



FIRE PREVENTION AND MITIGATION PLAN

Version 1.1



Fire Prevention and Mitigation Plan

Liberty Steel Newport Limited
Corporation Road, Newport, NP19 4XE

Report Revision

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CONTENTS

PAGE

1 INTRODUCTION	1
1.1 Background	1
1.2 Purpose of this Fire Management Plan	1
2 SITE LOCATION AND OPERATIONS	3
2.1 Site Location	3
2.2 Waste Management Operations	3
2.3 Waste Inventory	3
2.4 Other Materials.....	4
3 CAUSES OF FIRES, PREVENTATIVE MEASURES AND POTENTIAL IMPACTS.....	5
3.1 Fire Prevention	5
3.2 Causes of Fires	5
3.2.1 Self-combustion	5
3.2.2 Discarded Smoking Materials	6
3.2.3 Arson or Vandalism.....	6
3.2.4 Hot Loads Deposited at Site.....	6
3.2.5 Neighbouring Site Activities.....	7
3.2.6 Hot Exhausts	8
3.2.7 (Reactions Between) Incompatible Materials.....	8
3.2.8 Plant or Equipment Failure	8
3.2.9 Hot Works	9
3.2.10 Electrical Faults	9
3.2.11 Damaged or Exposed Electrical Cables	10
3.2.12 Open Burning	10
3.2.13 Naked Lights.....	10
3.2.14 Sparks from Loading Buckets	11
3.2.15 Industrial Heaters.....	11
3.3 Potential Impacts of Fire.....	11
3.3.1 Receptors	11
3.3.2 Potential Impacts on Receptors and Response Measures.....	12
4 STORAGE AND SEPARATION OF WASTES	17
4.1 Stockpile Sizes and Separation	17

4.2	Storage Durations	17
4.3	Baled Wastes	17
4.3.1	Square/Rectangular Bales.....	17
4.3.2	Cylindrical Bales	18
5	FIRE DETECTION AND SUPPRESSION SYSTEMS	20
5.1	Fire Detection Systems	20
5.1.1	Site Inspections	20
5.1.2	Fire Watch.....	20
5.1.3	Heat Detection	20
5.2	Fire Suppression Systems	20
5.2.1	Portable Fire Extinguishers	20
5.2.2	Inert Stockpiles	20
5.2.3	Fire Hydrants.....	21
5.3	On-Site Storage of Water.....	21
5.4	Dedicated Emergency/Quarantine Area.....	21
6	EMERGENCY FIRE RESPONSE AND ACTIVATION PLAN IN CASE OF FIRE	22
6.1	Emergency Fire Response.....	22
6.2	Firefighting Methods	23
6.3	Fire Marshalls.....	23
6.4	Staff Training.....	23
6.5	Notification of Fires to NRW.....	24
7	ACCESS AND TRAFFIC MANAGEMENT PLAN FOR EMERGENCY SERVICES.....	30
8	FIRE WATER RUN OFF MANAGEMENT PLAN	31
8.1	Minor Fire	31
8.2	Major Fire	31
9	REMOVAL OF FIRE WASTE	33
	DRAWINGS AND SITE PLANS.....	34
	APPENDIX A – FIRE RISK ASSESSMENT	43

1 INTRODUCTION

1.1 Background

Fires involving combustible materials can cause significant harm to people and the environment as a result of:

- combustion products: even those from non-toxic materials release airborne pollutants which can cause both short and long term effects on human health and the environment;
- fire water run-off: this can transport pollutants into drainage systems, rivers and lakes, groundwater and soil, threatening water supplies, public health, wildlife and recreational use;
- thermal radiation: which harms people and the environment and can lead to fire spread;
- hazardous waste: which can be created by the fire and has important ramifications for fire fighting
- explosions and projectiles: which can harm people and spread the fire to unaffected areas
- Harm to people and property: fire can threaten life and cause property damage

The impact of a fire may be both immediate and long lasting and can present a significant burden for the Fire and Rescue Services, other agencies and the public – including the risk of death, and harm to public health.

As a polluter the company responsible for the fire is likely to be required to pay the cost of any subsequent clean-up. This can be expensive, as in many cases the solid remains of combustion products and partially burnt material is classified as hazardous waste. There may be other costs associated with responders' incident response and/or fines or costs through the criminal and/or civil courts.

Other indirect effects on a business can result from a fire; its reputation may suffer and insurance costs are likely to rise.

1.2 Purpose of this Fire Management Plan

This Fire Prevention and Mitigation Plan (FPMP) outlines the methods by which Liberty Steel Newport Limited (LSNL) will systematically assess, prevent and act to control fire within combustible materials stored at Corporation Road, Newport, NP19 4XE.

This storage activity is regulated under an Installation Permit number EP3830GH issued on 11th November 2015.

This Fire Prevention and Mitigation Plan (FPMP) serves to provide a management system to control future fire risks at the Corporation Road site. It forms part of a suite of Management Plans that have been prepared to enable the operation of the facility to be undertaken in a manner that minimises any risk of environmental harm.

The fire management plan is a working document with the specific aim of ensuring that:

- Fire prevention is a day to day activity delivered through good operational practices, including physical and management control measures; and
- All appropriate measures are taken to prevent fire but, in the event of a fire occurring, plans are in place and are effective in minimising environmental risks.

The following wastes to be received at the site are considered by this FPMP:

- Baled Combustible Waste (EWC 19 12 10) more generally referred to as Refuse Derived Fuel (RDF) or Solid Recovered Fuel (SRF);

The following operations undertaken at the site are considered by this FPMP:

- Receipt of Baled Combustible Waste;
- Storage of Baled Combustible Waste; and
- Loading of Baled Combustible Waste onto vessels for export.

This FPMP will require revision in the event that other wastes are to be received at the site or other waste operations carried out.

This FPMP has been produced in accordance with Natural Resources Wales' Fire Prevention and Mitigation Plan Guidance – Waste (Version 1, May 2016). It addresses the impacts of fire outbreak, monitoring procedures and the control measures employed to mitigate any risk and considers:

- Feedstock Inventory;
- Storage Conditions and Process Management;
- Prevention Techniques;
- Fire Procedures;
- Combustion Products, Minimisation and Control;
- Safe Access; and
- Site Plans.

The wider Liberty Steel Newport site operates to its own Fire Procedure based on a separate Fire Risk Assessment. Firefighting equipment is strategically located around the site and staff are given training relating to the fire procedure as part of their induction.

2 SITE LOCATION AND OPERATIONS

2.1 Site Location

The regulated installation is located at Liberty Steel, Corporation Road, Newport, NP19 4XE. The location and layout of the site is shown on Drawings 10939-000-A, 10939- 000- B and 10939- 000- C).

The site is located approximately 3km south east of Newport city centre in an area that has been developed extensively for wharf-side commercial and industrial use. The site's immediate neighbours are:

- A cargo handling and port operation to the North West,
- A chemical works to the north;
- Uskmouth Power Station to the south west; and
- A waste water treatment facility to the south east.

To the west, separated by the River Usk is Newport Docks.

Within 1km to the East, South and West of the site are extensive areas of land carrying environmental designations (SSSI, SAC, Ramsar, etc.).

The closest occupied building (at the cargo handling and port operation) is located around 110m from the northern boundary of the site.

Access to the site is via Corporation Road (an adopted highway), which connects with the A48 Dual Carriageway approximately 1.75km from the site and onwards to the M4 at junctions 25 and 28.

There is potential for impact from fires at adjacent sites and these impacts are reviewed in more detail in this plan.

2.2 Waste Management Operations

The following operations will be undertaken at the site:

- Receipt of Baled Combustible Waste (EWC 19 12 10) more generally referred to as Refuse Derived Fuel (RDF) or Solid Recovered Fuel (SRF);
- Storage of Baled Combustible Waste; and
- Loading of Baled Combustible Waste onto vessels for export.

2.3 Waste Inventory

In order to understand the fire risk of the different waste streams that enter these processes, a feedstock inventory has been provided for the various waste types. Table 1 below provides an assessment of each waste type by source of material, identifying the typical and abnormal compositions of those waste types and providing an overall combustion potential of that feedstock based upon the likelihood of abnormal compositions being encountered at site.

Waste Type	Waste Source	Typical Composition	Abnormal Composition	Likelihood	Fire Risk
Combustible Waste(19 12 10) – Refuse Derived Fuel (RDF) or Solid Recovered	Commercial and Industrial, Construction and Demolition or Municipal	Residual waste materials that have been treated directly and intentionally (generally by manual or	Bales containing significant fractions of food/organic waste, wood, metals, glass,	Low to Medium	Low – properly processed, wrapped, handled and stored wastes (<3 months) are unlikely to be at risk of self-ignition. Risks largely limited to

Fuel (SRF)		mechanical processing) to change the nature of the waste in a way that improves its quality as a fuel.	inerts. Hazardous waste should not be present.		external ignition.
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Table 1 Assessment of Odour Potential from Feedstock Inventory

The facility will have the following maximum tonnages on-site at any one time and storage times for incoming waste as follows:

Material	Tonnes	Storage Time
Combustible Waste (Baled)	10,000	3 months

Table 2. Storage amounts and durations

2.4 Other Materials

Natural Resources Wales' Fire Prevention and Mitigation Plan Guidance - Waste does not apply to the following wastes:

- Flammable (flashpoint of 60°C or lower)
- Combustible liquids or gases
- Hazardous Waste
- Dangerous Substances stored under the Control of Major Accident Hazards Regulations

This FPMP has however considered these materials due to their potential to cause fire at the facility.

Storage of flammable liquids, combustible liquids or gases, hazardous waste or dangerous substances does not take place within the storage area. Storage of these materials does take place within the wider site area, notably the storage of gas bottles ~45m to the north of the storage building and the storage of fuel and oils ~215m to the north of the storage building. Plant and vehicles on-site hold small quantities of fuel in tanks.

There may be small quantities of other materials within baled waste as contrary materials, but at concentrations that are unlikely to cause significant harm. Routine sampling for the presence of these materials is not carried out.

Lead can be found in varying quantities in recycled scrap stored at the adjacent Steel plant and rolling mill.

3 CAUSES OF FIRES, PREVENTATIVE MEASURES AND POTENTIAL IMPACTS

3.1 Fire Prevention

For a fire to start it is necessary to have fuel, a source of ignition (heat) and oxygen. If any one of the components of the fire triangle is missing, a fire cannot start. Taking measures to avoid the three coming together will reduce the chances of a fire occurring.

3.2 Causes of Fires

The following potential causes of fires have been identified from a risk assessment of the site.

3.2.1 Self-combustion

As the materials handled at the facility are predominantly from municipal sources, or are household- type waste from commercial and industrial sources, the risk of self-ignition, due to the release of heat from degrading organic matter (predominantly food waste) is assessed as medium. The following mitigation measures will be implemented to reduce the risk to low:

- Robust waste acceptance procedures will ensure that waste received meets the site's waste acceptance criteria and does not represent any elevated self-ignition risk.
- Rigorous maintenance of storage duration and rotation of stock to ensure that waste is not stored on-site for >9 months.
- Inspection of supplier sites to ensure production processes are producing high quality RDF/SRF that is free from significant fractions of organic waste (particularly food waste) or other materials that may elevate fire risk.
- Daily check of stockpile face temperatures using a thermal camera or temperature probe to identify "hotspots".

In addition, the following general mitigation measures will be implemented.

- All combustible wastes kept in accordance with NRW Guidance and section 6 of this Fire Prevention and Mitigation Plan.
- Storage will be within the combustible waste storage building on impermeable surface with sealed drainage (refer to Drawing 10939-000-D for details of site surfacing and Drawing 10939- 000-E for drainage details).
- The storage area will be permanently bunded to enable the containment of run-off in the event of a fire. Other fire water containment equipment will be available on-site to control run-off in the event of a fire.
- Staff will be trained in fire prevention/management and emergency procedures will be in place to deal with any fire on-site.
- Suitable equipment will be available and maintained onsite (fire-extinguishers, fire hoses, aggregate for smothering fires, etc.) to manage fire outbreak.
- Emergency signage will be displayed in appropriate locations to identify equipment and procedures for dealing with fire outbreaks.
- Selected staff trained as Fire Marshalls.
- A Fire Marshall will carry out end of shift inspections to ensure no heat or smoke is present within the storage areas of combustible wastes.
- Security staff to undertake a fire-watch approximately 2 hours after site operations cease and periodically during the night.

3.2.2 Discarded Smoking Materials

- The risk of fire from smoking materials has been assessed as medium. The following mitigation measures will be implemented to reduce the risk to low:
- The site operates a strict no smoking policy, with the only permitted smoking outside of the main entrance gates off-site.
- Cigarette disposal bins to be provided in smoking area outside of the main entrance gates to ensure all discarded smoking materials are kept off-site.
- No Smoking signage displayed in combustible waste storage building.
- General mitigation measures as detailed in 3.2.1.

3.2.3 Arson or Vandalism

The risk of fire from Arson or Vandalism has been assessed as medium. The following mitigation measures will be implemented to reduce the risk to low:

- Provision of a secure 2.4 metre high fencing system around the entire perimeter of the site.
- Daily/Weekly Inspection programme to ensure no breaches in the external fencing.
- 24hr manned security and CCTV installed at the site entrance.
- Random site inspections by security staff to monitor site out of hours.
- General mitigation measures as detailed in 3.2.1.

3.2.4 Hot Loads Deposited at Site

Considering the wastes received on-site:

- There is potential for hot loads to be deposited on-site, particularly if received bales contain waste that has been stored for >3 months.
- No ash or thermal by-products are received on-site (or permitted within the combustible waste storage building - 3.2.4).

As a consequence, the risk of fire from Hot Loads being deposited at site has been assessed as medium. The following mitigation measures will be implemented to reduce the risk to low:

- Robust waste acceptance procedures to ensure hot loads are identified on arrival at site.
- Where risks of hot loads are identified, load temperatures will be checked using a thermal camera to identify “hotspots” as part of receipt/dispatch process.
- Supplier sites to be periodically inspected to ensure production processes are producing high quality RDF.
- Firefighting equipment including fire extinguishers and inert materials to smother a fire will be available at all times for the management of hot loads.
- The Weighbridge operator is to carry out an inspection to ensure no heat or smoke is present within any arriving load. A secondary inspection should be made on tipping.
- If the load is hot, the Site Manager must establish why it is hot, and whether any special precautions need to be taken.
- The load must be directed to the Fire Quarantine Area where it can be extinguished.
- If a load is to be tipped in the Fire Quarantine Area to extinguish the fire this must only be done as directed by the Site Manager (or responsible person).

