Pre-Construction Information

Project Title: **Trawsfynydd Reactor Buildings Height Reduction**

Ref No: **TRAWS/L28302/DOC/0032 Issue 2**

Site: **Trawsfynydd**

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NOTES

To be read in conjunction with the Scope [1] and Technical Scope of Work (TSOW) [2] and Project Waste Management Plan (PWMP) [3].

VERSION CONTROL

Version	Date	By	Comments
DRAFT	25/04/2023	G. Van Heerden	Document issued as DRAFT for NRS verification.
DRAFT	25/05/2023	G. Van Heerden	Document issued as DRAFT following process of verification and address of stakeholder comments.
1	19/09/2023	G. Van Heerden	Document up issued to Version 1 for NRS stakeholder review & acceptance.
2	16/10/2024	G. Van Heerden & G. Ap Gwyndaf	Sections 1.2, 2.1, 3, 4.7, 6, 7, 8, 10,11 & 12 updated. Appendices 1, 3, 5, 6, 11, 14, 15, 16, 18, 20 & 21 updated.

QA review mandatory for Quality Grade 1 and 2 in compliance with MCP-023

Amendments

To assist in identifying the amendments in each revised issue of this document, the table in the version control section shall be updated to show details of the revisions made.

Verification Statement

This document has been internally verified as follows:

- Spelling and grammar have been checked.
- Document referencing has been checked, inclusive of referencing to TSOW [2].

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DEFINITIONS

NRS	Nuclear Restoration Services Ltd (formerly Magnox Ltd) – The Client
Contractor	The Company whom NRS contracts to deliver the scope as Principal Contractor

GLOSSARY OF TERMS

ACM	Asbestos Containing Material	**O&M**	Operation and Maintenance
ACP	Access Control Point	**PAH**	Polycyclic Aromatic Hydrocarbons
ALARP	As Low As Reasonably Practicable	**PC**	Principal Contractor
AMD	Asset Management Database	**PCI**	Pre-Construction Information
AOD	Above Ordnance Datum	**PD**	Principal Designer
APC	Atomic Power Consortium	**PID**	Probability Impact Diagram
ASQEP	Authorised Suitably Qualified and Experienced Person	**PM**	Project Manager
		PPE	Personal Protective Equipment
C&M	Care & Maintenance	**PRPCC**	Partial Relocation of Primary Circuit Components
CCA	Construction Phase Plan		
CCP	Contamination Controlled Area	**PWMP**	Project Waste Management Plan
CoC	Certificate of Cleanliness	**QA**	Quality Assurance
CEGB	Central Electricity Generating Board	**RB**	Reactor Building
CONSI	Contractors Site Instruction	**RCA**	Radiologically Controlled Area
CPP	Construction Phase Plan	**RDS**	Re-use Design Statement
DAR	Design Authority Review	**RPA**	Radiological Protection Advisor
DGTO	Dangerous Goods Transport Officer	**RPD**	Rolling Programme of Decommissioning
DRA	Design Risk Assessment		
EA	Environment Agency	**RPS**	Radiological Protection Supervisor
EAN	Engineering Advice Note	**RPV**	Reactor Pressure Vessel
EPD	Electronic Personnel Dosimeter	**R&D**	Refurbishment & Demolition
ETA	European Technical Assessment	**SAR**	Site Asbestos Register
E&M	Electrical and Mechanical	**SFARP**	So Far As Reasonably Practicable
FMMB	Fuel Machine Maintenance Bay	**SID**	Structural Inspection Database
FPC	Factory Production Control	**SIMP**	Structural Integrity Management Plan
FRA	Fire Risk Assessment	**SME**	Subject Matter Expert
FSC	Final Site Clearance	**SNPA**	Snowdonia National Park Authority
HAZID	Hazard Identification	**SSCR**	Site Security Control Room
HD	High Definition	**SSL**	Safe System of Work
HeN	Harmonised Standard	**SSoW**	Structural Slab Level
HPM	Health Physics Monitor	**STW**	Sewage Treatment Works
HSE	Health and Safety Executive	**SQEP**	Suitably Qualified and Experience Persons
H&S	Health and Safety		
H&SF	Health and Safety File	**SWMP**	Site Waste Management Plan
HV	High Voltage	**SyAPs**	Security Assessment Principles
ILW	Intermediate Level Waste	**TSOW**	Technical Scope of Work
ITP	Inspection and Test Plan	**TQ**	Technical Query
LC	Licence Condition	**TW**	Temporary Works
LPS	Lightning Protection System	**UK**	United Kingdom
LTQR	Lifetime Quality Records	**UKAS**	United Kingdom Accreditation Service
LV	Low Voltage	**WAG**	Welsh Assembly Government
MCA	Material Controlled Area	**WPS**	Welding Procedures Specifications
MMP	Material Management Plan	**WPQR**	Weld procedure qualification records
NDA	Nuclear Decommissioning Authority	**WRAP**	Waste and Resources Action Programme
NDE	Non-destructive Examination		
NGC	National Grid Company	**WTF**	Waste Transfer Facility
NRW	Natural Resources Wales	**4SC**	Four Stage Clearance
ONR	Office of Nuclear Regulation		
OTP	Operational Tactical Plan		

1 SITE DETAILS

1.1 Site Address

Trawsfynydd Decommissioning Site
Blaenau Ffestiniog
Gwynedd
LL41 4DT

1.2 Site History

Trawsfynydd Site is a unique 16-hectare Nuclear Licensed Site situated on the northern shore of Llyn Trawsfynydd in Gwynedd, North Wales (Figure 1). It is located within the Snowdonia National Park (SNPA) with formal high sensitivity conservation status. The area is also designated as a 'Dark Skies Reserve'. The Station was designed and built in the 1960's as a 4th model Central Electricity Generating Board (CEGB) Civil Nuclear Power Station. Llyn Trawsfynydd afforded cooling water supply during operation and still serves as the water source for Maentwrog Hydroelectric plant. The Site is inland from the coast and was formed on a general Site plateau established at 195m above ordnance datum (AOD).

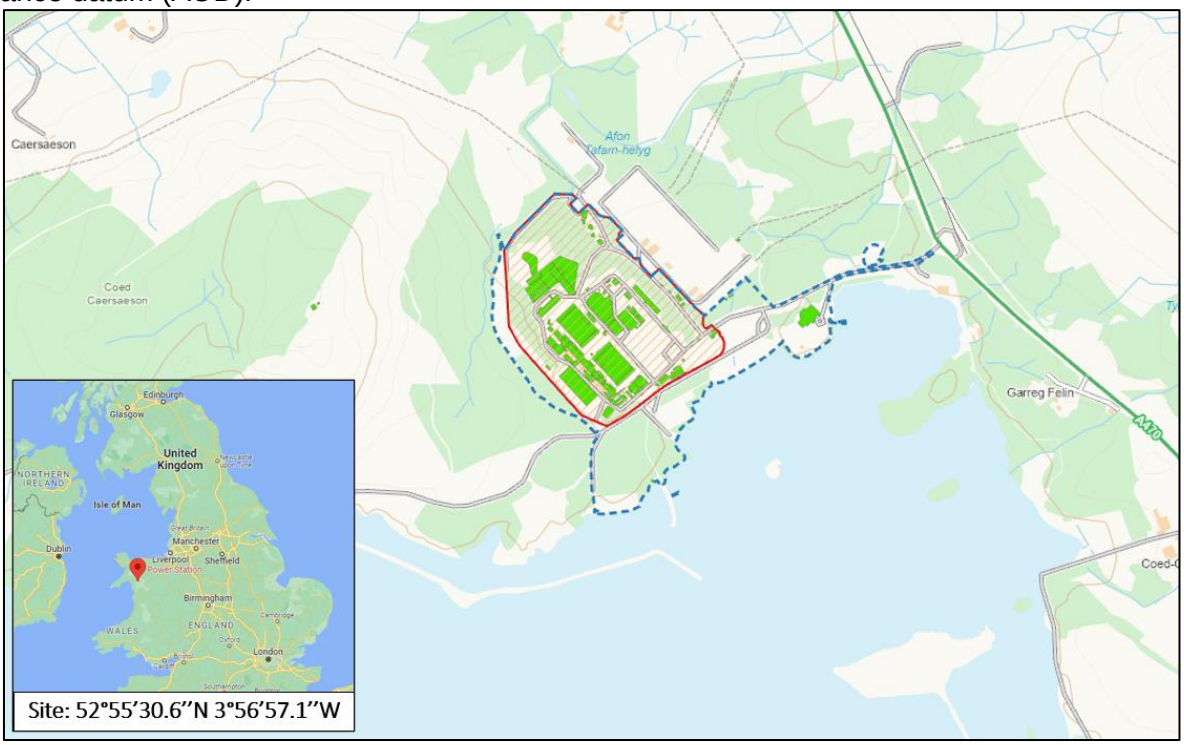


Figure 1: Site location

Original construction was undertaken by the Atomic Power Consortium (APC) between 1959 to 1964. The Station ceased generating electricity in 1991 and completed the process of de-fuelling the reactors in 1995. Decommissioning has since been ongoing and has altered Site configuration considerably – currently comprising the two Reactor Buildings (RBs), a cooling pond complex and numerous ancillary buildings, including an Intermediate Level Waste (ILW) store. The key phases in the Site lifecycle can be summarised as follows:

- Construction: 1959 to 1964.
- Operation: 1963 to 1993.
- De-fuelled: 1993 to 1995.
- Decommissioning: 1995 to present.
- Height Reduction Enablers & Capping Roof Phase 2: 2020 to 2023
- Forecast dates for key site milestones:
    - Height Reduction: 2025 to 2028 **(this Project – subject to contract award)**.
    - Reactor Dismantling (RD): 2030 to 2055.
    - Emptying of ILW Stores and End State Realisation: 2066 to 2069.

2 STRUCTURE OF INFORMATION AND SIGNPOSTING

Common to the TSOW [2] and this Pre-Construction Information (PCI) is a system of signposting. The intention is that the signposting system efficiently articulates suitable and sufficient information on the asset to the relevant stakeholders. This information should be utilised for effective planning, management and monitoring of health and safety in the construction phase. Understanding this system is crucial for comprehensive appreciation of residual and potential emergent conditions identified during the Pre-construction phase of work. This section details the methods utilised for efficient understanding by the relevant stakeholders.

2.1 Asset Numbering

The Site currently utilises a system of asset numbering based on a key drawing - the Decommissioning Site Plan [4] in Appendix 3 of the TSOW [2]. The general arrangement drawing also features a tabulated summary of Site assets along with the assigned numerical reference. The following assets are noted below inclusive of reference (X) from the current Site plan [4]:

a) RB1 (121) and RB2 (124).
b) Lower tier sub-stations external to Nuclear Licence boundary (National Grid 'Live' Site).
c) Security gatehouse (01).
d) Former admin building, workshop complex and turbine hall footprints (various).
e) Waste processing building (53).
f) Waste transfer facility (59).
g) Site security control room (SSCR) (03).
h) Sludge solidification plant (39).
i) Access control point (ACP) (22). This is the main access point into the Radiologically Controlled Area (RCA).
j) Ponds complex (various) and ILW store (136).
k) Site material laydown and processing areas (various).
l) Grade II listed assets (Dragon Square and the Dame Sylvia Crowe Garden).
m) Miscellaneous ancillary assets and infrastructure (various).
n) FED Store & Maintenance Area (Formerly Waste Transfer Facility [WTF]) (59)

In terms of original configuration, Site layout is illustrated in Figure 2.

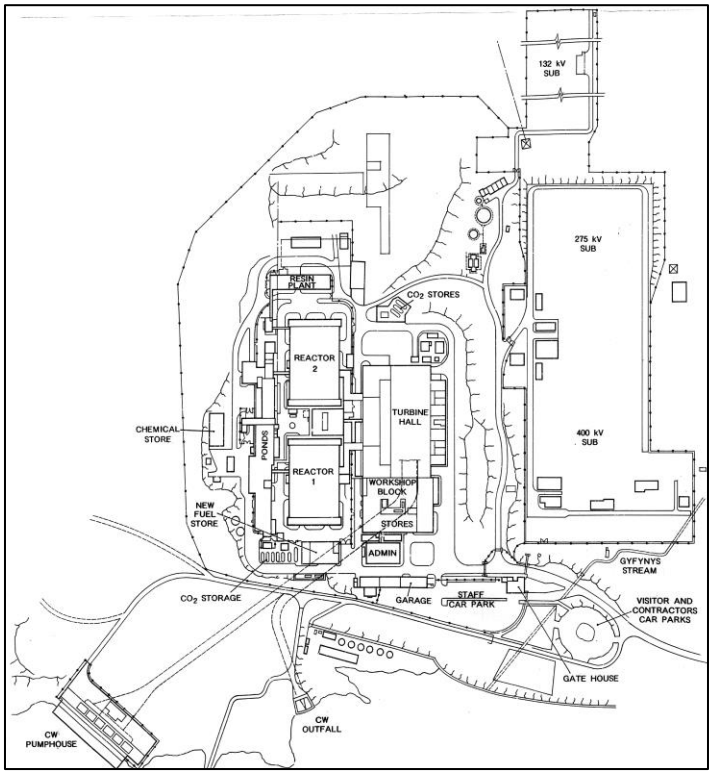


Figure 2: Original Site Configuration

2.2 Reactor Building Space Numbering

Each space relating to the RBs has been assigned a bespoke numerical reference in accordance with the overarching Engineering Advice Note (EAN) [5] copy available in Appendix 11 of this PCI. These details also contain reference to the historical imprecise numbering system dating to original design of the station. This facilitates tracking of information. The current system uses a four-digit convention as detailed in Table 1.

First number	Second number/letter	Third & fourth numbers
Reactor Building	Floor or external space	Number
1 or 2	B,0,1,2,3,4,5,6,7,8,9 or E	XX
	Note: Representing the lowest floor on which the space in located	Note: A sequential number for each space from 01-99
For RB1 refer to drawing series TRA/3630/ST/14772 to 14782 (inclusive). For RB2 refer to drawing series TRA/3630/ST/14784 to 14794 (inclusive).		

Table 1: RB space numbering nomenclature

This system is utilised for recording and catalogue data inputs, including but not limited to:

- Residual contamination and environmental conditions i.e. Site Asbestos Register, Refurbishment & Demolition (R&D) surveys and Health Physics information.
- Structural conditions and Licence Condition 28 (LC28) inspections.
- Plant information.
- Technical Scope of Work [2] and associated drawings.

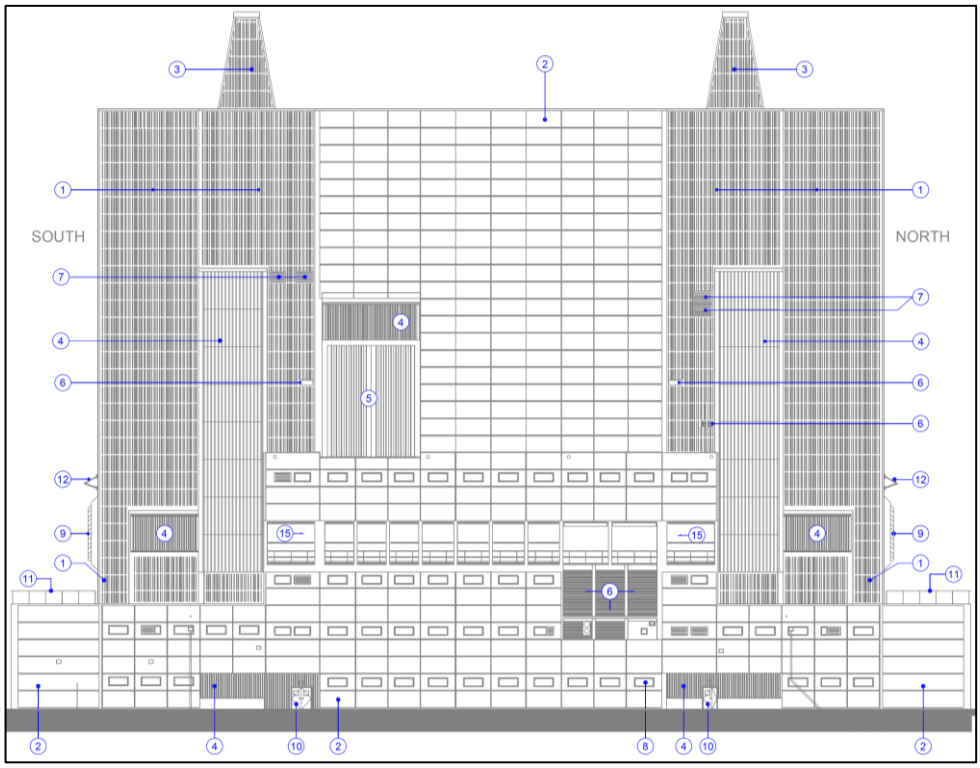
NRS hold and maintain a global spreadsheet for tracking these inputs for each space (where applicable). A copy of this spreadsheet is available in Appendix 13. The expectation is that the Contractor will continue to utilise this referencing system through the construction phase so far as reasonably practicable (SFARP) so that data transfer is consistent and aligned with the Health and Safety File (H&S File) [6] and Lifetime Quality Records (LTQR) maintained for the Assets.

2.3 Signposting System

In conjunction with the above, construction and as-built information on the asset has been organised in structured appendices for efficient knowledge transfer informing health and safety management during the construction phase of works. The drawings associated with the TSOW [2] highlight building elements and signpost to the relevant PCI appendix where catalogued information is made available by NRS for reference. The linkage between the scope drawings and appendices of this document is detailed in Table 2. Figure 3 provides an illustration to aid understanding.

PCI linked Appendices (focused on building elements)	Further breakdown of building components (includes but not limited to)	TSOW drawing reference
Appendix 1 – Cast in-situ reinforced concrete	Includes strengthening works - above capping roof	1
Appendix 2 – Precast panels	Includes strengthening works - precast panels	2
Appendix 3 – External elevations	Precast concrete vent stack & capping Profile metal cladding Concertina doors Brickwork Louvres, cladding & penetrations Windows & cladding Boiler box louvres & cladding Personnel doors Guard rails & staircases Debris catchers	3 4 5 6 7 8 9 10 11 12
Appendix 4 – Precast staircases		13
Appendix 5 – Main roof, skylights, stacks & roofs		
Appendix 6 – Housed plant		
Appendix 7 – Interspaces, mezz & PRPCC		18
Appendix 8 – Capping roof		17
Appendix 9 – Sidewalls	Recessed external circulation route Profiled aluminium cladding on steel frame	15 16
Appendix 10 – Circulator Halls		
Appendix 11 – General	Fire, access & ventilation	19
Appendix 12 – Original build sequence		

Table 2: Linkage between PCI appendices and TSOW (selective)



REFERENCE TABLE:

REF.	DESCRIPTION	PCI APPENDIX REFERENCE
1	CAST IN-SITU CONCRETE WALL WITH VERTICAL STRIATIONS.	APPENDIX 1 - RC
2	PRECAST CONCRETE PANELS.	APPENDIX 2 - PRECAST PANELS
3	PRECAST CONCRETE VENT WITH SHEET METAL CAPPING.	APPENDIX 3 - EXTERNAL ELEVATIONS
4	PROFILED STEEL CLADDING ON STEEL FRAMING.	APPENDIX 3
5	STEEL CONCERTINA DOORS.	APPENDIX 3
6	BRICKWORK.	APPENDIX 3
7	METAL LOUVRES - OVERCLAD UNO.	APPENDIX 3
8	WINDOW - OVERCLAD UNO.	APPENDIX 3
9	PRECAST CONCRETE BOILER BOX LOUVRES WITH ALUMINIUM CLADDING.	APPENDIX 3
10	PERSONNEL DOOR.	APPENDIX 3
11	GUARD RAILS.	APPENDIX 3
12	DEBRIS CATCHERS.	APPENDIX 3
13	PRECAST STAIRS & LANDINGS.	APPENDIX 4 - PRECAST STAIRCASES
14	STEEL STAIRS, LANDINGS & WALKWAYS.	APPENDIX 3 (EXTERNAL STAIRCASES) & APPENDIX 8 (CAPPING ROOF)
15	RECESSED EXTERNAL CIRCULATION ROUTE.	APPENDIX 9 - SIDEWALLS
16	PROFILED ALUMINIUM CLADDING ON FRAMING.	APPENDIX 9 - SIDEWALLS
17	CAPPING ROOF.	APPENDIX 8 - CAPPING ROOF
18	INTERSPACE STEELWORK SUPPORTING INTERSPACE CLADDING.	APPENDIX 7 - INTERSPACES, MEZZANINE AND PRPCC
19	INFILL TO FLOOR VOIDS.	APPENDIX 11 - GENERAL

Figure 3: Example of signposting used in TSOW drawings linking to PCI (inset table)

So far as reasonably practicable, the drawings also highlight residual hazards which should be addressed during the construction phase of works. These warning labels are non-exhaustive and should be read in conjunction with the relevant PCI detail to understand the extent of the condition to be addressed accordingly. The detail also includes information from the Structural Interdependencies Report [7] available in Appendix 17 of this PCI. An example is detailed in Figure 4 using a drawing from Appendix 1 of the TSOW [2].

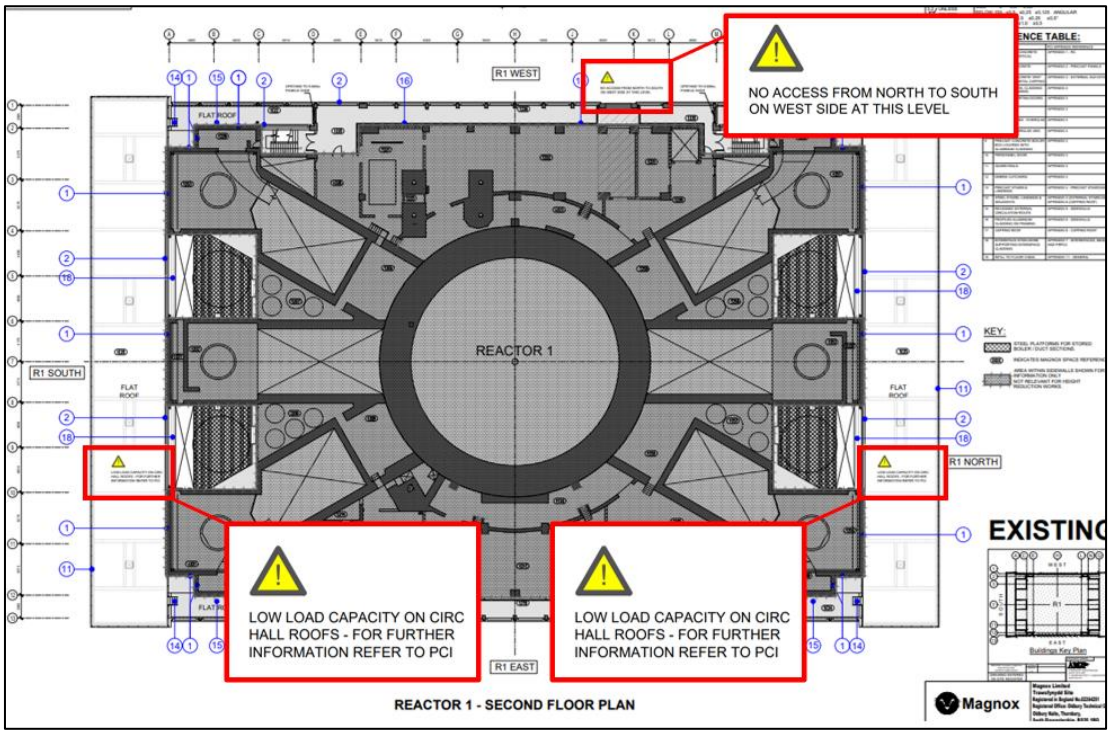


Figure 4: Example of hazard labelling used in TSOW drawings linking to PCI

3 ASSET STRUCTURE AND LAYOUT

The existing Site built environment is dominated by the two separate RBs, virtually identical in layout and construction. With only minor exceptions, RB2 is the mirror image of RB1. All building levels referred to in this document refer to the ground floor level as datum of +0.00m. For ease, the narrative and illustrations used in this document generally relate to RB1 only. For clarity, where there is reference to compass bearings to denote position, the directions are based upon the local Site grid which is 43° west of true north. Figure 5 illustrates.

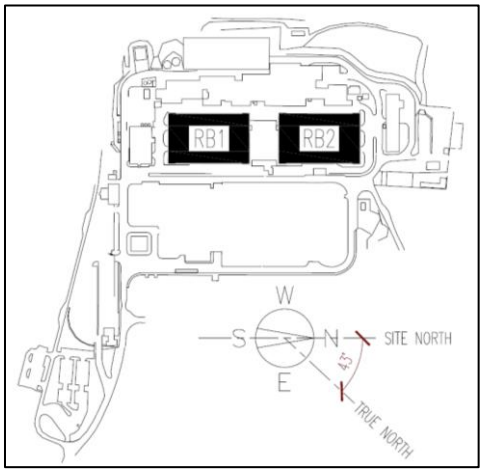


Figure 5: Relationship of Site north to true north

3.1 General layout

Each RB is rectangular in plan and has a central footprint of circa 72m north/south by 53m east/west. The main roof height is at circa +53.3m whilst the below ground basement is -5.5m below established ground level. The gas circulator halls extend beyond the main footprint by 9m with a height of 9.6m comprising of precast concrete planks spanning between portal frames. The building consists of a number of principal plant areas. The Reactor Pressure Vessel (RPV) is located in the centre contained within a monolithic cylindrical structure referred to as the biological shield. The area above the biological shield is called the charge hall. Around this central area are boiler houses to the north/south and operating floors to the east/west. Each boiler house comprises three vertical reinforced concrete boiler boxes from second to ninth floor. The areas in between are referred to as interspaces. Inboard of these are the substantial vertical reinforced concrete elements forming the hot gas duct cells and charge hall shear walls. Beyond the biological shield, the superstructure consists of load bearing cast in-situ reinforced concrete walls, slabs and a mix of reinforced concrete and steel columns.

