double stack wooden pallets (i.e. put a layer of two pallets at ground level) with a waterproof layer between the two, or use plastic or metal pallets.

The diagram and photograph below (taken from the US guidance) shows the packaging requirements for UN3480 items.



The photograph below shows a lithium-ion industrial battery pack of the type stored in these boxes.

² The US Department of Transportation's Pipeline and Hazardous Materials Safety Administration's (Revised June 2023) '[Lithium Battery Guide for Shippers: A Compliance Tool for All Modes of Transportation](#)' summarises US regulatory transport requirements as follows: "(1) Cells and batteries must be: Protected against short circuiting. This means that terminals must be protected! Placed in non-metallic inner packagings that completely enclose the cell or battery and separate them from contact with electrically conductive materials (e.g., metal) in the packaging. Packed to prevent shifting that could cause damage to the cells or batteries within the outer packaging. (2) The outer packaging must be a UN specification packaging meeting Packing Group II performance requirements. Remember, all packaging instructions provided by the packaging manufacturer must be followed! Alternatively, instead of a UN specification package, lithium batteries with a mass of 12 kg (26.5 lbs) or more with a strong, impact-resistant outer casing, may be packed in strong outer packaging (such as crates) or banded to pallets or other handling devices. Batteries packaged in this way require Associate Administrator approval for air transport". They must have the following hazard communication: "Class 9 Lithium Battery label; Cargo Aircraft Only label (if being shipped for air transport; UN ID number – UN3480; Proper Shipping Name mark – "Lithium ion batteries"; Consignor (shipper) or Consignee (recipient) name and address; When overpacked (e.g., authorized outer packagings are further packaged or consolidated by any means), the Class 9 Lithium; Battery label, Cargo Aircraft Only label (as applicable), UN ID number, and Proper Shipping Name must be visible or replicated on the overpack". In addition: "All employees involved in the shipment, including preparation for shipment are subject to...hazmat employee training requirements...Shippers must prepare and offer a hazardous materials shipping paper prepared in accordance with subpart C of part 172 of the HMR (§§ 172.200-205). Emergency Response Information and Emergency Response Telephone Number – Shippers must provide the appropriate emergency response information and emergency response telephone number per subpart G of part 172 of the HMR (§§ 172.600-606). The inner packaging must completely enclose the cells or batteries in the package. The inner packaging may also be used to meet protection against short circuiting/terminal protection requirements. Protection against short circuiting/terminal protection is an important aspect of packaging. Any method is acceptable, provided this important performance requirement is met".



The photograph below shows an EV pack (fully sealed against adverse weather, in its steel frame (surrounded for transport and storage by wood or fibreboard) and stacked packs.



Other material is stored in bags. For the current bags, these are a standard bulk bag with a liner, usually sold to companies using fine powder or expensive products they want to keep in a high-quality condition.

They have the following parameters:

- 95x95x170cm FIBC 150gsm 30%rPP, 4x25cm Loops, 35x45cm Fill Spout + Tie
- Plain Base, 75micron Liner bag only (not fill spout)
- Sewn in with 4 tabs top and bottom sewn
- SWL (Safe working load) 2,000kgs
- SF5:1, Printed 4 sides 2 Colours (2 Prints "Lincoln Storm")

These are SF5:1-Most woven polypropylene bulk bags are manufactured for one use/one trip (which is how they are being used at Lincoln Storm). These single use/single trip bags are rated at a 5:1 safety factor ratio (SFR) which means that they have the ability to hold five times the amount of their safe work load (SWL). As described in the continuous improvement section, in terms of storage, we will be transitioning from SF5:1 bags to SF6:1 bags and considering whether to further use flame retardant bags. These would have the following features: Cross corner loops, 220gsm coated fabric; Reinforced top perimeter; Petal Closure discharge spout; 100 Micron form fit liner glued & tabbed; Document pockets; SWL 1,500kg; 6:1 Safety rating; and UN Approved printing Type and UN approved certificate.

A photograph of a storage bag is provided below.



Storage of Batteries

The Batteries must be stored no higher than 4 metres and be accessible in the event of a fire. If thermal monitoring indicated an increase in temperature to which it must be quarantined. The Site Manager's daily report on waste storage records the time that waste has been in storage and any issues.

Storage of waste metals and polymers

Waste metals and polymers should be stored on site for no longer than 30 days. Due to the value of metals (copper and aluminium), these must be removed from the site as soon as possible to prevent the risk of theft. However once a full load is prepared, transport must be arranged for its removal.

Use of Forklift

The forklift truck should also be used to access the waste if there is a fire. The forklift should move the waste away from the fire area to prevent the fire spreading. Staff on weekend rotations must be forklift qualified.

Removal

Lincoln Storm can demonstrate that the stored processed waste is removed from site on a regular basis. Lincoln Storm has multiple contracts and outlets in place to prevent waste being stored on site for an excessive period of time. If a situation evolved where a current outlet stopped trading, Lincoln Storm would either transfer their waste to another waste management company (many of whom have a historic working relationship with Lincoln Storm), or to partner facility in Europe or the USA.

Storage of other materials

Some other materials, other than battery materials, can self-combust. This means that as they degrade through oxidation they can generate heat. This heat can build to a point where the stack of material can catch fire on its own. These materials include:

- smaller size or graded materials either stored or mixed; and
- Material that has not had potential hazards removed before stacking e.g. exposed rust (which can generate heat).

For all materials, the following operational procedures must be performed, to ensure that the waste is on site for no longer than 30 days:

- Rejected wastes must be recorded and must be stored within the quarantine area, a record must be kept within the site office;
- Authorised wastes must be processed on site and stored within an appropriate area of site;
- Stock must be treated and despatched from the site in the order of when it arrived on site (although stock that is a potential risk must be removed as priority as outlined above), this is to reduce the risk associated with storing combustible materials; and
- A daily inspection must be undertaken by the TCM or a qualified member of staff. If there is any doubt as to the condition of the material, the material must be removed from site as priority;
- A weekly review of the storage times and the stockpiles must be made by the Authorised Person (Site Manager or TCM). An end-of-stay stock location (by storage area) and stock level schedule is produced daily to accompany the site manager's daily site diary and checklist.

This FPP is a live document and must be updated throughout the life of the site, and the updates must detail any increase or decrease of importation quantities and must incorporate the most recent EA Fire Prevention Plan updates. Any proposals to amend the FPP and associated management system must first be submitted to the EA and emergency services for comment, review and (where required) approval.

Monitoring and control of temperature

The site is continually manned during operational hours. Staff are trained in how to identify fires and fire hazards on site. During operational hours, the temperature of all waste storage is checked at 3-hour intervals by site operatives, using a handheld infra-red thermal imaging gun to detect any temperature increase. The inspections are documented in the site diary, and all findings are logged.

Remote thermal imaging cameras are also installed in all covered storage areas. These trigger a notification to on-call staff if temperatures go above a set threshold (40°C)³. Positioning of a thermal camera in storage tent and an image of a storage area are shown below.

³ The figure of 40° is considered precautionary and is consistent with the regulations for safe battery storage prescribed by the Electric Power Research Institute of the State Grid Henan Electric Power Company, as reproduced in 'Reuse and Recycling of Lithium-ion Power Batteries, by Guangjin Zhao of the Laboratory of Grid Waste Treatment and Resource Recycle Technology of the State Grid Corporation of China, published by Wiley (2017). This is considered to be a reliable source. The requirements (all followed at the site) are as follows: "(1) The spent batteries shall be classified for storage. The storage of different types of spent batteries shall have different environmental protection marks and technical specifications. Recyclable wastes and non-recyclable wastes shall be separated for storage. (2) To avoid rain and water immersion, do not pile up spent batteries in an open area; no other articles may be placed in the storage area for spent batteries in batch. Relevant firefighting equipment and safety signs shall be equipped. (3) The spent-battery storage area shall be kept out of the sun and in the shade. The storage area shall be roomy with good ventilation. A certain distance shall be maintained between batteries for ventilation and heat dissipation. The environmental temperature of the storage area shall not be higher than 40 °C. It shall be cleaned every 3–6 months to make sure there is no leakage. Safety detection or de-electrification pretreatment shall be conducted prior to the storage. (4) Intact and damaged spent batteries shall be separated for storage. Storage construction and management shall be conducted strictly in accordance with standards for the damaged batteries. (5) The maximum storage duration of spent batteries shall be no longer than 1 year. In special conditions where the storage duration needs to be extended, application shall be submitted to the relevant environmental protection administration. (6) Necessary environmental protection measures such as anti-pervasion measures, anti-runoff measures, and anti-leakage measures shall be provided in the spent battery storage area. Necessary technical measures for pollution control shall be taken".



It is important to note that when we take measurements using thermal imaging, we are taking a measurement of the ambient temperature close to the battery material and not within the battery material. We are, in particular observing the relative difference in temperature: (a) between the material and the ambient temperature; (b) between the material and the other equivalent material around it; and (c) the material between measurement periods.

If a temperature of above 40°C is detected, the actions described in the table below⁴.

Temperature (°C)	Actions needed
0 - 40	No Actions Required
40 - 50	Report to management and continue monitoring on an hourly basis
50+	Immediately remove waste from the stockpile to the quarantine area and report to Management and continue to monitor each 5 minutes to ensure the material remains safe and the temperature begin to reduce to acceptable level.

All material storage areas are visually inspected by site operatives throughout the day and all findings are logged in the site diary as a minimum. Should signs of self-combustion be identified such as steaming/smoulder/smoking, the pile must be removed to the quarantine area using suitable mobile plant and a lithium-Ion fire blanket to be placed over the battery to dissipate heat and reduce exposure to oxygen. Checks of the affected stockpile must be increased to half-hourly for the remainder of the day to ensure no further hotspot development occurs. All wastes received on site are identified by a unique batch number. The entire batch must be targeted for monitoring.

Manage Waste Piles

All incoming waste is accepted and stored in appropriate weather resistant boxes on OEM designed pallets, in sealed plastic or metal drums or UN approved bags, within the designated covered storage areas (as illustrated on the site plan at **FFP Appendix 01: Site Plan**).

⁴ The top five highest temperatures in 2023 were: 52.7, 49.9, 47 and 43.8 on the 22/06/23; 43.8 and 43.3 on the 21/06/23. From May to August there were 64 occurrences where the temperature rose above 40, generally on the same days, and mostly from the Large Shed prior to installation of a front wall given direct sunlight. These were: 12 x on the 12th June, 9 x on the 14th, 7 x on the 15th, 10 x on the 16th, 10 x on the 22nd. Since these temperatures were recorded, the thresholds of the site have been lowered and are now as set out in the table.

All stacks and piles of wastes must be stored in a manner that allows emergency vehicular access to the whole site at all times and must meet the standards for maximum height, width, length, volume, area and separation for fire breaks in accordance with the relevant guidance (11th January 2021 updated edition). However, all material should be stored inside buildings or tents unless being unloaded or loaded.

FPP Appendix 03: Table of wastes stored and pile sizes provides information on the amounts of combustible waste stored on site, as well as the storage arrangement, height, volume, and particle size. The layout of the pile sizes is also provided in **FPP Appendix 1**, for each storage area.

Waste piles must be managed carefully to help to prevent the risk of self-combustion and limit the scale of a fire if one breaks out. Wastes that are shredded are not kept in their largest form to reduce the risk of fire. It is imperative that these stockpiles are managed to reduce the associated risks.

Under normal operating conditions, waste must be processed within 30 days of receipt on site. Once the waste has been processed, it is removed from site as soon as possible. Lincoln Storm's tracking system allows the site manager to record how long waste is stored on site for. This ensures that the 'first in first out' principle is applied.

All wastes must be stacked no more than 4 metres high. The entire site surface is impermeable. There is no uneven or unsurfaced ground beneath the waste.

The TCM or their deputy must carry out daily checks to assess the size of the stockpile and the separation distances, to ensure that the dimensions outlined within **FPP Appendix 03: Table of wastes stored and pile sizes** are adhered to. When the stockpiles reach capacity, measures must be implemented to slow the input of material into site and increase outputs until stocks can be reduced.

Lincoln Storm must not accept incoming wastes beyond the capacity of the pile size; this must ensure that the volume of waste accepted on site can be managed in a controlled and safe manner.

Where Maximum Pile Sizes do not Apply

All wastes stored on site must comply with the maximum pile sizes as per the EA Guidelines.

Preventing Fire Spreading

Waste must be stored within designated storage areas as illustrated on the site plan (**FPP Appendix 01: Site Plan**). 6m separation distances between waste storage areas must be implemented at all times where there is no fire resistant barrier.

Waste metals produced on site must be stored maintaining adequate fire breaks. A fire water calculation must ensure there is enough fire water resource to extinguish the largest stockpile of metallic waste (see below).

The immediate procedure for handling a fire or heat event in a storage area with lithium-ion batteries is to cover the container with a lithium-ion fire blanket (in-situ or, if safe to do so, having separated the pallet from its storage point), lithium-ion extinguishers used if there is fire, before moving the material to a quarantine area.

The layout for storage areas is shown in the plans in **FPP Appendix 1: Site Plan**.

Quarantine Area

The quarantine areas must be used to place burning wastes (if appropriate) to extinguish them. They may also be used to hold unburnt wastes if the burning waste is in another area of the site and cannot be relocated to a quarantine area.

The quarantine areas are located within the permit boundary. As shown on the site plan these areas have an impermeable surface and are within the sealed/bunded area.

Dependent on the size and location of a fire, the mobile plant on site is capable of quickly clearing an area around the burning waste to provide a flexible quarantine area. The specified quarantine area must be kept clear at all times (unless being used in the event of a fire). The quarantine areas must remain accessible at all times.

In the event of a fire, the following procedure must be put in place:

- During a fire event, the Authorised Person (Site Manager or TCM) or his Appointed Deputy must inspect the quarantine area.
- Mobile plant must be utilised to move temporarily quarantined material.
- As described above, the container should be covered with a lithium-ion fire blanket (in-situ or, if safe to do so, having separated the pallet from its storage point), lithium-ion extinguishers used if there is fire, before moving the material with mobile plant to the quarantine area.
- The quarantine area has a 6-metre stand-off from the tents, building and wastes.

For operational reasons the site has two flexible potential quarantine areas which can be used for fire management and non-compliant waste. The location of the quarantine areas is illustrated on **FPP Appendix 01: Site Plan**.

The quarantine areas are capable of holding up to 600 m³ across both quarantine areas. See **FPP Appendix 01: Site Plan** for locations.