- If drivers or site operators have any doubts about the suitability of the Fire Quarantine Area, they should raise them before offloading the vehicle.
- Manage/quench the load to reduce heat if excessively hot.
- Emergency services must be called immediately should the site staff be unable to manage the hot load.
- A site Fire Marshall should be present during all hot load management to ensure full compliance with any instructions from the site management. The Fire Marshall will inspect the area after extinguishing of the hot loads to ensure no heat sources or fires are present. Regardless of the outcome of this inspection, the area where the hot load was tipped will be doused with water to minimise the risk of secondary fires.
- A hot load **SHOULD NOT** be allowed to leave site.
- General mitigation measures as detailed in 3.2.1.

3.2.5 Neighbouring Site Activities

The risk of fire from neighbouring site activities has been assessed as Medium.

Much of the site to the north and west of the storage building is an active steel hot rolling mill. Molten and heated pliable steels are present within the steel plant and rolling mill, as well as ash and other potentially hot by-products of steel product manufacturing. These production and storage activities are located a distance of >75m from the waste storage area and physically separated by the fabric of the intervening building.

Activities within this site could result in the outbreak of a fire which, passing through the fabric of the building, would ultimately reach the combustible waste storage building if not contained.

The following mitigation measures will be implemented to reduce the risk to low:

- Site-wide fire plan as well as waste storage site fire plan in place to reduce the risk of fire.
- Site –wide fire plan includes measures to control and manage any fire outbreak.
- Staff trained as Fire Marshalls.
- Emergency procedures include alerting the site security lodge and Site Manager responsible for the combustible waste storage building to the presence of a fire elsewhere within the site.
- Hot ash, by-products or products are generated within the steel rolling mill and these will not be permitted within 100m of the combustible waste storage building.

Other neighbouring sites, including a cargo handling and port operation to the north west, chemical works to the north, Coal-fired Power Station to the south west and waste water treatment facility to the south east are located at sufficient distance (particularly from the combustible waste storage building) or have intervening watercourses or bunds such that they are effectively separated from the site. Fire risks from these sites are considered to be limited to wind-blown hot/burning particles from a significant fire event. In the event of such a fire the following steps will be taken:

- Staff to remain vigilant for smoke from neighbouring sites and alert Fire Marshall if fire suspected at neighbouring sites.
- Fire Marshall will advise staff to maintain increased vigilance for secondary fires; and
- Firefighting equipment will be mobilised to specific areas if any elevated risk is identified.

3.2.6 Hot Exhausts

Plant and equipment with exhausts are largely moving and handling equipment (telehandler, loading shovel). The risk of fire from hot exhausts has been assessed as medium. The following mitigation measures will be implemented to reduce the risk to low:

- Where possible all loading of plant or equipment will take place away from the exhaust system, this is to reduce the amount of combustible material that can be dropped in the area of the exhaust system.
- All exhaust systems are to be checked and cleared of any waste at the end of each shift.
- Vehicles should be parked such that the waste is a distance of at least 6 metres from the exhaust outlets.
- All exhaust systems will be checked daily as part of the maintenance routine to ensure they are functioning correctly.
- General mitigation measures as detailed in 3.2.1.

3.2.7 (Reactions Between) Incompatible Materials

As the materials handled at the facility are predominantly from municipal sources, or are household- type waste from commercial and industrial sources the risk of reactions between incompatible materials has been identified as Medium. The following mitigation measures will be implemented to reduce the risk to low:

- Robust waste acceptance and inspection procedures.
- Should any material be discovered that is likely to cause a reaction with other wastes this would be removed from any potential combustible materials and placed in quarantine.
- Inspection of supplier sites to ensure production processes are producing high quality RDF.
- General mitigation measures as detailed in 3.2.1.

3.2.8 Plant or Equipment Failure

No processing equipment that is in direct contact with combustible waste (e.g. conveyor belts, screens, etc.) is permanently used on-site. Plant and equipment is largely to moving and handling equipment (telehandler, loading shovel) and lighting. Main plant and equipment risks related to other factors (addressed separately).

Temporary plant is infrequently brought to site e.g. mobile wrapper, so risk from this only when present.

The risk of fire from plant or equipment failure has been assessed as medium. The following mitigation measures will be implemented to reduce the risk to low:

- Staff to remain vigilant for trapped waste in equipment that could friction heat or fall into electrical systems (which should be correctly designed with guards fitted) and remove when discovered.
- All plant and equipment to be serviced, maintained and operated as per the manufacturers' requirements to ensure reliability and to reduce the possibility of failure. This includes the maintenance of any fire extinguishers fitted to plant and equipment.
- Daily maintenance inspections are to be carried out by trained plant operatives with any and all defects being reported by no later than the end of the working day. Should the daily inspection locate a serious defect the plant or equipment will not be put in to service and will be quarantined in the plant parking area until the defect has been rectified.

- All plant to be located/parked at the end of shift a minimum of 6 metres from combustible waste. Where the plant is static or cannot be moved readily then the plant must be cleaned down to ensure no potential combustible waste in and around the item of plant or equipment.
- Provisions for back-up plant and equipment to be in place to ensure failed plant or equipment can be replaced within a reasonable timescale which will allow the operations to continue safely and without increasing the risk of fire.
- General mitigation measures as detailed in 3.2.1.

3.2.9 Hot Works¹

The risk of fire from Hot Works has been assessed as medium. The following mitigation measures will be implemented to reduce the risk to low:

- Where possible all hot works must be carried out away from any stockpiles of waste that have the potential to cause fire.
- If hot works must be carried out near combustible materials then a minimum of 6 metres must be maintained at all times during the hot works.
- All hot works must be carried out under permit to work. A similar permit to work is operated at the adjacent steel plant and rolling mill.
- A site Fire Marshall will be present during all hot works within or near to the combustible waste storage building to ensure full compliance with any permit issued under hot works rules. The Fire Marshall will inspect the area after the completion of the hot works to ensure no heat sources or fires are present.
- The area of the hot works will be dowsed with water to minimise risk of fires.
- Firefighting equipment including fire extinguishers will be available at all times during hot works.
- General mitigation measures as detailed in 3.2.1.

3.2.10 Electrical Faults

The risk of fire from electrical faults has been assessed as medium. The following mitigation measures will be implemented to reduce the risk to low:

- All electrical cables will be tested and isolated prior to the start of any electrical maintenance.
- The use of mobile power tools and power supplies will be limited to essential maintenance only.
- Staff trained to check electrical equipment for damage before use and unplug/disconnect power from equipment when not in use.
- All electrical equipment will be PAT tested where required to ensure they are compliant and safe to use.
- Firefighting equipment suitable for electrical fires will be available on site at all times.
- General mitigation measures as detailed in 3.2.1.

¹ This assessment assumes that furnaces located to the west of the storage building are not in operation and that containment of hot metal, ash or other heated materials or by-products are contained within the fabric of the steel mill building until such time as they have cooled and represent no elevated risk of initiating a fire within the combustible waste storage building. Should this not be the case, or operations change to the extent that this is no longer the case, this FPMP plan and associated risk assessment will need to be updated in light of these changes.

3.2.11 Damaged or Exposed Electrical Cables

The risk of fire from electrical faults has been assessed as medium, largely due to the apparent condition and lack of data relating to the nature of the electrical wiring present within the building and whether it is connected and live. The following mitigation measures will be implemented to reduce the risk to low:

- All electrical cables will be isolated before any works can begin.
- Signage indicating the presence of electrical cabling (and gas lines) displayed within the combustible waste storage building.
- An annual inspection of all electrical systems will be carried out to ensure that all systems are sound and safe.
- Firefighting equipment suitable for electrical fires will be available in suitable locations around the site.
- General mitigation measures as detailed in 3.2.1.

3.2.12 Open Burning

The risk of fire from Open Burning has been assessed as medium. The following mitigation measures will be implemented to reduce the risk to low:

- The burning of wastes of any kind is strictly prohibited on-site.
- Site rules and induction programme to brief and inform staff.
- Disciplinary procedure to make specific reference to burning of waste – gross misconduct.
- Staff to remain vigilant for smoke from neighbouring sites and alert Fire Marshall if open burning suspected at neighbouring sites. Fire Marshall will advise staff to maintain increased vigilance for secondary fires. Firefighting equipment will be mobilised to specific areas if any elevated risk is identified.
- General mitigation measures as detailed in 3.2.1.

3.2.13 Naked Lights

Refer to section 3.2.2 for information relating to Discarded Smoking Materials and section 3.2.8 for Hot Works.

No other operational naked flame sources (e.g. gas boilers or other equipment) are present within, or immediately adjacent to the combustible waste storage building.

The only other potentially elevated temperature source identified for consideration is electric lighting. The risk of fire from naked lights is assessed as medium. The following mitigation measures will be implemented to reduce the risk to low:

- Naked lights/potential sources of ignition to be kept at least 6m from stockpiles of combustible waste (ceiling lighting currently c.14m above floor level).
- Clear waste height indicators installed within combustible waste storage building to prevent waste being stored within 6m of ceiling lighting.
- Conventional industrial lighting will be replaced by LED lighting at the end of its useful life wherever practical.
- The Site Manager will conduct a Monthly H&S walkover with visual inspection of lighting fixtures, with fixtures inspected annually by a qualified electrical engineer.

3.2.14 Sparks from Loading Buckets

The risk of fire from sparks from loading buckets has been assessed as negligible. Whilst acceptable without further mitigation, the following measures will be implemented:

- The dragging/pushing of buckets along concrete surfaces should be kept to a minimum.
- A yard brush will be used to maintain site cleanliness rather than scraping with a loading bucket.
- All loading buckets will be inspected daily as part of the driver's daily inspection programme to ensure they are flat and level to avoid any uneven contact with possible surfaces that could lead to sparking.
- The use of rubber across the bottom edge of loading shovels would be ineffective as any strip would be damaged or removed during the handling of wastes. Alternative methods of spark reduction will be investigated should sparking become a noted problem during the operation of the equipment. All shovel operators will be instructed to monitor their buckets and report any sparks.
- General mitigation measures as detailed in 3.2.1.

3.2.15 Industrial Heaters

No industrial heating of any kind is used within the combustible waste storage building.

3.3 Potential Impacts of Fire

Fires involving combustible materials can cause significant harm to people and the environment as a result of:

- combustion products: even those from non-toxic materials release airborne pollutants which can cause both short and long term effects on human health and the environment;
- fire water run-off: this can transport pollutants into drainage systems, rivers and lakes, groundwater and soil, threatening water supplies, public health, wildlife and recreational use;
- thermal radiation: which harms people and the environment and can lead to fire spread;
- hazardous waste: which can be created by the fire and has important ramifications for fire fighting
- explosions and projectiles: which can harm people and spread the fire to unaffected areas
- Harm to people and property: fire can threaten life and cause property damage

The impact of a fire may be both immediate and long lasting and can present a significant burden for the Fire and Rescue Services, other agencies and the public – including the risk of death, and harm to public health.

3.3.1 Receptors

In considering the potential Impacts of Waste Fires we have reviewed the EA document "The Impact of Waste Fires", Howard Davidson, 27 November 2013 and also considered the location of local receptors including critical infrastructure such as schools, hospitals, residential areas, workplaces, protected habitats, rivers (and other surface water features) and coastal waters within a 1km radius of the site. These are considered likely to be at greatest risk of impact in the event of a fire, predominantly as a result of smoke plumes or fire water run-off, but also from thermal radiation, hazardous residues and other effects.

Drawing 10939-000-F and Table 3 show the locations of human and ecological receptors located within 1km of the boundary of the site.

Receptor Reference	Type	Distance from Site Boundary	Direction
O1	Groundwater	0m	Independent
W1	Land Drain	55m	East
E1	River Usk (Lower Usk) SSSI/River Usk SAC	94m	West
W2	Julian's Gout/Reen (connecting with River Usk)	107m	South
O2	Freight Rail Line	123m	East
C1	Boat Yard (Building)	377m	South West
C2	Yard (Disused)	471m	South
E2	Solutia Nature Reserve	472m	East
C3	Sewage Treatment Works (Building)	544m	South
E3	Gwent Levels - Nash and Goldcliffe SSSI	587m	South East
C4	Uskmouth Powerstation (Building)	662m	South West
C5	Birdport (Building)	700m	North West
E4	Newport Wetlands SSSI/NNR	740m	South
R1	Residential (Burnt House - Derelict)	790m	South East
O3	Wales Coastal Path	792m	East
C6	Coal Yard	797m	West North West
R2	Residential/Farm	802m	South East
O4	Public Parking (Newport Wetlands SSSI/NNR)	820m	South
C7	Cement Works (Yard)	870m	North North West
C8	Solutia (Building)	874m	North
C9	Minerals Yard	895m	North North West
R3	Residential (Great House)	904m	South East
R4	Residential Properties/Farm	913m	South East
C10	Freight Terminal (Building)	925m	West North West
R5	Residential	927m	South East
C11	Industrial (shot blasting/spraying) (Yard)	977m	North North West
R6	Residential Properties	991m	North East

Table 3. Receptors within 1km of the site boundary

3.3.2 Potential Impacts on Receptors and Response Measures

3.3.2.1 Toxic Smoke Plumes – Air Quality Impacts

Air emissions from uncontrolled waste fires have shown to be more toxic than those from controlled combustion sources (i.e., waste to energy facilities, cement kilns, etc.). These emissions contain contaminants that may include: oxides of nitrogen or Sulphur (NO_x, SO_x), Carbon Monoxide (CO), volatile organic compounds (VOCs) and various metal compounds. Depending on the length and degree of exposure, these emissions may cause irritation of the skin, eyes, mucous membranes and cause respiratory effects.

As the smoke plume is most likely to impact the local residents, local shops and local work places the quick management and control of a fire is an important factor in minimising impacts on receptors. This FPMP provides details and procedures for achieving this.

The pathway by which plumes may impact upon receptor locations is a result of atmospheric dispersion. In general, high wind speeds lead to a plume being more rapidly dispersed and diluted due to turbulence, and low wind speeds inhibit dispersion.