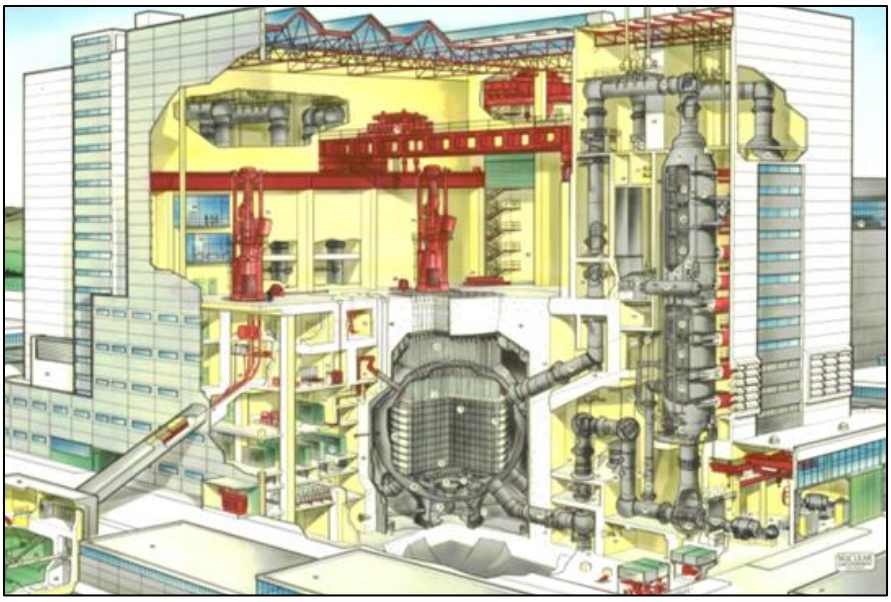


Figure 6: Cutaway of RB1 illustrating original configuration

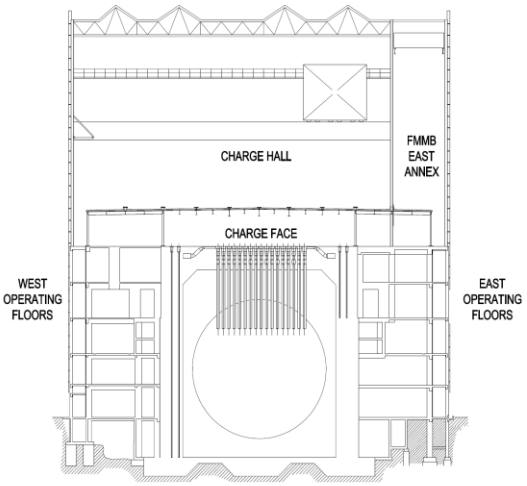


Figure 7: Simple cross section (east/west)

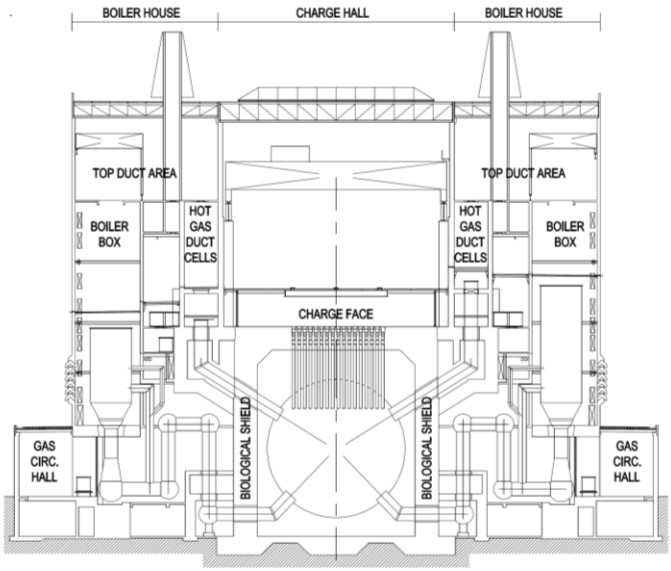


Figure 8: Simple longitudinal section (north/south)

The buildings are dominated by reinforced concrete, cast in place at the time of the original construction. The choice of material was based principally on the need to provide robust shielding and containment for the reactor. The result is a substantial structure comprising deep floors and thick walls with strength and characteristics provided well in excess of that required to meet the demand imposed by general building usage/loading. For further details, refer to the Appendices of this PCI.

There are three internal lift shafts, located adjacent to the staircases in each corner except for RB1 southwest and RB2 northwest. The original goods lifts sited in RB1 southeast and RB2 northeast have been de-planted and replaced with construction goods hoists. The original passenger lifts sited in RB1 northeast and RB2 southeast have been decommissioning but remain in-situ. The original goods lifts sited in RB1 northwest and RB2 southwest have been fully de-planted. There is a crane at high level in each charge hall and two in the Fuel Machine Maintenance Bay (FMMB). Cranes are also housed within each boiler end top duct and gas circulator hall area. For further details refer to Appendix 6 of this PCI. Refer to PCI Appendix 14 for photographs of charge hall crane and rails.

3.2 Foundations and basements

The RBs are founded on rock at approximately -6.1m, either directly or via mass concrete footings, with most structural members at this level taking the form of substantial reinforced concrete walls. The outer perimeter wall is an earth retaining wall and also supports the columns to the east and west operating floors above. There are four basement areas – east/west corridors at -3.5m and north/south basement areas at -5.5m levels. The east/west basements provide longitudinal access and entry to interior debris probe rooms. The north/south basements comprise the long rectangular circulator hall basements with access to each of the cold gas duct inlet chambers. The basement slabs are founded directly on rock, although voids exist in places. On the west side of both RBs there are formed voids beneath the basement slab and exposed rock head.

Both RBs also feature vaults below basement level local to circuits 3 (RB1) and 10 (RB2). Both vaults were constructed within ‘pocket’ excavations into the bedrock at a depth of -10m. The vaults were constructed as a reinforced box structure nominally 7.5x6.5x3m deep with internal falls to a formed sump.

3.3 Biological shield

The massive concrete structure enclosing the reactor vessel is known as the bioshield. The bioshield is centrally orientated and is a vertical cylinder extending from a raft foundation with circular footings at -5.5m up to the charge face at +22.9m level. In the case of RB1, the natural bedrock contours were substantially below the reinforced foundation level toward the northern sector. In this local area, substantial thickening of the mass concrete was utilised to raise formation level for load bearing reinforced foundations. The wall is 3.2m thick and the cylinder has an internal radius of 10.7m.

The concrete is nominally reinforced (i.e. not prestressed). The bioshield is separated from the remainder of the building by expansion joints around the perimeter and over full height. This facilitated unconstrained expansion of the concrete during operation with a maximum concrete temperature of 60°C.

3.4 Charge hall

Above the charge face is a large rectangular area which originally provided access to the reactor core for refuelling operations, etc. The charge hall rises from the charge face level at +22.9m to the main roof at +53.3m. The north and south walls are cast in-situ reinforced concrete and separate the charge hall from the boiler ends. These shear walls are nominally 0.6m thick, stiffened 1.37m deep reinforced concrete buttresses which also offered support to the charge hall crane beams. Above the crane beam level, the shear walls continue vertically to the main roof with a nominal thickness of 0.38m. The east and west walls comprise precast cladding panels supported by steel columns – connected at the base to the charge hall slab and the head to main roof steelwork.

On the west side, connection to a horizontal lattice steel wind girder provides restraint at circa mid height. Vertical load in the columns is transmitted to the charge hall slab while the wind girder and roof steelwork transmit horizontal loads back to the shear walls.

While the Station was operational, the eastern annex of the charge hall formed the FMMB. This area features a mezzanine midway between the 8th and 9th floor levels. The dividing wall between the charge hall and FMMB comprised three mega-columns with non-structural cladding and interlock concertina doors. This area was also serviced by internal FMMB transfer crane and an internal/external cantilever crane – the later complete with crane housing and concertina door measuring 9x14m supported by internal steelwork.

3.5 Boiler houses

There are two boiler houses per RB, one to the north and one to the south. Each boiler house consists principally of three boiler boxes, two Interspaces and associated ventilation/ducting areas. Each boiler house originally housed three boilers, mounted on a 1.8m thick slab at +9.6m level which is supported on the duct cell walls rising from the foundations. Each boiler was housed in a reinforced concrete shaft (boiler box) with internal plan dimensions of 7.9x8.8m rising from 2nd floor to above the 9th floor. The boiler box walls vary in thickness between 0.3m and 0.46m. The outer walls form the external envelope to the north and south elevations of the buildings as well as the return walls on the east and west abutments. The spaces between each boiler box are called the Interspaces. These are of similar plan dimensions to the boiler boxes. The Interspaces rise from the ground to the 9th floor. The external walls of the Interspaces above 2nd floor level are clad with precast panels that are supported by corbels on the boiler box walls. A steel column at mid-span provides additional support to the panels against horizontal loads. Intermediary windows and louvre installations are also present in the Interspace exterior wall. Below 2nd floor level, the Interspaces are connected directly to the gas circulator halls. Although the boiler boxes terminate at the ninth floor, their external walls continue up to support the main roof. The space enclosed by the external walls and interior charge face shear walls is known as the top duct area and is approximately 15.2m wide by 51.8m long by 15.2m high.

3.6 Cold gas inlet ducts and cathedrals

Each of the three circuits (per boiler house) have a similar layout with two parallel duct cell walls flanking the ducts which radiate from the bioshield. These walls are generally 0.9m) thick, rising from -0.8m up to 3rd floor level and contain the gas circulator and cold gas inlet ducts.

3.7 Shield fan rooms and plenums

The shield fan rooms are long galleries at charge face level (5th floor) spanning the full width of the boiler house. There are two plenums located at 3rd (steam pipe routes) and 8th (vent stack) floor levels. At 8th floor are the shield cooling discharge plenums and steam pipe races formed with reinforced concrete. The wall dividing the two area is reinforced concrete with a single 1m square access hatch.

3.8 Hot gas outlet ducts

The hot gas outlet ducts are housed within the hot gas duct cells comprising nominally 0.6m thick reinforced concrete cells which rise from point of bioshield exit, between 3rd and 4th floor, to the 9th floor level.

3.9 Gas circulator halls

The gas circulator halls are low-level annexes at the north and south ends of each RB. Each gas circulator hall is circa 8.3m in length and spans the full width of the boiler end with a basement (as detailed previously). Each circulator hall has a flat roof comprising precast concrete units and an overlaid waterproof membrane. The precast units are inverted U-shape and span east/west between precast concrete beams. These in turn span between precast concrete columns on the external elevation and boiler house interior walls. The beams are supported on concrete corbels at each end. The external walls are clad mainly with precast concrete panels, which are supported by corbels on the external columns.

3.10 East and west operating floors

There are floors at ground, first, second, third and fourth floor levels on the east and west annexes of the RBs. The structures comprise reinforced concrete floor slabs and down stand beams that span between the inner concrete walls surrounding the gas ducts and internal reinforced concrete columns. The floor slab thicknesses vary significantly, with most areas also featuring cementitious screed finishes. Interior rooms were formed using non-load bearing 9'' engineering brick infill panels.

3.11 Main roof

The main roof of each RB is flat within a raised parapet perimeter wall, with main staircase access from west only. The roof comprises of lightweight profile metal decking, felt vapor barrier overlain by 12mm bitumen impregnated fibreboard mechanically fixed to the metal decking and several layers of proprietary fully sealed and liquid applied surface seal coated and layered polymer membrane. PCI Appendix 5 (including TRA-3660-ST-11268) provides details of repair work carried out on the main roof. Due regard should be given to the method of mechanical fastening employed and the fixing centres when formulating a method of main roof removal. The roof lightweight flat deck roofing is supported by steel purlin rails spanning main steel lattice trusses spanning north to south. The roof drains to two flat roof gutters, running east/west along the junction of the charge hall and each boiler house. These in turn drain to internally routed main downpipes in each corner quadrant. The roof over the charge hall area features a series of triangular skylights running north/south, complete with perimeter handrailing. The roof over each boiler house originally featured various items of plant such as safety valves, blow down vents, smoke ventilators and horizontal roof lights. These items have been partially de-planted and the resultant in-situ items have been capped and waterproofed. Notably the horizontal skylights remain in place and now feature upstands, covers and overlaid waterproofing. A large reinforced concrete shield cooling vent stack rises through each boiler house roof projecting to a height of circa +62.8m. The main roof perimeter parapet terminates at circa +54.5m. For further details refer to Appendix 5 of this PCI.

3.12 External envelope

The external walls to the boiler houses are cast in-situ reinforced concrete. The walls vary in thickness, are lightly reinforced and feature vertical striations on the exterior face. These walls are load bearing with lateral restraint provided by a combination of mechanisms, both original and modified. The outer elevations feature air intake louvres which are overclad. There are four shield cooling air intake chambers to the east/west elevations which are also overclad. On the east side, the vertical steam pipe shafts are clad with profiled metal sheeting. For further details refer to Appendix 1, 3 and 5 of this PCI.

Approximately half of the total elevation area is clad with precast concrete panels, the majority of which are present on the east and west elevations. Panels are also present on the north and south boiler houses forming the external envelope to the interspace areas. Panels have also been used to clad the staircases and the gas circulator halls. The precast panels are non-load bearing and are carried on the main structure by varying fixing methods, differing principally in respect of connection to either concrete or steel columns.

All panels span horizontally with a similar height for outward aesthetic uniformity. The panel ends are profiled for interlocking connection via nibs and corbels. All panels feature a central slab which is stiffened by perimeter ribs. Larger panels feature additional vertical stiffeners at half and third span points. Multiple panels also feature interconnections. For further details on configuration refer to Appendix 2 of the PCI [8].

There are also various intermediate flat roof areas. The gas circulator halls to the north and south feature precast concrete panels which sit on precast beams supported by concrete columns. Various items of plant have been de-planted leaving capped upstands and the entire area has been overcoated with waterproof membrane. A drainage channel is present along the outer edge draining to internally routed downpipes. The perimeter edge features newly installed handrailing. The circulator hall roof areas feature staircases down to intermediate roof areas at second floor level only accessible by external doors on the east side. On both elevations, there are four roofs at fourth floor level over the shield cooling air intake chambers made up of reinforced concrete with asphalt finish. At fifth floor level there four more flat roof areas of similar construction and also featuring short parapet walls consisting of brickwork and precast panels. On the east elevation there are two roofs over the steam pipe racers at ninth floor level consisting of reinforced concrete and asphalt finish. On the west elevation, there are two roofs at +56.8m level covering the west side main stairwells. These roof areas have been modified, including overlaid waterproofing, new drainage details and access provision.

The external elevations also feature window units, patent glazing, louvres, profile cladding and brick infill panels. For further details refer to details in Appendix 3 of this PCI.

3.13 Staircases

There are four internal main staircases, one in each corner of the building. The staircases comprise pre-cast stair flights and half landings between the main floor landings constructed in cast in-situ reinforced concrete. The northeast and southeast stairs extend up to eighth floor only. The northwest and southwest stairs extend up to main roof level. For further details refer to Appendix 4 of this PCI.

3.14 Steel structure

Existing structural steel is located to the main roof, east and west elevations of the charge hall, FMMB and boiler houses. There are also miscellaneous columns, beams, stairs, ladders and steel infill flooring present within the buildings. For further details on configuration refer to details in Appendix 5 and 11 of this PCI.

3.15 Primary circuit system

In terms of original configuration, radiating out from the centrally housed Reactor Pressure Vessel (RPV), the hot and cold gas ducts were routed through the building and connected to boiler units (heat exchanges or steam raising units). These components make up the primary circuit, of which there are six per RB. The hot gas ducts exit the bioshield into the hot gas outlet duct chamber areas located on 3rd/4th floor whilst the cold gas ducts enter from the cold gas duct outlet areas within the basement. Boiler sections were comprised of 51mm to 86mm thick-walled cylinders with many integrated water/steam pipes. Many duct sections (excluding cascade bends and bellow sections) are comprised of 1.8m diameter straight cylinders with an approximate wall thickness of 19mm for cold ducts and 24mm for hot ducts. The boiler diameters are 5.4m with a design full height of 35m and 150MW. The ducts and boiler sections which constitute the primary circuit are supported by various mechanisms – skirts, constant load hangers, stools and mass concrete. The RPV, gas circulators and boilers all feature support skirts. Support stools are present beneath each boiler section, cold gas duct and hot gas duct. In addition, several constant load support assemblies are present within both cold and hot gas duct areas.

3.16 Original construction photographs and programme

Given the need for deconstruction and dismantling, an appreciation of the original build sequence is crucial. Although an extract is provided in Figure 9, digitised versions of the original construction programme are available upon request. Attention is drawn to the broad sequence listed and accompanying photographs detailed in Appendix 12 of this PCI.

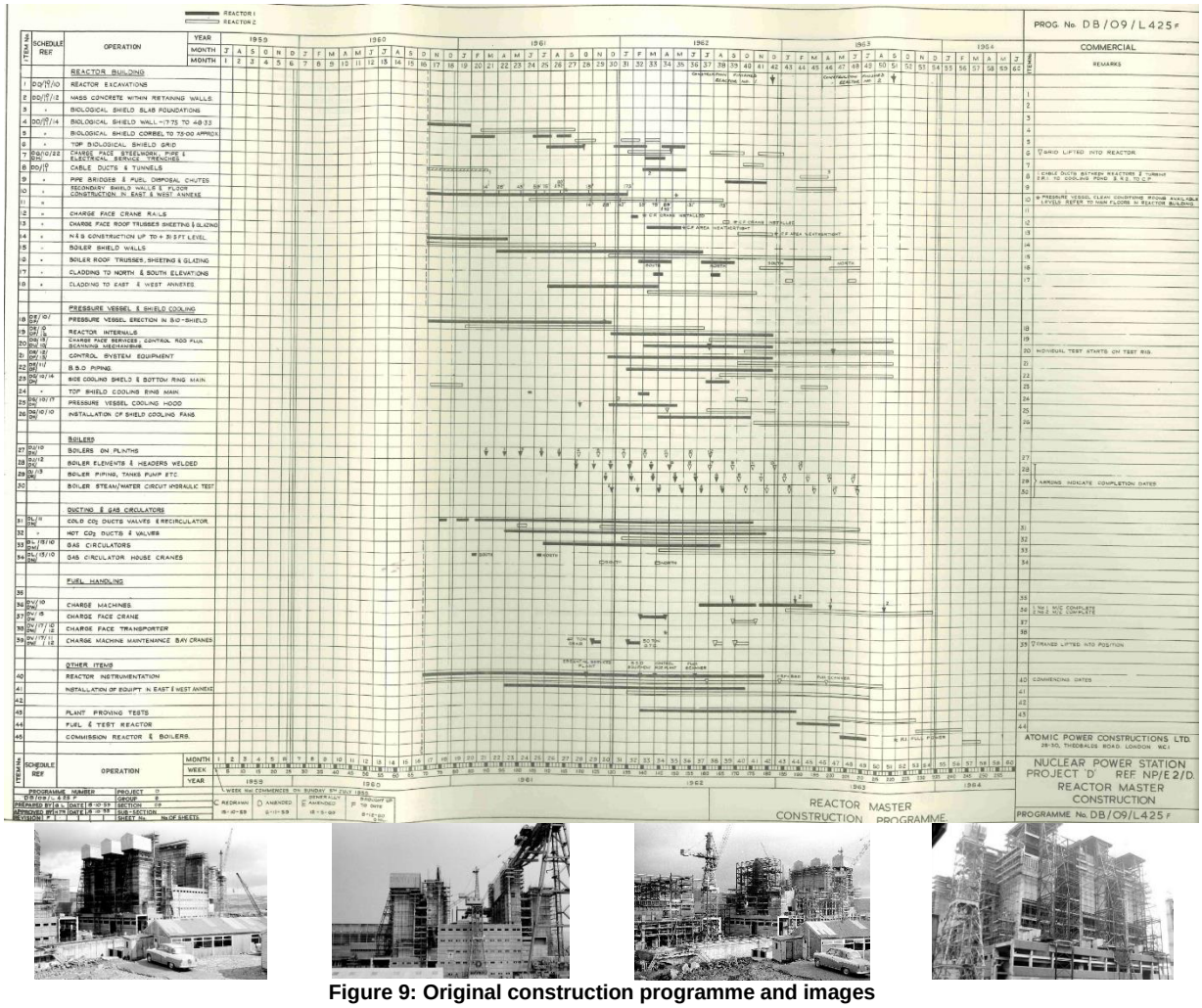


Figure 9: Original construction programme and images

3.17 FED Store and Maintenance Area

The FED Store and Maintenance Area (Formerly WTF) is located on the east side of RB2, approximately 3m from the face of the east elevation. The FED Store and Maintenance Area consists of two steel portal framed structures with monopitch roofs and metal sheet cladding, the buildings are linked via a link corridor. The northern and southern buildings plan dimensions are approximately 13.5m x 7.5m and 12m x 7m, respectively.

It should be noted that the buildings are currently categorised as a 'red' asset due to the condition of the concertina door number 68. A 'red' asset is one that has a risk score ≥17 on the Asset Management Database (AMD) when assessed against the Probability Impact Diagram (PID). The PID takes into account the consequences of failure of an asset and the likelihood of occurrence. A risk score ≥17 means that the impact level is classed as significant, critical or severe, with a likelihood of occurrence classed as 'likely' or above.

The power supplies and alarm cables associated with the buildings will be terminated by NRS. The rainwater drainage system for both buildings will remain live when handed over to the Contractor. There is an existing foul drain crossing under the northernmost building of the FED Store & Maintenance Area building as detailed in Appendix 11 of this PCI (including TRA/3420/LA/26563 & RC-54-A0-78635). Current details indicate that this drain was protected by a 150mm minimum thick layer of concrete surround as part of the preparatory civil works for the building. Further information with regards to the FED Store and Maintenance Area is provided in Appendix 11 of this PCI.

3.18 Current photographs

To supplement the scope documentation, a suite of photographic survey sheets has been prepared to provide additional context and detail. These are listed in Table 3, cross referenced to general plant areas, and are available in Appendix 14 of this PCI.

Building	Area Ref.	Description	Appendix 14 reference
Site	General	General	TRAWS/L28302/DOC/0135
RB1 & RB2	Various	Main roofs areas	TRAWS/L28302/DOC/0112
RB1 & RB2	Various	External views	TRAWS/L28302/DOC/0132 & TRAWS/L28302/DOC/0133
RB1	Various	Typical general plant & materials to be removed	TRAWS/L28302/DOC/0101
		Main staircases	TRAWS/L28302/DOC/0102
		Gas circulator halls	TRAWS/L28302/DOC/0103
		Corridors east	TRAWS/L28302/DOC/0104
		Corridors west	TRAWS/L28302/DOC/0105
		Interspaces	TRAWS/L28302/DOC/0106
		Boiler boxes	TRAWS/L28302/DOC/0107
		Charge hall under capping roof	TRAWS/L28302/DOC/0108
		Charge hall above capping roof	TRAWS/L28302/DOC/0109
		Shield cooling fan room	TRAWS/L28302/DOC/0110
		Top duct area	TRAWS/L28302/DOC/0111
RB2	Various	Typical general plant & materials to be removed	TRAWS/L28302/DOC/0113
		Main staircases	TRAWS/L28302/DOC/0114
		Gas circulator halls	TRAWS/L28302/DOC/0115
		East corridors	TRAWS/L28302/DOC/0116
		West corridors	TRAWS/L28302/DOC/0117
		Interspaces	TRAWS/L28302/DOC/0118
		Boiler boxes	TRAWS/L28302/DOC/0119
		Charge hall under capping roof	TRAWS/L28302/DOC/0120
		Charge hall above capping roof	TRAWS/L28302/DOC/0121
		Shield fan room	TRAWS/L28302/DOC/0122
		Top duct area	TRAWS/L28302/DOC/0123

Table 3: List of photographic survey sheets

4 DECOMMISSIONING STATUS

NRS consulted with SNPA and the local authority whilst developing the Site decommissioning strategy. In accordance with planning constraints of reduced visual and environmental impact, NRS proposed that the two RBs should be reduced in height and externally clad. This entire scheme was developed in conjunction with the SNPA and Welsh Assembly Government (WAG). Following an extensive process, planning permission was granted by WAG in July 2003. Since then, a substantial programme of decommissioning has been undertaken on the RBs aligned with the C&M model. Although this strategy is now subject to change, in favour of RPD, a short summary of the major plant modifications undertaken to date is provided as follows. For additional details refer to the H&S File [6].

4.1 Partial relocation of primary circuit components

To facilitate the partial demolition by height reducing the RBs, the major first plant modification was undertaken with the Partial Relocation of Primary Circuit Components (PRPCC). This work involved significant structural modification and de-planting of the primary circuit, with size reduced sections then housed within the building. In general terms all primary circuit components were removed from above fifth and sixth floor levels to accommodate the capping roof staggered profile. The de-planted sections of varying weight were stored internally on a combination of existing floor slabs and newly constructed steel mezzanines. The PRPCC works also required the installation of cranes at ninth floor level in each boiler house. For further details refer to Appendix 7 of this PCI.

4.2 Gas circulator halls

The ground floor slabs in each of the four gas circulator halls were modified by cutting large openings providing access to the basement area below. In some instances, original operational openings were covered with precast concrete plinths. New vehicular access doors were also added to some elevations facilitating access into the gas circulator halls at ground level. For further details refer to Appendix 5 and 11 of this PCI.

4.3 Capping roof and sidewalls

A critical enabler for height reduction has been the construction of an interior secondary weather envelope. This is comprised of a reinforced concrete capping roof covering the internal plan area and vertical cladded sidewalls to east/west operational floors. During demolition, these elements will serve as the primary envelope protecting the interior and stored components. The capping roof was built in two separate phases. The first phase involved construction over the charge hall and boiler house plan areas with sidewalls formed at fifth floor only. The second phase involved the completion of capping roof over periphery areas and formation of sidewalls down to ground floor. This phased approach avoided constraining the ongoing programme of decommissioning works by facilitating continued use of the access and lift provisions. The capping roof features edge protection, waterproofing membrane finish and minor internal drainage provision. The finished levels are staggered to coincide with the demolition cutline prescribed in the TSOW [2]. The sidewalls are set back from the existing primary envelope, thus creating a working corridor at each floor level. For further details refer to Appendix 8 and 9 of this PCI. Refer to Figure 10 and Figure 11 for illustration.