In the event of non-compliant waste being identified it must be immediately moved to the nearest quarantine area and marked with a quarantine sign. The site manager must notify the customer of the non-conforming material within 24 hours of receipt, and arrangements must be made to return the material to the customer at the customer's expense. For operational reasons, the location of the quarantine area is flexible and default locations of the quarantine areas are illustrated on the site plan. Combined, the quarantine areas, can contain at least 50% of the largest waste storage area on site during normal operating conditions, to facilitate the dousing of waste with the relevant fire extinguisher/smouldering of waste and the separation of unburnt waste for both waste stored internally and externally. Appropriate PPE must be worn by site operatives. The placement of the quarantine areas is based on the following factors:

- It allows for the prompt and direct removal of smouldering, or fire damaged wastes from the waste storage areas and to allow access by the Fire & Rescue Service (FRS); and
- Avoid proximity to flammable liquids – the quarantine area is situated at least 6m from any potentially flammable liquids on site such as the diesel tank.

As part of our improvement programme, we have installed a 20 foot container in the quarantine area., to hold quarantined waste if required.



Procedure for using the Quarantine Area

The Site Manager instructs all site operatives when and how the burnt or burning waste, or any hot loads delivered accidentally to site, must be moved to the quarantine area. The following procedure must be implemented on site:

- When it is safe to do so, the waste must be moved by on site plant to the quarantine area; The movement of the waste must be overseen at all times by the Site Manager or TCM to minimise any spillages and ensure the area is not overfilled.
- To limit any spillages, plant must not be overfilled when moving the waste.
- The burning or smouldering waste must be doused using the relevant fire extinguisher and covered with a lithium-ion fire blanket.
- Burnt waste must be taken off site to a suitably permitted facility within 7 days (or sooner depending on WM3 assessment requirements). All site operatives must be trained to follow this FPP, and all procedures listed in the above sections.

Detecting Fires

The site benefits from a fire detection system fitted with smoke detectors and call points linked to the fire alarm, throughout the buildings. The waste storage tents are fitted with domestic wireless smoke detectors and thermal imaging cameras⁵. If the detection system is activated, the alarm will sound, and site operatives must call the FRS during operational hours. Outside of operational hours security or the on-site member of staff would call the FRS followed by the nominated site contact. The nominated site contacts would be the on-duty Fire Marshal as listed below:

- Ray Wiggan; and
- Steven Nash.

Out of hours, the following members of staff are keyholders and would be in attendance of a fire within 10mins:

Key Holder 1 Oliver Lister	At site	0 miles
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In the event of a fire incident the Environment Agency's Incident Hotline must be called immediately (0800 80 70 60).

The site is continuously monitored by site operatives throughout the working day to ensure the early detection of fires in waste storage areas. All areas where waste is stored are visually inspected throughout the day by site operatives, with thermal imaging camera checks, and outside of operational hours by the security guard or the member of staff resident on site. All findings are logged in the site diary. The site is fully equipped with CCTV cameras. If a fire is identified on the CCTV, site operatives must call the FRS during operational hours, and outside of operational hours security or the resident member of staff would call the FRS followed by the nominated site contact as above. Site boundary checks are completed weekly to ensure site security is maintained and the risk of arson is reduced. **FPP Appendix 05** contains the thermal check sheet template and **FPP Appendix 06** contains the site diary template.

As outlined throughout the document, the following procedures must be put in place to detect fires:

- The site must be inspected visually throughout the day and at the end of the day for hot waste.
- The site must be inspected with a hand – held Thermal Imaging Camera throughout the day and at the end of the day for hot waste.
- The CCTV (cameras/monitors) and thermal cameras can be remotely viewed via computer or mobile phone (internet offsite monitoring).
- Fire detection sensors are fitted to the office.
- Site security is in place out of hours.

⁵ As at 19/10/23 cables are in place for tent 4 with thermal cameras ready to be installed.

Fire Suppression and Firefighting: Concept of Operations

Lithium-Ion battery materials processing requires a well thought through and coherent concept of operations for fire suppression and firefighting. This sub-section explains how Lincoln Storm has developed its concept of operations (COO), and what it is. Details of that concept are then given in the following sections.

The starting point for Lincoln Storm's COO is the EA's FPP guidance. Having identified what this guidance requires, it has been developed further by:

1. Putting in place measures required by its specialist insurer (Recyclesure), which has performed two detailed surveys of the site, and required a number of actions (all of which have now been completed).
2. Advice and guidance from the EA.
3. Reviewing the FPP submitted and approved by the EA as part of the permit granted in 2023 to Libatt, as a reference point.
4. Detailed input from technical advisors on lithium-ion battery chemistry (Mr Harry Middleton), our two environmental consultants (Umbrella Environmental and Enviroawards), and the site's Fire and Security system contractors (Multi-Security).
5. Discussions and feedback from the audit teams from suppliers and customers (including global original equipment manufacturers) who have visited the site, including those (like LG) which have signed it off for accepting their battery material.
6. Discussions and feedback from the Avon & Somerset Fire & Rescue Service (ASFRS), who have visited the site regularly (this includes lessons learned from the March arson incident, discussed further below).

The March arson incident occurred when an ignition device (e.g. a firework) was thrown from the top of quarry at its South end onto a waste pile of partially processed aluminium and copper granules, containing some black mass. In the normal course of planned operations this material would have been 'clean' aluminium and copper. However, the site's drier was not allowed to be operating (given permitting discussions and conflicting views), and the new requirement for TFSs for other material meant that this had been stored outside. The incident occurred outside working hours (on a Saturday evening). ASFRS attended and the fire was extinguished.

The following lessons were learned from this incident:

- a. The fire was ultimately contained by the use of lithium-ion specific fire blankets. But these were not initially deployed by ASFRS, who first applied mains water from the hydrant.

Lesson: specific lithium-ion fire blankets and extinguishers should be the first recourse in fighting any fire that may contain black mass or cathode material (which contain lithium). BUT water remains an important recourse for fire suppression that does not involve lithium-containing material, eg waste metal, buildings, etc.

- b. The pile was separated by employees using forklifts, which limited the pile size.

Lesson: active intervention under the direction of the ASFRS contained the fire.

- c. Even with security fencing above the quarry, the presence of a public footpath created a risk.

Lesson: material that is not under hard cover (i.e. in bags) or in hard fire proof casing (eg EV packs) should not be stored there, and wherever possible storage should be entirely under cover.

Lesson: Security cameras needed to be installed at the fence on the public footpath (and additional cameras (with motion detection) installed across the site (now also inside buildings and storage tents).

- d. The use of water by the ASFRS led to material containing lithium entering the drains and interceptors, and through this off the site through the soak away.

Lesson: The site therefore needed to be fully sealed and a means to remove firefighting water (as wastewater) put in place.

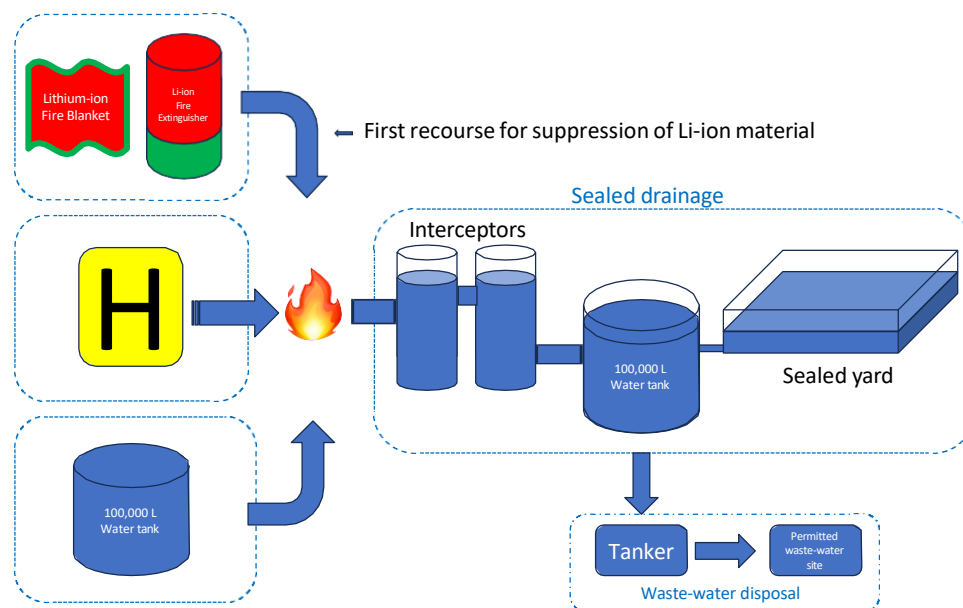
Lesson: The mains water from the hydrant on Lower Kewstoke Road provides adequate pressure and water supply for fire suppression (even at the furthest part of the site from the hydrant, given where the incident took place).

All of these lessons have now been actioned. They are all incorporated in the COO represented by this FPP.

The COO is intended to (in fulfilling the FPP's fire suppression requirements):

- A. Bring the most effective fire suppression approach to bear, as soon as possible and based on the nature of the material: either (a) lithium-containing; or (b) non-lithium containing. In all cases of (a), specific lithium-ion fire suppression material is the first resort (fire blankets and fire extinguishers), although these may need to be used in combination with water (given a fire may contain other materials) or because the ASFRS decide this is the best approach to the incident. In the event of fires of (b), water is likely to be the first resort.
- B. Ensure that no wastewater leaves the site. This requires the interceptors to pump water out into an on-site tank and if this overflows to use the upper part of the site itself, which is sealed, to take any excess water that cannot drain into the interceptors and be pumped into the on-site tank.
- C. Make dual use of the tank. In the first stage of fire suppression (and before the ASFRS arrive on site, it may be used by trained site staff until the ASFRS have accessed the mains through the Lower Kewstoke Road hydrant). In the second stage, manually emptied (ultimately flowing back to the interceptors), if not already emptied through use for firefighting, its primary purpose is to be a backup for the interceptors.

The COO is illustrated diagrammatically below.



The image below shows the arson incident after deployment of lithium-ion fire blankets.



Suppressing Fires

A water-based suppression system would not be suitable for the main waste types stored on site, being lithium-ion battery materials. A fire in this type of material is characterised as a Class B fire which should only be extinguished with an appropriate dry chemical extinguisher, powder unit or use of a fire blanket. The site has:

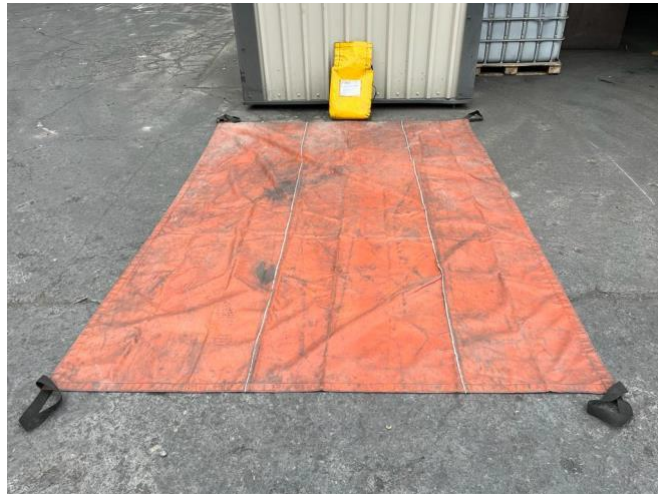
- 2 x lithium-ion fire blankets measuring 3.3m x 2.4m⁶; and
- dry powder (ceiling mounted) automatic units; and
- 15 x special 9 litre lithium fire extinguisher. The fire blankets and fire extinguishers are distributed throughout the site, as illustrated on the site plan (**FPP Appendix 01: Site Plan**)

All staff must receive fire extinguisher training and training on fire awareness. **FPP Appendix 04** lists firefighting equipment, **FPP Appendix 07** reproduces current fire training certificates of qualified staff, **FPP Appendix 08** contains the Fire Safety Audit Checklist, **FPP Appendix 09** contains the Fire Safety Training Programme and **FPP Appendix 10** contains the Fire Safety Training Record.

The photograph's below show: storage of lithium-ion fire extinguishers and fire blankets at their stations, a stored fire blanket, an unfurled fire blanket and lithium-ion fire extinguishers.



⁶ 4 additional fire blankets are being acquired (8m by 6m)



Fire extinguisher details are provided in the picture below.

Technical Specifications of AVD Range

Used on site



1 L



2 L



6 L

9 L

Extinguisher AVD Type	LITH EX 1 L	LITH EX 2 L	LITH EX 6 L	LITH EX 9 L
Brm Full Capacity / ml	1,240	2,520	7,780	11,325
Fill Volume AVD Agent / ml	1,000	2,000	6,000	9,000
Approx. Weight Agent / kg	1.1	2.2	6.6	9.9
Approx. weight of Unit / kg	2.1	3.9	10.7	15.0
Cylinder Ø / mm	85	110	170	170
Cylinder Height / mm	320	380	522	664
Unit Height / mm	350	410	530	672
Handle	Metal - Red	Metal - Red	Metal - Red	Metal - Red
Hose	N/A	N/A	Yes with Magnet	Yes with Magnet
Base	Integral Base & Wall Bracket	Integral Base & Wall Bracket	Green PP	Green PP
Bracket			Wall Hanger	Wall Hanger
Fire Rating	3A	5A	13A	13A
EN3 Certified	Not Allowed	Yes	Yes	Yes
MED Approved	N/A	Yes	Yes	Yes
Propellant	Nitrogen (He Tracer)	Nitrogen (He Tracer)	Nitrogen (He Tracer)	Nitrogen (He Tracer)
Operating Pressure / bar *	15	15	15	15
Operating Temperature	+5°C to +60°C	+5°C to +60°C	+5°C to +60°C	+5°C to +60°C
Approx. Discharge Time / s	25	50	120	180
Discharge Range / m	1.5 - 2.0	1.5 - 2.0	1.5 - 2.0	1.5 - 2.0
Packaged Unit l x w x h / mm	102 x 104 x 360	125 x 128 x 420	197 x 267 x 525	199 x 226 x 670
Units per Box	10	6	1	1
Box Dimensions / mm	394 x 535 x 226	444 x 392 x 265	N/A	N/A

* Pressure refers to gauge pressure

The positioning of ceiling lights, powder unit (red) and smoke alarm (white) on the roof of a storage tent is shown in the photograph below.