To manage the impacts of smoke once released from a fire it is essential that information regarding the direction of the smoke released is identified and that the plume is monitored to establish its extent and likely dispersion radius.

Wind frequency data based on 10 years of measurements at St. Athan observation station (at an elevation of 49m ASML) is presented in Figure 1 below. It is evident that winds from the west south west to west north west predominate in the area and winds from the south, north and east tend to be infrequent and typically lower in strength. Low wind speeds (<3.1m/s) occur for 33.9% of time each year.

With a prevailing wind direction showing a strong tendency to come from the west it is more likely that any fire effects will be experienced by receptors located to the east of the site (albeit the wind direction may be in a different direction at the time of a fire). Within 1000m to the east of the combustible waste storage building the following receptors are present:

- Land drain (W1) – not affected by smoke
- Freight Rail Line (O2) – short-term exposure, possible disruption due to smoke
- Solutia Nature Reserve – not affected by smoke (accept for short-term exposure of visiting human receptors)
- Wales Coastal Path– not affected by smoke (accept for short-term exposure of visiting human receptors)

Within 1000m of the combustible waste storage area in other directions there are a number of ecological, industrial and other receptors. Excluding the Operator's staff working in the adjacent steel mill and security offices, the closest permanently occupied human receptor (defined as being potentially occupied for large parts of the day or night) is a commercial boat yard office located approximately 377m from the combustible waste storage building to the south west. The business itself and users of the boat yard may be affected if the Emergency Services consider it necessary to close roads around the site. Given the nature of the business any disruption is likely to be minor.

Birdport and other businesses on the industrial estate to the north of the site may be affected if the Emergency Services consider it necessary to close the main access road into the site. This may result in minor impacts to businesses within and outside of the local area.

Users of the freight railway line running adjacent to site's eastern boundary may be affected if the Emergency Services consider it necessary to close the line, or there is travel disruption caused by reduced speeds, rerouting of trains, etc. due to reduced visibility. This may result in minor impacts to businesses within and outside of the local area.

Visitors to the Solutia Nature Reserve, Wales Coastal Path and other nearby sites of ecological or landscape interest are normally infrequent and present for only short-durations. In the event of a fire visitors would be discouraged from using the sites. Any disruption would be minor.

The closest occupied residential receptor is located 802m to the south east of the combustible waste storage building. Dispersion of smoke plumes over these distances will reduce the risk of harm to people present at these receptors and any impacts are likely to be minor.

Users of nearby roads may be affected if the Emergency Services consider it necessary to close roads. Given the nature of the roads in the local area any disruption is likely to be minor.

Measures to minimise the impact of fire on people present at receptors within 1000m of the site (for major fire events) has been considered as part of the fire emergency response. Specific response measures for nearby receptors are detailed in the Emergency Fire Response procedure presented in section 6 (and specifically Table 5).

3.3.2.2 Fire Water Run-Off

Fire water run-off has the potential to contain harmful combustion by-products, or un-combusted waste materials washed from other areas of the site. The volume of water involved and the subsequent dilution of these compounds will vary based on the scale and nature of any fire. Minimising potential impacts to the environment and local infrastructure is a key consideration of this FPMP.

Following a review of this Fire Prevention and Mitigation plan by NRW on 22nd Aug 2016 it has been agreed that the existing stone bund from the perimeter of the scrap bay will be removed and we will construct a new concrete bund between each stanchion measuring 200mm wide x 200mm high. In addition sufficient reinforcing bar will be incorporated within the bund to tie to the concrete floor of the bay. We will also excavate 5 sump/catchment pits to a depth of 1500mm set on a concrete pad which will act as holding tanks until water can be pumped into the closed process water system

Should the fire water over-top or breach the existing bund it would flow under gravity to south of the site. A raised road (c. 0.5m high) impedes the flow before it reaches Julian's Gout to the south (a further bund along Julian's Gout provides further protection of the watercourse). Bunding to the East along the periphery of the site (1-2m in height) would contain firewater before it reached the adjacent reën.

The emergency response plan included in section 6 includes contingency measures to contain fire water within the site boundary.

3.3.2.3 Thermal Radiation

Heat from a fire may burn human or fauna/flora receptors or be absorbed by other combustible materials causing them to heat up and ignite. The main principle of radiation is that the closer the material is to the fire the more radiated heat it will receive.

The combustible waste storage building is attached to the larger steel plant and rolling mill, with the potential for fire to spread throughout the site if not adequately controlled.

The emergency response plan included in section 6 takes steps to remove people and objects to a safe distance from the fire and gives consideration to nearby land usage and the potential for secondary fires as a result of thermal radiation. In addition, the inclusion of fire breaks within the stockpiles will reduce the potential for any fire spreading into nearby stockpiles as well as allowing unimpeded access around the stockpiles by the emergency services.

3.3.2.4 Combustion Residues

Residues from fires have the potential to cause environmental damage if not correctly managed following a fire. Residues in some circumstances may be considered hazardous and require specific management controls to ensure recovery or disposal is undertaken to minimise any potential for environmental damage.

As part of this FPMP the impact of residual wastes from waste fire has also been considered and is covered in more detail in section 9. In general residues will be sampled and characterised before being removed from site for recovery/disposal at suitably licensed facilities.

3.3.2.5 Explosions and Projectiles

Fire and explosion can result in catastrophic consequences, causing serious injuries or death of workers and others, as well as significant damage to property. Projectiles can cause damage to other structures and set fires at great distances from the initial blast.

Materials including solvents, paints, varnishes, flammable gases, liquefied petroleum gas (LPG), dusts from machining and sanding operations, and dusts from foodstuffs if not properly controlled, can cause harm to people as a result of a fire, explosion or similar incident, such as an uncontrolled chemical reaction.

This FPMP considers potentially explosive materials, their presence within waste feedstocks (e.g. gas canisters, aerosols) or their location with respect to a potential fire (gas cylinder/fuel storage). The primary mechanism for reducing the risk from explosions and projectiles is through robust waste acceptance

procedures and the location of potentially explosive objects and materials (gas cylinders/fuels) away from combustible waste storage areas.

3.3.2.6 Harm to People and Property

Most fire deaths are not caused by burns, but by smoke inhalation. Often smoke incapacitates so quickly that people are overcome and are unable to reach an otherwise accessible exit. Synthetic materials that are commonplace today produce especially toxic gases when burnt.

In addition to producing smoke, fire can incapacitate or kill by reducing oxygen levels, either by consuming the oxygen, or by displacing it with other gases. Heat is also a respiratory hazard, as superheated gases burn the respiratory tract.

Damage to property may be at the source of the fire, or through secondary fires from burning wind-blown particles.

This FPMP considers the location of receptors with respect to the site. Measures to minimise the impact of fire on people present at receptors within 1000m of the site (for major fire events) has been considered as part of the fire emergency response. Specific response measures for nearby receptors are detailed in the Emergency Fire Response procedure presented in section 6 (and specifically Table 5).

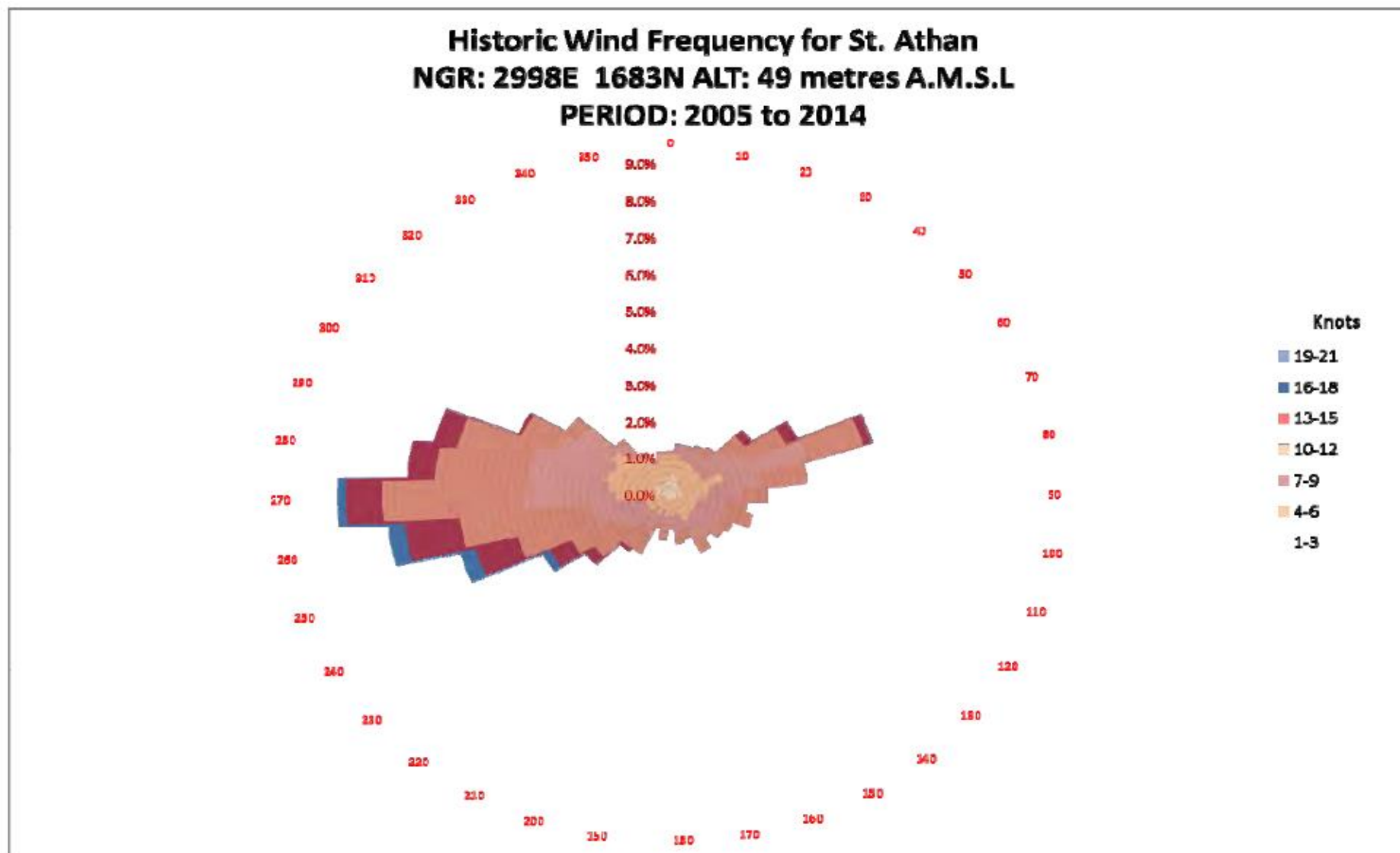


Figure 1. Historic Wind Frequency for the St. Athan observation station for the years 2005-2014.

4 STORAGE AND SEPARATION OF WASTES

As indicated previously, this Fire Prevention and Mitigation Plan does not consider the storage and treatment of wastes other than combustible wastes of the types specified in section 2.3 and should the operator wish to accept wastes other than those best described as RDF/SRF, this Fire Prevention and Mitigation Plan will be updated to reflect the storage and treatment required for these materials and any changes agreed with Natural Resources Wales prior to these wastes being accepted on-site.

4.1 Stockpile Sizes and Separation

Drawing 10939 – 000 - G presents the storage plan for the site.

The Operator intends to configure storage to comply with NRW's latest guidance; Fire Prevention and Mitigation Plan Guidance - Waste. This includes the introduction of maximum stack sizes and separation distances between stacks (as shown in Table 4) to reduce the potential for any fire spreading into nearby stockpiles as well as allowing unimpeded access around the stockpiles by the emergency services.

Primary Materials (description)	Max. Height (m)	Max. Length/ width (m)	Max. Volume (m ³)	Max. Area (m ²)	Min. Separation (m)
Combustible materials (EWC 191210 SRF/RDF)	5	20	450	235	6

Table 4. Maximum stack sizes and minimum separation distances

4.2 Storage Durations

Storage durations are as those shown in Table 2.

4.3 Baled Wastes

Any bales received on-site will be stored in stacks in compliance with Table 5.

Stacks of bales will be carefully managed to ensure they are stable and that sufficient fire breaks are maintained.

4.3.1 Square/Rectangular Bales

Square or rectangular bales will be stored by terracing/use of a flat sided pyramid stacking system. Pyramid/terraced storage of bales is intended to increase stack stability and lessen the risk of a bale falling during a fire resulting in fire spread. This structure also has the benefit of changing the angle of the planes of radiated heat. A schematic drawing showing the bale stacking is shown in Figure 2.

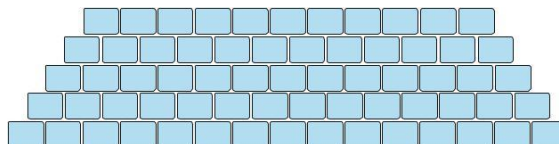


Figure 2. Storage of square/rectangular bales

Drawing 10939 – 000 - G presents a storage plan for the site based on the assumption that a rectangular bale will be 1.5m (l) x 1.3m (w) x 0.65m (h). To comply with NRW storage guidelines a maximum of 355 rectangular bales of the stated dimensions can be stored within a stack.

A 6m separation is maintained between each stack and between every batch of 16 stacks a 20m spacing is maintained.

4.3.2 Cylindrical Bales

Cylindrical bales will be stored on their sides using a similar flat sided pyramid/terraced stacking system to square/rectangular bales. In normal circumstances bottom bales will deform and impede rolling, and will not require bracing to maintain stack stability. A schematic drawing showing bale stacking for a cylindrical bale is shown in Figure 3.

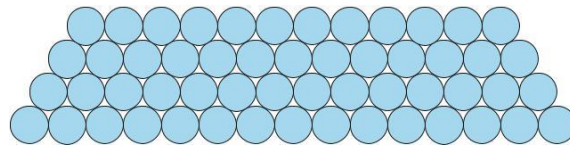


Figure 3. Storage of cylindrical bales

Drawing 10939 – 000 - G presents a storage plan for the site based on the assumption that a cylindrical bale will be 1.2m (dia.) x 1.2m (l). To comply with NRW storage guidelines a maximum of 397 cylindrical bales of the stated dimensions can be stored within a stack.