4.3.1 Charge hall capping roof

The largest section of the capping roof was formed on a steelwork support frame anchored to the charge face and shear wall elements. Steel decking was employed as a permanent shutter and reinforced concrete cast in-situ with a central ridgeline. The clearance from underside of steelwork to charge face is 4.1m. A waterproofing membrane was applied and dressed into the existing structure to ensure effective construction joint bridging and complete weatherproof performance. The sidewalls to the east and west gable ends comprise aluminium cladding supported by steel cladding rails attached to columns and wind posts. The cladding is fully flashed into the existing structure at side junctures whilst the floor mounted cladding kicker is coated with waterproofing.

4.3.2 Low end capping roof (RB1 south and RB2 north)

The capping roof over this area was formed by utilising the existing boiler box and shear walls for support. Steel brackets were anchored to these elements to support spanning beams.

Utilising the methodology described above, the concrete slab was then formed over the boiler boxes, interspaces and shield fan room areas. Within the hot gas duct cells, the existing reinforced concrete structure was utilised to form the capping roof with circuit penetrations infilled and over screeded to drainage fall. Cast-in sumps were formed local to drainage discharge points with the entire area waterproofed. Drainage goods were installed at step gridlines and changes in slab level, whilst hand railing and staircases were installed to enable continued access.

4.3.3 High end capping roof (RB1 north and RB2 south)

Consistent with the lower boiler end construction methodology, the capping roof over this area comprises new cast in-situ slabs supported by spanning steelwork. The slabs within the hot gas duct cells were formed on support steelwork spanning between the existing reinforced concrete walls. Sumps, drainage goods, and waterproofing all feature in these locations. Access staircases enable access from the shield fan room.

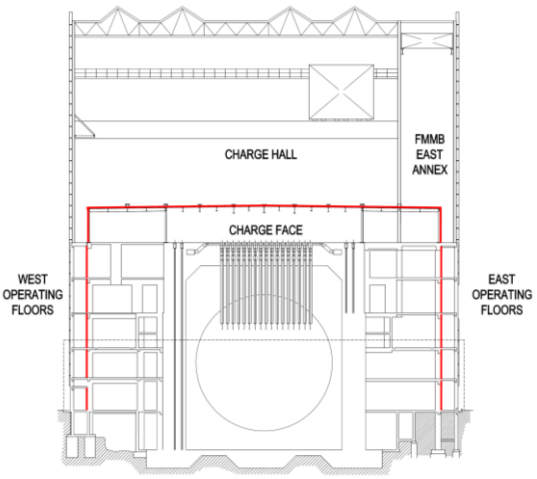


Figure 10: Simple cross section (capping roof & sidewalls)

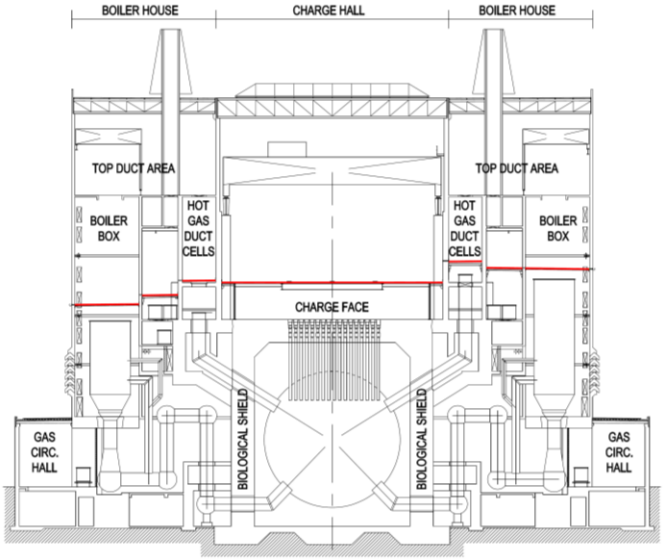


Figure 11: Simple long section (capping roof & sidewalls)

4.4 Internal preparatory works

Several campaigns of work have been completed in terms of de-planting and decontamination with many areas complying with the C&M passive safety intent. This has included radiological decontamination and removal of bulk asbestos. Interior modifications have also been undertaken to deliver the passive ventilation design. Except for major plant items where full removal was not reasonably practicable, areas have been returned to bare room state with the vast majority of services terminally isolated. Whilst some major plant items have been decommissioned SFARP, the baseline structures remain in-situ and warrant mention as follows, further details provided in Appendix 6 of this PCI. Refer to Figure 12 for layout illustration on both RBs.

- Cranes decommissioning and mothballed:
  - 450Ton charge hall cranes (one per RB).
  - 10Ton PRPCC top duct cranes (two per RB).
  - 50Ton FMMB crane (one per RB).
  - 40Ton cantilever crane – noting cantilever structure removed, aperture cladded and concertina door on east elevation sealed (one per RB).
  - 10Ton gas circulator hall cranes (two per RB).
- Modifications to lift systems – noting these are inboard of the secondary envelope:
  - East side passenger lifts de-energised and parked (one per RB).
  - East side goods lift replaced with goods/personnel hoist (capacity 2Te) (one per RB).
  - West side goods lift de-planted and removed (one per RB).

NOTE: Attention is drawn to the mixed unit weights quoted and combination of imperial/metric measurement – also detailed on referenced drawings. For further details refer to detailed plant information contained within Appendix 6 of this PCI.

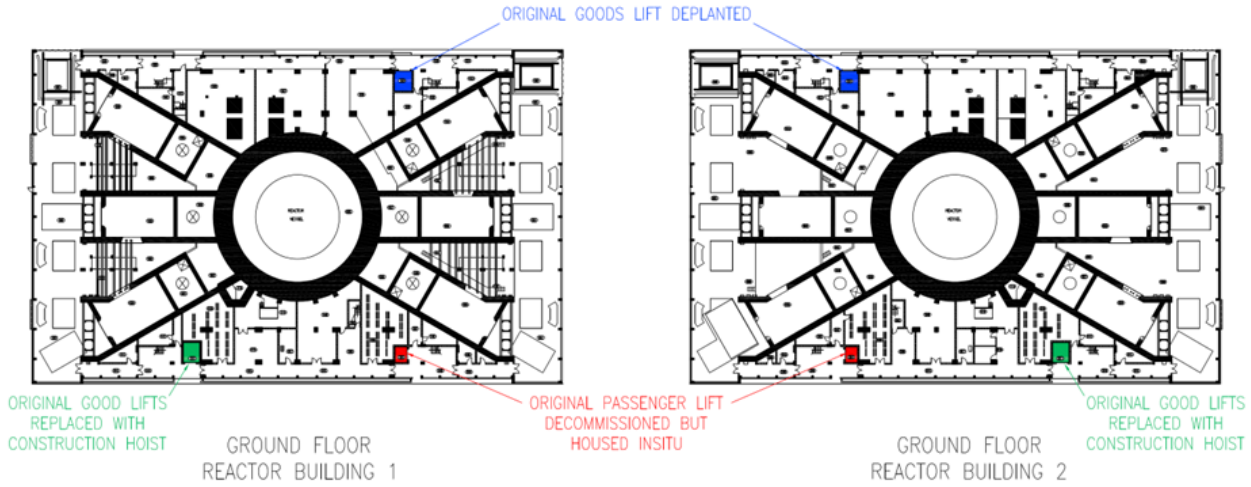


Figure 12: Locations and status of lifts within each RB

4.5 External remedial works

In 2011 NRS commissioned a Structural Integrity Management Plan (SIMP) [9] by external consultants to examine the condition of the RBs and assess structural implications of a strategic change with deferral of height reduction. The undertaking also considered performance longevity of the original structures. A summary of the principal findings is offered as follows:

- External in-situ concrete: As well as suffering from reinforcement corrosion and loss of cover, certain external sections were found to be non-compliant with modern day wind loading design (principally cantilever piers above 131' level (9th floor) and boiler box walls).
- Internal in-situ concrete: Generally found to be in reasonable condition and suitable for retention on the proviso that the primary envelope was maintained. The study identified carbonation-induced reinforcement corrosion with localised spalling however limited in terms of structural significance.
- Internal precast gas circulator hall structures: The roof slab units were found to be suffering from high levels of chloride and low cover to reinforcement compromising long term integrity. It was recommended that circulator hall superstructures be removed during height reduction.
- Precast concrete cladding: Widespread variance was detected in condition dependent upon exposure to prevailing weather conditions. Concern areas were identified as western staircases and interspaces. Discrete interventive action was prescribed for concern areas.
- Structural steelwork: The assessment concluded that structural steelwork should remain serviceable for 20 years providing primary structure remain weatherproof. Structural analysis identified deficiencies in the main roof trusses when subjected to wind uplift.

In response to the SIMP [9], a sustained programme of works was undertaken to improve serviceability and durability of the primary envelope. Roof areas were overcoated and repaired to prolong weatherproof performance whilst conventional safety concerns were addressed. Cantilever sections of the cast in-situ reinforced concrete external walls were strengthened and repaired. Roof steelwork was modified and strengthened. Cast in-situ reinforced concrete external walls were strengthened, along with defect repairs and waterproofing works. A significant number of precast concrete panels were strengthened, and measures were applied to mitigate water ingress. Original points of weakness in the primary envelope were also addressed to improve all round short-term weatherproof performance. It should be noted that design life of these remedial works was limited given the subsequent works to reduce the height of the buildings (this project). In conjunction, workstreams have been delivered to descale the external elevations and repair internal structural defects on a routine basis. For further details refer to Appendix 2 of this PCI [8] and Appendix 11 of this PCI [10], [11] and [12]. Figure 13 and Figure 14 provide sectional illustration of both RBs and proximity assets.

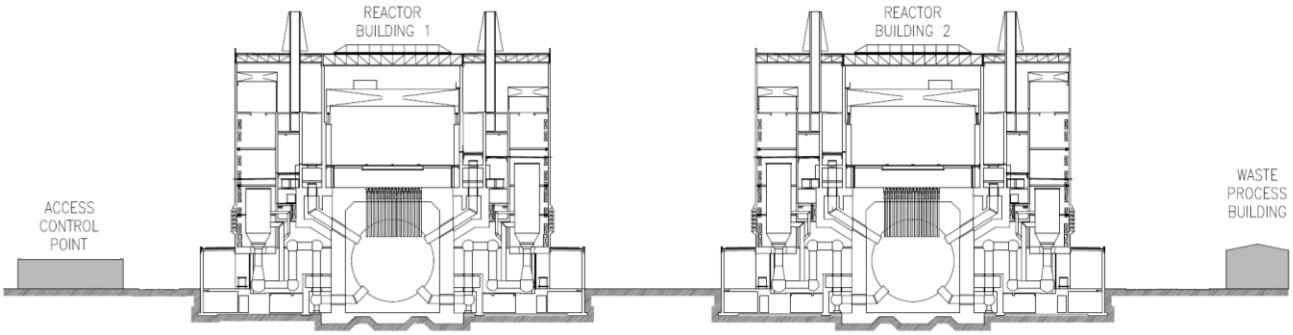


Figure 13: Longitudinal section through RB1 & RB2 (including proximity structures)

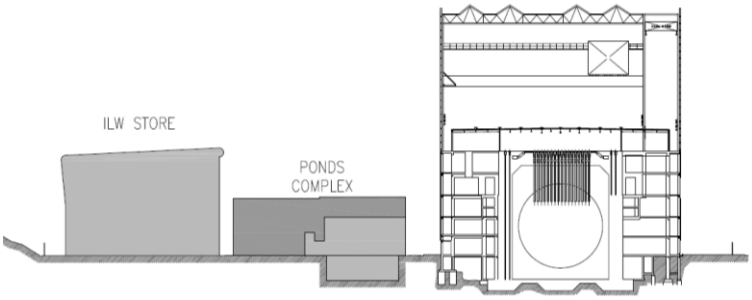


Figure 14: Cross section through RB1 and adjacent Ponds Complex

4.6 Ventilation

Ventilation is required as a prime means of removing moisture from within the structure, minimising sustained condensate conditions and mitigating accumulation of harmful gases, principally radon. The RBs are not hermetically sealed. Internal doors, lift shafts, service shafts and partitions (except those providing protected fire escape routes on the stairwells) have been removed to promote passive air change in accordance with the ventilation design. The design utilises thermal buoyancy and pressure differential to promote passive ventilation of the interior.

4.7 Additional sampling and de-planting of mechanical services within RBs

In 2024, sampling and de-planting of redundant mechanical pipework within the demolition areas have been carried out by NRS. Further information is provided in the Decommissioning Action Plan [13] which is available upon request.

5 DESCRIPTION OF THE PROJECT

For this project, the Contractor will be appointed as the Principal Contractor to undertake the scope in full accordance with the Construction (Design and Management) Regulations 2015 (CDM-15).

The project comprises several aspects with principal focus on reducing the height of the two RBs and undertaking work to ensure continued durability of the asset for subsequent decommissioning programmes of work. The scope of work involves the systematic deconstruction and partial demolition of each RB, delivering a reduced height configuration compliant with existing planning commitments and lessening the visual impact on the landscape. Figure 15 and Figure 16 provide an illustration.

Figure 15: Current configuration of the RBs

Figure 16: Indicative impression of re-configuration RBs

In addition, a package of civil new build and remedial works will be delivered to prolong the durability of the retained structures and reduce disproportionate asset management liability. The end product will offer compliant protection of the stored inventory, ready for successor phases of decommissioning activity on the Site. The headline deliverables can be listed as follows referring to the TSOW [2] for detail. Figure 17 also provides an illustration.

1. Decontamination and removal of hazardous materials.
2. De-planting and removal of redundant systems.
3. Systematic partial deconstruction and demolition. This includes managed alteration of existing envelope and facade.
4. A programme of civil new build works.
5. Asset refurbishment and remediation.
6. Design and installation of a new Lightning Protection System (LPS).
7. Compliant processing and sentencing of waste. This includes select recovery of inert demolition arisings and placement on the Site.
8. All enabling and temporary works given the existing Site conditions and constraints.

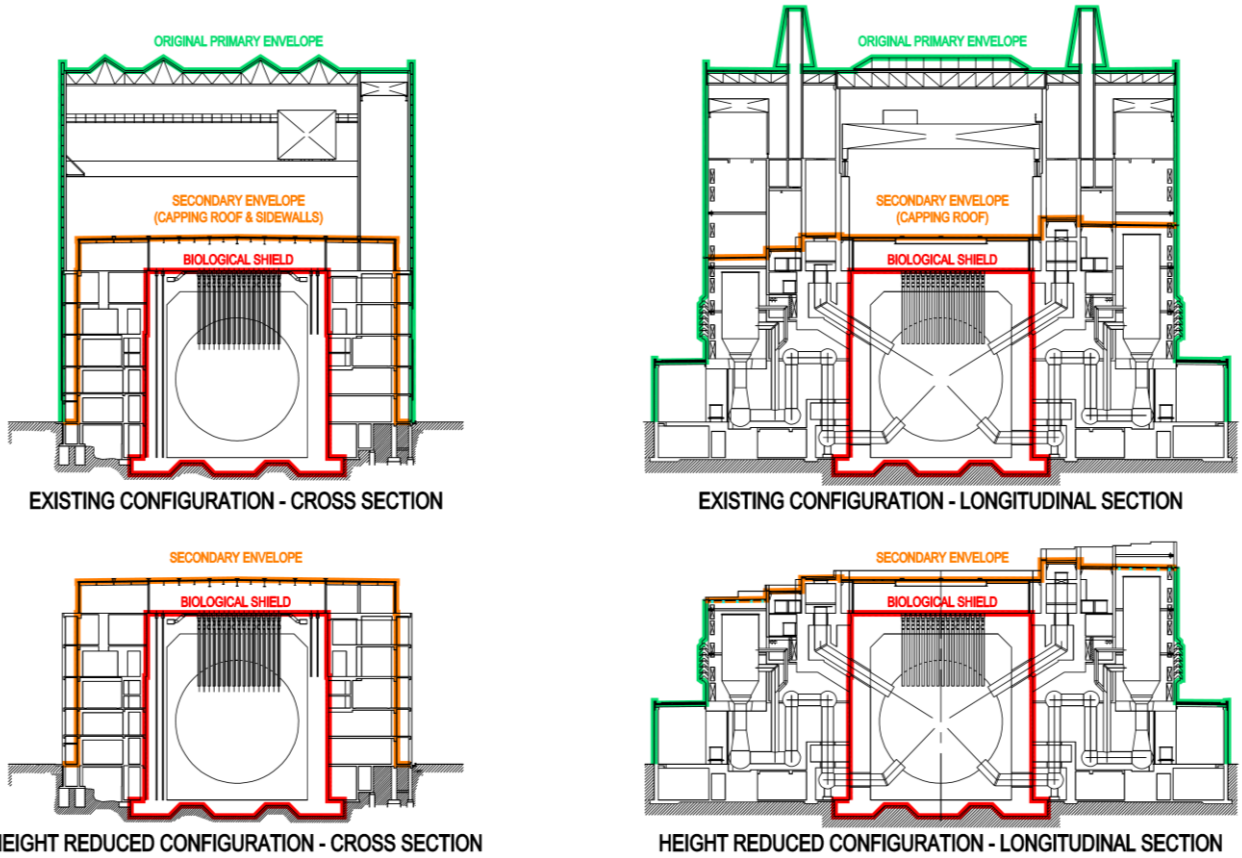


Figure 17: Illustrative summary of project change to RBs

6 KEY DATES

Key dates are indicatively noted below:

- **Project start: July 2025**
- **Project end: July 2028**

For other key dates/access dates/milestones refer to the Scope [1].

7 KEY APPOINTMENTS AND ROLES

Duty Holders:

Role	Name of Contact	Contact Details
Client	NRS Ltd – Caron Weaver (Decom. Delivery Director)	01766 543735 (c/o N. Wright) caron.weaver@magnoxsites.com
Site Director	NRS Ltd – Thomas Williams	01766 563781 thomas.g.williams@magnoxsites.com
Decom Programme Manager	NRS Ltd – Adrian Roberts (Site Decom. Programme Manager)	01766 563825 adrian.x.roberts@magnoxsites.com
Senior Project Manager	NRS Ltd – Nigel Wright	01766 543735 nigel.j.wright@magnoxsites.com
Project Manager	NRS Ltd – Adrian Jones	01766 543735 adrian.jones2@magnoxsites.com
Chief Engineer	NRS Ltd – Matt Tilsley (Decom. Programme Chief Engineer)	01453 812232 matthew.g.tilsley@magnoxsites.com
Principal Designer Responsible Designer / Programme Design Authority	NRS Ltd – David Cabrera (Decom. Programme Technical Manager)	01766 563660 david.cabrera@magnoxsites.com
Site Design Authority	NRS Ltd – Andrew Innes (Site Engineering Manager)	01766 563668 andrew.innes@magnoxsites.com
Site Integration Manager	NRS Ltd – Richard P Owen	01766 563982 rich.p.owen@magnoxsites.com
Site Construction Manager	NRS Ltd – Gethin Jones	01766 563883 gethin.jones@magnoxsites.com
Principal Designer Assistant / Project Engineering Lead	NRS Ltd – Gareth Van Heerden	01766 543750 gareth.v.heerden@magnoxsites.com
Principal Contractor	TBC – subject to competitive Tender	TBC – subject to competitive Tender
NRS Consultants		
Design Consultant / Permanent Works Designer	Arup – Nikki Stockbridge (Associate, Buildings Structures)	Contact via NRS Ltd.
Demolition Consultant	RVA Group – Richard Vann (Director)	Contact via NRS Ltd.

Table 4: Key appointment and roles

8 HEALTH AND SAFETY HAZARDS OF THE WORK

Several historical hazard identification studies have been completed on the project (available upon request). A high-level summary of the foreseeable industrial, environmental, nuclear and security hazards taken from the consolidated Hazard Identification (HAZID) Study [14] are summarised in Table 5.

Industrial		
Structural collapse/instability	Hazardous substances	
Instability of plant and equipment	Occ. health hazards (i.e. manual handling)	
Lifting loads/falling objects/projectiles	Fire	
Collision/contact with plant	Live services	
Falls from height	Stored energy	
Fragile surfaces	Weather	
Environmental		
Air pollution	Waste management	
Protection of property	Environmental impact	
Sustainability & responsible sourcing	Land pollution	
Nuclear & Security		
Loss of containment	Dose (internal/external)	
Loss of services/protection	Solid/liquid/gaseous effluent	
Inadequate arrangements	Unauthorised access	

Refer to the Design Risk Assessments in Appendix 20 of this PCI for risk rating and mitigation. Hazards in red are significant and foreseeable on this project.

Table 5: HAZID summary

NRS draw attention to key factors (Table 6) which contribute to good health and safety performance during demolition as identified by the Health and Safety Executive (HSE) [15]. The effective sharing of information and collaboration are critical success factors and Table 6 details current information sources (where applicable). These aspects should contribute to effective management of health and safety during the planning and construction phases.

Phase	Key factor	NRS pre-planning contribution	PC contribution (ensuring hazards are ALARP in execution)
Design	Structural knowledge of the assets	This PCI and the TSOW [2]	**Yes**
	Demolition equipment and method selection	Feasibility studies and design reviews	**Yes**
Planning	Site knowledge	This PCI	**Yes**
	Health and Safety risk assessment	Design risk assessments (various) This PCI, the TSOW [2] & H&S File [6]	**Yes**
	Development of safe sequences of demolition activities	Feasibility studies and design reviews	**Yes**
	Limitation of the level of subcontracting	NRS procurement process & Scope [1]	**Yes**
	Pre-qualification and selection of specialist Contractors	NRS procurement process	**Yes**
Execution	Workforce supervision	NRS oversight & assurance	**Yes**
	Control of method statements implementation	NRS oversight & assurance	**Yes**
	Communication of unplanned discoveries	NRS reporting systems and Operational Experience Feedback (OEF) tools	**Yes**
	Safety information and training selection	NRS oversight & assurance	**Yes**

Table 6: Key health and safety factors on demolition projects (adapted from HSE report)

The Contractor shall demonstrably apply the principles of prevention and hierarchy of control at all times. The Contractor will be expected to provide information on the following (as required):

- Information about how the works will be delivered and the Contractor's requirements of Site.
- Feedback on construction methods and potential opportunities to enhance safety and health through review with duty holders.
- Information on Contractor-designed portions of the works for robust liaison with duty holders.
- Evidence of competence relevant to the risks associated with the project.
- Detail on how health and safety will be ensured during the works.
- Sub-contracted works and how these will be managed to ensure safety culture alignment.
- Evidence that appropriate supervision will be provided and that supervisory competence will reflect the nature of the works.

8.1 Physical hazards

The identified significant foreseeable physical hazards are summarised in Table 7, complete with follow up supplementary information (where applicable).

Nature	Hazard Ref.	Hazard	
Physical	1.1	Access/egress	Refer to the Design Risk Assessments in Appendix 20 of this PCI for risk rating and mitigation. Hazards in red are significant and foreseeable on this project.
	1.2	Unstable structures/instability	
	1.3	Unstable ground	
	1.4	Underground services/voids	
	1.5	Excavations	
	1.6	Ground water	
	1.7	Overhead plant	
	1.8	Confined space	
	1.10	Fragile/brittle materials	
	1.11	Radiation – ionising	
	1.13	Radiation – contamination	
	1.17	Power – electrical (mains)	
	1.19	Stored energy	
	1.21	Fire	
	1.23	Slips, trips and falls	
	1.24	Lifting operations	
	1.25	Working at height/falls	
	1.26	HAVS	
	1.27	Vibration	
	1.28	Noise	
	1.29	Vehicles/plant collision	
	1.30	Vehicles/plant stability	
	1.32	Impact	
	1.33	Crushing	
	1.34	Ejection	
	1.35	Cutting	
	1.37	Abrasion	
	1.38	Shear	
	1.39	Temporary works	
	1.40	Weather	
	1.41	Degrading assets	
	1.42	Contaminated land	

Note: Hazard references relate to the hazard identification aid-memoire in Appendix 21 of this PCI.

Table 7: Key physical hazards and information (where applicable)

8.1.1 Existing services and below ground structures

External to the RBs, information on existing services is available in Appendix 11 of this PCI [16]. Extracted Figure 18 (showing areas) and Table 8 provide a snapshot of layout and system presence by area.