Firefighting Techniques

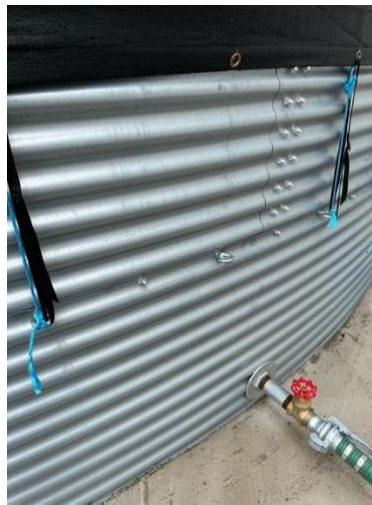
All site staff must be trained to understand the principle that no one should put themselves at risk to fight a fire. Upon the detection of a fire, if it is safe to do so, site staff should attempt to extinguish the fire in 1 of 2 ways (depending on what the waste is):

Waste metals only

Water should be deployed. If this is not possible or unsuccessful the Fire and Rescue Service (FRS) should be called immediately. This should be followed up with a call to the EA's incident reporting service on 0800 80 70 60. To deploy, the site provides the following resources:

- 100,000 litre water tank in the drainage system is available for fire suppression (with external pumps/hose connectors. If needed, the FRS must then:
- Lay flat fire hoses – (10 x 10m can extend to all waste storage areas) During a fire event the following techniques must be used to fight a fire:
- Applying water via layflat hoses to waste and other hazards;
- Separating unburnt material from the fire using heavy plant if safe to do so; and
- Separating burning material from the fire to quench it with hoses.

The location of the water tank can be seen in the site plan (**FPP Appendix 01: Site Plan**). The water tank is vertical and above ground. it must be equipped with a 2inch BSP male tank outlet and a 2 inch F x F BSP ball valve. The FRS will be able to connect to this tank with their hoses/appliances. The photographs below show the tank connector and pump.



Waste Batteries Only

The first approach is to deploy a Lithium-Ion Fire Blanket. If this is not possible or unsuccessful the FRS should be called immediately. This should be followed up at the first opportune moment with a call to the EA's incident reporting service on 0800 80 70 60. The site provides the following procedures and resources:

- Separating unburnt material from the fire using heavy plant if safe to do so; and
- Separating burning material from the fire to extinguish it using;
- 2 x lithium-ion fire blankets measuring 3.3m x 2.4m; and
- Dry powder (ceiling mounted) automatic units; and
- 15 x 9 litre lithium fire extinguishers.

The fire blankets and fire extinguishers are distributed throughout the site, as illustrated on the site plan (**FPP Appendix 01: Site Plan**).

Lithium-ion fire blankets are manufactured using fire resistant or fire proof materials. The most effective method of fire blanket use is to simply smother the flames in a fire, cutting off the oxygen supply and preventing the fire from spreading. The blanket is deployed as follows:

1. The blanket is fully unfolded.
2. The pull loops on the side of blanket are used to cautiously place the blanket over the fire to smother it, ensuring that the blanket is covering the entire area of the battery pack or burning material. In doing this the surface area of the blanket should be minimised as far as possible by minimising folds in the blanket. Typically, two people will be needed holding the loops on either side of the blanket (or holding poles to manoeuvre the blanket, using the loops, from a further distance).
3. The blanket should be left in place for 24 hours (this may be done in the quarantine area).

Fire & Rescue Service

The closest Fire Station is located in Weston-Super-Mare, to the southwest. Using google directions and mapping, the drive time is approximately 7 minutes and approximately 2.4 miles between the site and the Fire Station. Copies of the latest FPP must be shared with all the relevant FRS watches that may attend a fire at the site and regular walk rounds scheduled to discuss issues and site layout.

Fire Extinguishers

Fire extinguishers are to be used in the following circumstances:

- Where operators are trained in use, and if confident to tackle the fire; and
- On very small fires, or to facilitate own escape if trapped by fire.

Small Fire

A small fire or area of smouldering waste must be dealt with as follows:

- A fire or area of smouldering waste must not be dealt with in-situ, mobile plant must be utilised to pull the affected waste into the open and away from any further waste that could become a light on contact; and
- Depending on the size/nature of the fire the waste must either be: Extinguished immediately utilising the fire extinguishers; or Moved to the quarantine area and extinguished.
- Depending on the size, location and nature of the fire the burning waste must be pulled into the quarantine area following the procedures detailed within this fire prevention plan.
- Once a small fire is dealt with the remaining area must be visually inspected immediately by site operatives for any signs that a fire/smouldering waste remains. The same procedure, detailed in this section, must be implemented should this be the case.

Uncontainable Small Fire or Large Fire

The following procedure is in place on site that must be followed in the event of a small fire becoming uncontainable or in the event of a major fire onsite;

- The Site Manager and FRS must be contacted immediately. The EA must be notified at the first opportune moment by calling the EA incident hotline number on 0800 80 70 60.
- Following arrival of the FRS, all site staff must take instructions from the FRS which may include any of the following:
 - If possible, waste that is unburnt must be doused with a fire extinguisher to prevent the fire from spreading further;
 - If possible, unburned material must be separated from the fire using mobile plant;
 - The burning area must be isolated, and attempts must be made to extinguish the fire utilising the onsite fire extinguishers if safe to do so; and
 - The site and buildings must be evacuated.

Water Supplies

Waste Batteries

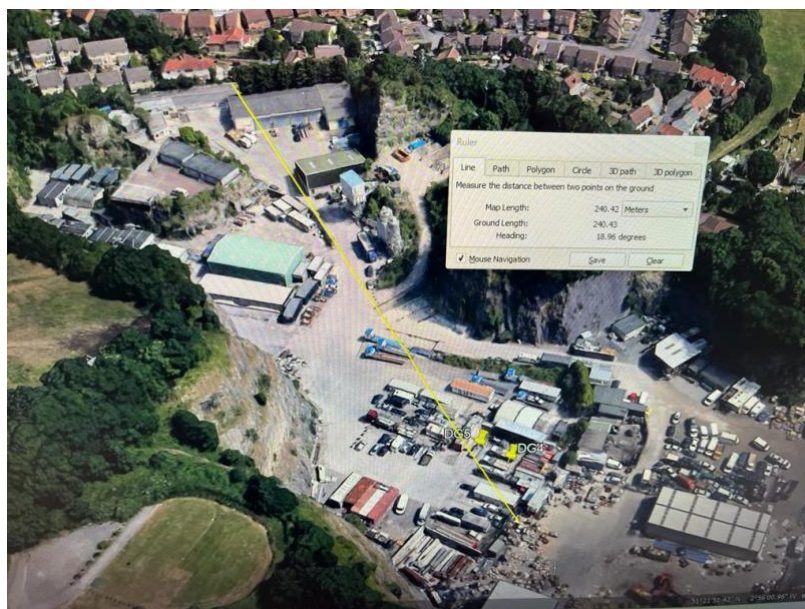
Water would not be suitable for fire suppression with this waste type. A fire in this type of material would be characterised as a Class B fire which should only be extinguished with a standard ABC or dry chemical extinguisher. Therefore, the site does not require a water supply for fire suppression of waste battery material.

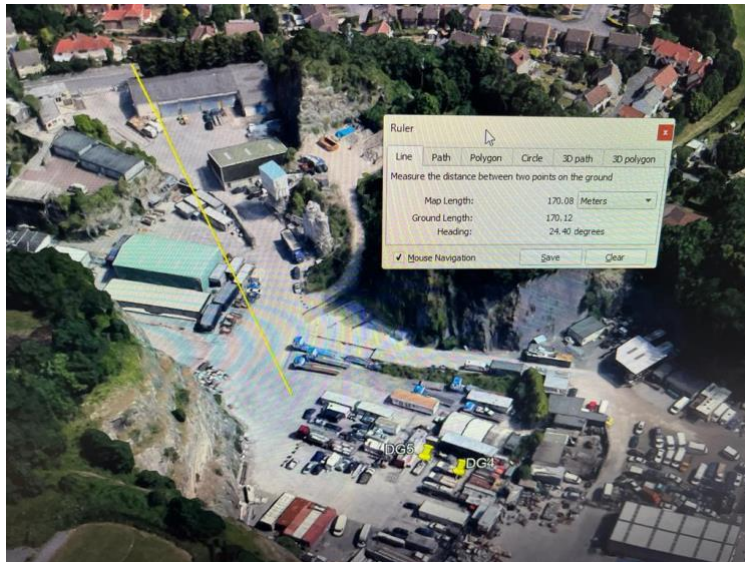
As described above, the site has two lithium fire blankets, 15 special lithium fire extinguishers, and dry powder (ceiling mounted) automatic units.

Waste metals

Waste metal fires may be suppressed with water. From EA guidance – the worst-case scenario would be the largest waste pile catching fire and a water supply of a least 2,000 litres a minute for a minimum of 3 hours is required for a 300 m³ pile of combustible material if no other actions are taken, e.g. creation of fire breaks. The site must maintain adequate fire breaks (by distance) and also utilise powder fire extinguishers suspended above the waste in the building to give full coverage.

Mains water is available for fire fighting with a hydrant on Kewstoke Road. Its effectiveness was demonstrated in March this year when FRS responded to the arson incident. Although the distance from the hydrant to the site's furthest waste pile exceeds 100m, the March incident clearly demonstrated that water supply and pressure from this hydrant to the furthest part of the yard (where the incident occurred) was not an issue. The images below show the route for hoses from the Kewstoke Road hydrant to the site.





The largest stockpile of combustible waste (waste metal or polymer) on site will not be more than 450m³⁷, requiring c. 542,700 litres (at a rate of 6.7 litres per minute for each m³). The current stock levels reflect the delay caused by the requirement, and delayed issuing of the TFS for transport of material to the USA (since September 2022), the delay caused by the requirement to apply for Approved Battery Exporter status (when the EA previously advised that this was not necessary) and the direction to submit Storm Black to the Definition of Waste Service. Now that the EA and US EPA have approved the TFS and with the deadline for ABE approval on 18th October, these pile sizes will reduce rapidly as material is exported to the US (shredded cans), sold (Storm Black) and exported to partners in Europe (EV packs and cells and modules).

On the basis that water is available from the mains, the proposal is that this water storage tank can provide an alternative supply to complement the mains. But its primary role is overflow from the interceptors to maintain the site's sealed drainage. Therefore, if, by the time it needs to be used as overflow, the water has not been used for firefighting, the water will be manually released. This will be clean water released into the yard and ultimately back into the interceptors.

This 100,000-litre water storage tank (has an external pump with a rated capacity of 600 litres per minute flow rate. The pump must be permanently coupled to the tank via a suction hose with a length of 6 meters and a diameter of 50mm. The discharge lay flat hose must also be 50mm in diameter. The length can be varied by 10 meters respectively via quick release lever lock couplings. The maximum length can therefore be extended to reach all operational areas within the yard. The site must have 10 x 10-meter lengths of lay flat hose (connected by quick release level lock couplings). The external pump must be always primed ready to discharge water. The pump must be a Honda WB20XT water pump that operates on unleaded fuel. The fuel tank capacity is 2.5 litres which consumes 1 litre of fuel per hour. This must give us a total run time of 115 minutes. Refilling can take place whilst the pump is in operation. If the tank is not at the right level it will be topped up with mains water.

The lay flat hose must be stored directly next to the pump. The lay flat hose must be laid out in the direction of the fire and can be coupled within a matter of minutes. The pump can be engaged via a pull cord and disengaged via a cut of switch. The water pump must be subject to weekly checks and servicing in line with manufacturers guidelines. The pump must be tested within the weekly checks to ensure it is in good repair and functioning correctly.

⁷ The largest currently is 446 m³. Although there is currently no maximum pile size for batteries specifically referred to in the fire prevention guidance, the maximum pile allowed for WEEE of 450 cubic metres provides a useful guide when considering what the maximum waste pile size for the storage of batteries should be.

All staff must be trained on how to engage and operate the pump, along with connecting the hoses and carrying out the weekly checks. The location of the water tank can be seen in plan 1. The water tank must be vertical and above ground. It must be equipped with a 2-inch BSP male tank outlet and a 2-inch F x F BSP ball valve.

Managing Fire Water

Waste Batteries

Water should not be used for fire suppression because it is not suitable for suppression of Class B fires. A Class B fire should only be extinguished with a standard ABC or dry chemical extinguisher, or smothered with lithium-ion fire blankets. Therefore, there should be no run-off from fire water and fire water containment must not be required. However, in the event that the FRS does use water on waste batteries, waste acceptance, storage, treatment and processing areas of the site are impermeably surfaced and benefit from a sealed drainage system. The system x2 20,000 litre interceptors and, a 100,000-litre water tank that is used to store the interceptor water by pumping it into the tank to pump water from the interceptors. Therefore, all powders released from the special lithium fire extinguishers would be contained within the site, as would any fire water. Following a fire, the suppression powder would be cleaned from site surfaces by suitably trained site operatives via scraping/sweeping as appropriate and stored within a designated covered skip, prior to removal to a suitably permitted site within 24 hours of discharge.

Waste metals

Water used for fire fighting activities must drain to x2 interceptors. A drainage plan is shown on site plan (**FPP Appendix 01: Site Plan**). The outlets to the soakaway are permanently blocked using concreted drain plug/bung. The interceptors once filled to 80% capacity are pumped into the 100,000 litre water tank. The site has a 150 mm bunded curb installed around the site perimeter of the quarry wall. Every waste storage tent also has a 150 mm bunded curb which can also be used for fire water containment (although only effective if the 2 openings to the building are blocked off, which must be done with moveable bunding/seals). We estimate that well in excess of 1,000,000 litres of water can be stored (within this containment, and along the rest of the site, with the potential to contain twice this quantity). Although this is achievable if needed, the site is intending on using the 100,000 litre water tank to store any discharged fire water run of.

Site area: 18,323 m² Bund depth: 150 mm
 $0.150 \text{ m} \times 18,323 \text{ m}^2 = 2,748 \text{ m}^3$
 $2,748 \text{ m}^3 \times 1000 \text{ (litres)} = 2,748,000 \text{ litres (containment)}$

The site bunding is shown in the photograph below, with water held after heavy rainfall.



The site surface is engineered with the gradient allowing liquids to flow towards the aco drains which lead to the interceptor and away from the site boundary (see **FPP Appendix 01: Site Plan and Site Plan (MA6) Appendix 9 (Drainage System)**). After a fire event, any contaminated firewater stored within the interceptors and above ground must be pumped into the 100,000 litre tank. The water must then be tested and either removed from site via a gully tanker (to an authorised facility with the requisite paperwork) or with the agreement from the EA (and subject to any remediating treatment) to be allowed to discharge through the site's soakaway to ground.