Cylindrical bales may roll should a stack collapse during a fire and this may result in fire spread. In calculating separation distances between stacks it has been assumed that in the event of a fire in the bottom bale at the extremity of the stack and its subsequent collapse, that the four bales immediately supported by the collapsed bale will roll downwards and come to rest directly adjacent to the collapsed bale. Other bales will remain supported by the remaining intact bales (Figure 4).

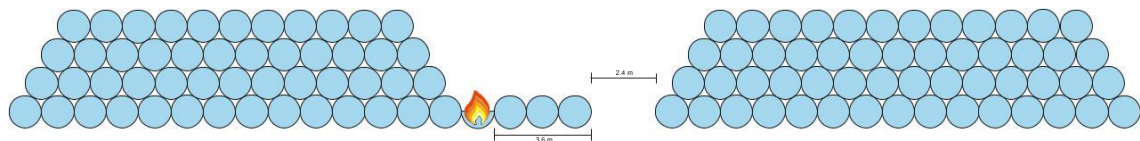
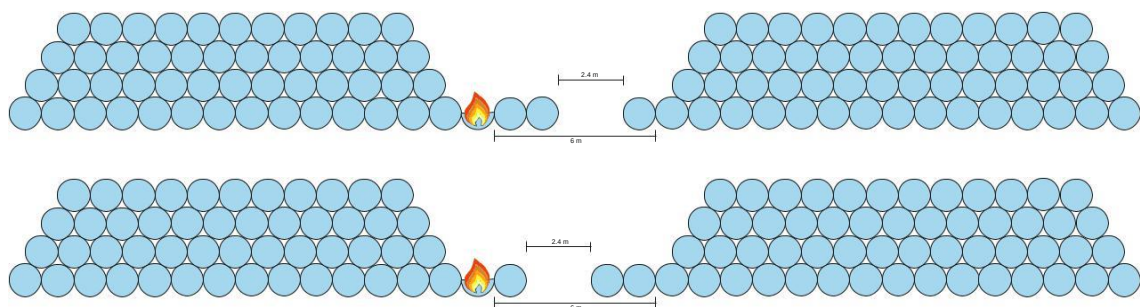


Figure 4. Calculation of separation distance

Assuming a bale diameter of 1.2m and following the WISH Guidance² that indicates (for toppling bales) a separation of 1m greater than the toppling distance, a separation distance of 4.6m ($3 \times 1.2\text{m} = 3.6\text{m} + 1\text{m} = 4.6\text{m}$) between stacks would be a reasonable separation distance. The proposed 6m separation distance is therefore greater than the 4.6m calculated and provide contingency for bale splitting and/or twisting that could reduce the effective separation distances and exacerbate the risk of fire spread.

Should a bale(s) roll and come to rest at the adjacent stack, the remaining 2.4m clearance will separate bales adjacent to the source of the fire from those in contact with the adjacent stack (Figure 5).



² WISH WASTE 28 Reducing Fire Risk at Waste Management Sites Issue 1 (2015)

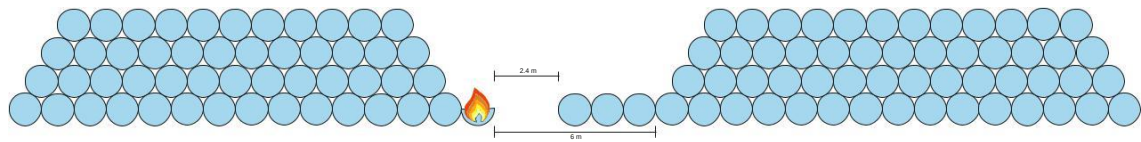


Figure 5. Alternative collapse scenarios

Should a bale collapse occur at a level higher than the base layer, a reduce number of bales will fall and separation distances between the source of the fire and adjacent stacks will be greater.

5 FIRE DETECTION AND SUPPRESSION SYSTEMS

5.1 Fire Detection Systems

5.1.1 Site Inspections

The Site Manager will carry out site inspections as least twice per day. Visual inspection of the site and bale stacks will be undertaken with a view to identifying evidence of fire or potential fire risks. Any risks will be recorded on the daily inspection sheet, remedial action identified and implemented.

5.1.2 Fire Watch

A fire-watch will be undertaken at the end of each shift. Any risks will be recorded on the daily inspection sheet, concerns logged (e.g. dust from processing operations that could settle onto hot exhausts and engine parts), remedial action identified and implemented.

5.1.3 Heat Detection

The stockpiles and working faces will be checked with a thermal imaging camera or temperature probe at least once per day as part of the daily inspections to ensure they are not showing signs of overheating. These checks will be recorded by the Site Manager/Fire Marshall on the daily inspection report.

5.2 Fire Suppression Systems

The following fire suppression systems are available at the facility.

5.2.1 Portable Fire Extinguishers

The facility will be equipped with fire extinguishers of a type, size, location, and number as recommended by the local fire service. Each fire extinguisher will be fully charged and ready for use at all times. The site accident/incident plan and on-site signage indicate the location of these appliances.

- The following types of fire extinguisher will be available:
- Dry Powder Fire Extinguisher
- Water Fire Extinguisher
- Carbon Dioxide
- Foam
- Halon gas

Each extinguisher will be inspected on an annual basis and recharged as necessary. A qualified service company will perform these inspections, and all extinguishers will display a current inspection tag. Inspection and recharging will be performed following each use.

Staff are responsible for notifying the Site Manager if they find a fire extinguisher that has been used or damaged.

All operating plant that is used to handle the waste is also fitted with Fire Extinguishers which can be used to suppress small fires should the operator or staff notice them.

5.2.2 Inert Stockpiles

Soil and other inert materials that are free of organic materials is helpful in extinguishing fires. Soil absorbs heat and suffocates a fire and can be used as a useful suppressant when fighting waste fires. Approximately 250m³ of soil/inert material will be stockpiled adjacent to the storage area for use as a fire suppressant.

5.2.3 Fire Hydrants

The site has a Fire Hydrant to provide water for emergency fire-fighting located next to the western site entrance. The Hydrant location is shown on drawing 10939-000-C.

5.3 On-Site Storage of Water

The site's water surface water management system includes a periphery drain and sluice system at the eastern boundary of the site that permanently stores fresh water that can be used for fire suppression.

5.4 Dedicated Emergency/Quarantine Area

A dedicated emergency or quarantine area (to be used to spread and quench burning waste) with a clear area of at least 10m around the perimeter is shown on Drawing 10939 – 000 – G.

6 EMERGENCY FIRE RESPONSE AND ACTIVATION PLAN IN CASE OF FIRE

6.1 Emergency Fire Response

The following emergency fire plan will be followed when fire or smoke is suspected or discovered.

The sequence of these steps may vary according to the circumstances of the fire emergency, but priority must always be given to the safety of staff and visitors, followed by the prevention of impact on local human or environmental receptors.

The following procedures are to be followed on the discovery of fire or smoke;

- Upon discovering smoke or fire the alarm must be raised via the site radio/mobile phone call to the Site Manager or Main Office, or by repeated horn blasts and/or shouting to indicate a fire has been discovered.
- The person discovering a fire should inform the security lodge of the fire and its location (ext. 206 and 226) and provide an assessment of the situation. The security lodge will then call the fire brigade on "999" providing details of the fire's location and scale.
- The person discovering a fire should then contact the Site Manager/Supervisor (or if not immediately contactable, a Fire Marshall responsible for the combustible waste storage building). The Site Manager/Supervisor must immediately go to the vicinity of the fire to assess the situation and decide upon a course of action.
- All non-essential persons should be instructed to leave the area and report to the designated site assembly point. Where possible machine operators are to move their machines to a safe area only returning to assist in the movement of waste at the direction of the senior fire officer.
 - Persons evacuating must
 - obey Fire Marshals' instructions;
 - ensure others in the vicinity also evacuate;
 - assist any person who needs help, if safe to do so;
 - not stop to collect any personal belongings;
 - proceed directly to the Assembly Point at Rose Wharf, east of the site; and
 - remain there until officially instructed otherwise.
- The Site Manager/Supervisor is to instruct the site security lodge and the weighbridge operator to hold all incoming traffic and await further instructions.
- If safe to do so, the person or persons discovering the fire should seal off the area and fight the fire using appliances provided. Persons with no specific training are not expected to fight a fire, but all staff should familiarise themselves with the location and basic operating principles of the equipment, in case they need to use it. Where safe to do so, the person discovering the fire should delegate tasks to available staff members in relation to fighting or preventing the spread of fires.
- The Site Manager or a designated Fire Marshall will collect the roll call list/visitor's book and confirm the presence of staff and visitors at the assembly point.
- If it is safe to do so, a search of all effective areas of the site will be undertaken by the Site Manager/Supervisor to ensure that everybody has evacuated the site.
- The Site Manager/Supervisor is to ensure the fire water management measures are implemented at the earliest opportunity to prevent fire water from discharging into adjacent watercourses, e.g. reinforce bunding around storage building as required.

Upon arrival the Site Manager will issue the Emergency services with the site accident plan and the emergency services will assume control of the situation, all instructions/advice given by them will be followed.

The Site Manager/Supervisor is to advise the Officer in Charge of the emergency services if someone is missing.

After all occupants are evacuated, and visitors and staff are accounted for, the Site Manager will be responsible for contacting residential and business receptors within 500m of the site (or up to 1000m in any major fire event), starting with those downwind of the fire to advise them of any particular measures required while the fire is being brought under control (e.g. the evacuation of nearby premises, closing of windows, etc.). Table 5 provides details of receptors and precautions to be advised. Any instruction given on-site by the Emergency Services over- rules any guidance in Table 5. The locations of the receptors are shown on Drawing 10939 – 000 - H.

Wait for the 'all-clear' from the fire brigade before returning staff to any affected area.

The Site Manager is responsible for ensuring the conditions that led to the fire are investigated (in association with the Fire Service and South Wales Police as appropriate), plant is safely recommissioned, accident plans and management systems documents are reviewed and improved, training requirements for staff personnel are reviewed and that any remedial measures (including further fire reduction measures and new procedures) are implemented.

6.2 Firefighting Methods

Firefighting methods for burning solid waste include smothering the waste, separating burning material from other waste, or spraying with water from the on-site hydrant.

The Site Supervisor or available staff may attempt to extinguish a fire using on-site equipment if:

- It is safe to do so;
- It is a small fire that can be managed by the on-site staff (e.g. a smouldering waste, overheating/smouldering electrical equipment, small isolated area of waste);
- Staff and Visitors have been moved from the danger area and an evacuation has commenced;
- The fire brigade has been called; and,
- The person using the extinguisher or other fire control equipment has been trained in its use.

If a fire occurs on a vehicle or piece of equipment, the equipment operator will bring the vehicle or equipment to a safe stop. If safety of personnel will allow, the vehicle will be parked away from fuel supplies, uncovered solid wastes, and other vehicles. The engine will be shut off and the brake engaged to prevent movement of the vehicle or piece of equipment.

6.3 Fire Marshalls

The Site Manager (and several deputies) will be trained as Fire Marshalls. They will also be responsible for implementing response plans and co-ordinating with the emergency services (and NRW) in the event of a fire.

6.4 Staff Training

Training of on-site personnel in firefighting techniques, fire prevention, response, and the fire protection aspects of the site will be provided, by established professionals, on an annual basis. Personnel will be familiar with the use and limitations of firefighting equipment available onsite. Records of this training will be included in the operating record for the facility.

6.5 Notification of Fires to NRW

After any fire related to waste management activities that cannot be extinguished within 10 minutes of discovery occurs, NRW will be notified. The notification will include:

- Contacting by telephone as soon as possible, but no later than 4 hours following fire discovery; and

- Providing a written description of the cause and extent of the fire and the resulting fire response within 14 days of fire detection.

The facility will provide NRW with as much information as possible regarding the fire and fire-fighting efforts, as soon as possible after the fire occurs.

The fire prevention and fire control procedures for the facility will be revisited following the occurrence of a significant fire to determine if modifications are warranted.

Notification to NRW will comply with the Permit requirements, (Notifications ref 4.3).

Receptor Reference	Type	Distance from Site Boundary	Direction	Impact	Likelihood	Response Measures
O1	Groundwater	0m	Independent	Not impacted by smoke. Environmental pollution if fire water enters groundwater.	All waste stored on impermeable surface with sealed drainage. Fire water containment measures in place. Possible seepage to groundwater in significant fire event due to unsurfaced fire water storage area.	Monitor effectiveness of fire water containment measures in the event of a fire. Remove fire water from storage area as soon as practical following a fire.
W1	Land Drain	55m	East	Not impacted by smoke. Environmental pollution if fire water enters surface water.	Hydraulic linkage with River Usk.	Not likely. Hydraulic linkage with River Usk.
E1	River Usk (Lower Usk) SSSI/River Usk SAC	94m	West	Not impacted by smoke. Environmental pollution if fire water enters surface water.	Not likely	Containment of fire water on impermeable surface using bunding and other measures.
W2	Julian's Gout/Reen (connecting with River Usk)	107m	South	Not impacted by smoke. Environmental pollution if fire water enters surface water.	Hydraulic linkage with River Usk.	Containment of fire water on impermeable surface using bunding and other measures.
O2	Freight Rail Line	123m	East	Short-term potential exposure if smoke enters driver compartment. Possible obscuring of visibility. Freight users may be affected if the Emergency Services consider it necessary to close the line, or there is travel disruption caused by reduced speeds, rerouting of	Normally in line with prevailing winds, proximity makes exposure likely.	Contact rail operator as soon as practical after fire discovered and advise precautions are taken in the event of a significant fire and extensive plume blowing towards receptor.