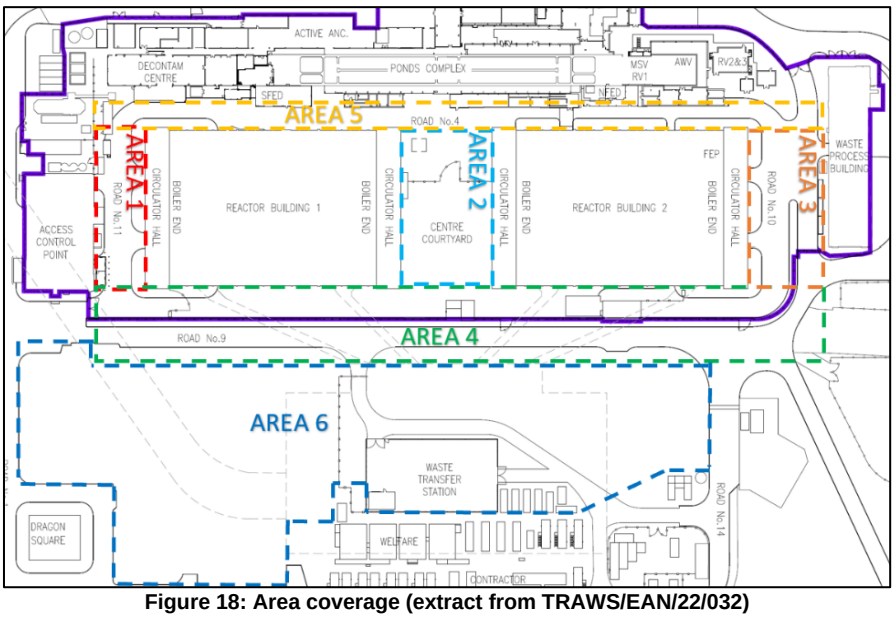


Figure 18: Area coverage (extract from TRAWS/EAN/22/032)

System or aspect	EAN Section Ref.	Location					
		Area 1	Area 2	Area 3	Area 4	Area 5	Area 6
Surface water drainage (shown in blue on DA-11-00-C5020-032), French drain shown in yellow.	4.2	✓	✓	✓	✓	✓	✓
R1 South basement groundwater drainage system	4.3	✓					
Foul drainage (shown in green on DA-11-00-C5020-032)	4.4	✓	✓	✓	✓	✓	✓
Active effluent drains (shown in purple on DA-11-00-C5020-032)	4.5	✓	✓		✓	✓	
Electrical HV/LV cables	4.6		✓	✓	✓	✓	✓
Earthing tape	4.7	✓		✓	✓	✓	✓
Potable water	4.8	✓	✓	✓	✓	✓	✓
Service water	4.9	✓	✓	✓	✓	✓	✓
Fire main	4.10	✓		✓	✓	✓	
Oil sewer (shown in grey on DA-11-00-C5020-032)	4.11				✓		✓
Cable tunnels	4.12.1				✓		✓
Cable reserves	4.12.2	✓		✓	✓	✓	✓
AC ducts	4.12.3	✓		✓	✓	✓	✓
Site monitoring system	4.12.4			✓	✓		✓
Steam pipe	4.13	✓				✓	
Service & instrument air mains	4.14	✓	✓			✓	
CO_2 mains	4.15	✓	✓			✓	
Lubricating oil	4.16	✓	✓				
Propane	4.17					✓	
Cold water culvert	4.18				✓		✓
Goliath track	4.19				✓	✓	
Monotower tracks	4.20				✓	✓	
Centre courtyard features & loading	5.0		✓				
Road 9 features & loading	6.0				✓		
Road 4 features & loading	7.0					✓	
Former turbine hall & loading	8.0						✓
Former admin block & loading	9.0						✓
Topographical surveys	10.0	✓	✓	✓	✓	✓	✓

Table 8: Services and below ground structures (extract from TRAWS/EAN/22/032)

Appendix 11 of this PCI [16] also contains information on ground conditions inclusive of borehole logs.

It should be noted the Site employs a colour coding system in accordance with drawing DA-11-00-C5020-032 to clearly distinguish systems – blue for surface water manholes, green for soil manholes and black for oil manholes.

The permissible loading to areas adjacent to the RBs such as the Centre Courtyard (Area 2) is limited due to the presence of below ground voids and existing concrete slabs with limited capacity. Further information is provided in Appendix 11 of this PCI. The information provided in the EAN [16] must be taken into account and supplemented with in-situ ground investigation and testing as required to suitably and sufficiently inform the Contractor's temporary works designs (i.e. working platforms, haulage roads, site cabins etc.).

The EAN also provides information on the RB basements walls. Calculations were carried out to assess the south basement walls of RB1 and concluded that they have sufficient capacity to withstand a surcharge loading of 10kN/m^2, and that greater surcharge loading would be allowable provided further analysis of the structure is carried out.

The allowable axle load and bearing pressure that can be applied to the existing turbine hall footprint and existing scaffolding laydown area is 3000kg and 50kN/m^2, respectively. All point loads in this area shall be agreed with NRS.

The allowable axle load and bearing pressure that can be applied to the existing roadways across Site is 11,500kg and 250kN/m^2, respectively, with the exception of where below ground voids are located in roadways. For example, the cable tunnels on the east side of the RBs, and the service duct covers which cross Roads 9 and 14 as shown in Figure 19 below. Any loading to these areas must be suitably assessed and agreed with NRS prior to application. This also applies to areas adjacent to the RBs such as the centre courtyard, former Admin Block and Workshop Complex, waste laydown areas and ISO field area 4 at the north of site.

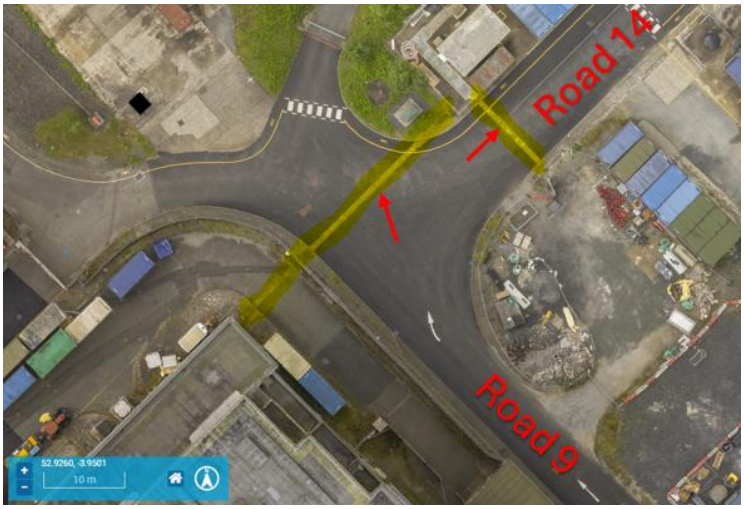


Figure 19 - Aerial view of NE corner of RB2 showing service duct covers

As detailed within Appendix 11 of the TSOW [2], there is a land quality monitoring regime with three and six month frequency routines associated with boreholes and the surface water drainage system. The current Site baseline as detailed within Appendix 11 of this PCI [16] is due to be supplemented with additional boreholes with positions illustrated in Figure 20 however still subject to change. Access to these permanent fixes shall not be foreclosed by the works and will need to be facilitated by the Contractor to ensure monitoring protocol compliance.

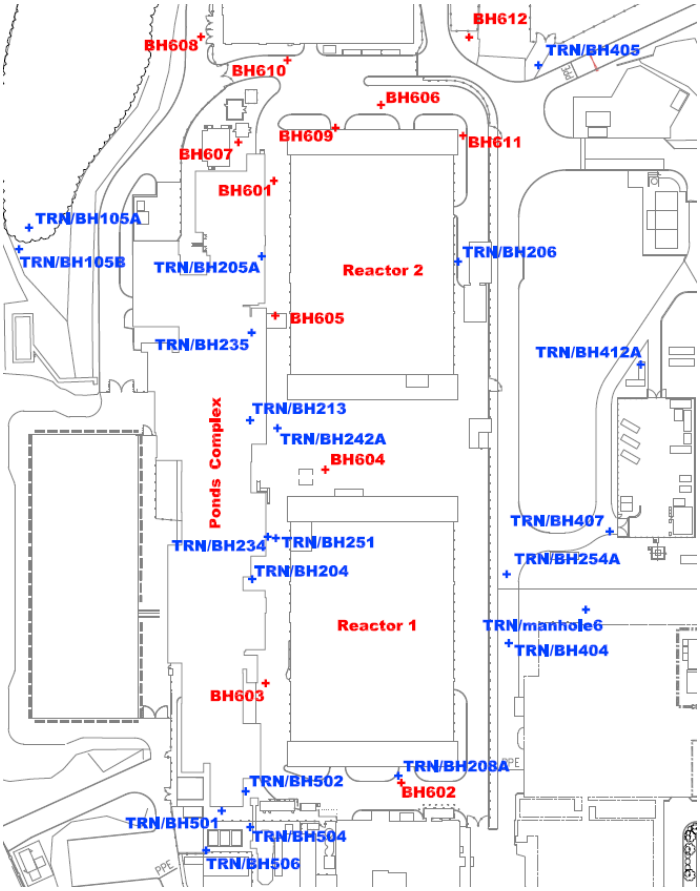


Figure 20: Existing & new borehole locations (read in conjunction with TRA/3210/LA/14275)

As detailed in Appendix 3 of the TSOW [2], ongoing access will be required to the dewatering system installed on the south elevation of RB1. The dewatering system is currently operational intercepting groundwater externally to the basement wall, thus reducing the head of water pressure. This system has been installed to overcome worsening operational deficiencies in the original perimeter external French drain. The five boreholes are fitted with water activated pumps, lifting contact water via piped means to an interceptor/sample point. The water is sampled and discharged to the existing surface water system by NRS. This system shall need to remain operational for the duration of the project inclusive of frequent monitoring and attendances by NRS.

The Contractor's methodology shall avoid excavation external to the RBs opting instead for the use of gravity, ballasted or grillage-based foundation options avoiding piled infrastructure and temporary works. Where this is not reasonably practicable the Contractor shall notify NRS. Where excavations cannot be avoided (i.e. surface water drainage works), or spiking or ground termination is required, this will need to be agreed in advance with NRS and subject to management arrangements and NRS perimetry Excavation Certificate (F-1659).

The Contractor shall only be permitted to bond to existing site earthing or LPSs where there is robust substantiation by SQEP and safety justification. In such a scenario, the Contractor shall be required to include for dovetailing with the Site existing configuration. Any connection will require SQEP design, commissioning and statutory testing to mitigate any fault scenario. This will include suitable and sufficient touchpoints and approvals with NRS SQEP. Details of the LPS are available in Appendix 11 of this PCI. The latest statutory test check sheet is available and includes advisories at various test points [17]. The Contractor shall give due cognisance to these as part of the scope of work. It should be noted that connection to the system will require suitable and sufficient oversight arrangements from NRS SQEP persons – the detail of which will need to be considered and discussed prior to works commencement.

Internal to the RBs, all services and plant outboard of the secondary envelope have been terminally isolated by NRS (with the exception of the electrical supplies associated with Auxiliary Switchboard 4 - listed below, and alarm cables listed in Table 9). As part of the handover process, mechanical and electrical isolation certification shall be provided to the Contractor. Universally, most spaces have been de-planted to bare room state however attention is drawn to the presence of legacy cabling routed within basements, cable risers and west side sub-floor void spaces. The Contractor shall therefore be required to implement physical and administrative controls for accessing the basements or areas inboard of the secondary envelope. All services within these areas (Figure 21) shall be assumed to be live unless confirmed as otherwise in writing by NRS. Redundant services within the demolition area that are to be de-planted as part of the Height Reduction works are included in Appendix 4 of the TSOW.

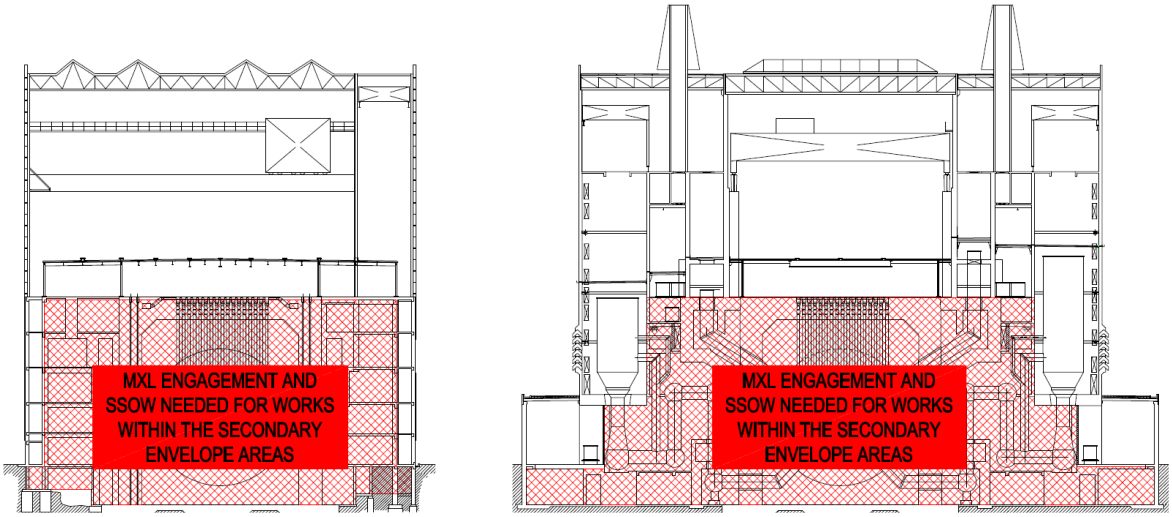


Figure 21: RBs simple sections (all services within treated as live)

Existing Site power supplies are routed through the works area footprint (Figure 22) and will be made available for use by the Contractor as detailed in Section 4.12 of the TSOW [2]. These supplies include 11kV and 415V ratings. Rationalisation of the electrical system is ongoing by NRS however at the point of handover, electrical supplies will still be routed through both RBs for the following:

- RB2 Auxiliary Switchboard 4 11kV distribution enclosure.
- RB1 SE and RB2 NW construction hoists (415V). These will be terminally isolated prior to start or at a mutually convenient time as they could be handed over to facilitate Contractor early mobilisation.
- RB1 south dewatering system (415V).
- RB1 and RB2 basement sump alarms (24V-50V).
- RB1 and RB2 main staircase lighting (110V) unplugged from transformer (415V/110V) but available for use by the Contractor.

Detail on RB2 Auxiliary Switchboard 4 (controlled by NRS in accordance with Company Procedure):

- 11Kv/433V Site Supplies Auxiliary Transformer 4 2000Kva, X=5.95%, Cast Resin.
- 3200A, 25KA for 3 sec, 3 Phase, 4 Wire, Busbars.
- MAX 630A Frame Size.

Information relating to the services and ductwork crossing between the Reactor Buildings is provided in the Summary of Ground Conditions EAN [16] included in Appendix 11 of this PCI. Other limited points of electrical supplies will be available to the Contractor outboard of the RBs. A distribution board sited on the former turbine hall footprint will be made available with 8 single phase socket outlets each rated at max 32A. The supply to the distribution board is fused at 63A three phase. This existing system can be supplemented by additional NRS supplies (as proportionately agreed).

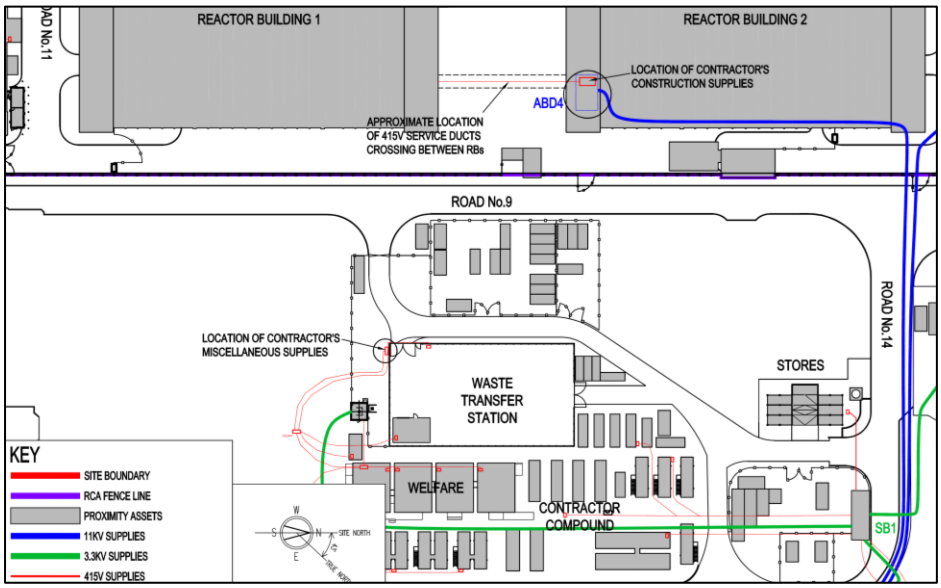


Figure 22: Power infrastructure available to the Contractor

At point of handover a number of alarms will still be active within the RBs (Table 9) with further detail provided in the TSOW [2]. Mutually agreed arrangements will be required as part of the handover process to ensure alarms remain in service and maintained for the duration of the contract.

Aspect	Alarm title	Plant location
ALIMAK	AL020 Reactor 1 East Goods Lift Alarm P2	RB1 Ground East
ALIMAK	AL152 Reactor 2 East Goods Lift Alarm P2	RB2 Ground East
SUMP	AL024 Reactor 1 South Sumps Levels High P2	RB1 Basement South
SUMP	AL043 Reactor 1 North Sumps Levels High P2	RB1 Basement North
SUMP	AL174 Reactor 2 South Sumps Levels High P2	RB2 Basement South
SUMP	AL175 Reactor 2 North Sumps Levels High P2	RB2 Basement North
ELECTRICAL	AL183 Site Supplies Auxiliary Switchboard 4 TX Winding Temp P2	RB2 Ground South
FIRE	AL184 Site Supplies Auxiliary Switchboard 4 Fire P1-Fire	RB2 Ground South
ELECTRICAL	AL213 Site Supplies Auxiliary Switchboard 4 Trip Supply Fault P1	RB2 Ground South
FIRE	AL214 Site Supplies Auxiliary Switchboard 4 Fire Equipment Fault P2	RB2 Ground South

Table 9: List of retained RB alarms

The Contractor's attention is drawn to the fact that water supply to both RBs is isolated. A point of supply is provided by NRS at the base of the RB2 (northeast external corner) however it shall remain the Contractor's responsibility to make provision for supplying water to the workface as necessary (inclusive of mitigation for cold weather) and ensure that suitable backflow prevention is provided in accordance with Water Regulations UK. The original supply line (previously on the east elevation [Figure 23]) has been removed by NRS, back to the supply point at the northwest external corner where there are 2no. outdoor taps (Figure 24). Additional connection points are available at south side of the former Admin block footprint, and from the west side of the asset no. 200 (Figure 23). It should be noted that operating pressure is 3 bar and is insufficient for facilitating the works without modification[1]. The Contractor shall account for such and reversal of measures upon completion of the works.

Information relating to water supplies for firefighting purposes is included in section 8.1.13 of this PCI.

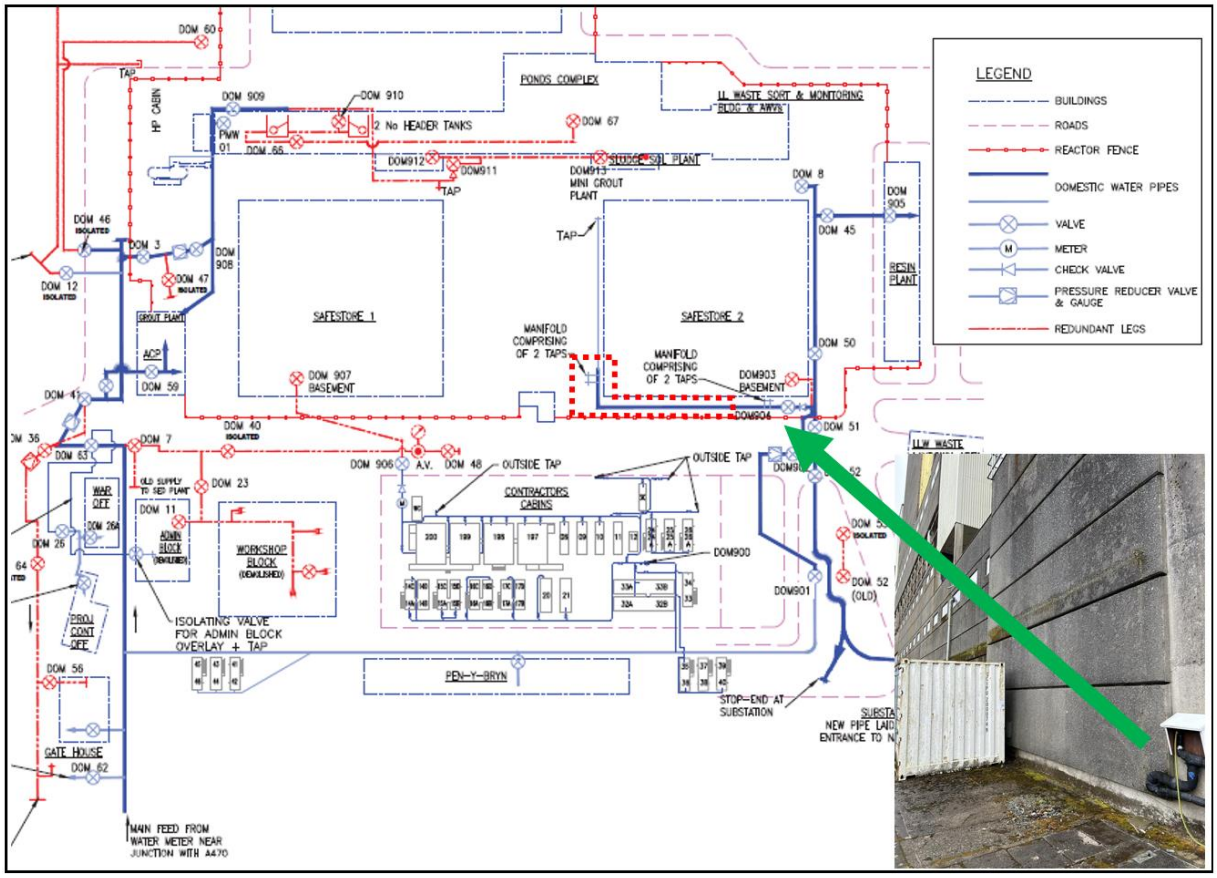


Figure 23: Potable water supply (TRA/3210/LA/10569) showing extent of pipework removed

Figure 24: 2no. existing taps located at NE corner of RB2

[1] There is a pressure of 7 bar at the site Point of Connection located adjacent to the A470 (main entrance).

A number of live drains pass within the working areas (Figure 25), some of which critically serve other areas of Site. The Contractor shall ensure that all retained drains and sewers are demonstrably maintained and unaffected by the works. For additional detail see Appendix 11 of this PCI. Access to the existing sampling point at MH6 (surface water sewer) must be retained for the duration of the works.

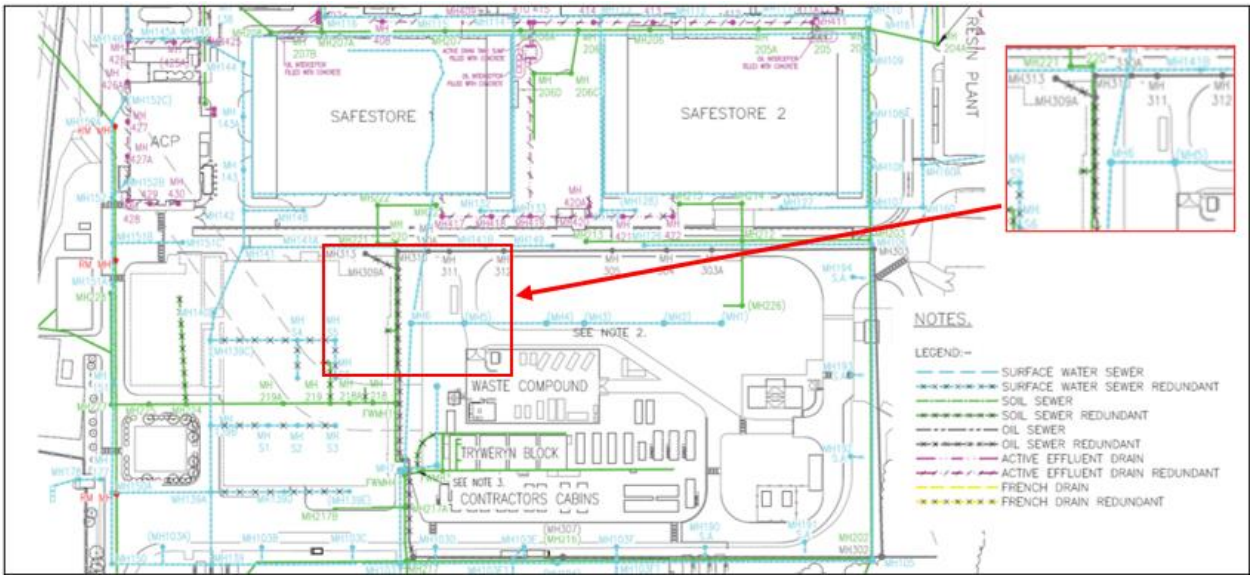


Figure 25: Site sewers (extract from DA/11/00/C5020) with MH6 highlighted

Street lighting is provided around Site to illuminate areas for safe pedestrian access out of daylight hours. The street lighting is in the form of lighting columns and some of the columns are in the vicinity of the buildings & structures to be demolished. Care needs to be taken not to damage or strike the columns at any time during the project. Any affected street lighting columns should be recorded within the Contractor's arrangements and mitigations put in place to protect their integrity. These arrangements shall also need to cater for live services routed along the RCA fence line.

8.1.2 Ground conditions

Several underground structures are present within the Contractor's working areas. These are detailed, along with historical ground-imposed load cases in Appendix 11 [16] of this PCI. The working areas also feature areas of potential land quality concern. Figure 26 illustrates the interface across the working areas and control measures shall need to be applied to eliminate ground excavation. Further supplementary guidance has been provided [18] with greater detail available upon request from NRS.

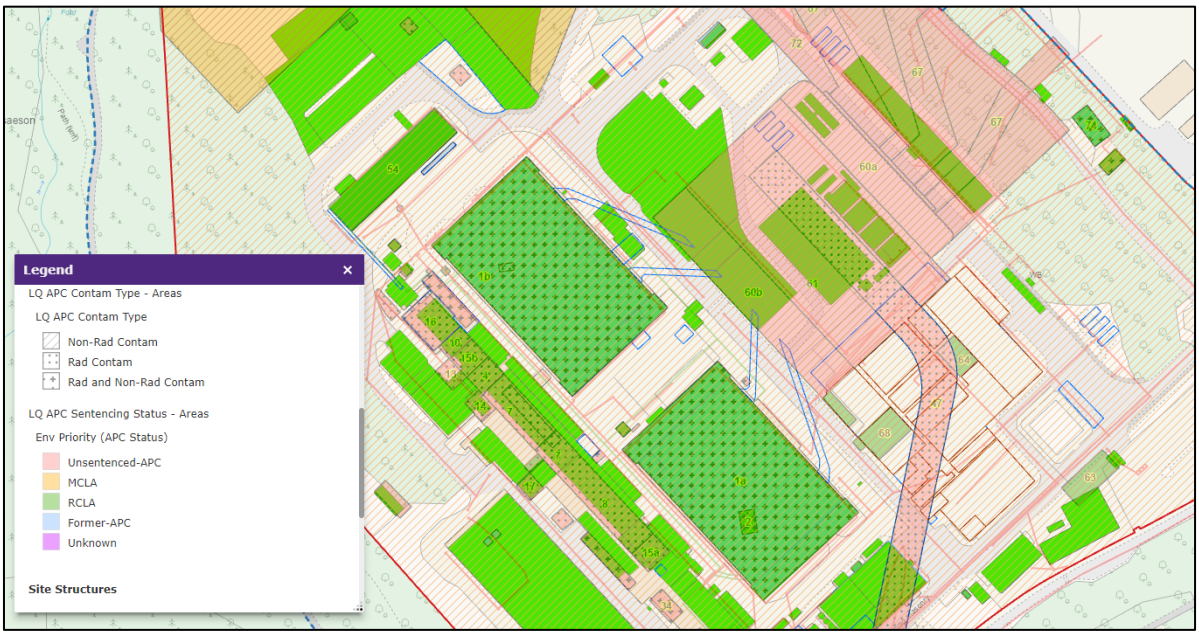


Figure 26: Land quality areas of potential concern

8.1.3 Existing structures

Refer to detail contained within this PCI and associated appendices. In addition, refer to the TSOW [2] and the H&S File [6]. Further detail is available upon request for RB and Site configuration.