The drains on site must be kept clear of debris and blockages at all times to ensure egress of water in an emergency. The Authorised Person (Site Manager or TCM) must check the drains on a regular basis. Combustible waste piles are stored on an impermeable surface and not hard standing - therefore the potential threat to groundwater, wells, springs and boreholes is eliminated.

All stacks, piles and containers of combustible material shall be stored in accordance with the fire plan to ensure the risk of a fire spreading from one stack to another is minimised. Firewater runoff must likely contain a moderate biological and chemical oxygen demand as well as trace compounds dissolved from the gaseous emissions, along with metals. As this site can contain contaminated firewater, the environmental impact from the runoff must be eliminated.

During and After an Incident

Lincoln Storm would cease operations until clean up and other required steps are complete. Lincoln Storm has outlets in place to divert wastes as required.

Lincoln Storm must inform those who may be affected by fire, such as nearby residents and businesses, via word of mouth (staff going door to door). During fire event training sessions, specific site staff must be given specific areas to visit during a fire event – the site staff must be asked to inform those affected that there is a fire event on site and must give useful information such as to close windows and doors if possible and to avoid the area until the fire is under control. The site staff must also pass on any specific instructions from the FRS.

We will write to all local residents and businesses within a 1 km distance of the site to provide us with a preferred contact address (email and/or phone number) to provide information. This will be done by letter using addresses on the electoral roll and if those addresses are not available, by hand delivery to the letter box. This contact list will be maintained by the Site Manager and the exercise will be repeated on an annual basis. This will include contact details for the site including a request to notify us if there are any concerns regarding the site or any signs of suspicious activity (for the quarry as a whole).

Lincoln Storm must ensure that if the waste has become hazardous in nature as a result of the fire, the waste must be tested and assessed prior to removal from site, and that consignment notes must be issued in transit to the receiving site. The receiving site must be fully permitted and aware of the potential hazards associated with the wastes.

Any fire water that is contained within the yard must be pumped into the water tank and later collected via tankers 18.5 Lincoln Storm must ensure that all fire-damaged waste is removed using an appropriate EWC codes which are likely to be 19 12 11 or 19 12 12.

The site will need to be decontaminated after a fire incident. This has been tested, in one scenario, in the context of the March 2023 arson incident. Since then the site has been fully sealed in the event of firewater run-off (see above). The steps involved in clearing and decontaminating will involve:

- Establishing and identifying the extent and degree of damage and/or contamination (eg release of NMC material);
- Containing (covering/sealing/bunding) any areas of potential contamination.
- Sampling and analysing potentially contaminated material.
- Executing a decontamination plan.

The sealing of the site means that contamination should not occur outside the permitted area. However, were that to occur (or to confirm whether this had occurred) a remediation specialist would be engaged, for example Adler & Allan (who have been engaged following the March arson incident).

A contract with CSG is in place for removal of wastewater as necessary, including after a fire, and this was used for the Arson incident. Following the arson incident waste water was pumped from the interceptors within ten days of the incident and transported to a permitted facility⁸.

Incoming waste that would have been received at the site would be redirected to an alternative site. We have identified a number of UK sites with the required waste code (EWC 160605) which could receive waste pending restart of operations. In practice, we would divert such loads to one of our sites in Europe (operated by Lincoln Storm Europe), or a partner site in the USA (under TFS) as these sites will have been audited and signed off by the suppliers of the material, and, pending the Worle site becoming operational will be where processing takes place.

Prior to re-commencing operations (which is, as set out in the current OTEMS, the receipt, storage and despatch of lithium ion battery material), all structures, fixed and mobile plant must be inspected and confirmed to be safe to use, and this includes structural integrity and safe operation of all buildings and infrastructure. To the extent any fire detection, prevention and/or suppression materials have been deployed and are no longer available for use, they will be replaced. A review with the TCM will take place to ensure that the incident has not revealed any deficiencies in the FPP and OTEMS and changes will be made if any such deficiencies are identified.

This FPP is considered to be a 'working' document that is reviewed and updated annually internally or as required should any of the following occur:

- A fire or near miss of a fire on site;
- A change or review of legislation;
- A change in the environment surrounding the site;
- A change to operations on site; or
- If the site is instructed to do so by the EA.

It is the responsibility of the Site Manager or nominated person to maintain this FPP and to ensure it is adhered to in the event of a fire on site.

Continuous Improvement Plan

Since the last version of this FPP, a number of changes have been made, most significantly:

- Installation of thermal imaging cameras in all storage areas; and
- Revised storage layouts (as shown in the plans in Appendix 1).

All actions required by our insurers have also been actioned and reviewed as complete.

As part of ongoing programmes of work, the following is in plan:

- Addition of a 40-foot container alongside a 20 foot container in the quarantine area. We have reviewed the disposition of the quarantine areas. We believe that the quarantine areas should be of two types (marked on (marked on the site plan). The first area should contain two containers. One container will be reserved for material which may need to be quarantined because it has failed waste acceptance procedures. The other container will be reserved for material already on site where thermal behaviour means that it should be moved into quarantine. The other quarantine area will remain open and will be used for emergency re-location of any material which is at risk of fire, including as a potential overspill from the first area. Please note that there should be no hot loads received or stored on site and any material failing thermal checks will be moved to quarantine. **To date no material received at the site or stored on the site has exceeded the maximum thermal thresholds.**

⁸ CSG (Cleaning Service Group Limited) transported wastewater (EWC 16 10 01), to its site with permit number EPR/AP3336SD at CSG Bristol Treatment Plant, Pennywell Road, Easton, Bristol, BS5 0TQ.

- Fitting of 'lego-block' bays in the storage tents to provide further separation. 14 centimetre thickness between the piles made of concrete blocks and making use of 'fire sails' and blankets that can be deployed around the piles. A medium density concrete block of 14 cm thickness (with fire resistance classification Class A1 under BS EN 13501-1) operating as a non-load bearing wall should have the ability to resist fire for 240 minutes (i.e. 4 hours).
- Replacing tents with lego-block bunkers (rail tunnel style), which are waterproof.
- Investigation of the use of 'sails' and /or 'steel stitched li-ion fire blankets' to drop over piles and/or bays with poles and/or roof mounted winches.
- Investigation of the use of an inert gas fire suppression system which would be installed in each tent and building.
- Reviewing whether to install an additional tank(s) of 100,000 litres, to be a further containment tank.
- In terms of storage, we will be transitioning from SF5 bags to SF6 bags. and considering whether to further use flame retardant bags. These would have the following features: Cross corner loops, 220gsm coated fabric; Reinforced top perimeter; Petal Closure discharge spout; 100 Micron form fit liner glued & tabbed; Document pockets; SWL 1,500kg; 6:1 Safety rating; and UN Approved printing Type and UN approved certificate.
- We are also reviewing the stacking arrangements and whether there need to be two layers of wooden pallets on the floor surface (separated by a waterproof barrier), where metal or plastic pallets are not used.

We anticipate further items as part of discussions with the EA on the permit variation. As bets available techniques evolve, these will be incorporated, informed by advice and guidance from our advisors, insurers and the EA.

FPP Appendix 1: Site Plan

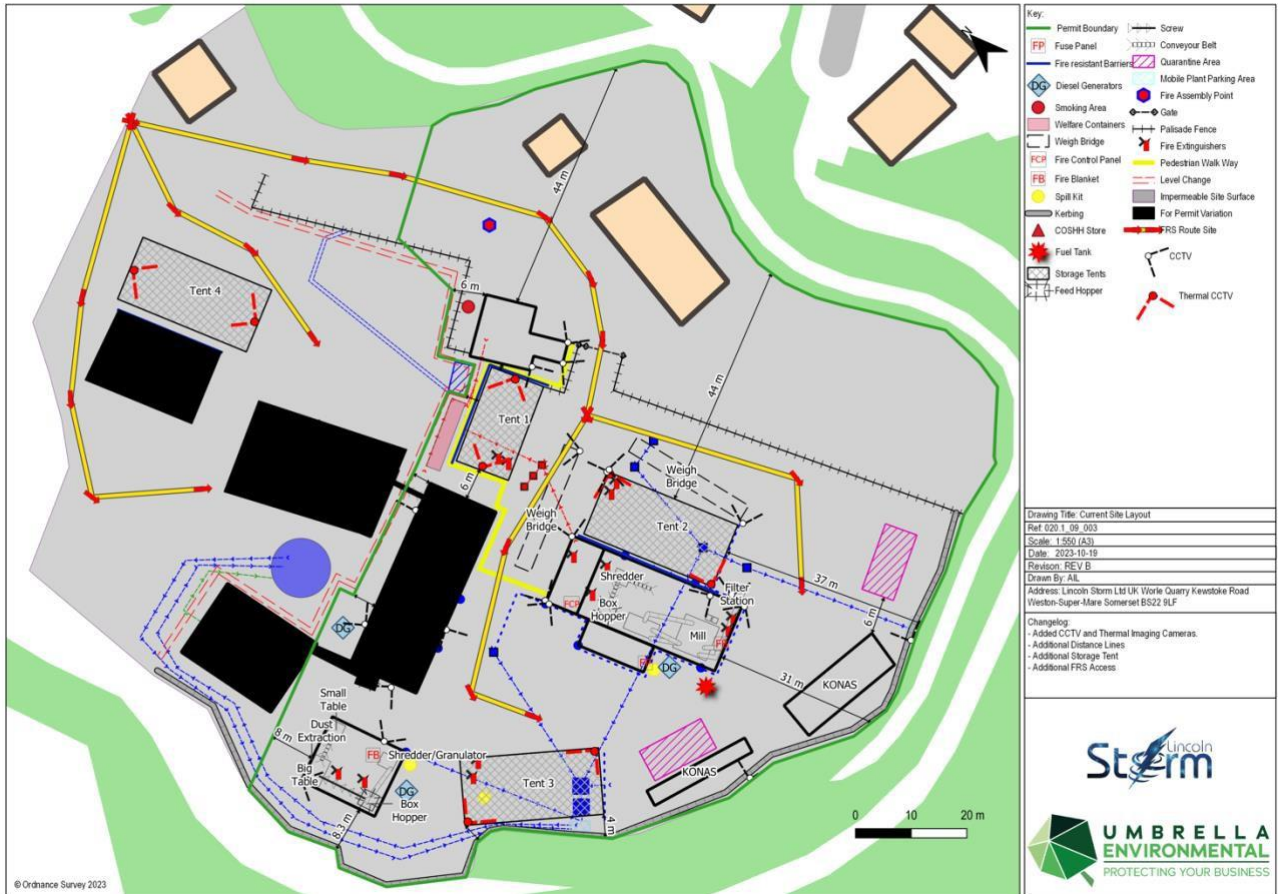
Notes to Site Plan: (1) The site treats all waste received and held as if it is hazardous. All storage and processing areas are configured accordingly; (2) gas cylinders are stored offsite in the maintenance unit at the North of the quarry; (3) Maintenance oils are stored at offsite (in maintenance unit); (4) Personal Protective Equipment (PPE) and (5) fire hose is stored in the office building (see where 'fuse panel' on legend is located); (6) fire vehicle access is through the main west gate of the site and/or the North East entrance. The nearest fire hydrant is on Kewstoke Road (and has been successfully accessed).

The current layouts of the internal storage areas are shown on the following pages, including the 'pile sizes' and the water volumes required for each pile e.

Tents 1, 2 and 3 are in the permitted area as is the 'large shed'. Tent 4 is a storage area (not permitted for batteries) in the lower part of the site (part of the permit variation application), covered by Schedule 2 exemption. All tents have thermal imaging cameras. Tents 1, 2, and 3 have 5 ceiling mounted powder fire suppression units and tent 4 has 7 ceiling mounted powder fire suppression units.

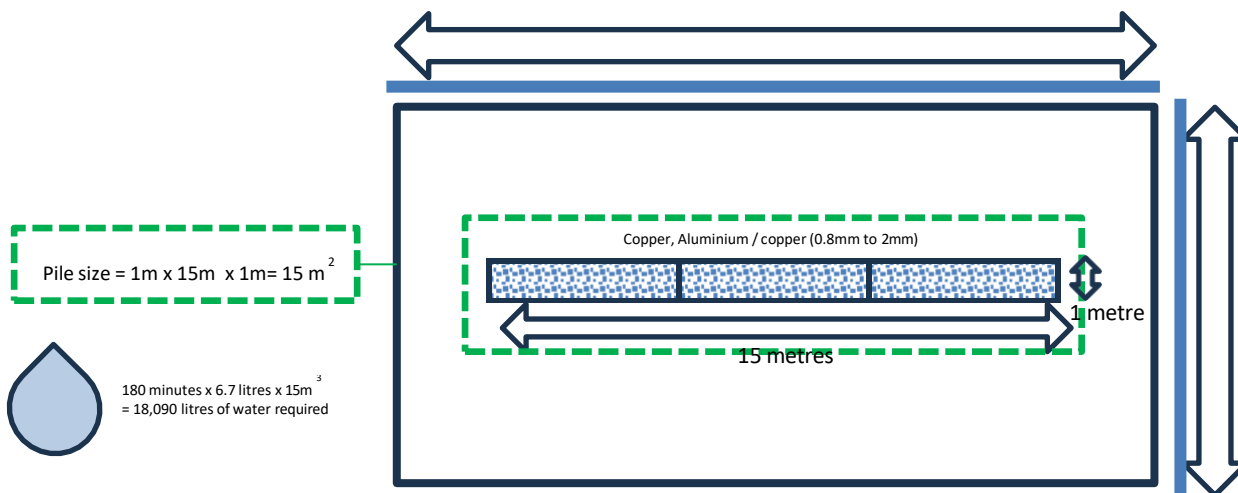
Note that currently EV packs ('Kona packs'), which are entirely weatherproof, and fully sealed as metal containers (in wood and/or metal frames) are stored outside at the positions marked on the plan.