				trains, etc. This may result in minor impacts on businesses and individuals outside of the local area.		
C1	Boat Yard (Building)	377m	South West	Potential smoke inhalation leading to short-term health problems, exacerbated in people with asthma or other respiratory ailments. Effects diminishing with distance due to dispersion.	Occasionally in line with prevailing winds.	Remain vigilant of plume direction and dispersion and follow guidance from emergency services.
C2	Yard (Disused)	471m	South	Potential smoke inhalation leading to short-term health problems, exacerbated in people with asthma or other respiratory ailments. Effects diminishing with distance due to dispersion.	Not normally in line with prevailing winds.	Remain vigilant of plume direction and dispersion and follow guidance from emergency services.
E2	Solutia Nature Reserve	472m	East	Potential smoke inhalation by visitors leading to short-term health problems, exacerbated in people with asthma or other respiratory ailments. Environmental pollution if fire water enters surface water.	Normally in line with prevailing winds. Possible hydraulic linkage. Visitors infrequent and transient.	Containment of fire water using bunding and other measures. The Operator, in consultation with the F&RS, would take steps to ensure visitors are discouraged or prevented from using the area until safe to do so.
C3	Sewage Treatment Works (Building)	544m	South	Potential smoke inhalation leading to short-term health problems, exacerbated in people with asthma or other respiratory ailments. Effects diminished due to dispersion.	Not normally in line with prevailing winds.	No specific measures. Follow guidance from emergency services.
E3	Gwent Levels - Nash and Goldcliffe SSSI	587m	South East	Potential smoke inhalation by visitors leading to short-term health problems, exacerbated in people with asthma or other respiratory ailments. Effects diminished due to dispersion. Environmental pollution if fire water enters surface water.	Occasionally in line with prevailing winds. Possible hydraulic linkage. Visitors infrequent and transient.	Containment of fire water using bunding and other measures.
C4	Uskmouth Powerstation (Building)	662m	South West	Potential smoke inhalation leading to short-term health problems, exacerbated in people with asthma or other respiratory	Occasionally in line with prevailing winds.	No specific measures. Follow guidance from emergency services.

				ailments. Effects diminished due to dispersion.		
C5	Birdport (Building)	700m	North West	Potential smoke inhalation leading to short-term health problems, exacerbated in people with asthma or other respiratory ailments. Effects diminished due to dispersion.	Not normally in line with prevailing winds.	No specific measures. Follow guidance from emergency services.
E4	Newport Wetlands SSSI/NNR	740m	South	Potential smoke inhalation by visitors leading to short-term health problems, exacerbated in people with asthma or other respiratory ailments. Effects diminished due to dispersion. Environmental pollution if fire water enters surface water.	Not normally in line with prevailing winds. Possible hydraulic linkage. Visitors infrequent and transient.	Containment of fire water using bunding and other measures.
R1	Residential (Burnt House - Derelict)	790m	South East	Potential smoke inhalation leading to short-term health problems, exacerbated in people with asthma or other respiratory ailments. Effects diminished due to dispersion.	Occasionally in line with prevailing winds.	No specific measures. Follow guidance from emergency services.
O3	Wales Coastal Path	792m	East	Potential smoke inhalation leading to short-term health problems, exacerbated in people with asthma or other respiratory ailments. Effects diminished due to dispersion.	Normally in line with prevailing winds. Visitors infrequent and transient.	No specific measures. Follow guidance from emergency services.
C6	Coal Yard	797m	West North West	Potential smoke inhalation leading to short-term health problems, exacerbated in people with asthma or other respiratory ailments. Effects diminished due to dispersion.	Not normally in line with prevailing winds.	No specific measures. Follow guidance from emergency services.
R2	Residential/ Farm	802m	South East	Potential smoke inhalation leading to short-term health problems, exacerbated in people with asthma or other respiratory ailments. Effects diminished due to dispersion.	Occasionally in line with prevailing winds.	No specific measures. Follow guidance from emergency services.

O4	Public Parking (Newport Wetlands SSSI/NNR)	820m	South	Potential smoke inhalation by visitors leading to short-term health problems, exacerbated in people with asthma or other respiratory ailments. Effects diminished due to dispersion.	Not normally in line with prevailing winds. Visitors transient.	No specific measures. Follow guidance from emergency services.
C7	Cement Works (Yard)	870m	North North West	Potential smoke inhalation leading to short-term health problems, exacerbated in people with asthma or other respiratory ailments. Effects diminished due to dispersion.	Not normally in line with prevailing winds.	No specific measures. Follow guidance from emergency services.
C8	Solutia (Building)	874m	North	Potential smoke inhalation leading to short-term health problems, exacerbated in people with asthma or other respiratory ailments. Effects diminished due to dispersion.	Not normally in line with prevailing winds.	No specific measures. Follow guidance from emergency services.
C9	Minerals Yard	895m	North North West	Potential smoke inhalation leading to short-term health problems, exacerbated in people with asthma or other respiratory ailments. Effects diminished due to dispersion.	Not normally in line with prevailing winds.	No specific measures. Follow guidance from emergency services.
R3	Residential (Great House)	904m	South East	Potential smoke inhalation leading to short-term health problems, exacerbated in people with asthma or other respiratory ailments. Effects diminished due to dispersion.	Not normally in line with prevailing winds.	No specific measures. Follow guidance from emergency services.
R4	Residential Properties/ Farm	913m	South East	Potential smoke inhalation leading to short-term health problems, exacerbated in people with asthma or other respiratory ailments. Effects diminished due to dispersion.	Occasionally in line with prevailing winds.	No specific measures. Follow guidance from emergency services.
C10	Freight Terminal (Building)	925m	West North West	Potential smoke inhalation leading to short-term health problems, exacerbated in people with asthma or other respiratory ailments. Effects diminished due to	Not normally in line with prevailing winds.	No specific measures. Follow guidance from emergency services.

				dispersion.		
R5	Residential	927m	South East	Potential smoke inhalation leading to short-term health problems, exacerbated in people with asthma or other respiratory ailments. Effects diminished due to dispersion.	Occasionally in line with prevailing winds.	No specific measures. Follow guidance from emergency services.
C11	Industrial (shot blasting/spraying) (Yard)	977m	North North West	Potential smoke inhalation leading to short-term health problems, exacerbated in people with asthma or other respiratory ailments. Effects diminished due to dispersion.	Not normally in line with prevailing winds.	No specific measures. Follow guidance from emergency services.
R6	Residential Properties	991m	North East	Potential smoke inhalation leading to short-term health problems, exacerbated in people with asthma or other respiratory ailments. Effects diminished due to dispersion.	Occasionally in line with prevailing winds.	No specific measures. Follow guidance from emergency services.

Table 5. Potential impacts and response measures

7 ACCESS AND TRAFFIC MANAGEMENT PLAN FOR EMERGENCY SERVICES

As part of the emergency fire response all vehicles will be moved off site. Similarly all site vehicles/plant and equipment will clear site access routes for unimpeded use by the emergency services.

The site has a dedicated traffic management plan which includes the following:

- A plan showing emergency traffic routes. A plan showing access and egress points.

- Site procedures giving detail instruction of on-site traffic management and the responsible management structure (with drawings and supporting information as required).

This plan will be communicated/provided to the emergency services upon arrival at site.

8 FIRE WATER RUN OFF MANAGEMENT PLAN

The objective of the fire water run-off management plan is to ensure that in the event of a fire all reasonable steps are taken to ensure that fire water run-off is contained on-site.

The management plan has been designed to consider 2 scenarios:

- 1) A minor fire, controlled on-site using local equipment
- 2) A major fire, where the fire service is in attendance with multiple appliances

The following site-specific constraints have been taken into account when preparing this section of the FPMP:

- The site is surrounded by designated ecological sites and sensitive surface waters. Measures need to be taken to ensure that firewater run-off is not permitted to enter surface waters in the event of a major fire event.
- Fire water should not be allowed to seep into groundwater.

The following site-infrastructure has been constructed to control fire water:

- The combustible waste storage building is laid to impermeable surface and fire water will not soak away if contained within the building envelope.
- A raised road and bund to the south of the combustible waste storage building, as well as periphery bunding retains surface water within the site.

8.1 Minor Fire

The fire water run-off management strategy for a minor fire is to provide capacity for containing fire water run-off such that it can be captured and tankered off-site for treatment. For small volumes of water (e.g. from fire extinguishers) the building floor is graded such that run-off falls under gravity towards the centre of the building from where it can be removed using a gully sucker and tankered off-site for treatment at a suitably licensed facility.

In the event of a more significant fire, fire water will be contained within a permanent bund that runs around the periphery of the combustible waste storage building. Fire water within the bund will be recirculated back onto the fire by any attending SWF&RS appliance.

Once extinguished the fire water will be sampled (if required) before being tankered from site for treatment at a suitably licensed facility.

8.2 Major Fire

The fire water run-off management strategy for a major fire is to provide capacity for containing fire water run-off initially in the same way as for a minor fire, but, prior to the storage capacity becoming overwhelmed, to provide further storage capacity within the boundary of the site and/or to tanker away fire water run-off for treatment at a suitably licensed facility where safe to do so.

The topography of the site is such that in a major fire event and the building bund being overwhelmed, fire water is likely to overflow and travel via gravity to south of the site. A raised road (c. 0.5m high) impedes the flow before it reaches Julian's Gout to the south (a further bund along Julian's Gout provides further protection of the watercourse). Bunding to the East along the periphery of the site (1- 2m in height) would contain firewater before it reached the adjacent reën.

Should fire water overwhelm the containment bund surrounding the combustible waste storage building, fire water will overflow and travel via gravity to the south of the site and be contained by the raised road. Fire water within the bund will be recirculated back onto the fire by any attending SWF&RS appliances where required.

Once extinguished, the water will be sampled (if required) before being tankered from site for treatment at a suitably licensed facility. Due to the additional fire water storage area being located on unsurfaced ground, some infiltration of fire water is to be expected. Fire water from the storage area should be removed as soon as practical following a fire to minimise any seepage to groundwater.

Soil sampling will be undertaken (if required) and ground remediated in the event of any unacceptable contamination with combustion residues.

Bunding around the site is inspected as part of the daily inspection regime and maintained in order for fire water containment to be effective.

Any future construction works in or around the combustible waste storage building should be undertaken such that they do not create a pathway for fire water to be discharged to any nearby watercourses.

9 REMOVAL OF FIRE WASTE

As with all waste fires there is a residual amount of fire waste which will be required to be removed off site for recovery or disposal.

The considerations relating to these wastes are listed below;

- As the waste has been subject to fire it must be assessed to ensure to no longer pose a fire risk and that no heat sources remain within the waste mass. This should be achieved by turning the waste material when it is safe to do so to check for sources of heat and smoke. The site management and Fire Marshall should sign-off the disposal of all fire waste before it leaves site to confirm they have inspected the waste and that no heat sources remain.
- Possible contamination which would make the waste hazardous. As the possibility of contamination is very real, all wastes must be test once it is safe to do so for its hazardous content and an assessment against Waste classification technical guidance will be made to determine if the material is hazardous or non-hazardous. On the outcome of this assessment the waste will be sent to an appropriately permitted site for that type of waste for treatment or disposal.
- Where possible all fire waste should be kept separate and quarantined to ensure it can be monitored and if needed it can also be managed with additional fire prevention measures such as water or soil.
- All fire waste should be removed from site when it is safe to do so but no later than 7 days after it has been extinguished or 7 days from its last reported sign of heat or smoke.

DRAWINGS AND SITE PLANS

Drawing 10939 – 000 - A Site and Surrounding Area

Plan Drawing 10939 – 000 – B Site (Permitted Area)

Plan Drawing 10939 – 000 - C Site Layout (Block) Plan

Drawing 10939 - 000 - D Site Surfacing Plan

Drawing 10939 – 000 - E Drainage Plan

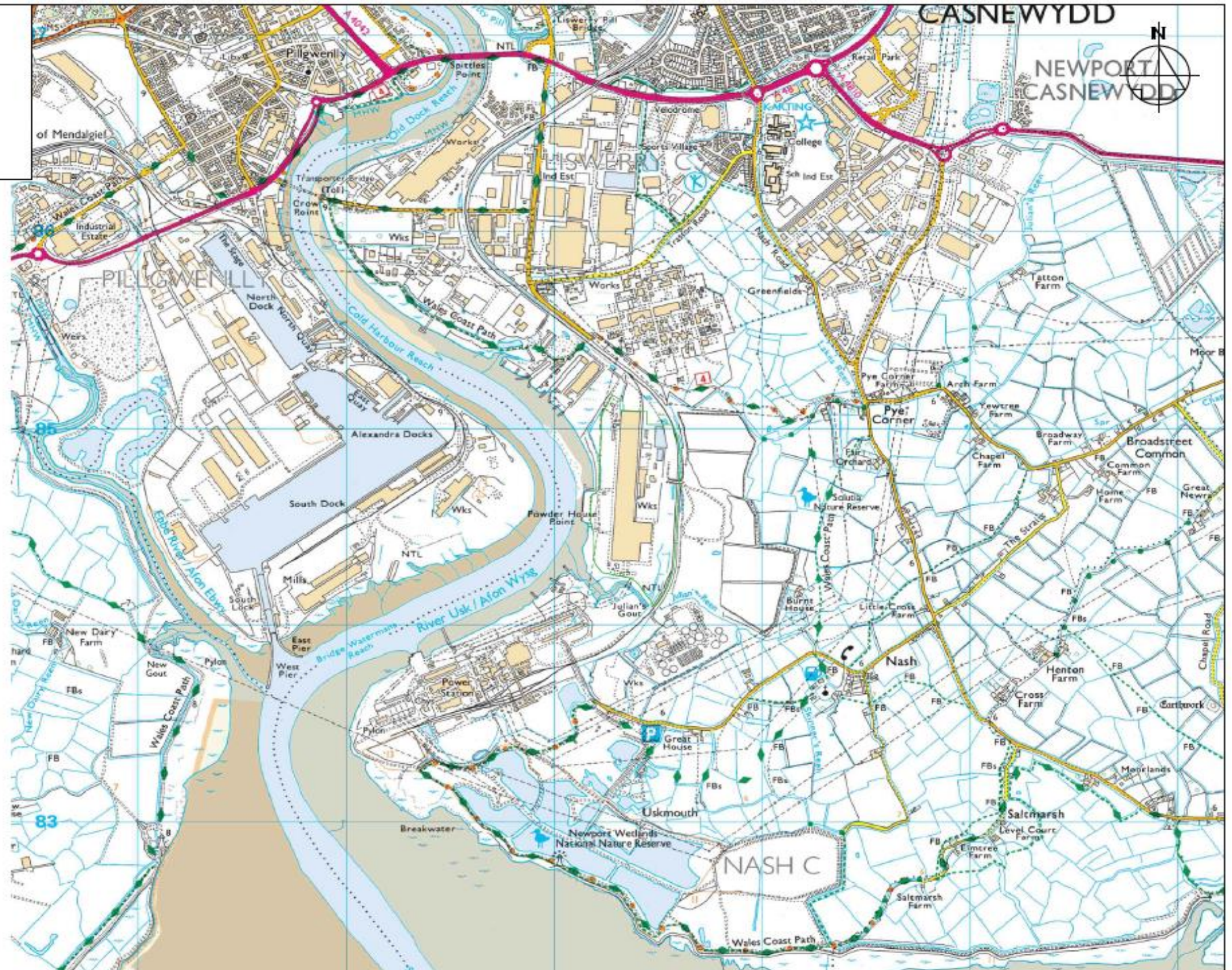
Drawing 10939 – 000 - F Receptor Screening