Loading limitations exist both internally and externally to the RBs. Information on historical allowable loading cases has been consolidated into Appendix 11 of this PCI [10] and [16]. During height reduction of the existing structures, the Contractor will be required to demonstrably manage the temporary stability of the partially demolished structures and in this regard, attention is drawn to the Structural Interdependencies Report [7] in Appendix 17 of this PCI. See Figure 27 for extracted illustration.

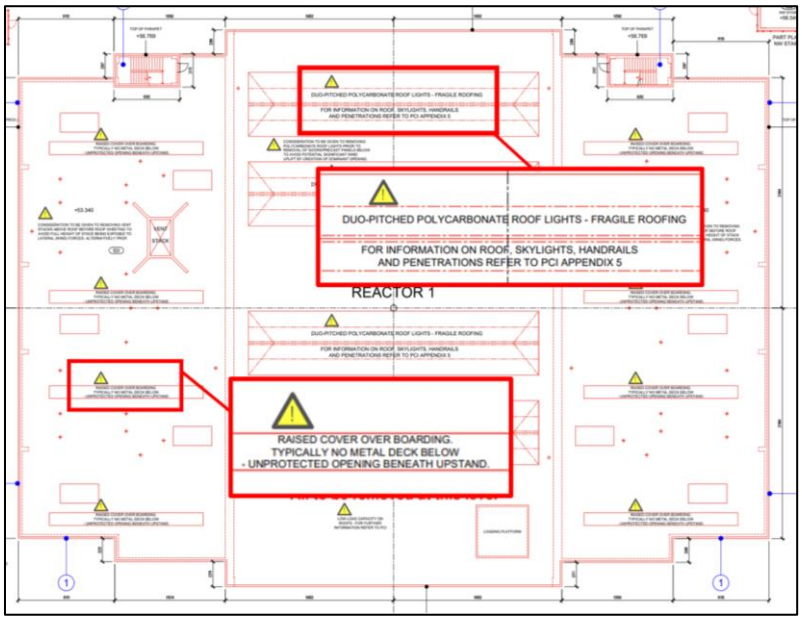


Figure 27: Sample information relating to interdependencies

Assessments have been carried out on the resistance of the pile cap and peripheral areas to a dropped load relevant to the Trawsfynydd Pile Cap cranes [19] [20]. The conclusions of the reports are summarised below.

Pile Cap (Standpipe Area):

~ The event of dropping a Fuelling Machine, when it is being lifted or transported over the Pile Cap standpipe area at a scheduled height, would not lead to damage to plant or services below the surface of the Pile Cap.

~ Certain other dropped loads could deform a standpipe cover sufficiently to impact the standpipe or standpipe closure via the closure indicator [19].

Peripheral areas:

~ Perforation damage will not occur to any of the Pile Cap floor areas C to H (Figure 28) inclusive for any of the scheduled lifts.

~ Calculations show the access cover located in Area D3 may not be able to withstand the impact of the Fuel Element Hoist dopped from its maximum height of 10.67m.

~ The possible extent of cone cracking through the slabs are summarised in the report [20].

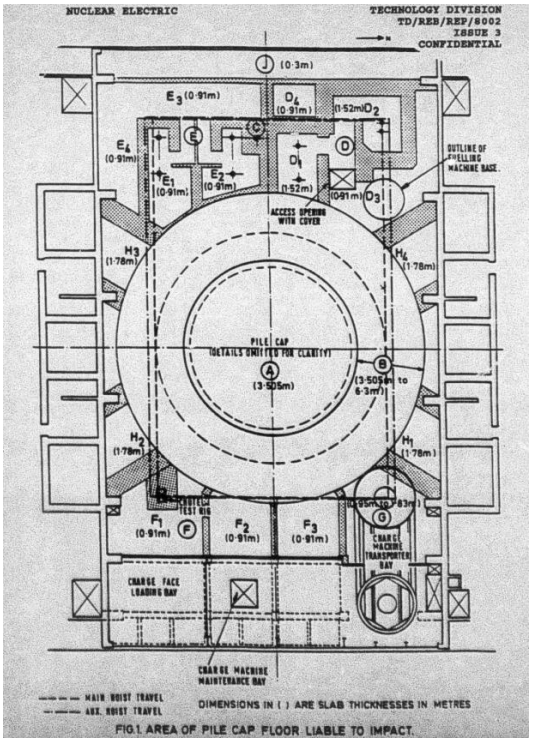


Figure 28: Area of Pile Cap floor liable to impact [20]

The Contractor shall ensure that the existing cover plates in the charge face area (standpipes, mortuary tubes, cable ducts etc.) are not damaged during the works.

The existing reinforcement drawings show that the designed concrete cube crushing strengths of the key elements were as follows with reinforced concrete details provided in Appendix 1 of this PCI. Further details on mix design available upon request:

- Charge hall buttress columns: 'Class A' = 39.6 N/mm² (used predominantly in isolated higher strength members).
- Bioshield pile cap precast diagrid beams: 'Class A' = 39.6 N/mm².
- Boiler box walls, perimeter columns, slabs and walls: 'Class B' = 34.5N/mm² (typically used throughout with the exception of thicker elements).
- Cantilever perimeter walls on the north and south faces of the buildings from 131'3" level to roof: 'Class B' = 34.5 N/mm² (typically used throughout with the exception of thicker elements).
- Charge hall walls on Gridlines E/L and hot gas duct circuit walls: 'Class C' = 29.3 N/mm² (typically used in thicker elements including slabs and most walls beneath 5th floor).
- Bioshield pile cap infill concrete, bioshield walls and foundations: 'Class C' = 29.3 N/mm².

Further information on the concrete mixes used for construction of the Trawsfynydd Site is provided in the historical report [21] which covers the chemical and physical properties of the constituent materials of the various classes of concrete that was used, included in Appendix 1 of this PCI.

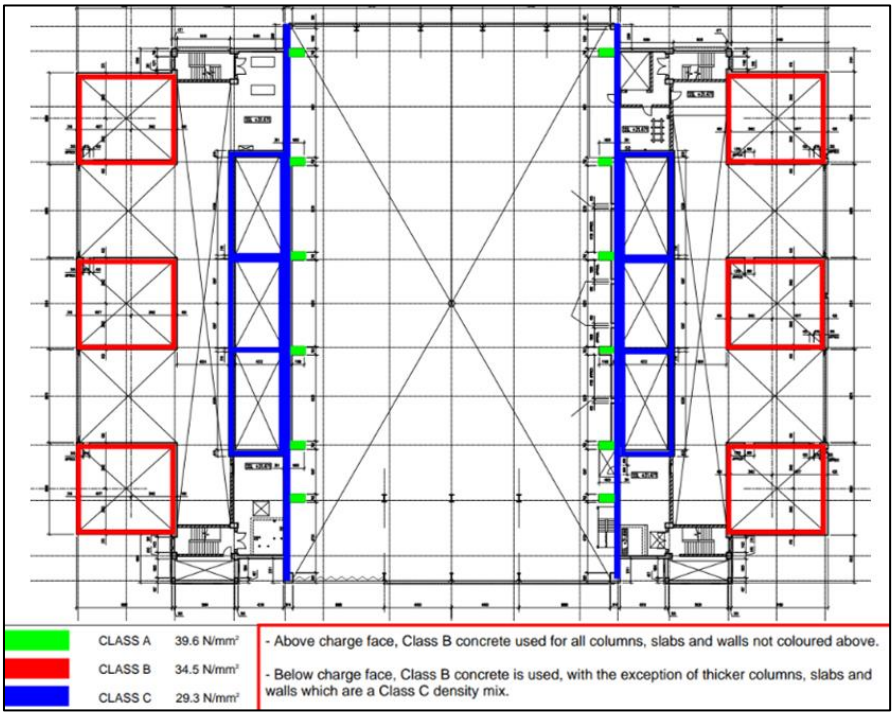


Figure 29: Original concrete classes used for major structural elements

The amount of reinforcement is variable across the structure, for details refer to original construction details and subsequent investigative works, Appendix 1 and 11 of this PCI respectively. The reinforcement bars used in the reinforced concrete structure are assumed to be plain mild steel bars to BS785 with a characteristic yield strength of 250 N/mm². On-site dimensional measurements at formed openings have also been undertaken to provide the following tentative summary which should be fully substantiated by the Contractor:

- Opening in charge hall wall above 5th floor (gridline E/3): 15'' thick wall (381mm) with ½'' diameter horizontal bars at 330mm vertical spacing. Vertical bars ¾'' diameter in pairs with 300mm horizontal spacing. Cover varies but originally specified as 1'' or bar diameter.
- Opening in charge hall wall above 5th floor (gridline M): 24'' thick wall (610mm) with ½'' diameter horizontal bars at 380mm vertical spacing. Vertical bars ¾'' diameter in pairs with 480mm horizontal spacing. Cover varies but originally specified as 1'' or bar diameter.

As identified in the SIMP [9], the external exposed walls of the RBs have suffered from degradation and corrosion of reinforcement. Further details are available in Appendix 11 of this PCI, however Table 10 below provides a summary from the SIMP [9] findings regarding carbonation and cover. The SIMP [9] also provided an estimate on the approximate proportion of outer layer reinforcement with cover less than depth of carbonation at 16% for RB1 and 17% for RB2.

	RB1 Carbonation	RB1 Cover	RB2 Carbonation	RB2 Cover
Mean cover	23.2mm	42mm	17.2mm	36mm
Standard deviation	8.9mm		7.0mm	
Maximum	43.0mm		35mm	
Minimum	5.0mm	26mm	4mm	25mm

Table 10: Summary of combined results from SIMP

The location of the existent steelwork within the boiler box and interspaces areas shall be taken into consideration when determining the partial demolition methodology. Figure 30 below, provides summary detail of the original steel frame utilised within each boiler box for strengthening.

Boiler Box No.												
Level of Existing Steel (m)	1	2	3	4	5	6	7	8	9	10	11	12
39.010												
36.250												
33.270												
30.980												
27.760				✓	✓	✓	✓	✓	✓			
24.300	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
21.790	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
19.380	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Hatched	Denotes above capping roof - work carried out under separate contract											
✓	Denotes work required to steel at that level											

Figure 30: Extract (TRA-3630-ST-24351-04) showing level of steelwork in boiler box areas

The Contractor shall be cognisant of any changes to load paths and loading applied to existing structures throughout the demolition sequence. The Contractor should pay particular attention to ensure that the currently more sheltered and more lightly reinforced walls are not exposed to higher wind loads than they currently are by removal of the sheltering walls in advance of demolishing these relatively weaker walls. This also applies to lower sections of the vent stacks which are not currently subjected to wind loading. The loading applied to existing structures from any temporary supports that may be required to support the aforementioned building elements must be assessed.

The Contractor's attention is also drawn to BS6187 relating to partial demolition and maintaining residual stability of the remaining structure accounting for both permanent and temporary state conditions. Where the demolition methodology preweakens the structure, suitable and sufficient curtailment measures should be utilised to mitigate a fault scenario.

The proposed lifting eye locations within a panel of cut section of concrete shall be located to ensure that there is adequate reinforcement outboard of the lifting eyes to provide structural capacity during the temporary state.

In addition to the Structural Interdependencies Report [7], attention is drawn to the EAN [8] on precast panels in Appendix 2 of this PCI. The EAN [8] presents consolidated information on the configuration and composition on the panels as illustrated with Figure 31. The Contractor shall need to give due regard to the various load paths, connection details and tie back methods when formulating the demolition plan. Tie back details for courses of precast panels where there is a clash between the panel and the downstand beam consist of a threaded socket (used for temporary pulling) grouted within a 50mm dia. hole in the downstand beam to form a rigid joint. The panel concrete mix was 'Class B' of mean crushing strength 5000psi (34.5N/mm^2) at 28 days.

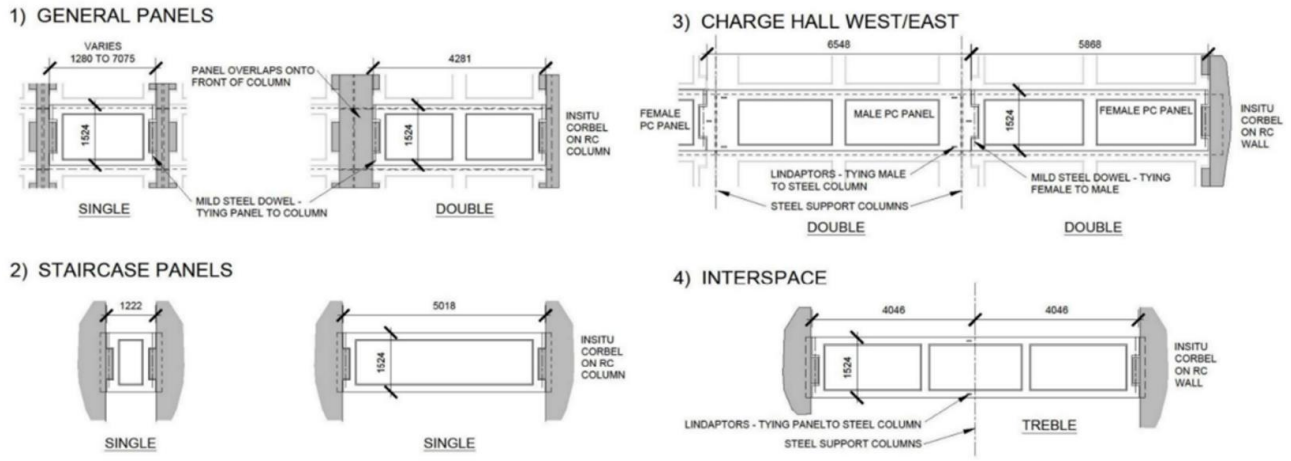


Figure 31: Sample information relating to precast panels

Consideration shall be given to the sealing measures in Appendix 2 of this PCI (including TRA/3630/ST/24416) which shows details of the existing Sikaband silicone strips and polystyrene packers at the joints between the precast panels on various elevations of the RBs.

The original reinforced concrete nibs and corbels were designed to support individual precast panels. New bracketry was installed to fully support the weight of individual precast panels and thus made the original nibs redundant. Any proposals to increase the load supported by the brackets by supporting panels above will need to be suitably and sufficiently substantiated.

The original precast concrete building elements such as the precast panels and staircases had lifting points cast into the concrete. See section 8.2.1 for details of lifting sleeve cast into precast panels. Additional shear reinforcement was provided at the lifting points for the staircases. The position of any proposed lifting points relative to original lifting points shall be considered, together with the effects of any hogging moments introduced during lifting.

The record drawings show there are several different stair arrangements used over the height of the staircases however, as only the stair flights above Level 6 are being removed as part of the height reduction scheme, many of the precast stairs to be removed are Stair type A or Stair type B, shown below in Figure 32 below.

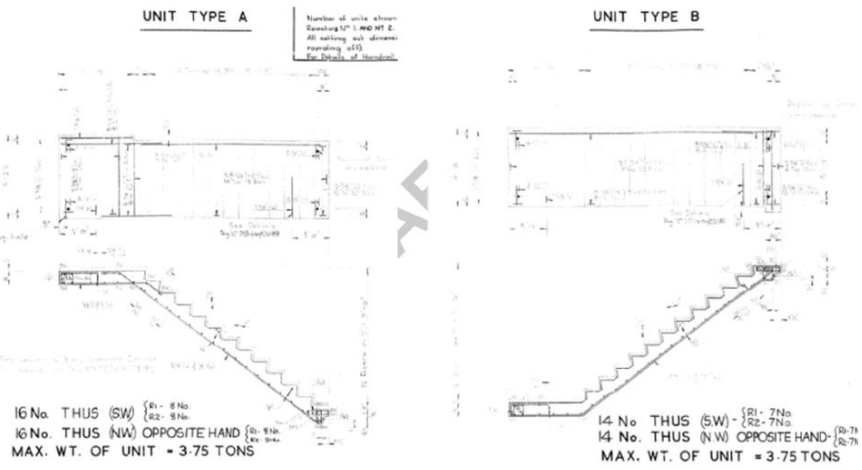


Figure 32: Extract from Record drawings DD/10/00/C5190 & DD/10/00/C5191

The geometry of the RBs is such that there is no through-passage or cross-travel available on certain floors. Travel distances are also lengthily. Some features are also present inhibiting access along the corridors outboard of the sidewalls – these include second floors on the west side and fourth floors on the east sides. There is also limited access to the outer corridor at fifth floor levels and local to stored sections in various locations. As such, the Contractor shall establish suitable access/egress routes (inclusive of emergency access/egress) to facilitate the works. Suitable address of established transit routes and waste transport windows of operation will need to be managed accordingly.

Due regard shall be given to the fact that each RB is currently served by 1No goods/personnel lift. The maximum safe working load of these lift facilities is 2Te in addition to dimensional limits. The lift car has physical dimensions of 2.8m, width of 2m and height of 2m. It is important to note that the lift can only travel to the 5th floor (pile cap) and the configuration of the lift has been altered with the formation of Phase 2 Capping Roof i.e. the mast lowered. The Contractor shall need to take cognisance of the fact that these assets are inboard of the secondary envelope and are scheduled to be isolated, at mutually convenient time, to facilitate the scope of works. If the lifts are unavailable, the Contractor is responsible for ensuring that access and material transfer is conducted in a safe manner. Alternative access is available via the main stairwells which have an imposed load restriction as detailed in Appendix 11 of this PCI [10].

The Contractor is also made aware of legacy temporary works present within the RBs and external locally. The scope includes for removal or maintenance of these structures, where applicable, as detailed in Appendix 10 of the TSOW [2]. For legacy scaffolds to be dismantled, the Contractor shall be mindful that NRS once operated a colour coded scaffold capping system to control stock:

- Yellow caps – known provenance with no potential for internal contamination.
- Blue caps – known provenance with potential risk of internal contamination.
- Red caps – unknown provenance with potential risk internal contamination.

The Contractor shall take due cognisance of the leading edges and fragile surfaces. The Contractor shall incorporate necessary controls and mitigation measures as necessary for the duration of the works, including regard for the limited horizontal load capacity of edge protection installed (both temporary and permanent works).

Attention is drawn to the presence of floor penetrations which feature a variety plating/infill method. More recent plating has been undertaken to satisfy a given imposed load as detailed in Appendix 11 of this PCI [22] however historical details will be subject to case-by-case assessment. Given the degraded state of the assets, slips, trips and falls is a prominent hazard. As detailed within the TSOW [2], the majority of areas have been de-planted to bare room state with infrastructure supporting general access/egress removed entirely. Apart from main staircases and general access areas, there is no lighting provision. Some areas outboard of the secondary envelope benefit from daylight.

8.1.4 Current consolidated information

As part of the SIMP [9] study, dimensional surveys have been undertaken of the RBs SFARP. This information, and as-built details from preceding projects, has been utilised to generate the project set of drawings. The project drawings have also been generated in logical series to illustrate existing, demolition and final configurations. For illustration of the existing configuration refer to the highlighted set of drawings in Table 11.

Building	Aspect	Existing configuration (inclusive)	Demolition configuration (inclusive)	Final configuration (inclusive)	Misc details (inclusive)
RB1	General arrangements	**48500 to 48512**	485815 to 48526	48530 to 48537	
	Cutline		48528 to 48529		
	Elevations	**48540 to 48543**	48545 to 48548	48550 to 48553	
	Sections	**48555 to 48556**	48558 to 48559	48561 to 48562	
RB2	General arrangements	**48565 to 48577**	48580 to 48591	48595 to 48602	
	Cutline		48593		
	Elevations	**48605 to 48608**	48610 to 48613	48615 to 48618	
	Sections	**48620 to 48621**	48623 to 48624	48626 to 48627	
RB1 & RB2	General details				48628 to 48640
Note: All drawings are prefixed with 'TRA/3630/ST/'					

Table 11: Project drawing structure

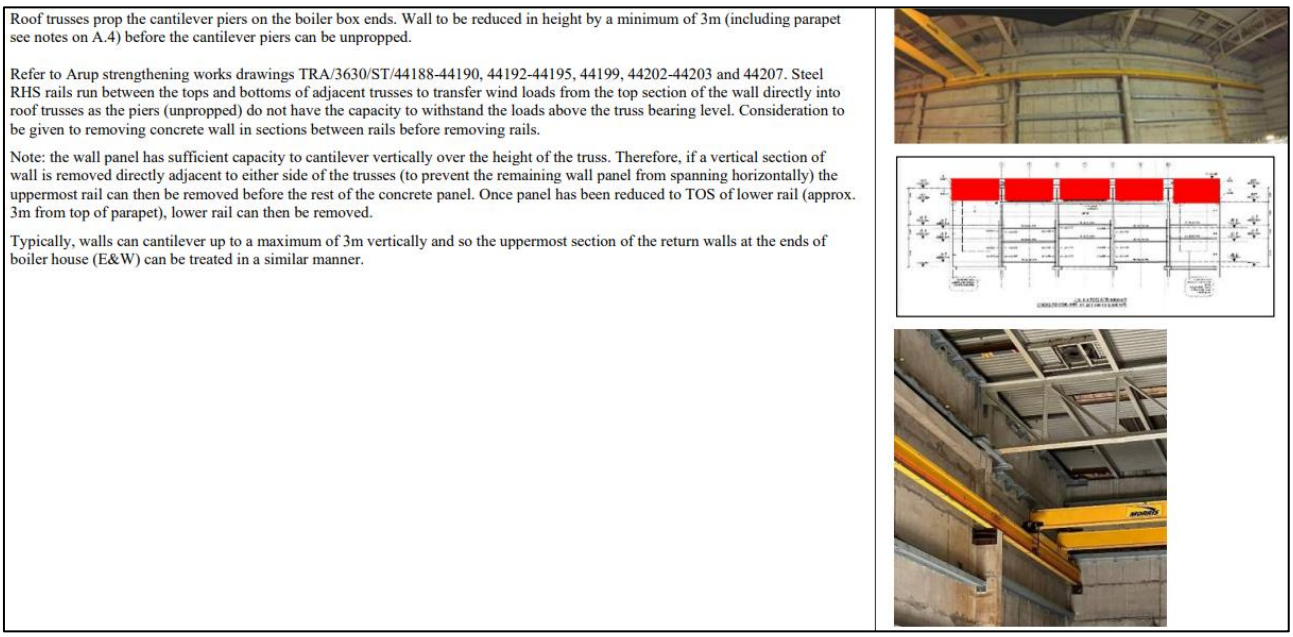
In recognition of the extensive lifecycle works to date, NRS have undertaken a comprehensive desktop study and consolidated relevant information into numerous umbrella EANs. These documents are referenced here and throughout this PCI for the Contractor's attention:

- EAN on principal load paths [10]. This EAN provides a summary of the structure, principal load paths and historical allowable loading cases for the permanent works. For copy refer to Appendix 11 of this PCI.
- EAN on precast concrete panels [8]. This EAN presents a consolidated summary on precast panel configuration and conditions. For a copy refer to Appendix 2 of this PCI.
- EAN on summary ground conditions [16]. This EAN presents all consolidated data on local ground conditions and services. For a copy refer to Appendix 11 of this PCI.
- EAN on asset condition [12]. This EAN provides a summary of the SIMP [9] findings and reactive works. It also provides a brief commentary on current asset condition. For a copy refer to Appendix 11 of this PCI.
- EAN on defect and structural remediation strategy [11]. This EAN provides full details on the repair strategy for the height reduced structures. For a copy refer to Appendix 11 of this PCI.

Attention is also drawn to the Structural Interdependencies Report [7] a copy of which is in Appendix 17 of this PCI. This report provides detail on known structural form and mechanics to inform the demolition methodology mitigating any adverse effect or condition SFARP. Aspects captured include, but are not limited to the following:

- Latent structural issues, concerns and defects data.
- Structural capacities and limitations.
- Stability sensitive or intrinsically weak elements.
- Known dismantling considerations and dynamic concerns (including dominant opening effect and wind uplift effects).

Comprehensive appreciation of the Structural Interdependencies Report [7] will be vital for informing the Contractor's safe and systematic deconstruction methodology, ensuring structural stability is suitably and sufficiently managed throughout. A sample of information is provided with Figure 33:



Roof trusses prop the cantilever piers on the boiler box ends. Wall to be reduced in height by a minimum of 3m (including parapet see notes on A.4) before the cantilever piers can be unpropped.

Refer to Arup strengthening works drawings TRA/3630/ST/44188-44190, 44192-44195, 44199, 44202-44203 and 44207. Steel RHS rails run between the tops and bottoms of adjacent trusses to transfer wind loads from the top section of the wall directly into roof trusses as the piers (unpropped) do not have the capacity to withstand the loads above the truss bearing level. Consideration to be given to removing concrete wall in sections between rails before removing rails.

Note: the wall panel has sufficient capacity to cantilever vertically over the height of the truss. Therefore, if a vertical section of wall is removed directly adjacent to either side of the trusses (to prevent the remaining wall panel from spanning horizontally) the uppermost rail can then be removed before the rest of the concrete panel. Once panel has been reduced to TOS of lower rail (approx. 3m from top of parapet), lower rail can then be removed.