Main plan including drainage and containment

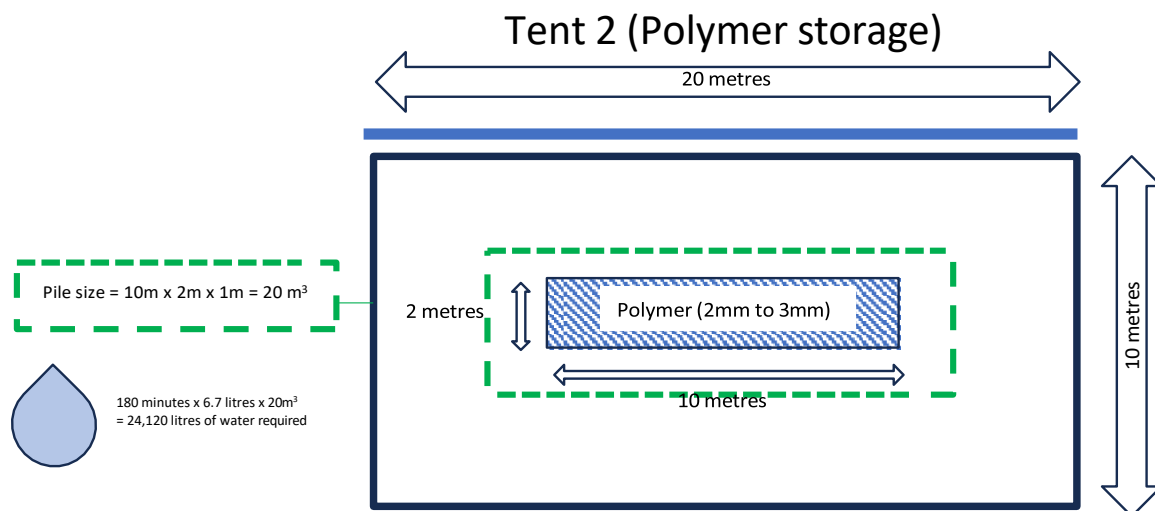


Storage Plan with stock released and pending operations

Tent 1 (Aluminium and Copper storage)

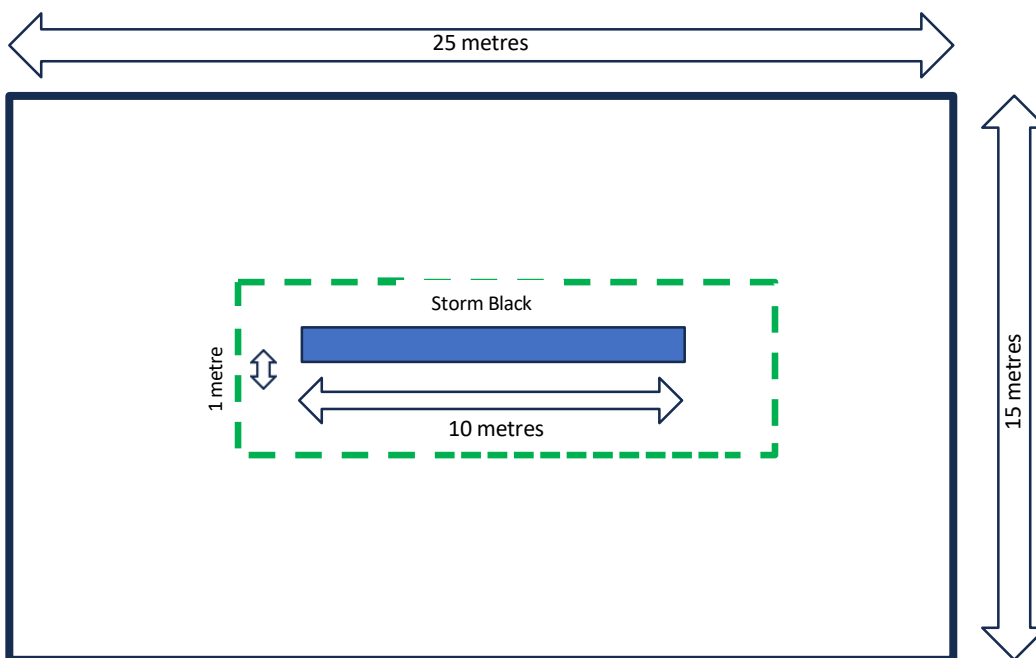


Storage Plan with stock released and pending operations

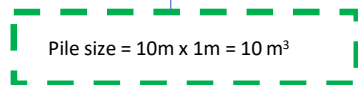


Storage Plan with stock released and pending operations

Tent 3 (Storm Black storage)

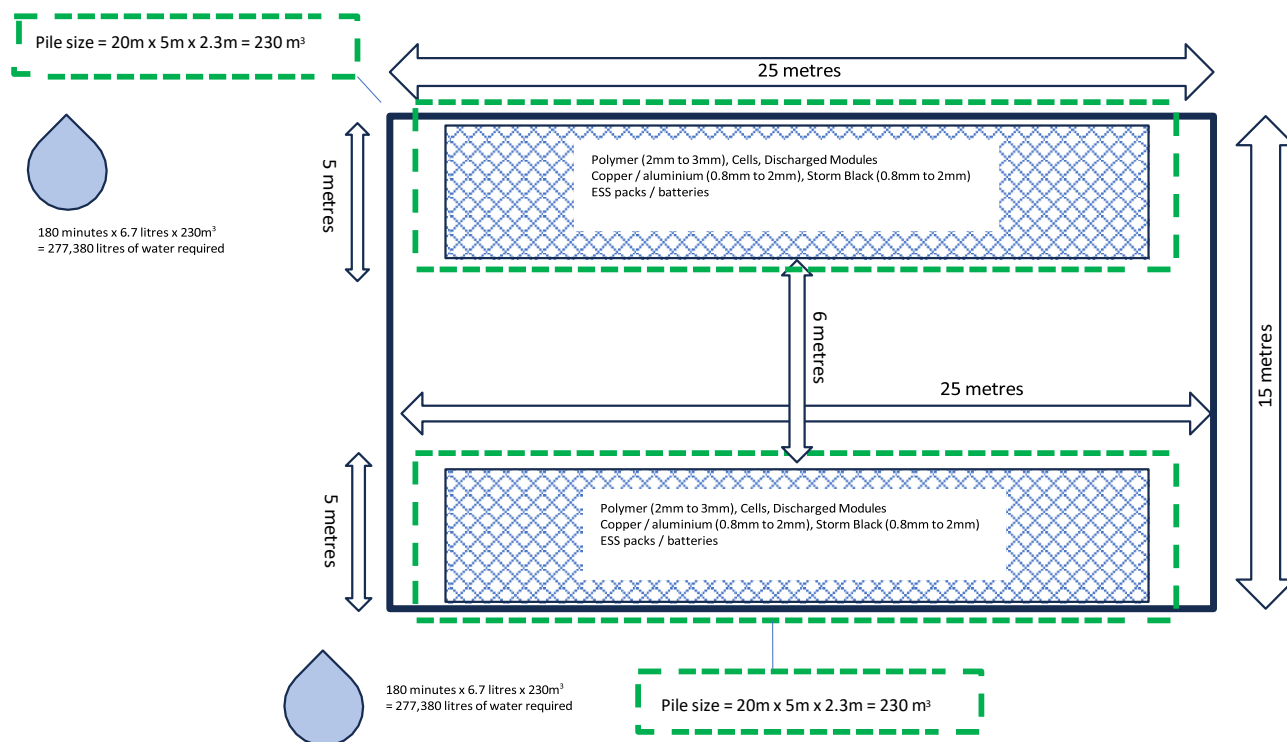


180 minutes x 6.7 litres x 10m³
= 12,060 litres of water required

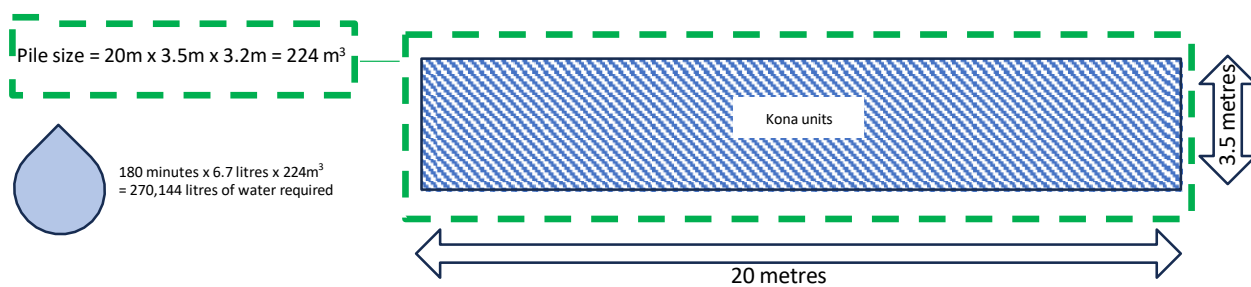
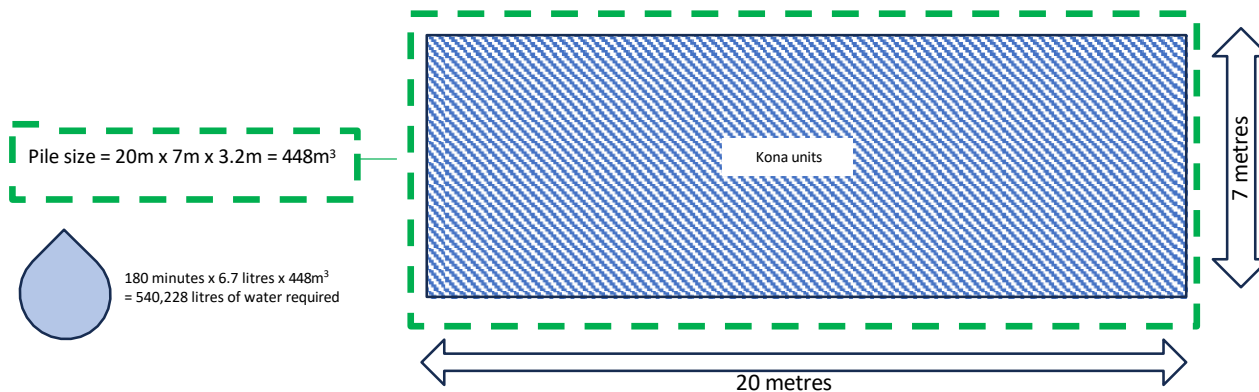


Storage Plan pending removal of material

Large Shed

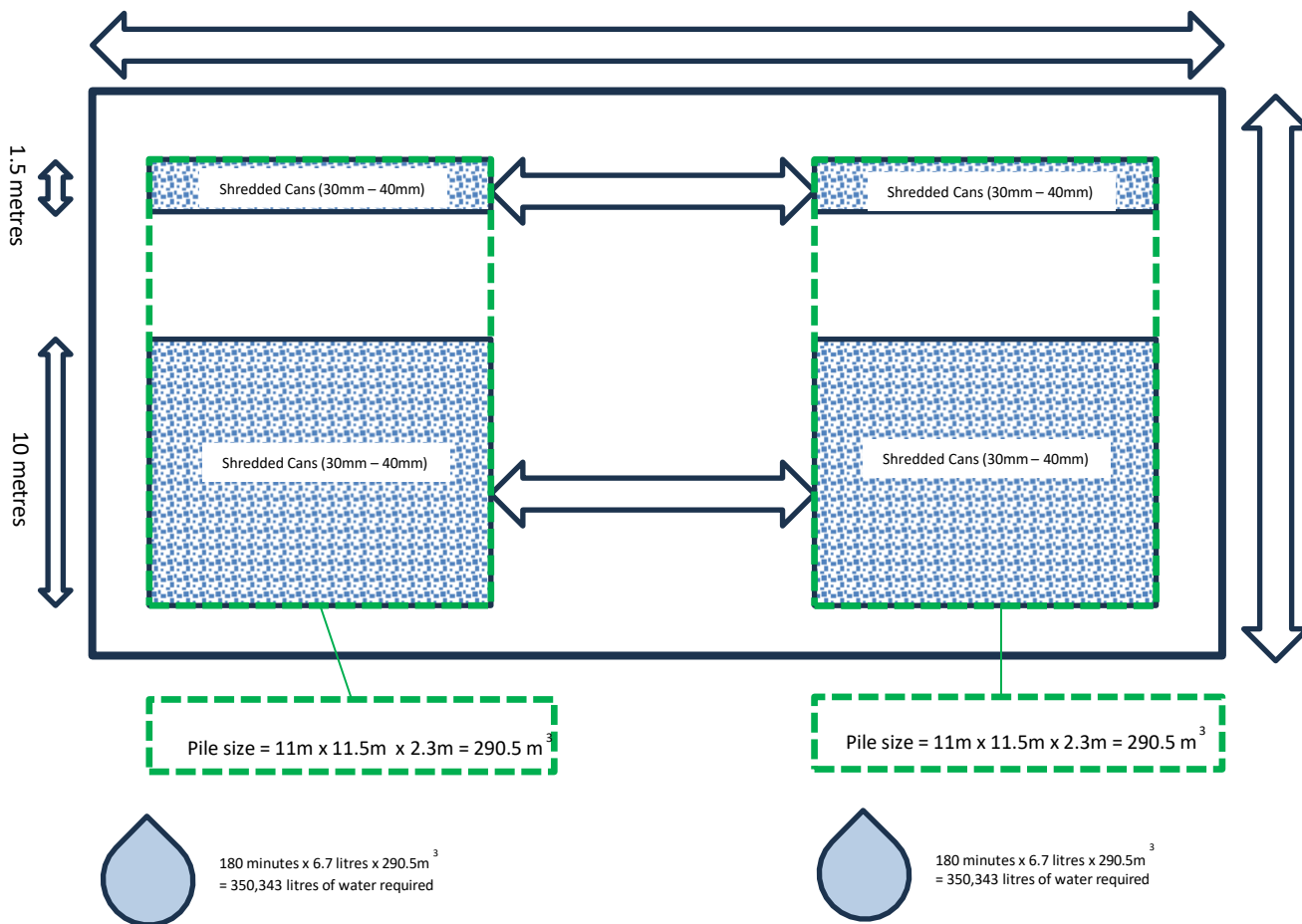


Storage Plan pending removal of material Kona units (weatherproof) stored under tarpaulin