Plan Drawing 10939 – 000 - G Storage Plan

Drawing 10939 – 000 - H Receptor Plan (Fire Response Measures)

LEGEND

PERMIT BOUNDARY



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AMENDMENTS	REV	DETAILS	DATE	MADE BY	CHKD BY
	REF				



TECHNIA ENVIRONMENT AND PLANNING
SUITE 4, ST. MARGARET'S PARK
PENGAM ROAD, ABERBARGOED, CF81 9FW
TEL: 01443 821619
EMAIL: PLANNING@TEPL.EU

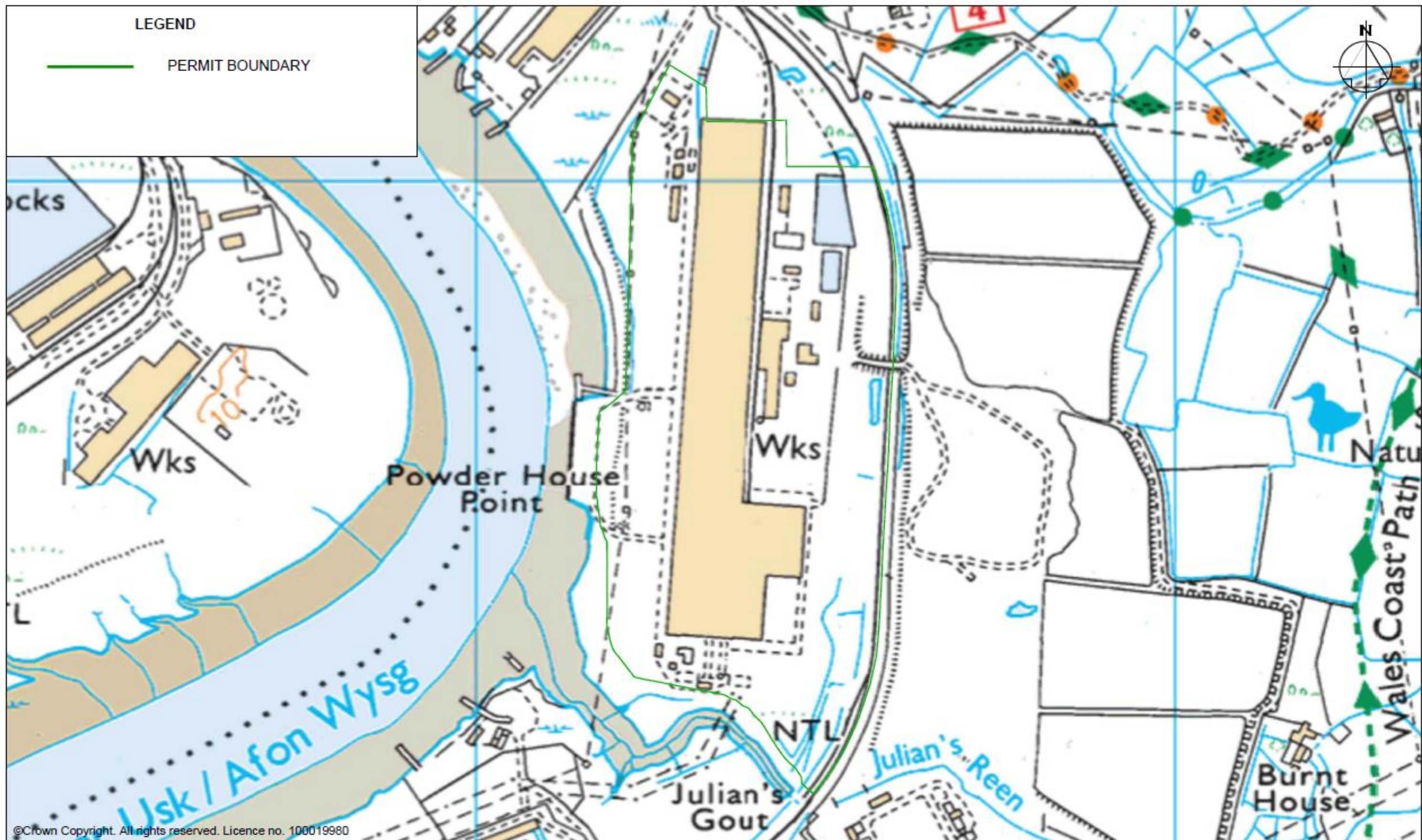
LIBERTY STEEL NEWPORT LTD

SITE AND SURROUNDING AREA PLAN

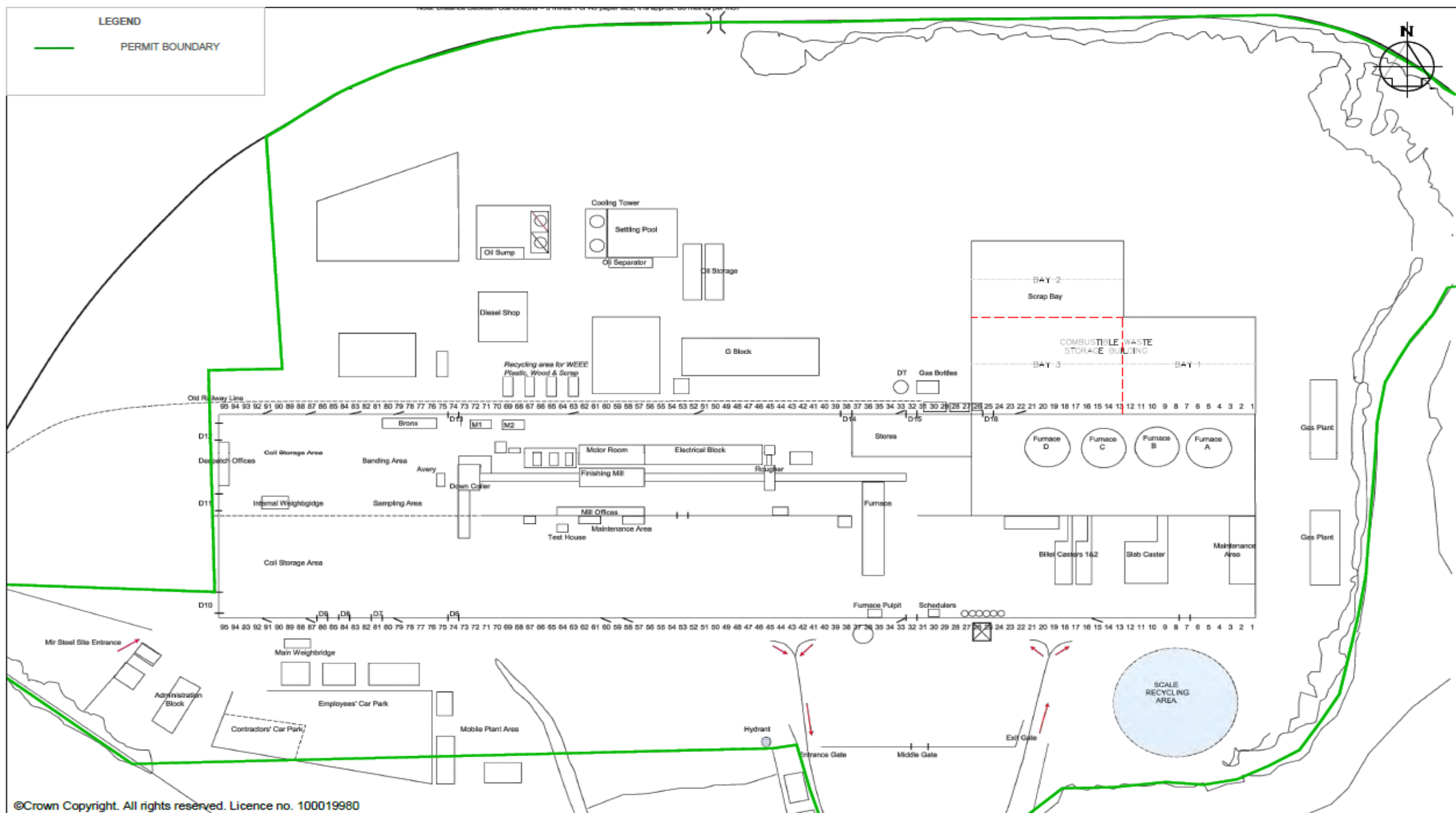
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10939 - 000 - A



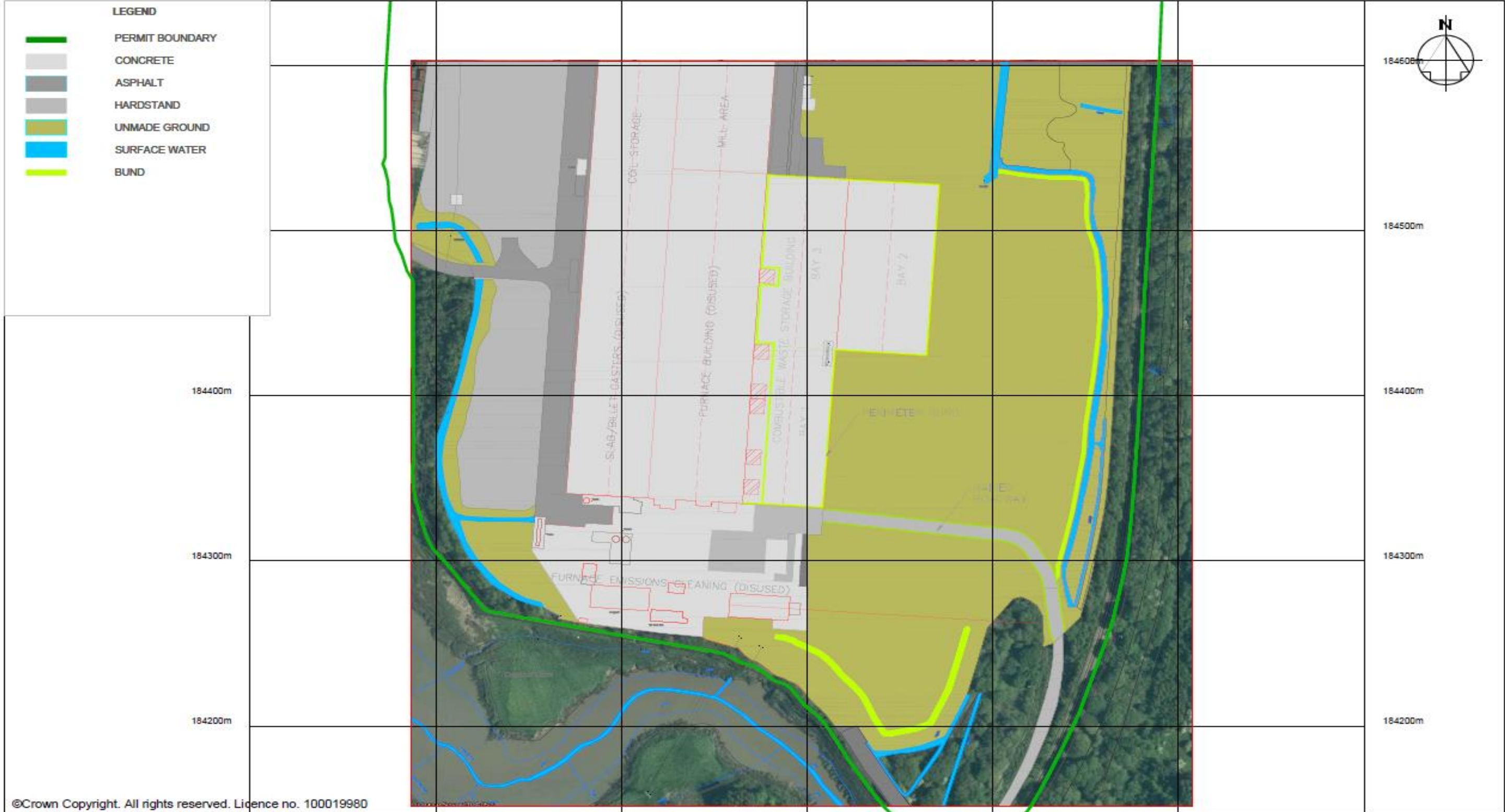
AMENDMENTS	REV	DETAILS	DATE	MADE BY	CHKD BY	 TECHNIA ENVIRONMENT AND PLANNING SUITE 4, ST. MARGARET'S PARK PENGAM ROAD, ABERBARGOED, CF81 9FW TEL: 01443 821619 EMAIL: PLANNING@TEPL.EU	LIBERTY STEEL NEWPORT LTD				Drawn	SW	Scale 1:5,000	
	REF										Ch'kd	CL/RS		
								SITE (PERMITTED AREA) PLAN				Appr'd	CL/RS	@A3
												Date	04/04/16	
								Job No.	LSN	Drg No.	10939 - 000 - B			



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	REF											Ch'kd	CL/RS		NTS	
										SITE LAYOUT (BLOCK PLAN) PLAN				Appr'd	CL/RS	@A3
											Date	04/04/16				
								Job No.	LSN	Drg No.	10939 - 000 - C					

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	REF											Ch'kd	CL/RS	1:2,500
								SITE SURFACING				Appr'd	CL/RS	@A3
								Job No.	LSN	Drg No.	10939 - 000 - D			
												Date	04/04/16	