Typically, walls can cantilever up to a maximum of 3m vertically and so the uppermost section of the return walls at the ends of boiler house (E&W) can be treated in a similar manner.

Figure 33: Sample information from Structural Interdependencies Report

Aspects from the Structural Interdependencies Report [7] are also reinforced via the TSOW [2] accompany suite of drawings where residual hazards are highlighted SFARP. For details refer to Appendix 1 of the TSOW [2].

8.1.5 Internal inspections and defects

To comply with Nuclear Site LC28, NRS is required to implement adequate Site arrangements for the regular and systematic examination of safety related plant.

This requirement extends to civil structures with coverage of the RBs as summarised in Table 12. These inspections provide NRS with defect monitoring baseline and drive a programme of ongoing remediation as defects are subject to case-by-case assessment and classification.

Schedule Reference	Inspection Title	Frequency
SS1 Civil Inspection Ref: 41129518/01 & SS2 Civil Inspection Ref: 41144233/01	Basements & foundations	5 Yearly 2018 inspection results included in TSOW See below for 2023 inspections
	Cold gas duct cells (& cathedrals)	
	Reactor bioshield	
	Gas circulator halls (north & south)	
	Operational floors (east & west annexes, ground to fourth) and stairs	
	Boiler houses (north & south)	
	Hot gas duct cells & outlet chambers	
	Boiler house plenums & shield cooling filter rooms (north & south)	
	Shield cooling fan rooms and corridors (north & south)	
	Charge hall superstructure (fifth floor over the reactor)	
	Top duct area (including vent stacks) and main roof	

Table 12: RB1 & RB2 inspection coverage

The inspection frequency is set at 5 years with the quantification provided in Table 13 below is from the assessment undertaken in 2018. A copy of the output report is provided in Appendix 15 of this PCI. Attention is drawn to the fact that a programme of remedial works been undertaken on the asset since issue of the report and a more current defect inventory is summarised by class in Table 13. NRS retains and manages a comprehensive Structural Inspection Database (SID) in real time. This can be made available to the Contractor upon request.

Defect class	Defect class commentary (as per NRS Company Standard S-268)	RB1	RB2
A	No reportable defects or other challenges. Structural element (or elements within an area) satisfactory for continued use. No further action required until the next scheduled inspection.	680	607
B	Defect(s) present of no structural or safety significance. Structure/element(s) suitable for continued use. No further action required before the next scheduled inspection. Defect(s) logged for future trend analysis.	5162	6611
C	Defect(s) of structural or safety significance though it may not be clear whether remedial work is required. Further investigations may be proposed in the form of detailed inspections, design assessment, monitoring, sampling or load tests.	281	400
D	Defect(s) of structural or safety significance requiring remedial measures although not immediately. Further inspections, design assessment, monitoring, sampling or load tests may be proposed, where required, to firmly establish the degradation mechanism and extent of the defect, prior to considering any appropriate repair technique.	0	**1**
E	An adverse condition which has the potential to challenge the continued integrity or durability of the structure if not addressed.	0	0
F	Structure, area or element inaccessible for inspection.	490	487
X	Defect(s) of structural or safety significance considered to require urgent attention. Further investigation, design, repairs or temporary measures to be proposed as appropriate.	0	0

Table 13: LC28 defect classifications (2018 inspection)

Details of the Class D defect highlighted above are provided in Table 14. The defect (10314A) is a crack in a reinforced concrete nib supporting a precast panel within RB2 Interspace 8/9 (Space Ref: 2080). It should be noted that this defect was listed as a Class ‘E’ defect in the 2018 LC28 inspection report, and subsequently re-classified to Class ‘D’ by NRS in the SID as explained above. Given that the precast panels and nibs are being removed as part of this project, the Contractor shall need to give due regard to this defect in planning and undertaking the works.

Building	Drawing	Space	ID	No	Class	Image of defect
RB2	46073	2080	10314A	1	D	
Defect description (2018)			**Additional comments**			
31/07/2018 (viewed from 2551). Concrete nib in the column in far elevation cracking and crushing. Unable to access closely. Inspected from distant 5th floor slab.			Reinspected December 2019 no change. Continue to monitor.			

Table 14: Class D defect information

Another inspection campaign was carried out in 2023. There are inconsistencies between the classification of defects from the 2018 inspection campaign due to the subjectivity of the different surveyors carrying out the surveys. The 2018 inspections are believed to be more representative of the structural condition of the RBs, and are therefore included in the SID, and are part of the TSOW to be repaired (classified C and above). The results from the 2023 inspections are included in this PCI (Appendix 15) for information only and should be considered as part of the Contractor's methodology, in particular when applying loads from temporary works onto the permanent structure. It is noted that there has been a drift in classification of defects from the 2018 and 2023 inspections, with several defects logged as safety hazards rather than structural issues, primarily due to subjectivity from the surveyors involved. The total number of defects, classified C and above, recorded in the 2023 inspection are presented in Table 15 below (the table does not include cladding panel support nibs). Table 2 in Appendix 15 includes NRS commentary on the comparison of defects identified in the 2018 and 2023 LC28 inspections for appropriate context.

	SS1					SS2				
	C	D	E	F	X	C	D	E	F	X
Basement	14	3	2	9	2	2	0	6	74	0
Ground	3	2	1	46	0	7	2	14	37	0
1st Floor & Stairwells	12	18	23	1	10	7	4	39	1	1
2nd Floor	10	4	6	33	2	0	7	12	48	6
3rd Floor	1	4	0	23	0	6	20	11	23	4
4th Floor	4	0	0	0	2	6	7	7	0	2
5th Floor	0	2	0	32	2	0	4	4	33	0
6th Floor	7	2	5	14	0	8	6	3	2	1
7th Floor	0	0	0	2	0	0	0	0	0	0
8th Floor	8	3	4	0	0	0	1	1	4	0
9th Floor	6	0	14	4	0	0	0	0	2	0
Roof	2	0	8	2	0	2	0	9	2	0
Total	67	38	63	166	18	37	51	85	226	14

Table 15: Total number of defects class C and above (2023 inspection)

8.1.6 External inspections and defects

NRS also retains and manages data on Reactor Buildings external defects. This includes a programme of annual descaling driven by existing risk assessment given the building fabric, condition and degradation norms. As a result, a programme of inspection and descaling by rope access has been in place since September 2008. These works ensure the risk of spalling material is mitigated through tactile examination, inspection and repair. The output observations and repairs are then used to update the baseline drawings and defect schedules. This baseline has been utilised to inform the remediation scope of work as detailed in Appendix 6 of the TSOW [2]. This information should be utilised by the Contractor to assist in gaining suitable and sufficient understanding of the condition of the structure, both above and below the demolition cutline. A copy of the latest inspection reports is also available in Appendix 16 of this PCI. Figure 34 illustrates typically how the defects are recorded by drawing, with existing unchanged defects shown in green, existing deteriorating defects in yellow, and new defects shown in red. Aerial photographs taken as part of a drone survey also show the extent of the cracking and spalling to the external reinforced concrete walls, the photographs are provided in Appendix 14 of this PCI.

Figure 35 below provides the total mass of concrete removed from each elevation of RBs during each of the annual de-scaling campaigns since 2014.

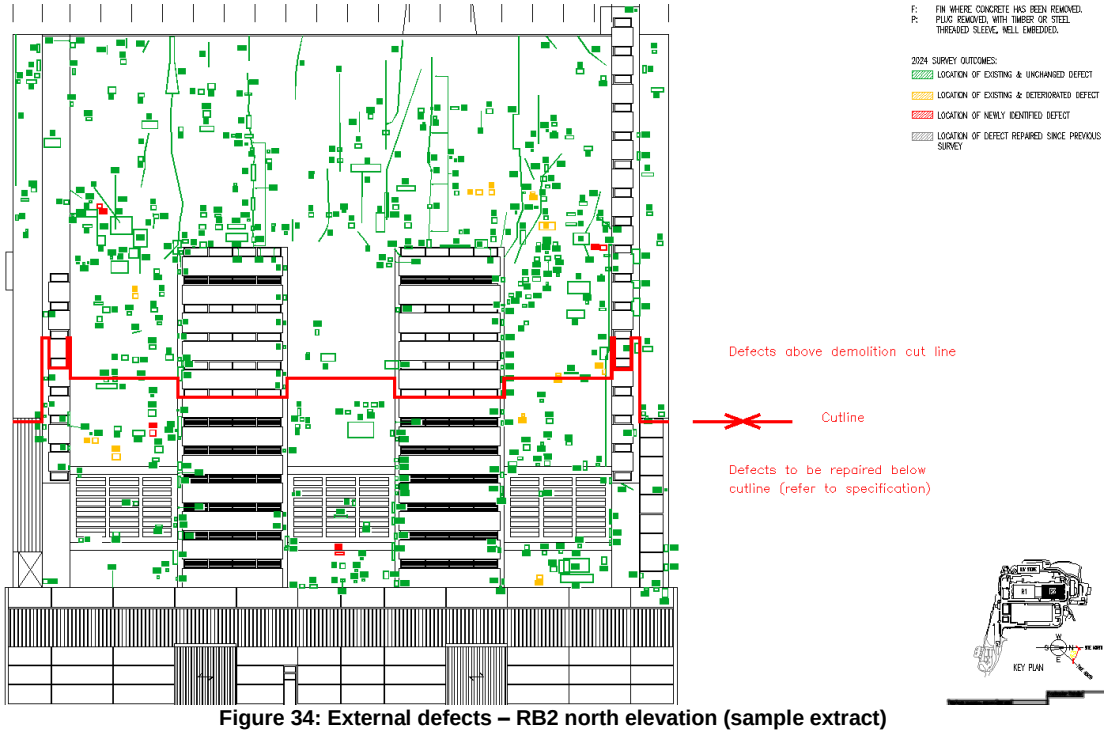


Figure 34: External defects – RB2 north elevation (sample extract)

	1	2	3	4	5	6	7	8	9	10	11
	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
R1 East	0	3700	306.5	3525	4040	3820	1500	1400	14800	6650	1690
R1 North	9639.9	5200	2091.2	4595	4165	30120	10200	1200	4300	900	3700
R1 South	9053.3	6300	13014.9	26669	4142	11480	8500	9900	10500	9300	4425
R1 West	2424.7	0	162	1377	0	1700	600	0	3600	3400	2250
TOTALS (g)	**21117.9**	**15200**	**15574.6**	**36166**	**12347**	**47120**	**20800**	**12500**	**33200**	**20250**	**12065**
SS1 TOTALS (kg)	**21.1**	**15.2**	**15.6**	**36.2**	**12.3**	**47.1**	**20.8**	**12.5**	**33.2**	**20.3**	**12.1**

R2 East	6371.2	5501.4	2837.8	19040	9449	29580	5900	7400	7900	6600	9500
R2 North	6046.4	13138.6	1198.9	9260	29656	21160	9100	2000	13400	29650	8000
R2 South	5584.6	8918.4	8587	5600	16191	39940	5100	300	4800	7000	8650
R2 West	461.9	1400	0	860	2285	5100	600	400	2800	5900	2450
TOTALS (g)	**18464.1**	**28958.4**	**12623.7**	**34760**	**57581**	**95780**	**20700**	**10100**	**28900**	**49150**	**28600**
SS2 TOTALS (kg)	**18.5**	**29.0**	**12.6**	**34.8**	**57.6**	**95.8**	**20.7**	**10.1**	**28.9**	**49.2**	**28.6**

Figure 35: Reactor Buildings de-scaling works summary

Figure 36: Photographs of RB2 SW (left) and RB2 north (right) showing defects

The Contractor shall give due consideration to the condition of the external reinforced concrete walls when designing temporary works which require support from the existing structure walls (i.e. fixing of scaffold ties or mast climbers to structure). The condition of the reinforced concrete walls must also be considered when pre-weakening and lifting sections of cut concrete, with consideration to size of cut sections and any structural repairs and/or strengthening works that may be deemed required to ensure panel stability. Consideration shall be given to the presence of cracks in external walls. A worst-case example (pre-repair) from the west elevation of Boiler Box 3 on the southwest side of RB1 is exhibited in Figure 37 below. Refer to drawing number TRA-3630-ST-44017 (Appendix 1) for details of the repair that was carried out in 2014.

Figure 37: Photograph of cored hole through Boiler Box 3 west wall showing crack (pre-repair)

The vertical striations along the external faces of the RC external walls have been surveyed at the north and south ends of the RBs from the top of the gas circulator hall roofs level. Figure 38 below shows the typical profile of a single striation. The spacing between each striation is random and the Contractor will need to carry out further survey work to ascertain the striation details and conditions at strategic locations where they may interface with temporary and permanent works. It should be noted that the striations are located on the external reinforced concrete walls from 2nd floor level up to the main roof level, with no current access for inspection. Therefore, remote survey methods (i.e. drone survey) should be considered where appropriate.

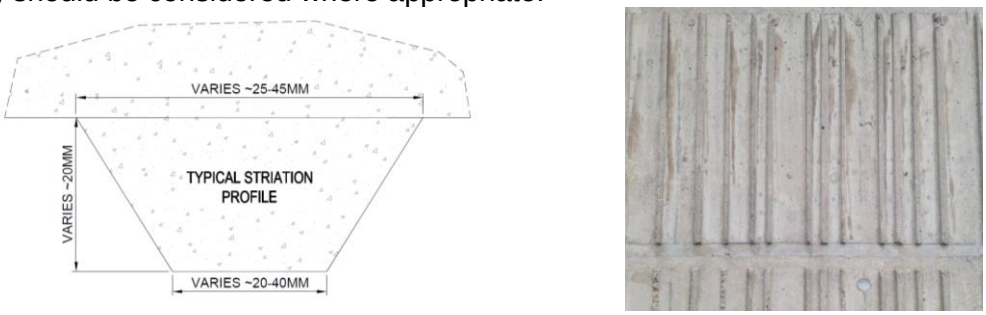


Figure 38: Typical striation dimension and appearance

8.1.7 Work at Height

Falls are a major cause of accidents where work has to be carried out at height during any activity. The Contractor shall confirm details of how falls of persons will be prevented SFARP. The criteria for selection and use of safeguards, such as scaffolding, man-riding cages, harness etc., shall be fully detailed and explained, including the provision of rescue plans in case of emergency. All personnel involved in the work, (including staff, supervisors and demolition operatives employed by the Contractor and subcontractors) shall be adequately supervised and trained in all relevant aspects of safety before starting work on Site. All workplaces shall be kept and maintained safe. All workplaces shall also be provided with suitable and sufficient means of access and egress. All openings in floors, stairwells and lift shafts shall be adequately protected.

8.1.8 Fragile surfaces

Main roof areas feature various construction materials however attention is drawn the fragile surfaces and covered original glazing features in both the charge hall and boiler ends of both RBs. In some cases, original horizontal patent glazing (Georgian wire) has been retained in-situ and covered. Details are available in Appendix 11 of this PCI whilst Table 16 provides a summary. Drawings in Appendix 1 of the TSOW [2] contain hazard warning signs as illustrated with Figure 39.

Building	Area Ref.	Area description	Comment
RB1	1E91	Main roof	Skylights are classed fragile roofs No loading to upstands Limited capacity
RB1	1970 & 1960	Capping decks to stacks	Limited capacity
RB1	1E20 & 1E25	Circulator hall roofs	Limited capacity
RB2	2E91	Main roof	Skylights are classed fragile roofs No loading to upstands Limited capacity
RB2	2970 & 2960	Capping decks to stacks	Limited capacity
RB2	2E20 & 2E25	Circulator hall roofs	Limited capacity
SSCR (03)	N/A	Precast concrete beams	Limited capacity
Waste transfer (59)	N/A	Profiled metal deck	Limited capacity

Table 16: Register of fragile roofs

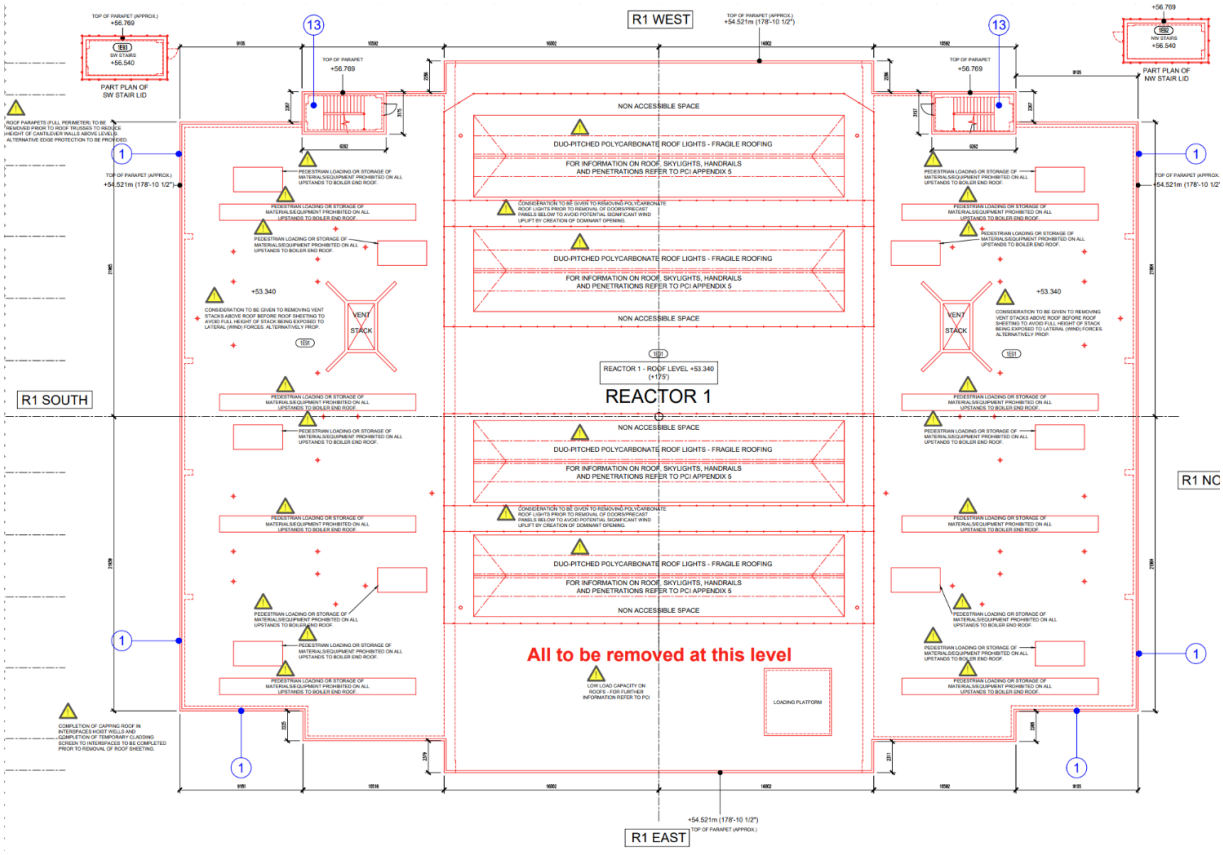


Figure 39: Main roof fragile areas (sample extract)

8.1.9 Stored energy

There is a potential risk from stored energy within the designated work areas, these are typically posed from spring hangers, constant load supports and partially de-planted safety relief valve assemblies. All personnel are to be aware of the potential for stored energy to be present in plant items or partially de-planting systems. The original installation of these plant items incorporated cold pulling, there is expected to be a considerable release of tension and stored energy in the pipework if cuts are made. Adequate control measures shall need to be applied to mitigate uncontrolled release of energy and/or cascade failure. With the degraded nature of many of these items, stored energy may be suddenly released in an unexpected manner. Table 17 details locations and interaction with the scope of work.

Building	Area Ref.	Floor	Area	Type	Comment
RB1 & RB2	1B69, 1B68, 1B67, 1B87, 1B88, 1B89 & 2B69, 2B68, 2B67, 2B87, 2B88, 2B89,	Basement	Inner voids	A	Inboard of secondary envelope
	1B65, 1B64, 1B84, 1B85, 1B86 & 2B65, 2B64, 2B84, 2B85, 2B86	Basement	Outer voids (excluding circuits 3 & 10)	V	
	1B70, 1B80 & 2B70, 2B80	Basement	-11 sub basements (SW & NW)	J & K	
	1004, 1005, 1006, 1056, 1055, 1054 & 2004, 2005, 2006, 2056, 2055, 2054	Ground	Cathedrals	B1 & B2	
	1022, 1032, 1042, 1012 & 2022, 2032, 2042, 2012	Various	Cable risers	Q	
	1201, 1202, 1203, 1251, 1252, 1253, 1301, 1303, 1351, 1353 & 2201, 2202, 2203, 2251, 2252, 2253, 2301, 2303, 2351, 2353	Second	Boiler boxes & bypass ducts	E, F, C & D	
	1304, 1305, 1306, 1354, 1355, 1356 & 2304, 2305, 2306, 2354, 2355, 2356	Third	Obtuse bends	Z	
	1314, 1328 & 2314, 2328	Third	Burst can detector piping galleries	T	
	1901, 1951 & 2901, 2951	Ninth	Top duct areas	Various	In scope for removal

Table 17: Catalogue of spring hangers present within RBs

8.1.10 Existing areas designated as confined spaces

NRS holds a record of current confined spaces, some of which are within the Contractor's work areas as detailed. It is recognised that these could change as a result of the works and modification of plant configuration. Table 18 provides a summary.

Building	Area Ref.	Area description	Comment
Confined spaces			
RB1 & RB2	1B50 & 2B50	MAC vault	Now backfilled
RB1 & RB2	1B55, 1B56, 1B57 & 1B58 2B55, 2B56, 2B57 & 2B58	Basement sumps	Within secondary envelope
RB1 & RB2	1B95, 1B77, 2B77 & 2B95	Cable tunnels	Now blocked up and partially backfilled Refer to Appendix 11 (TRAWS/EAN/22/032).
RB1 & RB2	Various	Bioshield interior, pressure vessel and vault	Within secondary envelope
Various	Cold water culverts, manholes, pipe trenches	Various across the Site	For those within the working areas refer to Appendix 11 (TRAWS/EAN/22/032).
Various	In-situ and stored sections	Various	Refer to H&S File for RBs
Restricted access (interpretation at time of writing)			
RB1 & RB2	1970, 1960, 2970 & 2960	Stacks	
RB1 & RB2	1802, 1852, 2802 & 2852	Shield cooling discharge (upper) plenums	
RB1 & RB2	Various	Hot duct cells and boiler boxes above capping roof	
RB1 & RB2	1127 & 2127	West subfloor cable void	
RB1 & RB2	Various	Inboard of secondary envelope and basement areas	Various spaces within the secondary envelope and basement could be regarded as restricted access areas.
Note: This list is non-exhaustive and liable to change based upon demolition methodology/change to configuration.			

Table 18: Register of confined spaces and restricted access areas (extract)

8.1.11 Existing structures containing hazardous materials

The RBs house the former reactor pressure vessels which contain a substantial radioactive inventory within a concrete bioshield. This inventory presents no health hazard to personnel undertaking the works associated with this project.

The RBs also house in-situ and de-planted sections of the primary circuit. As detailed previously, these have been size-reduced and relocated for long term storage. In some areas, the scope of work interacts with these components which are mildly activated (Table 19).

Works within these areas shall require appropriate control measures to ensure as low as reasonably practicable (ALARP) dose management and radiological surveys are available to inform the Contractor's Safe System of Work (SSoW). For further details of working in radiologically controlled areas, refer to the NRS guidance in Appendix 5 of the TSOW [2].

Building	Area Ref.	Floor level	Components	Comment
RB1	1001, 1051	Ground	Cascade bends	Interaction with work scope
	1070, 1060, 1080 & 1090	Ground	Stored sections and sarcophagi structures	Interaction with work scope
	1207, 1206, 1256 & 1257	Second	Duct sections	No interaction with work scope
	1201, 1202, 1203, 1251, 1252 & 1253	Second	Boiler in-situ sections	Interaction with work scope
	1401 & 1451	Fourth	Duct sections	No interaction with work scope
	1501 & 1551	Fifth	Duct sections	Interaction with work scope
RB2	2001, 2051	Ground	Cascade bends	Interaction with work scope
	2070, 2060, 2080 & 2090	Ground	Stored sections and sarcophagi structures	Interaction with work scope
	2207, 2206, 2256 & 2257	Second	Duct sections	No interaction with work scope
	2201, 2202, 2203, 2251, 2252 & 2253	Second	Boiler in-situ sections	Interaction with work scope
	2401 & 2451	Fourth	Duct sections	No interaction with work scope
	2501 & 2551	Fifth	Duct sections	Interaction with work scope
Note: In addition to the above, there are several other areas housing the in-situ sections of the primary circuit.				

Table 19: Register of stored primary circuit components (select)

8.1.12 Hot working

The operations involving a particular fire risk, such as hot works or gas cutting, shall be subject to SSoW, which shall be approved by SQEP to ensure its adequate safety measures are in place and implemented. Contaminated metals should not be hot worked without a suitable SSoW applying suitable and sufficient controls.

Where the use of cold cutting techniques is not reasonably practicable, robust hot work controls will be applied. This could include, but not be limited to the following as deemed applicable by SSoW:

- A documented hot work permit procedure (inclusive of fire clearance permits).
- Provision of air sampling/monitoring.
- Robust blanketing/spark containment (especially at height).
- Control measures for avoidance of blind cutting and pipework ends.
- Cessation of hot work activities one hour before the end of the shift to allow damping down/firewatcher observation.
- Provision of Contractor's standby fireman.
- Flushing/sealing/monitoring of adjacent drains.