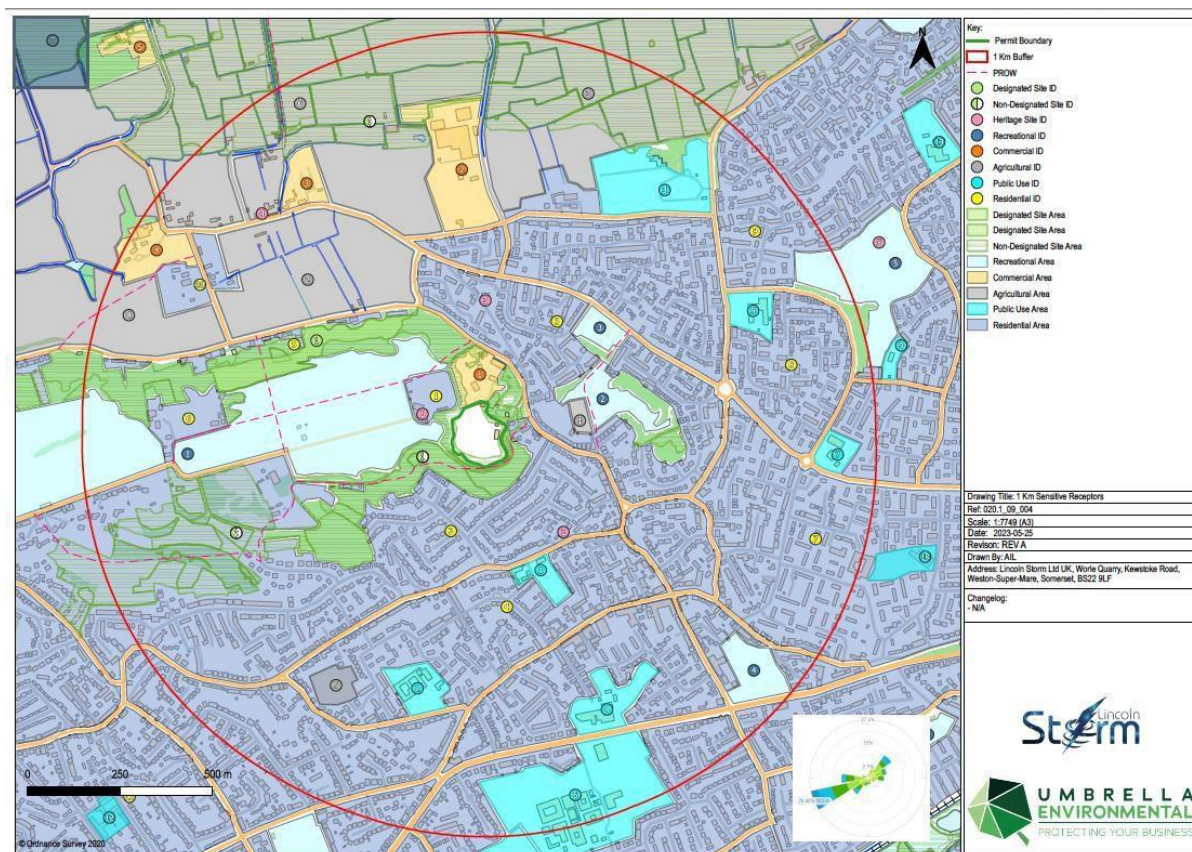


Storage Plan pending removal of material

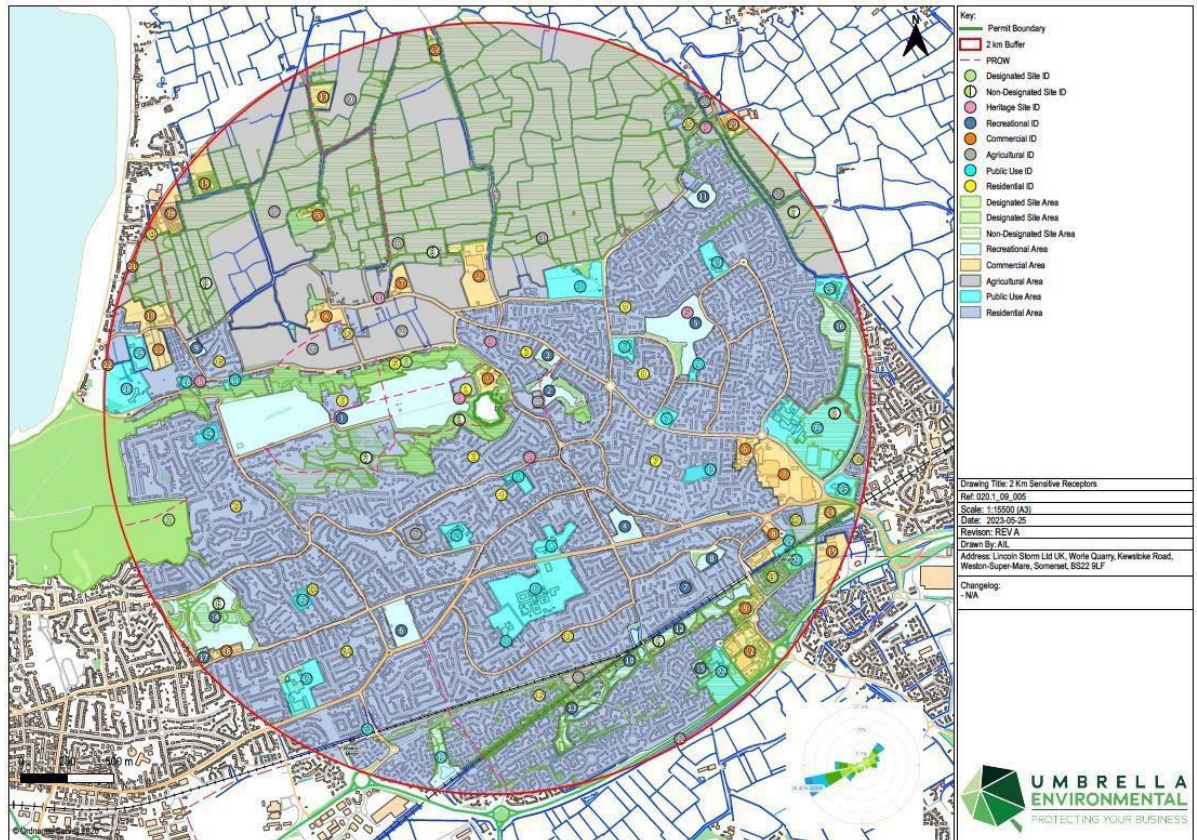
Tent 4



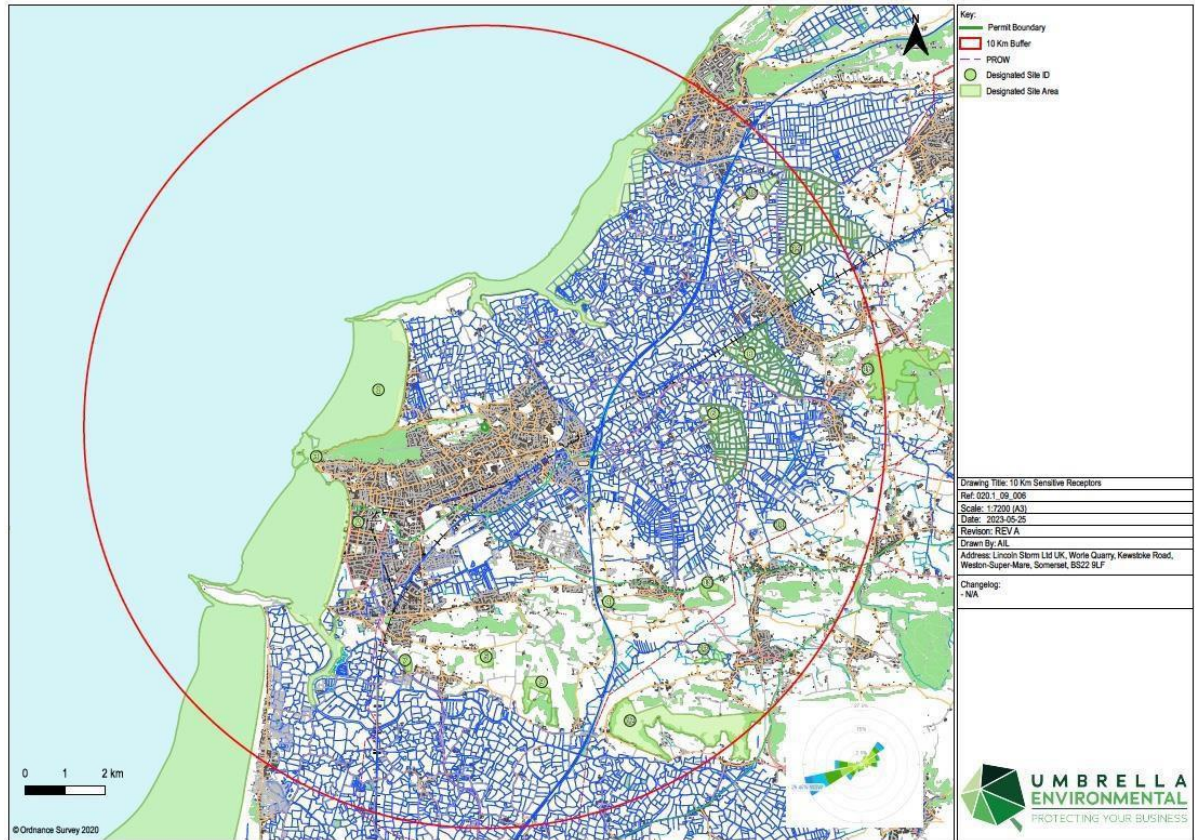
FPP Appendix 2: Sensitive Receptor Plans 1 km



2km



10 km



FPP Appendix 03: Table of Wastes Stored and Pile Sizes

October 2023 configuration (pre-stock exit)

Material and fraction size	Max Volume	Size of pile or container	Storage location	Max time on site	Combustible Y/N
EV Packs (16 06 05) Large solid waste in weatherproof units in metal framed crates	14,160	(1) 20m x 7m x 3.2m (2) 20m x 3.5m x 3.2m	As shown on plan (Konas) by Southern quarry wall	Exited by end December now ABE and TFS in place	Y
Cells and modules (16 06 05) Large solid waste in fibreboard boxes	Modules and packs 161,735kg Cells 180,155kg	Part of Tent 1 (considered one pile of 18m x 10m x 2m) Part of Tent 2 (considered one pile of 8m x 15m x 2.5m) Tent 3 (considered one pile of 8m x 15m x 2.5m) Part of Large shed with two piles of 20m x 5m x 2.5m each		Exited by end December now ABE and TFS in place	Y
Aluminium and copper granules (19 12 03) 0.8mm-2mm in bags	21,700kg	Part of Tent 1 (considered one pile of 18m x 10m x 2m) Part of Large shed with two piles of 20m x 5m x 2.5m each		Exited by end December	Y
Storm Black Product (post-end of waste but treated as if 19 10 05*) (sub<0.2mm in bags)	58,500kg	Part of Tent 2 (considered one pile of 8m x 15m x 2.5m) Part of Large shed with two piles of 20m x 5m x 2.5m each		Exited by end December now TFS in place	Y
Polymer (PP/PE) (19 12 12) 2mm to 3mm in bags	15,943kg	Part of Large shed with two piles of 20m x 5m x 2.5m each		Exited by end December	Y
Dry cells (16 06 05) Large solid waste in fibreboard boxes	0	n.a	n.a	n.a	Y
Shredded cans (19 12 03) 40 mm in bags	173,000kg	In tent 4 in two piles of 11m x 11.5m x 2.3m		Exited by end December now TFS in place	Y

December 2023 configuration (post-stock exit and pending operations)

Material and fraction size	Max Volume	Size of pile or container	Storage location	Max time on site	Combustible Y/N
EV Packs (16 06 05) Large solid waste	40,000kg if held	11m x 11.5m x 2.3m if held	Tent 4 if held	30 days if held	Y
Cells and modules (16 06 05) Large solid waste	40,000kg	11m x 11.5m x 2.3m	Tent 4	30 days	Y
Aluminium and copper granules (19 12 03) 0.8mm-2mm	15,000kg	1m x 15m x 1m	Tent 1	30 days	Y
Storm Black Product (post-end of waste but treated as if 19 10 05*) (sub<0.2mm)	20,000kg	10m x 1m x 1m	Tent 3	30 days	Y
Polymer (PP/PE) (19 12 12) 2mm to 3mm	5,000kg	2m x 10m x 1m	Tent 2	30 days	Y
Dry cells (16 06 05) Large solid waste	5,000kg if held	2m x 10m x 1m if held	Tent 2 if held	30 days if held	Y
Shredded cans (19 12 03) 40mm	n/a	n/a	n/a	n/a	n/a

FPP Appendix 04: Equipment Register/Information and system certification

Equipment	Amount
AVD Lithium Battery Fire Blankets. 3m x 3m.	1
Ceasefire Standalone Fire Suppression System. ABC Dry Powder stored pressure ceiling mounted fire extinguisher 5Kg CF-000017	20
Firechief Lith EX AVD Extinguishers 9 Litre Water Based 13A	15
Firechief Foam Fire Extinguishers 6 Litre AFFF 21A 144B	6
Firechief CO2 Fire Extinguisher 2Kg Carbon Dioxide 34B	3
Firechief Fire Blanket SVB1/K40. 1m x 1m.	1
Additional 4 8m x 6m lithium ion fire blankets	4

Fire Extinguisher Monthly Checklist

Fire Extinguisher Monthly Checks



Date: 11/07/23 Carried out by: Steve Nash

Office

Fire Extinguisher Type	Quantity	Condition	Comments
Foam	1	OK	
CO2	1	OK	

Kitchen

Fire Extinguisher Type	Quantity	Condition	Comments
Foam	1	OK	
CO2	1	OK	
Fire Blanket	1	OK	

Tent 1

Fire Extinguisher Type	Quantity	Condition	Comments
Lithium	1	OK	

Tent 2

Fire Extinguisher Type	Quantity	Condition	Comments
Lithium	1	OK	
Foam	1	OK	

Tent 3

Fire Extinguisher Type	Quantity	Condition	Comments
Lithium	2	OK	13 Lithium Powder sprinklers on a pallet waiting to be fitted to the ceiling of each tent. Scheduled for next week when we get the cherry picker.

Tent 4

Fire Extinguisher Type	Quantity	Condition	Comments
Lithium	1	OK	

SRT Plant Room

Fire Extinguisher Type	Quantity	Condition	Comments
Lithium	5	OK	3 ceiling mounted lithium sprinklers fitted.
Foam	1	OK	
Powder	1	OK	

Electrical Room

Fire Extinguisher Type	Quantity	Condition	Comments
CO2	1	OK	
Powder	1	OK	8 Lithium Powder sprinklers on a pallet waiting to be fitted to the ceiling of each tent. Scheduled for next week when we get the cherry picker.