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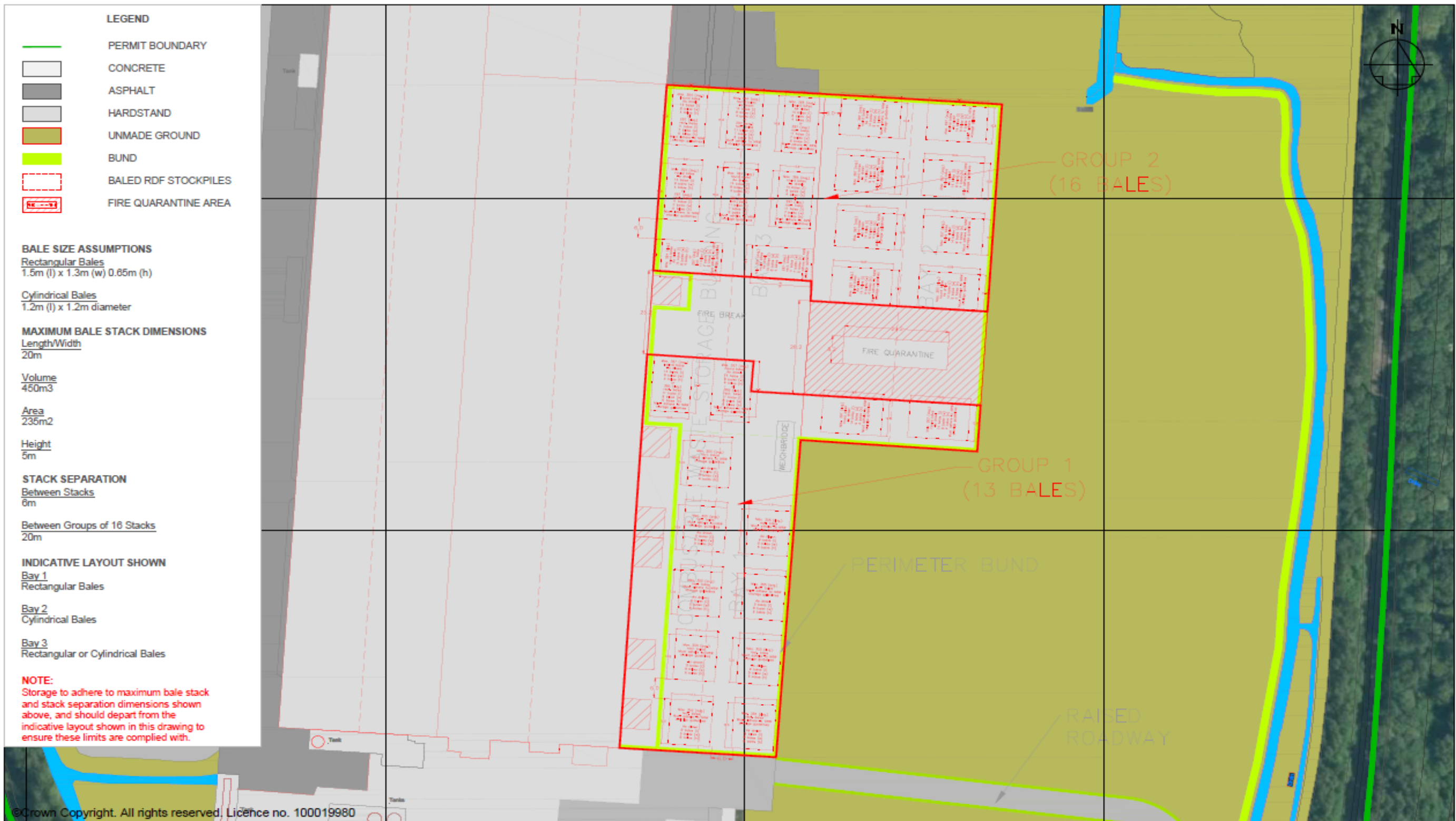
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This drawing is not intended to represent detailed design

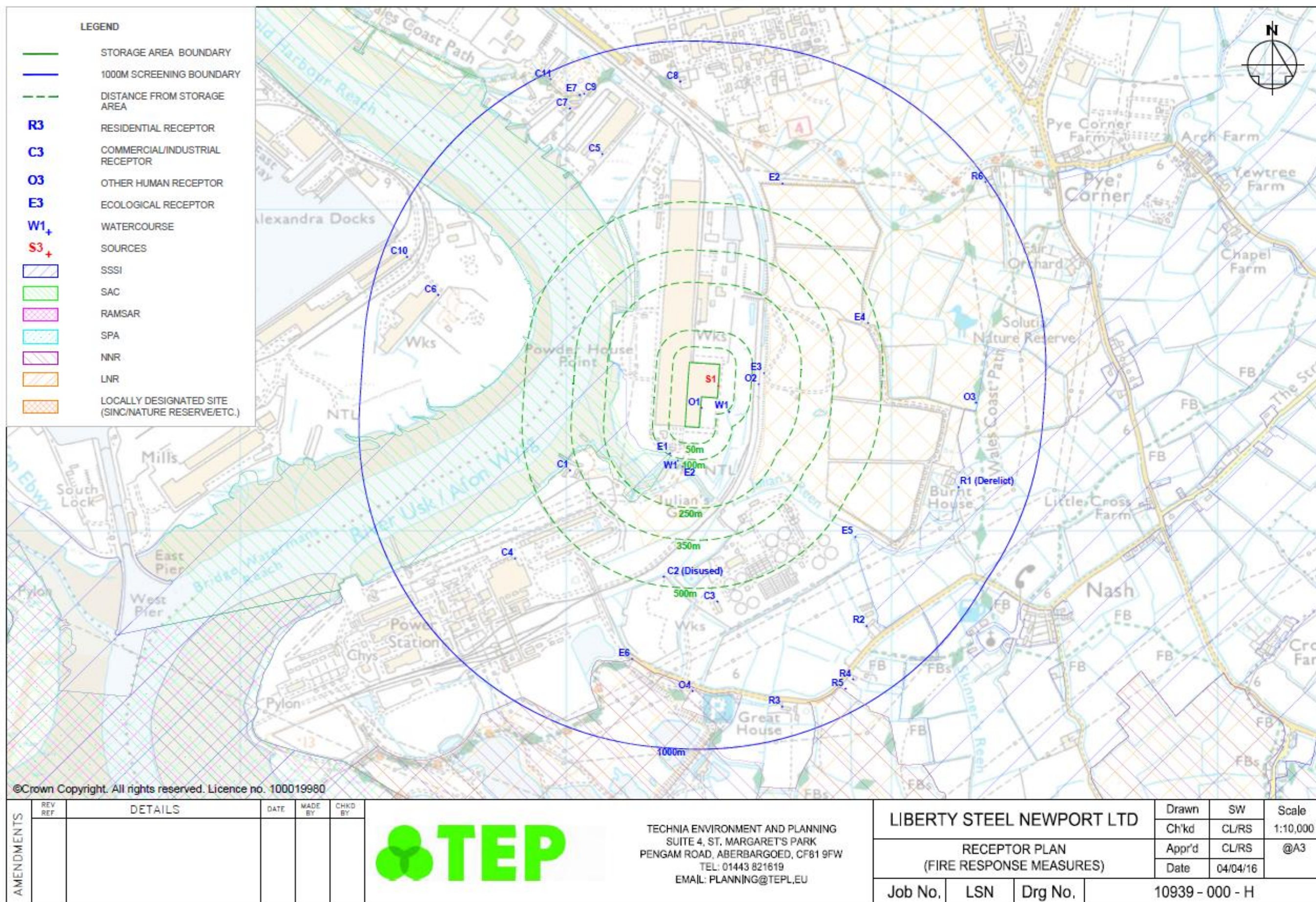
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								Ch'kd	CL/RS	1:1,250			
								DRAINAGE PLAN		Appr'd	CL/RS	@A3	
									Date	04/04/16			
								Job No.	LSN	Drg No.	10939 - 000 - E		



AMENDMENTS	REV REF	DETAILS	DATE	MADE BY	CHKD BY	 TECHNIA ENVIRONMENT AND PLANNING SUITE 4, ST. MARGARET'S PARK PENGAM ROAD, ABERBARGOED, CF81 9FW TEL: 01443 821619 EMAIL: PLANNING@TEPL.EU	LIBERTY STEEL NEWPORT LTD				Drawn	SW	Scale
								Ch'kd	CL/RS	1:15,000			
	RECEPTOR SCREENING				Appr'd		CL/RS	@A3					
					Date		04/04/16						
	Job No.	LSN	Drg No.	10939 - 000 - F									



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								Ch'kd	CL/RS	1:1,000
								Appr'd	CL/RS	@A3
								Date	04/04/16	
						Job No.	LSN	Drg No.	10939 - 000 - G	



APPENDIX A – FIRE RISK ASSESSMENT



Fire Risk Assessment

Liberty Steel Newport Ltd
Corporation Road, Newport, NP19 4XE

Report Revision

Version	Date	Author	Checked / App'd	Revision
DRAFT	10/05/16	SW	CL	FOR APPROVAL
1.0	23/08/16	SW	CL	RELEASE VERSION



FIRE RISK ASSESSMENT

V1.0

Disclaimer

Every skill and care has been taken in completing this work within the terms of the contract commissioning our services and taking into account the resources assigned to the commission in agreement with the client. Similarly, every skill and care has been taken to ensure the accuracy of the information within this document. No liability or responsibility of any kind to the client or 3rd parties can be accepted by Technia Business Solutions Ltd for any matters outside of the stated scope. The opinions and interpretations presented in this document represent our reasonable interpretation of the data made available to us. Drawings and descriptions within this document are not intended to represent detailed design unless otherwise stated and should not be used for construction.



FIRE RISK ASSESSMENT

V 1.0

Area assessed: Liberty Steel Newport Ltd Corporation Road, Newport, NP19 4XE	Assessor: Stuart Watcham
Assessment date: 31/03/16	Risk assessment number: SIMEC FRA1 31/03/16
Persons at risk: Employees: Y Contractors : Y	Visitors: Y Public: Y

Risk Assessment Scale

Potential Severity of Hazard	Likelihood	Risk	Action Levels
5 = Fatal ¹	5 = Very Likely	20-25 = High	20-25 unacceptable, immediate action required
4 = Major incident	4 = Likely	5-19 = Medium	10-19 short term reduction necessary
3 = Localised incident	3 = Possible	1-4 = Low	5-9 medium term reduction if practicable
	2 = Unlikely	0 = Negligible	0-4 no further action required- maintain
	1 = Very Unlikely		
	0 = Negligible		

RISK RATING = POTENTIAL SEVERITY X LIKELIHOOD

¹ Most major fire incidents could result in a fatality given a specific set of circumstances. To differentiate between a Fatal and Major Incident this risk assessment takes into account site specific conditions that increase the potential severity of an incident e.g. whether the fire is likely to be initiated when staff are on-site, whether site features (e.g. confined spaces) restrict escape by staff/members of the public (authorised or unauthorised), the presence of highly explosive or toxic materials, etc.



FIRE RISK ASSESSMENT

V 1.0

Fire Hazard (Harm)	Potential Severity	Likelihood	Risk Rating	Reasoning	Control Measures (Action Required)	Residual Risk
Self-combustion (e.g. due to chemical oxidation)	4	3	12	Severity: Fire could start at any time. Staff/visitors potentially present on-site. Major fire incident possible if staff not present and fire allowed to take hold. Site not enclosed to the extent that escape would normally be impeded. Risk of fatality confined to fire-fighters. Airborne combustion products potentially toxic and irritant. Risks to fire-fighters (including staff) and nearby receptors. Likelihood: Self-combustion in accepted materials possible due to the nature of materials, particularly if contaminated or not conforming to site waste acceptance criteria.	Hazard Specific Measures: Robust waste acceptance procedures. No combustible wastes stored on-site for >3 months. Rigorous stock control procedures to ensure limits are complied with. Recommend inspection of supplier sites to ensure production processes are producing high quality RDF. Recommend daily check of stockpile face temperatures using a thermal camera to identify "hotspots". General Measures: Ensure all combustible wastes are kept in accordance with NRW Guidance. Restrict stockpile size and introduce fire breaks within the waste piles to prevent fire migration. Site surfacing and fire water containment measures installed. Suitable equipment present and maintained onsite (fire-extinguishers, fire hoses, aggregate for smothering fires, etc) to manage	3 x 1 = 3



FIRE RISK ASSESSMENT

V 1.0

					fire outbreak. Ensure H&S/Emergency signage is displayed in appropriate locations in combustible waste storage building. Selected staff trained as Fire Marshalls. Site Manager/Fire Marshall to carry out end of shift inspections to ensure no heat or smoke is present within the waste storage areas. Security staff to undertake a fire-watch approximately 2 hours after site operations cease and periodically during the night. Staff trained and emergency procedures in place. Recommend CCTV and/or fire detection equipment installed in combustible waste storage building. Recommend sprinkler system installed in combustible waste storage building.	
Discarded Smoking Materials	4	3	12	Severity: Fire can start some time after smoking materials discarded. Staff/visitors potentially present on-site. Major fire incident possible if staff not present and fire allowed to take hold.	Hazard Specific Measures: Site to operate a strict no smoking policy. Smoking to only be permitted outside of the main entrance gates of the site.	4 x 1 = 4



FIRE RISK ASSESSMENT

V 1.0

				Site not enclosed to the extent that escape would normally be impeded. Risk of fatality confined to fire-fighters. Airborne combustion products potentially toxic and irritant. Risks to fire-fighters (including staff) and nearby receptors. Likelihood: Possible if staff or visitors are smoking on-site.	Cigarette disposal bins to be provided in smoking area to ensure all discarded smoking materials are kept off site. Ensure No Smoking signage displayed in combustible waste storage building General Measures: As self-combustion	
Arson or Vandalism	4	3	12	Severity: Arson or Vandalism typically carried out at night when premises are unoccupied. Major fire incident possible. Site not enclosed to the extent that escape would normally be impeded. Risk of fatality confined to fire-fighters. Airborne combustion products potentially toxic and irritant. Risks to fire-fighters (including staff) and nearby receptors. Likelihood: Large site boundary area to monitor and maintain secure. Site fencing likely to be effective in controlling general public access in the majority of cases, although possible for someone to gain access to site if sufficiently motivated.	Hazard Specific Measures: Fenced site to stop general access. Daily/Weekly Inspection programme to ensure no breaches in the external fencing. Site monitored 24hrs by Security Guards. Random site inspections by security staff to monitor site out of hours. CCTV installed covering northern part of site. Recommend CCTV installed in combustible waste storage building. General Measures: As self-combustion	4 x 1 = 4