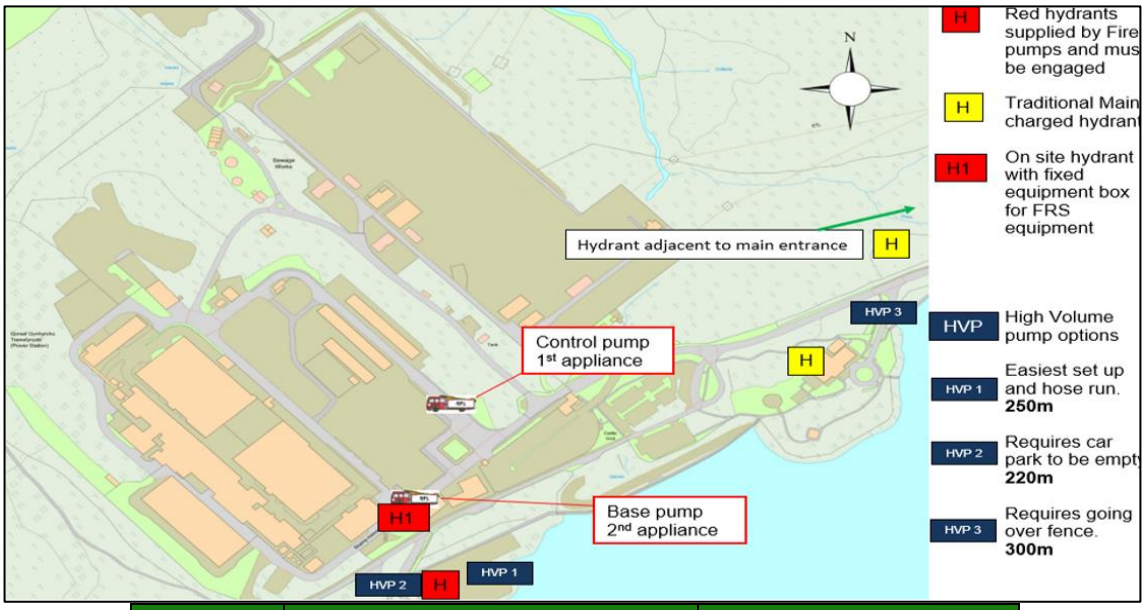
8.1.13 Fire precautions

Given the configuration and maturity of decommissioning works, fire loading and potentially combustible materials have been removed SFARP with only major plant items and primary building fabric retained in the majority of areas. The risk of ignition within each RB is minimal for discrete housed plant and the rationalised 'live' supplies. Internal to both RBs, there are no fixed location automatic or manual fire alarm systems. The current system, owned and operated by NRS, utilises radio-linked mobile stations with alarm and first aid provisions. For additional details refer to the latest copy of the Fire Risk Assessments (FRA) for RB1 & RB2. Copies of the current FRAs and associated fire plans are available upon request.

The existing FRAs ensure compliance with the relevant legislation and guidance however they are not considered suitable and sufficient for the project. The Contractor's Responsible Person will need to amend these assessments to be suitable for the Contractor's work. For the duration of the contract, the Contractor shall be responsible for the fire safety in the buildings and working areas. During the works all fire related maintenance activities will be undertaken by the Contractor.

Attention is drawn to the geometry of the RBs with no through-passage available on several floors and extended escape/travel distances. Attention is also drawn to the restricted access areas within the secondary envelope and four main staircases providing protected fire escape routes to final exit doors at ground floor. The building has also been modified to realise a passive access and ventilation design – a feature of which is area connectivity. This configuration needs to be suitably and sufficiently considered as part of the Contractor's fire safety management arrangements.

There is limited firefighting infrastructure on the Site as detailed in Appendix 11 of this PCI [16]. There are two fire hydrants that are available for use in an emergency. FH02 is located within the security fence line to the south side of Site, and FH01 is located within the overflow car park at the cooling water outfall off Site. The operating pressure of the fire main is 10 bar. Refer to Figure 40 and Figure 41 for summarised details. It is noted that the hydrant referencing system varies betweem both figures below.



Insertion	Advantages	Significant hazards
HVP 1	+ 250m hose run with mimal obstructions + No obstructions for manual handling + Gentle slope into water	- Broken ground - Minimal lighting after dark
HVP 2	+ 220m hose run + Barriers between firefighters & waters edge	- Manual handling obstructions - Deep water - Minimal lighting after dark
HVP 3	+ Potentially safer if large volumes of smoke or in the event of wind direction compromising HVP1 and HVP2	- Manual handling obstructions - Hose run across Site

Figure 40: Water supply on Site and position considerations

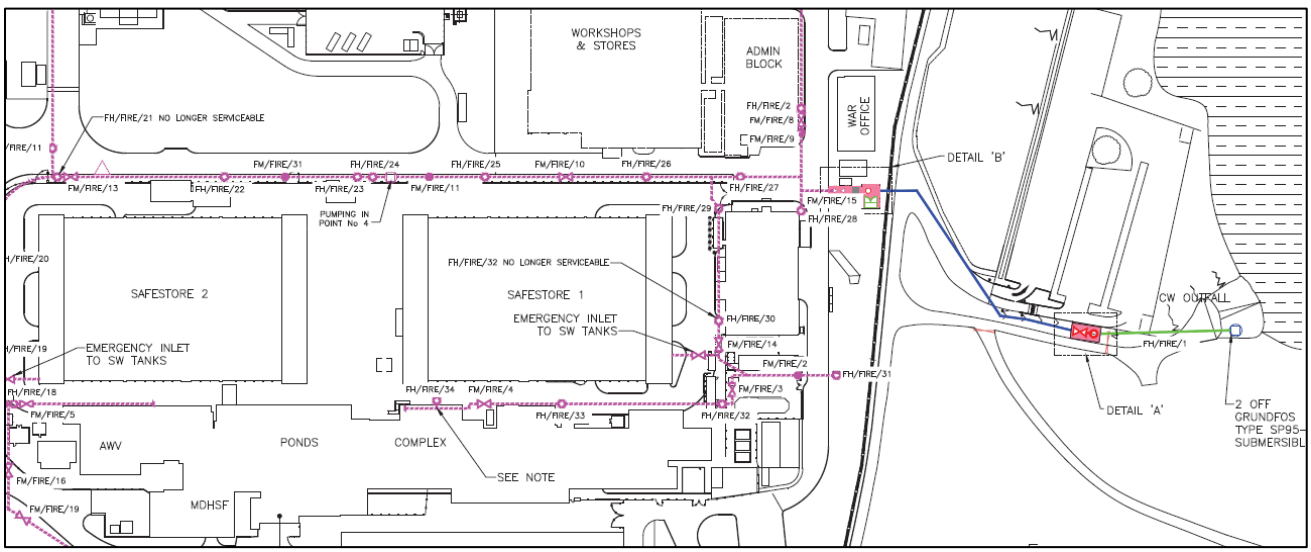


Figure 41: Extract (TRA-3210-LA-10872). Note: pipework downstream of 'Detail B' redundant)

The Contractor's arrangements for fire safety shall at least match those outlined in CONSI-06 and be agreed with NRS, ensuring there is suitable and sufficient address of interfaces across the Site. Further details are also available in the NRS Contingency Arrangements and Operational Tactical Plan (OTP) copies available upon request. Refer to Figure 42 for key hazards (subject to change).

The Contractor's attention is drawn to the Site interface drawings detailed in Appendix 3 of the TSOW [2]. Specifically, the ponds roadway to the west of RBs may need to be utilised in the event of an emergency for safe passage or emergency vehicular access.

Flammable material and compressed gasses may be stored in suitable locations within the Contractor's working areas. The location of these shall be agreed with NRS to ensure suitable fire safety coordination and management.

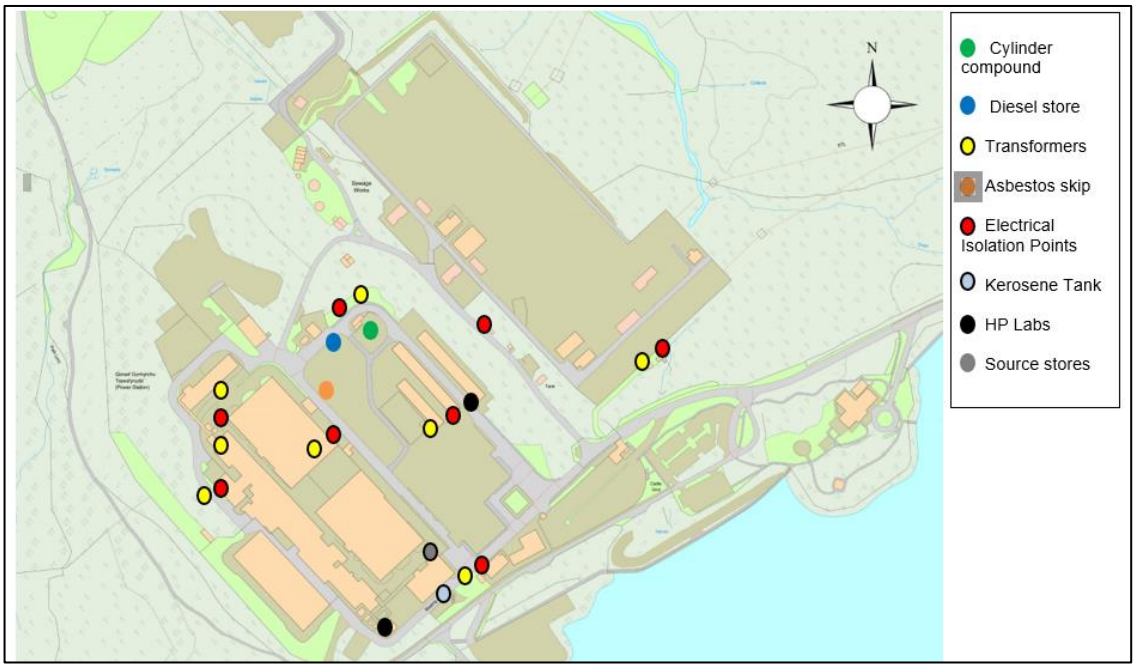


Figure 42: Isolation points and notable hazards (subject to change)

8.1.14 Emergency procedures and means of escape

Site existing muster locations are detailed in Figure 43.

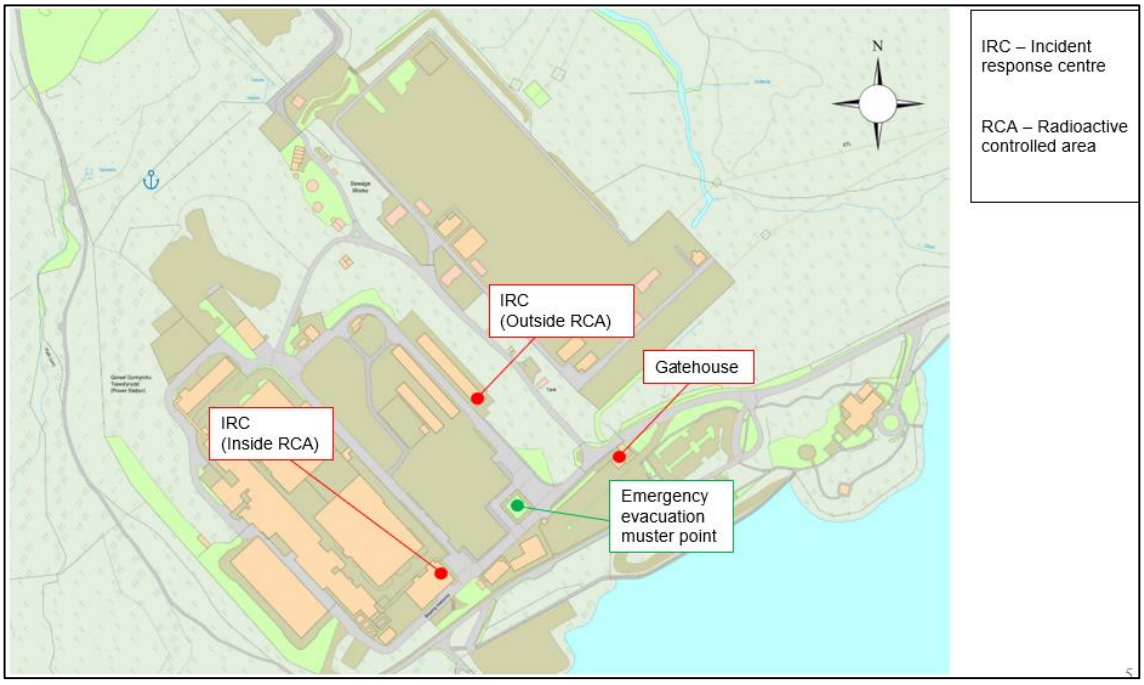


Figure 43: NRS key locations (subject to change)

A summary of the Site's existing alarms and specified actions are detailed in Table 20. The Contractor shall be required to dovetail with these existing arrangements.

Event	Alarm	Action
Local fire alarm	Continuous bell	On discovering a fire, make safe and exit the immediate area to a place of safety. Sound the local alarm and call 2222 (01766 543333 from mobile) to report the fire. Provide as much information as possible.
Site wide fire alarm	Intermittent bell	Bell usually accompanied by PA system instructions. Make way to the Site Fire Muster Area (Dragon Square). Await further instruction.
Nuclear incident	Waling siren	Make way to the indoor muster areas. Doors and windows to be closed and air conditioning switched off. Await further instruction.
First aid alarm	Ambulance like siren	First Aiders to report to their muster stations.
Security	PA system announcement	On hearing on the broadcast 'Security Lockdown' make safe, go indoors and lock all doors and windows. Turn off computers. Control access to P18 pass holders only. Await further instruction.
Spill	n/a	Spills Response - In the event of a spill, report the event by calling 2222 (01766 543333). Use a spill kit if trained to protect any drains. Report spill to Supervisor and raised Q-Pulse.
Medical emergency	n/a	If a medical emergency is encountered summon assistance by calling 2222 or 01766 543333. If an ambulance is required, it will be given access to Site.
Site Alarms and PA are tested every Tuesday at 11am. Local Fire alarm systems are tested on Wednesday mornings (alarm test lasts <1min).		

Table 20: Schedule of current NRS alarms and actions

For this project the Contractor shall have their own arrangements for managing emergencies within the working areas however they are also required to comply with the NRS arrangements for mustering in the event of a Site incident or emergency. For details see Figure 43.

The nearest Accident and Emergency department is Ysbyty Gwynedd (Bangor), LL57 2PW.

The Contractor shall have suitable and sufficient written arrangements for emergencies. The Contractor will be responsible for first aid and emergency arrangements in their own work area. All events shall be reported to NRS in a timely fashion.

8.1.15 Weather

The Contractor shall make arrangements for appropriate notification of accurate forecasts of sudden and severe weather changes (including strong winds, lightning, snow and heavy rain). Adverse weather may necessitate a requirement for indoor working only and worsening conditions may lead to a restriction on the Site by NRS which may prevent the Contractor accessing the working area. Further details are available in the Scope [1]. The Contractor is to agree safe working limits with NRS where applicable. Wind funnelling and micro-climatic conditions can occur on Site given the orientation and layout.

The layout of the current LPS is detailed in Appendix 11 of this PCI [16]. With demolition commencement, the existing LPS will be taken out of service and sole reliance will be placed on the Contractor's risk assessed temporary arrangements. Refer to section 8.1.1 for requirements for the Contractor's arrangements for earthing and lightning protection during the transient state of demolition. Attention is also drawn to the fact that site station earth system emanates from the National Grid Company (NGC) compound and is regarded as a 'live site'.

8.2 Chemical and material

The identified significant foreseeable chemical hazards are summarised in Table 21, complete with follow up supplementary information (where applicable).

Nature	Hazard Ref	Hazard	
Chemical	2.1	**Fibres (asbestos)**	 Refer to the Design Risk Assessments in Appendix 20 of this PCI for risk rating and mitigation. Hazards in red are significant and foreseeable on this project. 
	2.2	**Fibres**	
	2.3	**Dust (silica)**	
	2.4	**Dust**	
	2.5	**Fumes**	
	2.6	**Vapours**	
	2.10	**Aerosols**	
	2.11	**Liquids**	
	2.12	**Solids**	
	2.13	**Carcinogen**	
	2.14	**Corrosion/irritant**	
	2.15	**Toxicity**	
	2.16	**Dermatitis**	
Note: Hazard references relate to the hazard identification aid-memoire in Appendix 21 of this PCI.			

Table 21: Key chemical hazards and information (where applicable)

Materials which have been identified as constituting a hazard to health are listed in Table 22.

COSHH Sheet	Hazard	Outline health effect
Various	Effluent, biological hazards, Leptospira & Legionella Organic deposits & growths	Headaches, nausea, etc.
HSE Sheet No 36	Silica dust & nuisance dust	Silicosis, fibrosis, etc.
CAR-12, HSG247, HSG248, L143	Asbestos containing materials	Lung Cancer, Mesothelioma etc.
IRR-17	Ionising radiation and radiological contamination	Radiological exposure, contamination, cancer, etc.
Various	Polychlorinated Biphenyls (PCBs), hydrocarbons, waste oils and greasing agents	Headaches, anaemia, weight loss, nausea and irritation
HSE INDG305	Lead and lead based paints (see below for further information)	Nervous system, headaches, anaemia, weight loss, nausea and irritation
Various	Bitumen	Skin cancer, headaches, anaemia, weight loss, nausea and irritation
EH40	Mercury, acids and alkaline solutions (batteries and legacy plant)	Headaches, anaemia, weight loss, nausea and irritation
EH40	Phenols / chemicals (benzene and solvents)	Headaches, anaemia, weight loss, nausea and irritation
EH40	Liquid plastics	Headaches, anaemia, weight loss, nausea and irritation
EH40	Encapsulants and elastomeric polymers (including Bostik ET150, PVA and Sika monolastex)	Headaches, anaemia, weight loss, nausea and irritation
EH40	Manmade vitreous fibres (MMVF) and manmade mineral fibres (MMMF)	Respiratory system effects, asthma and irritation
EH40, HSG262	Cement (concrete construction)	Respiratory and skin irritation, dermatitis and burns

Table 22: Materials hazardous to health

Lead based paint is present on existing steelwork within the RBs. This includes existing structural steel members and mechanical pipework. This should be taken into account as part of the demolition methodology. The issue of lead in paint presents both an environmental risk and risk to personal health. With regards to environmental risk, consideration shall be given to note ‘q’ in Technical Guidance WM3. The flowchart in Figure 44 below has been developed to demonstrate a pragmatic approach to classifying potentially contaminated metal. Note that only hazards associated with lead-based paints/coatings are considered in the flowchart below and any other hazardous properties (e.g. asbestos) that may be present must be considered in line with relevant guidance.

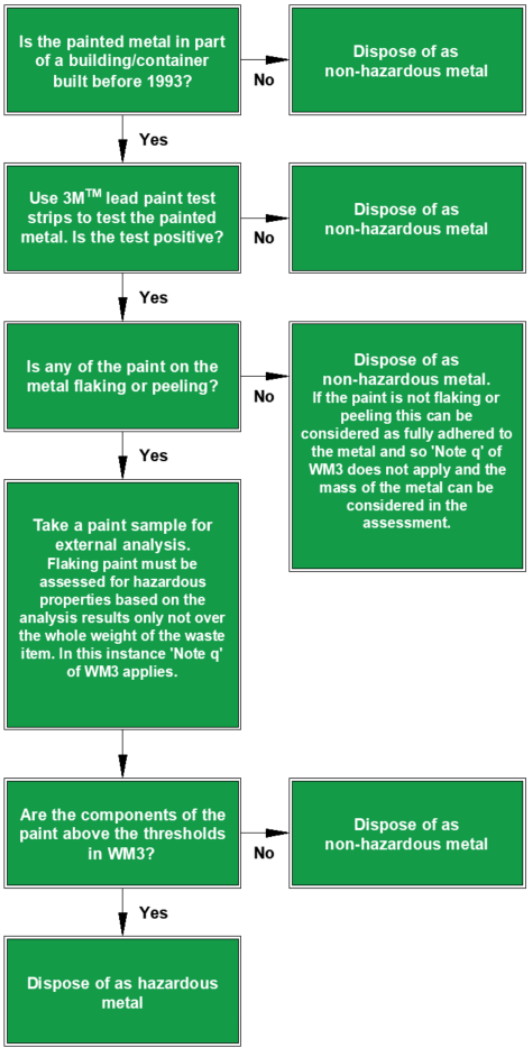


Figure 44: Flowchart for classifying metal potentially contaminated with lead-based paints

In advance of the project, a campaign of surveying and sampling to characterise the assets SFARP has been undertaken. This body of work has included chemical analysis for Polycyclic Aromatic Hydrocarbons (PAH), Phenols and Lead. Results yielded are summarised below in Table 23. For further detail on material composition refer to the NRS PWMP [3].

It should be noted that the results interpretation is for waste classification. Whilst the results may be below the hazardous waste threshold, the presence of chemicals still requires removal to be undertaken in accordance with a suitable and sufficient SSoW.

Building	Build component	Test	Highest sample result	Interpretation of results for waste classification
RB1	Roof felt samples	PAH analytes	<8.00mg/kg	Hazardous
		Total PAH 16	<128mg/kg	
		Phenols	35.6mg/kg	
		Trimethylphenols	<0.10mg/kg	
	Building fabric	Lead	380mg/kg (0.038% w/w)	Non hazardous
		PAH analytes	<2.00mg/kg	Only areas of oil-stained concrete are classed as hazardous
		Total PAH 16	<32mg/kg	
RB2	Roof felt samples	PAH analytes	<8.00mg/kg	Hazardous
		Total PAH 16	<128mg/kg	
		Phenols	36.2mg/kg	
		Trimethylphenols	<0.37mg/kg	
	Building fabric	Lead	410mg/kg (0.041% w/w)	Non hazardous
		PAH analytes	<0.08mg/kg	Only areas of oil-stained concrete are classed as hazardous
		Total PAH 16	<1.28mg/kg	

Table 23: Characterisation chemical results

8.2.1 Asbestos

Asbestos containing materials (ACM) were used extensively during construction and early operation of the assets. Asbestos refurbishment and demolition (R&D) surveys of the areas have been undertaken by a United Kingdom Accreditation Service (UKAS) accredited independent analyst in accordance with ISO/IEC17020, ISO/IEC17025 and HSG 264. The reports, listed in Table 24, are available in Appendix 19 of this PCI.

Building	Area Ref.	Survey Ref.	Report Location
RB1 (121)	Ground floor	170637	Appendix 19 of this PCI
	First floor	170226	
	Second floor	170211	
	Third floor	170276	
	Fourth floor & intermediate roof areas	170357	
	Fifth floor	170631	
	Sixth floor	170578	
	Seventh floor	170508	
	Eighth floor	170376	
	Ninth floor & roof	170356	
RB2 (124)	Ground floor	171412	
	First floor	171418	
	Second floor	171370	
	Third floor	171111	
	Fourth floor & intermediate roof areas	171268	
	Fifth floor	171078	
	Sixth floor	170811	
	Seventh floor	171074	
	Eighth floor	170714	
	Ninth floor & roof	170713	
SSCR (03)		172193	
Half Height ISO and Waste Transfer Building (59)		172213	

Table 24: Asbestos Demolition Surveys

NRS, as Duty Holder under the Control of Asbestos Regulations 2012 (CAR-12), also holds records relating to asbestos abatement and decontamination historically undertaken within the assets. This data includes but is not limited to 4-stage clearances, certificates of cleanliness, air monitoring (working and ambient conditions) and surveys. These may be utilised to underpin control measures (as required).

The Contractor will give due regard to the content of the R&D surveys and plan the works in full accordance with the CAR-12. A non-exhaustive summary of ACM product types from the Site Asbestos Register (SAR) is provided along with the HSE illustration of work categories. It should be noted that licensed, notifiable non-licensed and non-notifiable non-licensed products will be encountered as summarised in Table 25.

Product types (non-exhaustive)
Thermal insulation residues
Contaminated dust/debris
Asbestos insulating board
Paper and felt
Textile products
Friction components
Cement products
Textured coating/bagwash
Bitumen products
Reinforced composite
Note: The SAR entries detailed are for all areas including inboard of secondary envelope (but excluding basements). For detail on location, product, condition and extents refer to the relevant demolition surveys (Appendix 19) generated per floor using the area referencing system as detailed in Section 2.2 of this PCI.

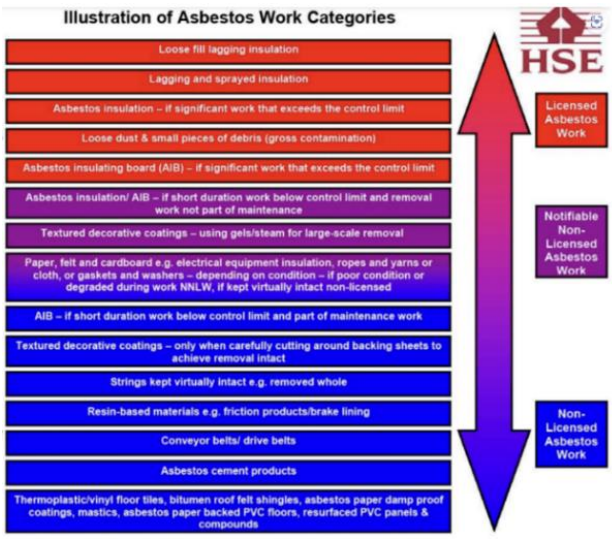


Table 25: Non-exhaustive list of ACM products from SAR with HSE work categories

Although there is a time lag from conducting survey to commencement of demolition, it is noted that the R&D reports contain information on material condition. In accordance with good practice guidance, this information has been utilised by NRS to compliantly manage the material during the intervening period. Attention is drawn to the fact that the RBs are in a state of dormancy which mitigates change in material condition. This stasis is underpinned by the programme of annual re-inspections by the incumbent UKAS accredited analytical service provider. Given this baseline information and the global trends, it is considered by NRS that the generated R&D surveys remain valid.

Robust comprehension of the R&D surveys is imperative to ensure safe and complaint delivery of the works. ACMs are present within several building fabric components including precast panels. Non-exhaustive detail of asbestos cement within the precast panels is summarised in Figure 45. For further detail refer to Appendices 4 and 19 of this PCI.