Dryer Building

Fire Extinguisher Type	Quantity	Condition	Comments
Lithium	3	X	1 Lithium has slightly low pressure.
Foam	2	OK	
Lithium Fire Blanket	1	OK	

Shredder Building

Fire Extinguisher Type	Quantity	Condition	Comments
Lithium	4	OK	
Foam	2	OK	

Diesel Tank

Fire Extinguisher Type	Quantity	Condition	Comments
Foam	1	OK	

Fire system certification (alarm and ceiling mounted units)



Report Number: 1492

Multi Security (UK) Ltd
252 Milton Road
Weston-Super-Mare
North Somerset
BS22 8EN

Fire Alarm Compliance Certificate

Date Issued: 03 Feb 2023

Client and Job Details

Client	Lincoln Storm	Contract	
Contact		Job No	12986
Telephone		Email	
Site	Lincoln Storm The Quarry Lower Kewstoke Road Worle Weston Super Mare BS22 9LE	Call Type	Preventative Maintenance
		Reported Reason for Call	Preventative Maintenance
		Client Order	Fire alarm install

System Details

Model	Id2	System Type	Fire alarm addressable
Panel Type Audible and	Addressable Wired/Wireless	Signal Type	
Grade	L2	Software Version	

Service Checks

Is this the last routine inspection within a 12 month period?	Yes
BAFE Certificate of Compliance on Site?	Yes
BAFE Certificate #	2143
System Category	
Power Supplied Checked?	Yes
Charge Volts	24 V
Battery Volts	23.35 V
Battery Size	14 Ah
Standby Battery Load Tested?	Yes
Standby Period	48 Hours
Quiescent Load	3.5 Amps
Alarm Load	4.00 Amps

Subclause 45.3 Periodic Inspection & Test

<input checked="" type="checkbox"/> Log Book Updated	
<input checked="" type="checkbox"/> Survey for change of layout / use	
<input checked="" type="checkbox"/> Link to ARC / Fire Brigade Checked	
<input checked="" type="checkbox"/> O&M Documents, Certificates, Drawings Seen	
<input checked="" type="checkbox"/> Control and Indicating Equipment Checked	
<input checked="" type="checkbox"/> Detectors are not obscured	

Subclause 45.5 Periodic Inspection & Test - 12 month period

Cause & Effects Tested	100%
Cables & Fixings Inspected	100%
Alarm Warning Devices Tested	100%
Analogue Levels Checked	100%
Detectors & Call points tested	100%

Engineer's Declaration

I confirm as the competent person acting on behalf of Multi Security (UK) Ltd that the works undertaken as requested by the client as identified on this certificate, comply with the recommendations of clause 45 of BS5839-1:2017 (periodic inspection and test/inspection of systems over a 12 month period) with the exception of variations listed herein (if any)

Variations from the recommendations of clause 45 of BS5839-1:2017 (periodic inspection and test/inspection of systems over a 12 month period)
Commissioning certificate.

Engineers Findings and Actions

Client Declaration

I have agreed for alarm sounders to be tested as required by BS5839-1:2017 (periodic inspection and test/inspection of systems over a 12 month period)

Date	Customer Name / Signature	Engineer Name / Signature
03-02-2023		<i>Darrell Hughes</i>
		(autosigned) Darrell Hughes



Cameras and alarms

WizSense | DHI-NVR5432-16P-EI



DHI-NVR5432-16P-EI

32 Channels 1.5U 16PoE 4HDD WizSense Network Video Recorder



Launched by Dahua Technology, WizSense is a series of AI products and solutions that adopt independent AI chip and deep learning algorithm. It focuses on human and vehicle with high accuracy, enabling users to fast act on defined targets. Based on Dahua's advanced technologies, WizSense provides intelligent, simple and inclusive products and solutions.

Series Overview

The NVR5000-EI series offers outstanding performance and high-grade recording technology that make it ideal for IP video surveillance applications. It has a powerful processor, that offers high access and forwarding bandwidth and strong decoding capabilities that together produce unimpeded streams. Thanks to its built-in AI chip and Dahua's advanced deep learning algorithms, the NVR supports a variety of AI functions, such as high-precision face recognition and perimeter protection. They shorten the response time to events and make videos more interactive. This NVR is compatible with numerous third-party devices, making it a great solution for surveillance systems that work with Video Management Software (VMS).

Functions

Perimeter Protection

Automatically filtering out false alarms caused by animals, rustling leaves, bright lights, etc. Enables system to perform secondary recognition for the targets. Improving alarm accuracy.

Face Detection

Face detection is to detect if there is any human face appearing in the video. This technology adopts a deep learning algorithm to support face detection, tracking, optimization and capturing, and then output the best face snapshot.

Face Recognition

Dahua Face Recognition technology extracts the features of captured faces and compares them with those in face database to recognize the person identity.

- Smart H.265+/H.265/Smart H.264+/H.264/MJPEG decoding format.
- 32-channel 1080p self-adaptive decoding capability.
- Max. 384 Mbps incoming/recording/outgoing bandwidth.
- AI by recorder: 2-channel face detection and recognition, 4-channel perimeter protection, and 8-channel SMD Plus.
- AI by camera: Face detection and recognition, perimeter protection, SMD Plus, metadata, ANPR, stereo analysis, heat map, and people counting.
- Security baseline 2.3.



Heat Map by Camera

Dahua heat map technology is used to display the crowd density and people appearance probability. Export and display the crowd status by different colors. Generally, the crowd status is the statistics of people quantity in space and time dimensions.

ANPR by Camera

With deep learning algorithm, Dahua ANPR technology can recognize the number plate information of vehicles in the image with ANPR cameras. Support blocklist/allowlist mode, searching target vehicles from recorded video.

SMD Plus

With intelligent algorithm, Dahua Smart Motion Detection technology can categorize the targets that trigger motion detection and filter the motion detection alarm triggered by non-concerned targets to realize effective and accurate alarm.

Entry Series | DH-IPC-HDW1530T-S6



DH-IPC-HDW1530T-S6

5MP Entry IR Fixed-focal Eyeball Network Camera



- 5MP 1/2.7" CMOS image sensor, low luminance, and high definition image.
- Outputs max. 5MP (2880 × 1620) @20 fps and supports 2688 × 1520 (2688 × 1520) @25/30 fps.
- H.265 codec, high compression rate, and ultra-low bit rate.
- Built-in IR LED, and the max. illumination distance is 30 m.
- ROI, SMART H.264 +/H.265+, flexible coding, applicable to various bandwidth and storage environments.
- Rotation mode, DWDR, 3D NR, HLC, BLC, digital watermarking, applicable to various monitoring scenes.
- Abnormality detection: Motion detection, video tampering, audio detection, network disconnection, IP conflict, and illegal access.
- Built-in MIC.
- 12 V DC/PoE power supply.
- IP67 protection.



Series Overview

With features of simple installation, easy operation, and high performance-cost ratio, Dahua Entry series network camera is applicable to small and medium-sized scenes, such as homes/residences, small-sized retail stores, and other small and medium-sized enterprises.

Functions

Smart H.265+ & Smart H.264+

With advanced scene-adaptive rate control algorithm, Dahua smart encoding technology realizes the higher encoding efficiency than H.265 and H.264, provides high-quality video, and reduces the cost of storage and transmission.

Motion Detection

When moving objects appear in the monitoring image, Dahua Motion Detection (General) technology triggers alarm or records.

Smart Illumination

Dahua Smart Illumination technology can display image in the environment of low illuminance or completely dark environment. According to the distance of the targets, the camera adjusts illuminations intensity automatically to display the details of the moving target.

Image Flip

For narrow and long scenes, Dahua image flip technology flips the image by 90°/180°/270° to realize better surveillance in rotation mode.

Cyber Security

Dahua network cameras employ a series of security technologies, including security authentication and authorization, access control protocols, trusted protection, encrypted transmission and encrypted storage. These technologies improve the camera's defense against external cyber threats and prevent malicious programs from comprising the device.

Protection (IP67, wide voltage)

IP67: The camera passes a series of strict test on dust and soak. It has dust-proof function, and the enclosure can works normal after soaking in 1 m deep water for 30 minutes.

Wide voltage: The camera allows $\pm 30\%$ (for some power supplies) input voltage tolerance (wide voltage range), and it is widely applied to outdoor environment with instable voltage.

DHI-TPC-BF2241

Thermal Network Hybrid Bullet Camera



- Vanadium oxide uncooled focal plane detector.
- 4Megapixel progressive scan CMOS.
- Offers various AI functions such as intrusion, target filtering, heat detection, smoking detection, and calling detection.
- Built-in white light and speaker that produce light and sound alarms to deter intruders.
- Built-in IR LED with a maximum illumination distance of 35 m.
- Dual image fusion (visible and thermal images).
- 12 VDC \pm 20%/PoE power supply.
- IP67 rated.

System Overview

With its dual lens design, Thermal Network Hybrid Bullet Camera provides an all-in-one solution for video surveillance in outdoor and indoor scenarios. It adopts Thermal and Visible Technology to capture vivid, detailed images even in dark, small areas. Through its thermal camera, it can capture clear images even in poor or dark lighting, and can detect and reveal details through its visible camera that has Smart IR.

Functions

Uncooled VOx Technology

Dahua thermal cameras use uncooled VOx sensor technology. The detector is small-sized, and highly sensitive allowing the camera to reveal images in greater detail, giving you more visual information on a monitored site. It also improves the accuracy of temperature measurements, ensuring that even minute temperature changes are detected.

High Sensitivity

High thermal sensitivity (≤ 40 mK) makes these cameras capture images in fine detail, and detect subtle and large temperature changes.

Intelligent Video System (IVS)

With its built-in intelligent video analytics, the camera detects and analyzes moving objects for improved video surveillance. The camera has a wide range of intelligent detection capabilities, allowing the detection of multiple types of objects and object behaviors, such as vehicle detection. IVS also supports tripwire analytics, allowing the camera to detect when a pre-determined line has been crossed.

Heat Detection & Alarm

With its extended detection range, the camera can detect heat sources that are in locations distant to it. It is also highly sensitive to temperature changes, allowing the accuracy of its heat source detection to be higher than cameras that work in the visible light range.

Smoking Detection

Empowered by deep learning AI technology, the camera can automatically detect and trigger alarms for people smoking, providing intelligent sound and light warnings to dissuade smokers, and avoid potential risks and loss. It multi-tasks in extracting elements from the visible light and thermal image at the same time to detect smoke and the person that is actively smoking.

Environment (-30 °C to $+60$ °C)

Developed to operate in extreme conditions, the camera can function in temperatures ranging from -30 °C to $+60$ °C (-22 °F to $+140$ °F). It was subjected to rigorous dust and water immersion tests, gaining its IP67 certification, making it suitable for demanding outdoor applications. For environments with rain, sleet, snow and fog, an integrated wiper (optional) provides users with clear visibility at all times.

Scene

It is highly suitable for parks, transit stations, factories, roads, and more.



DHI-TPC-DF1241 Thermal Network Mini Hybrid Eyeball Camera



- Vanadium oxide uncooled focal plane detector.
- 4Megapixel progressive scan CMOS.
- AI functions: heat detection, tripwire, human/vehicle classification, smoking detection, and call detection.
- Remote auxiliary management.
- Dual image fusion (visible and thermal channels).
- Wide input voltage 12 VDC \pm 20%, and PoE.
- IP67 rated.

Featuring thermal and visible channels, Eureka series thermal network camera offers various AI functions such as tripwire, intrusion, call detection, smoking detection, and heat detection. It can be used in short-distance monitoring scenes such as perimeter protection and heat monitoring, which provides an all-in-one video surveillance solution for small and medium scenes. The camera is widely applied in factory, parking lot, villa, and more.

Technical Specification

Thermal	
Detector Type	Vanadium oxide uncooled focal plane detector
Max. Resolution	256 (H) \times 192 (V)
Pixel Pitch	12 μ m
Spectral Range	8 μ m-14 μ m
Thermal Sensitivity (NETD)	< 40 mK (@F1.0, 25 Hz, 300 K)
Field of View	2 mm: H: 87.8°, V: 63.8° 3.5 mm: H: 50.6°, V: 37.8° 7 mm: H: 24°, V: 18°
Close Focus Distance	2mm: 0.3 m (0.98 ft) 3.5 mm: 0.5 m (1.64 ft) 7 mm: 1 m (3.28 ft)
Detection Distance ^①	2 mm: Vehicle: 256 m (841.24 ft); Human: 83 m (272 ft) 3.5 mm: Vehicle: 449 m (1,472.17 ft); Human: 146 m (479 ft) 7 mm: Vehicle: 897 m (2,944.34 ft); Human: 292 m (958 ft)
Recognition Distance ^②	2 mm: Vehicle: 63 m (206.34 ft); Human: 21 m (69 ft) 3.5 mm: Vehicle: 110 m (361.30 ft); Human: 38 m (125 ft) 7 mm: Vehicle: 220 m (722.20 ft); Human: 75 m (246 ft)

Identification Distance ^③	2 mm: Vehicle: 32 m (104.15 ft); Human: 11 m (36 ft) 3.5 mm: Vehicle: 56 m (182.27 ft); Human: 19 m (62.2 ft) 7 mm: Vehicle: 111 m (364.54 ft); Human: 38 m (125 ft)
Note:	① Detection Distance: Detects objects, but cannot recognize their characteristics (objects must cover more than 3.6 pixels of the image). ② Recognition Distance: Classifies objects into general categories, such as human, vehicle (the object must cover more than 14 pixels of the image). ③ Identification Distance: Classifies objects into specific categories based on their characteristics, such as engineering truck, car (the object must cover more than 28 pixels of the image).
Aperture	F1.0
Digital Detail Enhancement (DDE)	Yes
Digital Zoom	16 levels
AGC	Auto; Manual
Noise Reduction	20 NR; 30 NR
Image Flip	90°, 180°, 270°
Color Palettes	18 (white hot/black hot/ice/sun/rainbow/golden autumn/midday/iron red/amber/dusk/sunset/coffee/painting/pomegranate/emerald/spring/summer/autumn/winter)
Fusion Mode	3 (Warm color; Cool color; Ironred)
Visible	
Image Sensor	1/2.7" CMOS

ID² Intelligent 2 Wire Fire Detection System for Professionals (ID2/2, ID2/4 & ID2/8)



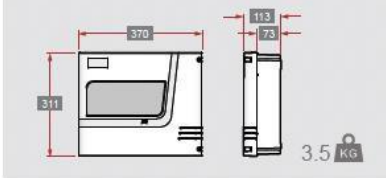
Description

Zeta Alarm Systems is proud to introduce the most advanced 2 wire system on the market. We can now provide a system that gives all of the benefits associated with a '2 Wire' installation (less cable, quicker installation, cost savings on labour/product) and has the facility to 'I.D.' the devices.