FIRE RISK ASSESSMENT

V 1.0

Hot Loads Deposited at Site	3	3	9	Severity: Staff normally present on-site. Fire incident likely to be localised to vehicle. Site not enclosed to the extent that escape would normally be impeded. Risk of fatality confined to fire-fighters. Airborne combustion products potentially toxic and irritant. Risks to fire-fighters (including staff) and nearby receptors. Likelihood: Potential for hot loads to be deposited on-site, particularly if bales arriving on-site contain waste that has been stored for >3 months. Risk of hot loads being deposited at site is possible. No ash or thermal by-products are accepted on site. Hot ash, by-products or products are generated elsewhere within the site and if hot, these will not be permitted within 100m of the combustible waste storage building.	Hazard Specific Measures: Robust waste acceptance procedures. Weighbridge operator to carry out inspection to ensure no heat or smoke is present within the load. Secondary inspection on tipping. Management plans in place to deal with hot loads. Firefighting equipment including fire extinguishers and inert materials to smother a fire will be available at all times for the management of hot loads. Recommend inspection of supplier sites to ensure production processes are producing high quality RDF. General Measures: As self-combustion	3 x 1 = 3
Neighbouring Site Activities	4	2	8	Severity: Risk generally restricted to times when staff are on-site. Fire likely to be contained using on-site fire fighting equipment, however potential for major incident given the scale of the hot rolling activity. Site not enclosed to the extent that escape would normally be impeded. Risk of fatality confined to	Hazard Specific Measures: Site-wide fire plan as well as waste storage site fire plan in place to reduce the risk of fire. Site –wide fire plan includes measures to control and manage any fire outbreak. Staff to remain vigilant for smoke	3 x 1 = 3



FIRE RISK ASSESSMENT

V 1.0

				fire-fighters. Airborne combustion products potentially toxic and irritant. Risks to fire-fighters (including staff) and nearby receptors. Likelihood: Much of the site to the north and west of the storage building is an active steel hot rolling mill. Activities within this site could result in the outbreak of a fire which, passing through the fabric of the building, would ultimately reach the combustible waste storage building if not contained. Hot ash, by-products or products are generated within the steel rolling mill building. If hot materials are allowed to come into contact with waste it could initiate a fire. Other neighbouring sites, including a cargo handling and port operation to the north west, chemical works to the north, Coal-fired Power Station to the south west and waste water treatment facility to the south east are located at sufficient distance (particularly from the combustible waste storage building) or have intervening watercourses or bunds such that they are effectively separated from the site . Fire risks from these sites are considered to be limited to wind-blown hot/burning particles from a significant fire event.	from neighbouring sites and alert Fire Marshall if fire suspected at neighbouring sites. Fire Marshall will advise staff to maintain increased vigilance for secondary fires. Any hot ash, by-products or products generated within the steel rolling mill will not be permitted within 100m of the combustible waste storage building. Firefighting equipment will be mobilised to specific areas if any elevated risk is identified. General Measures: As self-combustion	
Hot Exhausts	4	2	8	Severity: Staff potentially present on-site.	Hazard Specific Measures: Where possible all loading of plant	4 x 1 = 4



FIRE RISK ASSESSMENT

V 1.0

				Major fire incident possible as fire can start some time after initiating incident. Plant and equipment with exhausts largely moving and handling equipment (telehandler, loading shovel). Site not enclosed to the extent that escape from fire would be impeded. Risk of fatality confined to fire-fighters. Airborne combustion products potentially toxic and irritant. Risks to fire-fighters (including staff) and nearby receptors. Likelihood: Possible if waste comes into contact with hot exhausts/exhaust gases. Ignition temperatures are potentially similar to exhaust temperatures (particularly close to engine manifold) depending on the composition of the waste and presence of contamination (hydrocarbon fuels/oils, etc.). Bale wrapping reduces the likelihood of loose waste being blown/forced around exhausts. Risk likely to be limited to vehicles being reversed into stockpiles or parked too close to stockpiles.	or equipment will take place away from the exhaust system. All exhaust systems must be cleaned down at the end of each shift. Implement 6m separation distances between parked plant and waste. Exhaust systems checked and cleaned daily as part of maintenance routine. General Measures: As self-combustion	
(Reactions between) Incompatible Wastes	4	2	8	Severity: Staff potentially on-site. Fire could start at any time. Major fire incident possible. Site not enclosed to the extent that escape would	Hazard Specific Measures: Robust waste acceptance and inspection procedures. Quarantine any wastes with potential to react.	4 x 1 = 4



FIRE RISK ASSESSMENT

V 1.0

				normally be impeded. Risk of fatality confined to fire-fighters. Airborne combustion products potentially toxic and irritant. Risks to fire-fighters (including staff) and nearby receptors. Likelihood: Waste types exclude hazardous materials including chemicals (e.g. oxidisers), solvents, etc. Batteries e.g. Li-Ion should be removed prior to baling, but may still be present. Generally only non-conforming material and contraries in loads would pose a risk.	Inspection of supplier sites to ensure production processes are producing high quality RDF. General Measures: As self-combustion	
Plant or Equipment Failure	3	2	6	Severity: Risk generally restricted to times when staff are on-site. Fire likely to be contained using on-site fire fighting equipment. Minor fire incident likely Site not enclosed to the extent that escape would normally be impeded. Risk of fatality confined to fire-fighters. Airborne combustion products potentially toxic and irritant. Risks to fire-fighters (including staff) and nearby receptors. Likelihood: Plant and equipment largely moving and handling equipment (telehandler, loading shovel). Failures potentially initiating fires limited.	Hazard Specific Measures: Staff to remain vigilant for trapped waste in equipment that could friction heat or fall into electrical systems (which should be correctly designed with guards fitted) and remove when discovered. Plant and equipment to be serviced and maintained as per the manufactures requirements to ensure reliability and to reduce the possibility of failure. Daily inspections to be carried out by trained plant operatives with any and all defects being reported by no later than the end of the working day.	4 x 1 = 4



FIRE RISK ASSESSMENT

V 1.0

				Temporary plant is infrequently brought to site so only risk when this is present. Main plant and equipment risks related to other factors (addressed separately).	Implement 6m separation zones to maintain distances between installed/parked plant and waste. Provisions for back-up plant and equipment to ensure failed plant or equipment can be replaced within a reasonable timescale. General Measures: As self-combustion	
Hot Works (e.g. welding or cutting)	3	2	6	Severity: Risk generally restricted to times when staff are on-site. Fire likely to initiated in the vicinity of hot works, therefore localised and controllable using fire-fighting equipment. Site not enclosed to the extent that escape would normally be impeded. Risk of fatality confined to fire-fighters. Airborne combustion products potentially toxic and irritant. Risks to fire-fighters (including staff) and nearby receptors. Likelihood: Hot works generally undertaken in yard area located some distance from stockpiles. Possible if stray sparks reach stockpiles.	Hazard Specific Measures: No hot works including welding to be permitted within 6 metres of any combustible or flammable materials. Specific procedures for dealing with Hot Works. All hot works must be carried out under permit to work. A similar permit to work is operated at the adjacent steel plant and rolling mill. Suitable firefighting equipment to be available on site. General Measures: As self-combustion	3 x 1 = 3
Electrical Faults	3	2	6	Severity:	Hazard Specific Measures:	3 x 1 = 3



FIRE RISK ASSESSMENT

V 1.0

				Risk generally restricted to times when staff are on-site. Fire likely to initiated in the vicinity electrical fault, therefore localised and controllable using fire-fighting equipment. Site not enclosed to the extent that escape would normally be impeded. Risk of fatality confined to fire-fighters. Airborne combustion products potentially toxic and irritant. Risks to fire-fighters (including staff) and nearby receptors. Likelihood: Equipment designed to reduce electrical faults.	Electrical cables to be tested and isolated prior to the start of work. Use of mobile power tools and power supplies to be limited to essential maintenance only. Staff trained to inspect electrical equipment before use and unplug/disconnect power from equipment when not in use. Equipment maintained in accordance with manufacturer's guidance. All electrical equipment to be PAT tested where required. Firefighting equipment suitable for electrical fires to be available on site. General Measures: As self-combustion	
Damaged or Exposed Electrical Cables	3	2	6	Severity: Risk generally restricted to times when staff are on-site. Fire likely to initiated in the vicinity of manual activity, therefore localised and controllable using fire-fighting equipment. Site not enclosed to the extent that escape would normally be impeded. Risk of fatality confined to fire-fighters.	Hazard Specific Measures: Recommend electrical (and gas) services within building to be identified and warning signage installed. An annual inspection of all electrical systems will be carried out to ensure that all systems are sound and safe. All electrical cables will be isolated	3 x 1 = 3



FIRE RISK ASSESSMENT

V 1.0

				Airborne combustion products potentially toxic and irritant. Risks to fire-fighters (including staff) and nearby receptors. Likelihood: Unknown electrical services present in building, some redundant, some possibly live (information unavailable). Condition of existing cabling unknown. Likely location of services above storage height so limited opportunity for mechanical damage. Lighting c.14m above ground level.	before any works can begin General Measures: As self-combustion	
Open Burning (on-site or adjacent sites)	3	2	6	Severity: Risk generally restricted to times when staff are on-site. Fire likely to initiated in the vicinity within a short distance of open burning. Secondary fires localised and controllable using fire-fighting equipment. Site not enclosed to the extent that escape would normally be impeded. Risk of fatality confined to fire-fighters. Airborne combustion products potentially toxic and irritant. Risks to fire-fighters (including staff) and nearby receptors. Likelihood: Open burning not permitted within wider site. Combustible waste storage building some	Hazard Specific Measures: No fires permitted on-site. Site rules and induction programme for staff. Disciplinary procedure to make specific reference to burning of waste – gross misconduct. Staff to remain vigilant for smoke from neighbouring sites and alert Fire Marshall if open burning suspected at neighbouring sites. Fire Marshall will advise staff to maintain increased vigilance for secondary fires. Firefighting equipment will be mobilised to specific areas if any elevated risk is identified.	3 x 1 = 3



FIRE RISK ASSESSMENT

V 1.0

				distance from boundary. Neighbouring sites including a cargo handling and port operation to the north west, chemical works to the north, Power Station to the south west and waste water treatment facility to the south east. Open burning is unlikely to be permitted at these sites. Fire risks from these sites are considered to be limited to wind-blown hot/burning particles from a significant fire event. Other nearby land use includes designated ecological sites (SSSI, SAC, NNR, etc.) with some agricultural usage (mainly grazing).	General Measures: As self-combustion	
Naked Lights (including naked flames and other high temperature heat sources)	3	2	6	Severity: Risk restricted to times when staff or visitors are on-site. Fire likely to initiated in the vicinity of naked lights. Only localised incident likely. Site not enclosed to the extent that escape would normally be impeded. Risk of fatality confined to fire-fighters. Airborne combustion products potentially toxic and irritant. Risks to fire-fighters (including staff) and nearby receptors. Likelihood: Smoking considered separately. Hot works considered separately. No other naked flame sources present on-site. Electric lighting c. 14m above floor level.	Hazard Specific Measures: As discarded smoking materials. As hot works. Naked lights/potential sources of ignition to be kept at least 6m from stockpiles of combustible waste (ceiling lighting currently c.14m above floor level). Recommend waste height indicators installed within combustible waste storage building to prevent waste being stored within 6m of ceiling lighting. Recommend replacement of existing lighting with LED lighting at the end of its useful life wherever practical. Monthly H&S walkover with visual	3 x 1 = 3



FIRE RISK ASSESSMENT

V 1.0

					inspection of lighting fixtures, with fixtures inspected annually by a qualified electrical engineer. General Measures: As self-combustion	
Sparks from Loading Buckets	3	1	3	Severity: Staff potentially present on-site. Fire likely to be initiated in the vicinity of loading activity, therefore localised and controllable using fire-fighting equipment. Site not enclosed to the extent that escape from fire would be impeded. Risk of fatality confined to fire-fighters. Airborne combustion products potentially toxic and irritant. Risks to fire-fighters (including staff) and nearby receptors. Likelihood: Loading shovels used infrequently for loading damaged bales into containers. Surfacing within combustible waste storage building is compressed ash on concrete and less likely to generate sparks than concrete.	Hazard Specific Measures: Dragging/pushing of buckets along concrete surfaces should be kept to a minimum. Site yard brush to be used to maintain site cleanliness rather than scraping with a loading bucket. Loading buckets to be inspected daily. Investigation and implementation of methods for spark reduction should sparking become a noted problem during the operation of the equipment. General Measures: As self-combustion	3 x 0 = 0
Industrial Heaters	3	0	0	Severity: Risk generally restricted to times when staff are on-site. Fire likely to be initiated in the vicinity of the heater, therefore localised and controllable using fire-	Hazard Specific Measures: Not required General Measures: As self-combustion	3 x 0 = 0



FIRE RISK ASSESSMENT

V 1.0

			fighting equipment. Site not enclosed to the extent that escape would normally be impeded. Airborne combustion products potentially toxic and irritant. Risks to fire-fighters (including staff) and nearby receptors. Likelihood: No industrial heaters used on-site.		
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	FIRE RISK ASSESSMENT	V 1.0
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NOTES

1. This is a risk assessment based on the anticipated hazards and risks associated with the identified activities.
2. All site operatives and drivers shall be made aware of the contents of this assessment the contents of the Fire Prevention and Mitigation Plan that accompanies this risk assessment.
3. Safe working practices as a means of risk reduction shall be stated in the method statement for any work.
4. In assessing the residual risk, the risk assessor has assumed that:-
 - a) Existing control measures are effectively implemented and reduce risks to their intended level
 - b) Any additional measures are effectively implemented and have the desired effect on risk reduction
 - c) The residual risk is at an acceptable level when it is assessed as low or negligible.
5. The risk assessment shall be reviewed and amended as necessary:-
 - a) following any significant change in the nature of the works eg site layout as work progresses
 - b) following any accident or near miss incident
6. Should any of the hazards, associated risks, or control measures change as a result of the review then site staff must be formally advised of the changes. Procedures, work instructions and other company documentation (site rules, induction information, etc.) should be updated as required.