The system is built on the proven communication protocol developed by Zeta Alarm Systems and shares the same platform as our largest, most powerful system.

The ID2 can be used for new installations, as a retrofit for any conventional system or as a replacement for existing 2 wire systems when the extra features are deemed to be desirable/necessary. This is possible because the ID2 devices sit on radial circuits, thus making it easy to 'upgrade' a system with the facility to I.D. devices without the need to re-wire.

Dimensions (mm) & Weight (kg)



Features

- ✔ The system meets the full requirements of BSEN5839 parts 1 and 6. The control panel has been designed to meet EN54 parts 2 and 4.
- ✔ Each device can be uniquely identified by the panel
- ✔ Device Count Verification
- ✔ Alarm Verification
- ✔ 2048 Event History
- ✔ ID2 Smartphone App available for iOS and Android
- ✔ Cable Break protection
- ✔ Cable Short Circuit Protection

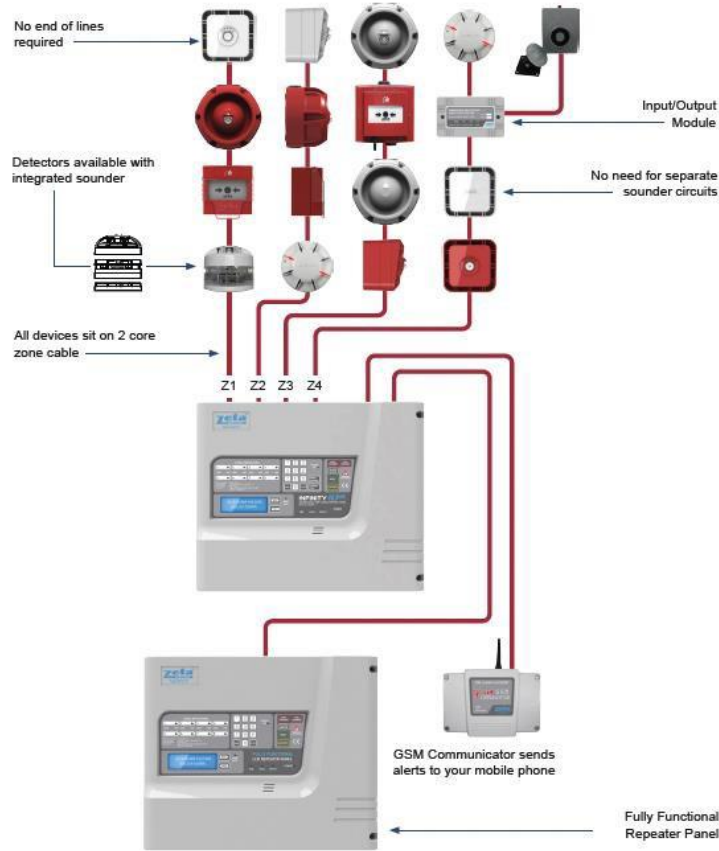
Technical Specification

Model	ID2/2	ID2/4	ID2/8
Part No.	37-660	37-661	37-663
Supply Voltage	230V AC +10% /- 15% @ 50/60 Hz		
System Voltage	29V DC Nominal (19 – 30 V)		
Sounder Output	Loop Powered Sounders		
	2 x Conventional sounder circuits 28V nominal, 150mA (20-30V DC)		
Fault Output	1 x Fault Relay SELV@1A (Normally Energised)		
Fire Output	1 x Fire Relay SELV@1A		
No. of Zones	2	4	8
Zone Capacity	15 Devices per Zone		
Max. No. of Detection Circuits	Radial Mode - 8 Radial Circuits Loop Mode - 1 Loop Circuit		
Max. Loop Sounder Quantity	80 Sounders		
Repeater Connection	RS485		
Dimensions (mm)	370(W) x 311(H) x 113(D)		

Smartphone App

Make "IDing" your devices a breeze with the ID2 smartphone app (available for iOS and Android)





HARD & SOFT ADDRESSABLE FIRE ALARM SYSTEMS

FPP Appendix 06: Site Diary Template



Site Diary

Date:		Weather Conditions:		Wind Direction:		Wind Speed:	
Condition of site perimeter/boundary		Condition of impermeable surfaces		Noise levels at acceptable levels			
Fuel Tanks and Generators		Condition of hard standing		Site free from pests/vermin			
Fire prevention measures implemented		Condition of site drainage systems		Site infrastructure in good repair			
Site noticeboard in good repair		Stock temperature recordings carried out		TCM attendance			
All waste stored on site is compliant		Litter not outside of site boundary		Storage areas free from ingress of rain water			
Non-compliant waste on site is in quarantine		Mud not escaping onto public highway		Site equipment/plant in good repair			
Waste volumes on site compliant		Dust levels at acceptable levels		Compliance with duty of care documentation			
Waste quantities on site compliant		Odours on site at acceptable levels		Spill kits in place			
Hazardous waste is stored appropriately		Rock Fall from Quarry Wall		Bung in place			
All waste is protected from adverse weather		Waste is fully secure (no spillage on bags)		No signs of contaminated run off from wastes			
No waste treatment taking place		Waste batch records (tracking) up to date		Other (please state) -			

General site activities, maintenance undertaken, breakdowns, emergencies, complaints, environmental problems, and non-compliance details	
	Operating Hours
	Start:
	End:
	<input checked="" type="checkbox"/> Staff on site
	Steve
	Ray
	Mariusz
	Linus
	Oliver
	Ramune
	TCM on site
	Name:
	Start:
	End:

Diary completed by:

Signature:

FPP Appendix 07: Fire Training Certificates



FPP Appendix 08: Fire Safety Audit Checklist

	YES	NO	N/A	COMMENTS
Daily Checks (not normally recorded)				
Escape Routes				
Can all fire exits be opened immediately and easily?				
Are fire doors clear of obstruction?				
Are escape route clear?				
Fire Warning Systems				
Is the main indicator panel showing "normal"?				
Are alarms / sirens / sounders in their correct place?				
Escape Lighting				
Are lights and exit signs in good condition?				
Is the emergency lighting and signs working normally?				
Firefighting Equipment				
Are all fire extinguishers in place?				
Are all fire extinguishers clearly visible?				
Are all fire hydrants accessible for the fire service?				
Weekly Checks				
Escape Routes				
Do all emergency fastening devices work correctly?				
Are fire doors clear of obstruction?				
Are all external escape routes clear?				
Fire Warning Systems				
Did the fire alarm work correctly when tested?				
Did staff and all others hear the alarm working?				
Did any linked fire protection system operate correctly?				
Escape Lighting				
Are charging indicators visible and illuminated?				
Fire fighting Equipment				
Are all fire fighting equipment in working order?				
Are all fire extinguishers mounted 1 - 1½ metres?				
Monthly Checks				
Escape Routes				
Are all door seals and intumescent strips in good condition?				
Are all external stairs in good condition and non-slip?				
Do all internal fire doors close against their rebate / stop?				
Escape Lighting				
Do all lights and exit signs working when tested?				

Are emergency generators working correctly?				
Firefighting Equipment				
Is the "pressure" in stored pressure extinguishers correct?				

Six Monthly Checks

General				
Has the emergency evacuation lift (if fitted) been tested?				
Have sprinkler systems been tested by a competent person?				
Have release and closing mechanisms on fire resisting compartment doors and shutters been tested?				
Fire Warning Systems				
Has the system been checked by a competent person?				
Escape Lighting				
Do all lights work for a third of their rated value?				

Annual Checks

Escape Routes				
Do all fire doors work correctly?				
Is escape route compartmentation in good condition?				
Fire Warning Systems				
Has the system been checked by a competent person?				
Escape Lighting				
Do all lights operate on test for their full duration?				
Has the system been checked by a competent person?				
Firefighting Equipment				
Has all equipment been checked by a competent person?				

Miscellaneous

Have dry / wet risers been tested by a competent person?				
Has smoke control systems been tested by a competent person?				
Has external access for the fire and rescue service been checked for availability at all times?				
Have any fire fighters switches been tested?				
Are fire assembly points clearly indicated by signs?				

Fire Plan Checks Daily

Is the Fire Plan available to all site staff?				
Are the waste stockpiles at required size?				
Are fire breaks and quarantine areas clear?				
Is the 1m freeboard clear?				
Has loose waste been cleared?				

Version 1
July 2023

Lincoln Storm Ltd

Appendix 1 – CF - 01 FIRE SYSTEM TEST – EQUIPMENT TEST (ANNUAL)

Test Date	Equipment Type	Location	Comments

Appendix 2 – CF - 02 FIRE SYSTEM TEST – SYSTEM/SENSOR TEST (WEEKLY)

Test Date	Comments	Description of any Defects Evident	Repaired By Date

Appendix 3 – CF - 03 FIRE SYSTEM TEST – EMERGENCY LIGHTS (MONTHLY)

Test Date	Comments	Description of any Defects Evident	Repaired By Date

Appendix 4 – CF - 04 FIRE SYSTEM TEST – FIRE DRILL (MONTHLY)

Date	Time	Comments

FPP Appendix 09: Fire Safety Training Programme

Appendix 6 – CF - 06 FIRE SAFETY TRAINING PROGRAMME

All employees will receive adequate fire safety training and all fire safety training sessions will be delivered by a competent person. There will be one / two fire drills per year to test the fire safety training.

Fire Safety Training Sessions

New Employees:	Induction Programme
Current Employees:	MIN one session per year
Fire Wardens:	One / Two training session per year specific to their duties

One / Two training session per year specific to their duties and including fire safety risk assessment, responding to fire hazards, fault reporting procedures, liaising with the fire service, record keeping, induction of new staff, fire safety policies and procedures.

Topics

- The significant findings from the fire risk assessment and fire safety policies
- The Fire Plan
- What to do on discovering a fire
- How to raise the alarm, including the locations of fire alarm call points (break glass points)
- The action to take upon hearing the fire alarm
- The evacuation procedure for alerting guests, residents and visitors including, where appropriate, directing them to exits and assembly points at a place of total safety
- The arrangements for calling the fire and rescue service
- The location and, where appropriate, the correct use of portable fire extinguishers and fire-fighting equipment
- Knowledge of escape routes including stairways and especially those not in regular use
- How to open all emergency exit doors
- The appreciation of the importance of fire doors, keeping them closed and not wedged open to prevent the spread of smoke and heat, keeping escape routes unobstructed
- Where appropriate, isolating electrical power and gas supplies and stopping machines and processes
- The safe use of and risks from storing and working with highly flammable and explosive substances
- General fire precautions, fire awareness and good housekeeping practices
- The no smoking policy (where applicable)
- Special provisions for assisting disabled people and any training needed
- Identifying fire hazards and fire incidents reporting procedures
- Equipment fault reporting procedures

Fire Safety Training Records

All fire safety training will be recorded to include the date of instruction; the duration, name of the person giving the instruction, names of persons receiving the instruction; and the nature of the instruction and / or, drill.

FPP Appendix 10: Fire Safety Training Record

Appendix 7 – CF - 07 FIRE SAFETY TRAINING RECORD

Date: _____ Duration: _____
 Given By: _____ Session For: _____

Subjects Covered

- The significant findings from the fire risk assessment and fire safety policies and the Fire Plan
- What to do on discovering a fire
- How to raising the alarm, including the locations of fire break glass points
- The action to take upon hearing the fire alarm
- The evacuation procedure for alerting guests, residents and visitors including, where appropriate, directing them to exits and assembly points at a place of total safety
- The arrangements for calling the fire and rescue service
- The location and, where appropriate, the correct use of portable fire extinguishers and fire-fighting equipment
- Knowledge of escape routes including stairways and especially those not in regular use
- How to open all emergency exit doors
- The appreciation of the importance of fire doors, keeping them closed and not wedged open to prevent the spread of smoke and heat, keeping escape routes unobstructed
- Where appropriate, isolating electrical power, gas supplies, stopping machines and processes
- The reasons for not using lifts (except those specifically constructed as evacuation lifts)
- The safe use, risks from storing and working with highly flammable/ explosive substances
- General fire precautions, fire awareness and good housekeeping practices
- The no smoking policy (where applicable)
- Special provisions for assisting disabled people and any training needed
- Identifying fire hazards and fire incidents reporting procedures; and
- Equipment fault reporting procedures.

Names of those attending:

PRINT NAME	SIGNATURE

I confirm that I have delivered the above subjects to those named above as attending.

Name: _____ Date: _____
 Signed: _____ Position: _____

FPP Appendix 11: Emergency Actions

Follow these actions. In the event of a fire incident the Environment Agency's Incident Hotline must be called immediately (0800 80 70 60).

Appendix 8 EMERGENCY ACTIONS

THIS PLAN WILL BE ACTIVATED WITHOUT DELAY WHEN
<ul style="list-style-type: none"> • A fire is confirmed on site • An uncontrolled event occurs which could reasonably be expected to lead to a fire on site • A major accident is an occurrence (including in particular a major emission, or explosion) resulting from uncontrolled developments in the course of the operations, and leading to serious dangerto human health or the environment, immediate or delayed, inside or outside the establishment.
THE FOLLOWING PEOPLE WILL BE RESPONSIBLE FOR ACTIVATING THE PLAN
<p>Steve Nash / Ray Wiggan Site Manager / Plant Manager</p>
HOW THE PLAN WILL BE ACTIVATED
<p>A member of Lincoln Storm Ltd staff from the above list will make a 999 telephone call to each of the relevant emergency numbers. Note that the order in which each service is called will be dependent on the nature of the incident.</p> <p style="text-align: center;">Emergency Services 999 Environment Agency 0800 80 70 60</p>
<p>When making each '999' call staff should provide the following information: Lincoln Storm Ltd. Worle Quarry, Lower Kewstoke Road, Worle. BS22 9LF</p> <ul style="list-style-type: none"> • the National Grid Reference for the site: ST 35129 63207 Details of the Incident <ul style="list-style-type: none"> • If any staff are known to be reported missing • Where the arriving first responders will be met (in a safe location, away from any smoke plume with all relevant information on the details of the incident and a copy of this plan)