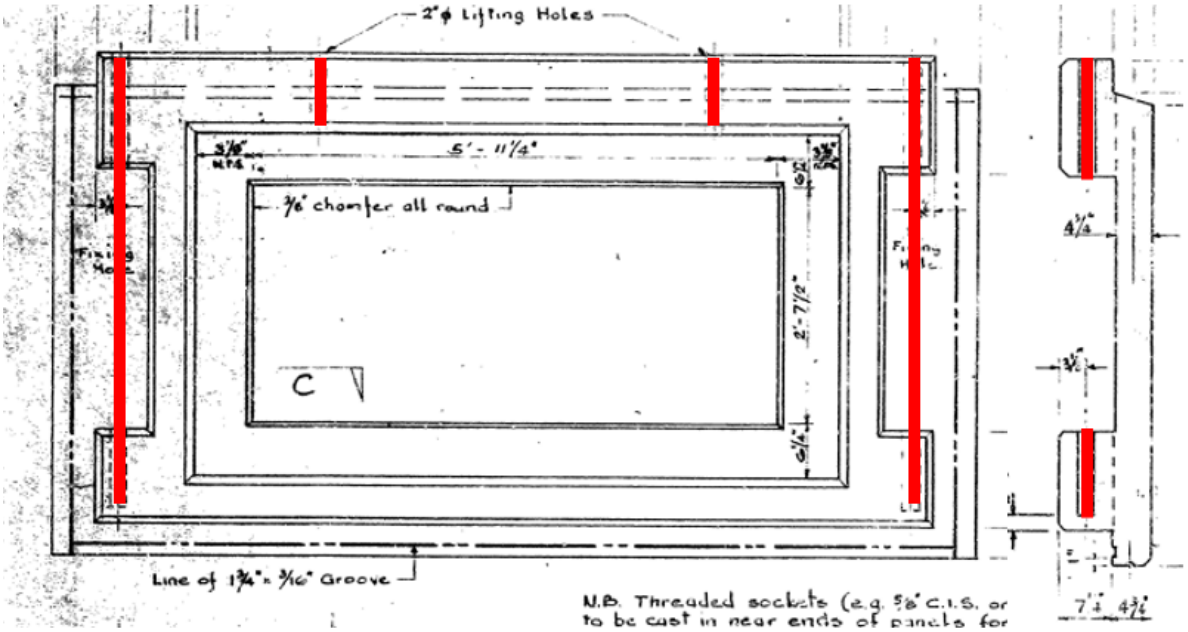


Figure 45: Sample of precast panel ACMs (sleeves and shuttering depicted red)

Attention is drawn to the presence of other ACMs such as ‘asbestumen’ adhesives (Figure 46) and various shuttering details (Figure 47). The Contractor’s methodology shall need to give due regard to the interfacing detailed between the shuttering used for specific precast panel courses and the down stand beams of the reinforced concrete superstructure (1st and 3rd floors as detailed in DD/10/16/00/A02230 included in Appendix 4). Further detail is available in Appendices 4 and 19 of this PCI.

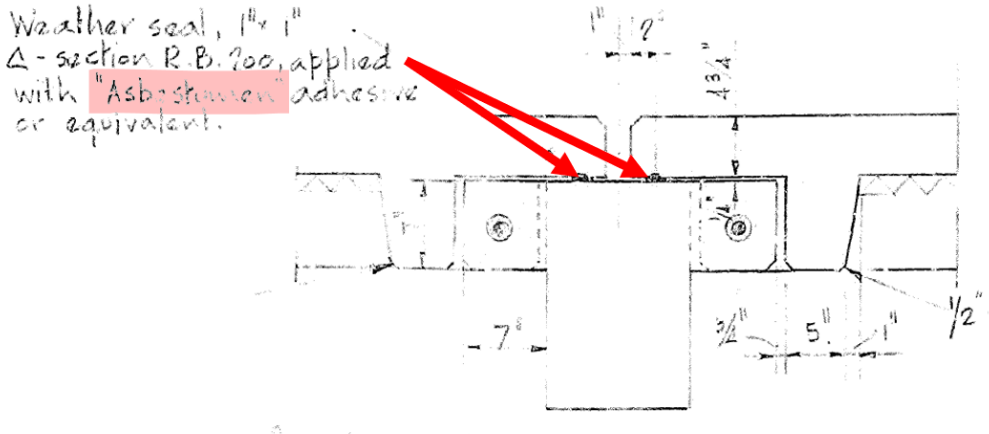


Figure 46: Sample of precast panel ACM adhesives (from DD/10/00/C5350)

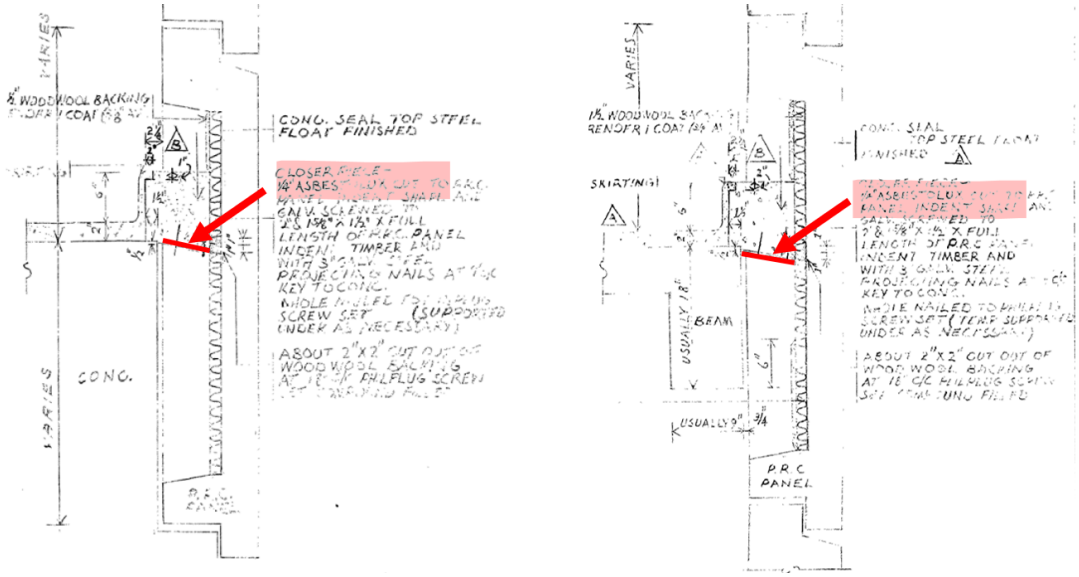


Figure 47: Sample of precast panel ACM shuttering (from DD/10/16/00/A02229)

Due attention shall be given to R&D coverage of mechanical encapsulation within the boiler box areas which was applied as part of the strengthening works. At the time, asbestos removal was undertaken SFARP and inaccessible areas behind the flanges of original perimeter steelwork were mechanically encapsulated as a precautionary control measure to mitigate disturbance during subsequent fixture of new reinforcing members. Illustrative details are provided in Figure 48 with further detail available in Appendix 19 of this PCI.

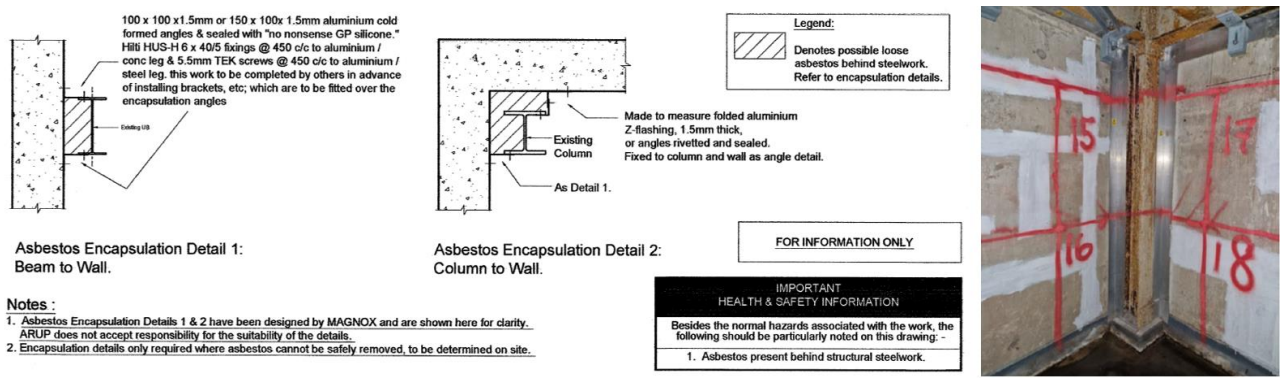


Figure 48: Mechanically encapsulated ACMs (from TRA/3630/ST/44804)

It is noted that numerous debris and residue items detailed in the R&D reports contain a surveyor comment on ‘access restriction up to 4.2m height’. With regards to this statement and to provide additional context, it should be recognised that several different types of asbestos surveys have been undertaken on the RBs historically and there is a significant archive held on record in the SAR. Historical surveys utilised significant access provision at the time to survey the envelope of the areas thus facilitating the decommissioning works undertaken. Such works were extensive within charge hall, FMMB, shield fan room, boiler box, interspace and top duct areas. This information baseline was utilised and supplemented with subsequent investigation, applying the CDM-15 principles of prevention, to generate the Height Reduction R&D surveys available in Appendix 19 of the PCI. As part of the Height Reduction survey scope, the opportunity was taken to correct inaccurate data held on the SAR at the time, particularly associated with material extents pertaining to large surface areas containing inappropriately quantified residue/debris entries. To underpin a more accurate revised extent, a scientific method of measurement was adopted of representative areas with the survey zone consisting of a 1m² gridded band between 2m to 4.2m above the finished floor level over full available elevations. It should be noted that extensive cleaning has been undertaken historically up to 2m (accessible height) and, as a result, this zone was not considered to be representative. As per the commentary in the R&D item detail records, the outputs from the surveyed zone (2m to 4.2m) should be taken as representative of in-situ conditions above. It should be noted that this relates to debris and residue items only.

It is also noted that the R&D survey reports contain potential error traps relating to 'item statuses'. As detailed previously, the Height Reduction R&D surveys were not only utilised to identify the presence of ACMs AFARP commensurate with the scope but also correct inaccurate legacy SAR data. As a result, some items were removed entirely or replaced by new items containing better data. Figure 49 provides an example of a removed item.

ter Item Details with Photographic Records			
Item Status Detail:	Removed	Data Provenance:	Element demolition survey, reinspection (register update)
Site:	Trawsfynydd Site	Area/Building:	Safestore 1 - 7th Floor - 1753 - Boiler Box 6 Above Capping Roof
Location:	beam penetration		
Item Detail:	debris		
Original ID/ Register ID:	Original Register ID: L001-6696865 BDA-visual	Register ID: 20/02/2023	Score:
Product Type:	insulation		0
Surface Treatment:	enclosed		0
Condition:	good condition		0
Asbestos Type:	Amosite, Chrysotile presumed		0
MRA Risk Category:	N/A	MRA Score:	0
Identification Method:	Presumed	Extent:	8 item(s)
Accessibility:	usually inaccessible or unlikely to be disturbed	Quantity Classification:	<=10m2 or <=10m pipe run
PRA Score:	0	TRA Score:	0
Surveyor Comments:	physical sample has now been taken as part of Demolition Survey. Please refer to new sample 364853-4993-1		
Recommendation:	Remove if affected by refurbishment and/or demolition works		
Item Photos		In Location Photos	

Figure 49: Survey report extract (from R&D report 170508)

Due regard should be given to the practicality of early removal of housed plant as part of any environmental clean, thereby reducing time expended to clean and eliminating the risk of ACM encounters during subsequent demolition. All asbestos analysis, surveying and reassurance monitoring will be provided directly by the NRS appointed UKAS accredited independent analyst.

A historical licensed asbestos burial area (a defined area within a larger area locally referred to as the 'Site Tip') is located within the Nuclear Site Licence boundary and the security fence to the north of RB2 as detailed in Figure **50**. Asbestos disposals were made between 1972 and 1989 under licence and all necessary permissions were in place at the time. The area now comprises a raised soil platform which has been built up over years using construction and demolition inert materials. The area has been used more recently as a temporary laydown with a layer of hardcore covering. The capping layer is in excess of 2m and has been demonstrated to be up to modern standard. No ground excavation shall be permitted within this area or the former turbine hall basement without further consultation with NRS.

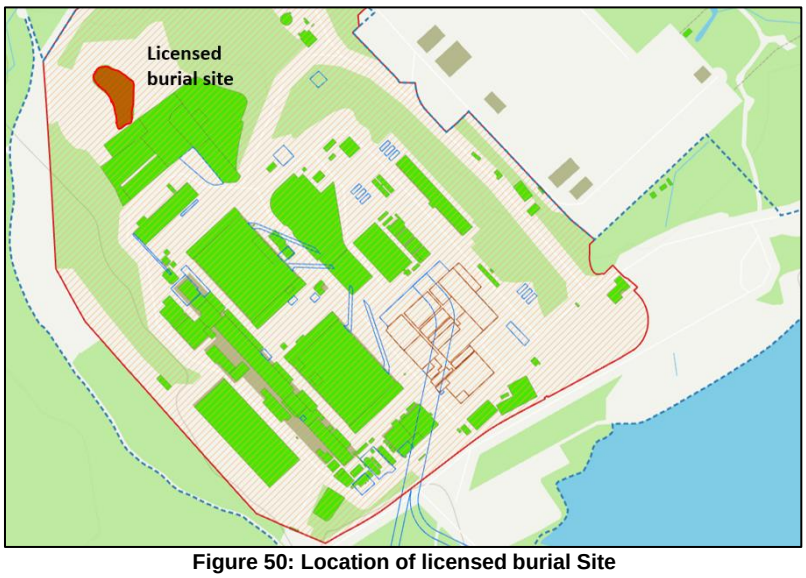


Figure 50: Location of licensed burial Site

8.2.2 Radon

Historically, there have been elevated levels of radon encountered within poorly ventilated areas of the RBs, particularly the basements and inboard of the secondary envelope. High levels of radon in occupied areas exceed the 300Bqm^{-3} annual average trigger level as set out in the Ionising Radiation Regulations 2017 (IRR-17). More recently, these levels have diminished due to the increased air change facilitated by passive ventilation modifications. There is however an ongoing radon monitoring programme tracking the levels of radon across the Site and this may identify the requirement for additional control measures to ensure management of the hazard remains ALARP.

8.2.3 Radiological

IRR-17 and Environmental Permitting Regulations 2016 (EPR-16) exist for radioactive material to ensure exposures to ionising radiation remain within safe legal limits and are ALARP. Regulations limit worker dose to 20mSv per year and define clearance thresholds for determining whether waste or material is radioactive. Worker dose received whilst decommissioning the RBs has consistently remained less than 1mSv per year when working in Controlled Areas and under special procedures.

Significant sections of both RBs scheduled for partial demolition have been subjected to a characterisation study to determine radioactivity levels against legislation thresholds, principally IRR-17 and EPR-16. The majority of areas and building components have been determined to be 'out of scope' of radiological legislation. Residual low levels of radioactivity could remain in isolated areas within areas of the RBs scheduled for partial demolition. Whilst there is no data available for the potential levels of residual radioactivity, the low levels possible may generate radioactive waste and could require a Controlled Area in accordance with IRR-17. The risk of such is low and limited to areas not accessed or decontaminated as part of decommissioning works, as detailed in Section 4.3 of and Appendix 5 of the TSOW [2]. As detailed, special procedures and radioactive waste management arrangements will apply in certain circumstances areas – refer to Section 4.3 of the TSOW [2].

Radioactivity is also known to exist within accessible parts of the RBs that is not scheduled for partial demolition. Therefore, for completeness, Table 26 provides non-exhaustive detail on areas of known fixed contamination and the areas within the demolition zone requiring adequate control due to radiological hazard. Further advice is available in Appendix 5 of the TSOW [2]. Attention is also drawn to Table 27 which details permanently controlled areas within both RBs however limited interaction with the project scope is expected.

Building	Area Ref.	Description	Interface
RB1	1B70	Fixed contamination to fabric / plant	Inboard of secondary envelope
	1031	Fixed contamination to fabric / plant	
	1001, 1051, 1070, 1060, 1080, 1090	Stored components	Interface with project scope
	1104, 1116, 1125, 1126,	Fixed contamination to fabric / plant	Inboard of secondary envelope
	1211, 1216, 1217, 1221, 1222, 1223, 1224	Fixed contamination to fabric / plant	
	1201, 1202, 1203, 1251, 1252 & 1253	Stored components	Interface with project scope
	1313, 1323, 1324, 1325	Fixed contamination to fabric / plant	Inboard of secondary envelope
	1414, 1420, 1429, 1421, 1426, 1431, 1432, 1433,1434,	Fixed contamination to fabric / plant	
	1451,1401	Fixed contamination to fabric / plant	
	1501, 1502, 1504, 1506, 1560, 1551, 1552, 1554, 1556, 1560	Fixed contamination to fabric / plant Stored components	Interface with project scope
	1812	FMMB slab (material type 1c)	Interface with project scope For details refer

	1802, 1852, 1970, 1960	Cast in outfall drainpipe at base of stacks/upper plenums, 2 per building (material type 1ai)	to TSOW Appendix 5 for details
RB2	2016, 2017, 2019, 2028, 2039, 2045, 2048	Fixed contamination to fabric / plant	Inboard of secondary envelope
	2001, 2051, 2070, 2060, 2080, 2090	Stored components	Interface with project scope
	2104, 2116, 2125, 2126, 2153,	Fixed contamination to fabric / plant	Inboard of secondary envelope
	2215, 2216,2217, 2223, 2224,	Fixed contamination to fabric / plant	
	2201, 2202, 2203, 2251, 2252 & 2253	Stored components	Interface with project scope
	2302, 2313, 2324, 2325, 2352,	Fixed contamination to fabric / plant	Inboard of secondary envelope
	2401, 2411, 2422, 2423, 2426, 2427	Fixed contamination to fabric / plant	
	2431, 2432, 2433, 2434, 2435	Fixed contamination to fabric / plant	
	2501, 2552, 2560, 2570, 2551	Fixed contamination to fabric / plant Stored components	Interface with project scope
	2812	FMMB slab (material type 1c)	Interface with project scope For details refer to TSOW Appendix 5 for details
	2802, 2852, 2970, 2960	Cast in outfall drainpipe at base of stacks/upper plenums, 2 per building (material type 1ai)	
RB1 & RB2	Various areas	Inaccessible ledges (material type 1b)	For details refer to TSOW Appendix 5 for details
		Skylights Perspex (material type 2)	
		Roof deck/waterproofing/ felt/backing boards substructure (material type 3)	
		Roof structure steel soffit corrugated sheeting (material type 4)	
		Cylinder protrusions (material type 5)	
		Structure frame steelwork associated with structure, including ancillary steelwork to FMMB areas and main stairwell handrails (material type 6)	
		Inaccessible roof items (material type 6a)	
		Thin metal items in Boiler and Charge Face areas (material type 6ai)	
		Small diameter cables in Boiler and Charge Face areas (material type 6aii)	
		Charge hall crane girders (material type 7ai)	
		Charge Hall crane crab units & bogies (material type 7ai-i)	
		Charge hall crane running rails, etc. (material type 7aii)	
		FMMB cranes & cantilever cranes (material type 7aiii)	
		Top duct area cranes (material type 7av)	
		Rainwater downpipes (material type 7b)	
		CO2 Vent Pipes above 131' level (RB1 only) (material type 7c)	
		Interspace areas adjacent to stored boiler sections (material type 9)	
Note: The above list should be read in conjunction with register of stored primary circuit components.			

Table 26: Non-exhaustive list of areas featuring radiological hazard (subject to update)

In accordance with IRR-17, which require co-operation between employers, all works with ionising radiation will be subject to close liaison with NRS. The RBs are currently designated as a Controlled Area in accordance with IRR-17, which requires appointment of suitable competent persons. NRS advises that the NRS RPA body is appointed as the Contractor's Radiation Protection Adviser (RPA) and to act as the Radiation Employer for all work with radiation on the Site. This will enable the Contractor to liaise with NRS SQEP for advice and support with IRR-17 compliance, which will involve NRS SQEP resource composing necessary radiological risk assessments, local rules and contingency plans. To enable NRS SQEP to compose these documents the Contractor will need to submit SSoW, along with any other relevant information, to enable NRS SQEP to complete a radiological risk assessment. For working inside Controlled Areas (Table 27) the Contractor shall provide SQEP personnel to perform the work, including Radiation Protection Supervisors (RPS).

SQEP in this context refers to workers with appropriate training to work with ionising radiation. Whilst NRS will provide Site specific training, workers should have completed the NSAN Triple Bar Existing Sites training prior to the NRS training. NRS SQEP resource may permit un-trained workers to enter a Controlled Area whilst being escorted. The RPS is a formal appointment made under IRR-17. Where Contractor resource hold a certificate of competence, NRS will still need to assess their knowledge of Site local rules prior to undertaking the RPS role at the Site.

Building	Area Ref.	Area des.	Interface with project
RB1 & RB2	RCA	C0/R2	Interface with project. Refer to TSOW Appendix 5 for details
	Items as listed in Section 4.3.1 of the TSOW: 1ai, 1c, 5, 7ai and 7ai-i	Controlled/ Supervised	Interface with project. Refer to TSOW Appendix 5 for details
RB1	1B97	C2/R4	Inboard of secondary envelope
	1B75, 1B74	C2/R2	Inboard of secondary envelope
	1004, 1005, 1006, 1054, 1055, 1056	C0/R3	Inboard of secondary envelope
	1116, 1104, 1119, 1124, 1123, 1153	C2/R2	Inboard of secondary envelope
	1304, 1305, 1306, 1354, 1355, 1356	C0/R3	Inboard of secondary envelope
RB2	2B97	C2/R4	Inboard of secondary envelope
	2B89, 2B88, 2B67, 2B68, 2B78	C0/R3	Inboard of secondary envelope
	2B92	C0/R4	Inboard of secondary envelope
	2B74, 2B69	C2/R4	Inboard of secondary envelope
	2004, 2005, 2006, 2054, 2055, 2056	C0/R3	Inboard of secondary envelope
	2116, 2104, 2119, 2124, 2123, 2153	C2/R2	Inboard of secondary envelope
	2304, 2305, 2306, 2354, 2355, 2356	C0/R3	Inboard of secondary envelope

Table 27: Non-exhaustive list of permanent controlled areas (subject to change)

For work inside IRR-17 designated Controlled Area, the appointed RPS is responsible for ensuring the NRS defined local rules, including special procedures, for minimising radiation exposure is understood and followed by the workers. All personnel who are not designated as classified workers under IRR-17 will need valid written arrangements for accessing Controlled Areas. NRS SQEP will advise and issue necessary written arrangements where needed.

NRS advises the Contractor to liaise with NRS SQEP to de-designate Controlled Areas at the earliest opportunity. This will involve moving the existing Controlled Area boundaries and undertaking early surveying and cleaning activities on the material listed in the Reactor Buildings Height Reduction Project Awareness of Radiological Requirements document [23]. Whilst not working within the Controlled Area a significant proportion of the IRR-17 compliance requirements mentioned above can be avoided, including the need to submit RAMS and train workers to work with ionising radiation. A comprehensive summary of the benefits from avoiding the need to work in a Controlled Area is summarised in the Reactor Buildings Height Reduction Project Awareness of Radiological Requirements document [23].

For radioactive waste management, NRS hold a permit issued under EPR-16 that requires NRS to manage activities in accordance with their written management system and using competent resource. The relevant written management systems are summarised in the Reactor Buildings Height Reduction Project Awareness of Radiological Requirements document [23] and applies until potentially radioactive waste is handed to NRS for managing its disposal. The Contractor must nominate suitable supervisors for NRS to train, assess and appoint as Appointed SQEP (ASQEP) supervisors to ensure the site management system is enacted correctly for managing potentially radioactive material and waste.

The maximum size of waste that can be accepted by the clearance monitor (Mirion RTM661) is 680mm x 680mm x 880mm, volume 410 L.

The 210litre drums have an internal diameter and height of 571mm and 838mm, respectively.

The Contractor will operate in accordance with NRS guidance provided in Appendix 5 of the TSOW [2].

8.3 Other environmental hazards

The identified significant foreseeable environmental hazards are summarised in Table 28, complete with follow up supplementary information (where applicable).

Nature	Hazard Ref	Hazard	
Biological	3.1	**Biological**	 Refer to the Design Risk Assessment in Appendix 20 of this PCI for risk rating and mitigation. Hazards in red are significant and foreseeable on this project.
	3.4	**Fauna**	
	3.5	**Flora**	
Ergonomic	4.0	**Manual handling, postural, etc.**	
Personnel	5.9	**Interfaces with other works**	
Environment	5.11	**Environmental impact**	
Other	6.1	**Nearby structures**	
Note: Hazard references relate to the hazard identification aid-memoire in Appendix 21 of this PCI.			

Table 28: Site hazards and information (where applicable)

8.3.1 Adjacent land uses

The Contractor's working areas are wholly within the licensed site where NRS are undertaking other decommissioning and operational activities. Where the Contractor's activities interface with NRS operations, the Contractor must coordinate activates with NRS. In addition, out of hours emergency arrangements shall need to be agreed with NRS.

The areas of the RCA, outside the RBs, and beyond are used by NRS for a variety of decommissioning activities. The works shall be planned and managed by the Contractor taking account of these Site interfaces. For additional detail refer to Appendix 3 of TSOW [2] and Scope [1].

The Contractor's attention is drawn to the Scope [1] and constraints regarding oversailing of occupied areas outside of the Contractor's area with live loads.

8.3.2 Storage of hazardous materials

The RCA is generally designated as R2/Cnil due to possible radiation levels above normal levels. The associated risks are managed by NRS including the provision of free radiological PPE (where necessary).

8.3.3 Health risks arising from client's activities

A list of NRS statutory routines is appended in Appendix 11 of the TSOW [2]. These routines will require ongoing facilitation by the Contractor as part of the works.

NRS will also be required to undertake limited routine operations within the Contractor's working areas. Details of these interfaces are provided in Appendix 3 of the TSOW [2]. Liaison between the Contractor and NRS will be required to effectively manage these interfaces.

Occasional movements of radioactive wastes within the ponds complex will transiently produce hazardous conditions. These will be managed by the NRS to limit interaction with the Contractor.

8.3.4 Safety hazards

The Contractor shall control and manage access to their working area and agree access points for personnel and vehicles with NRS, all in order to coordinate and manage interfaces with other NRS operations.

1. The Site/working area is within a secure boundary forming a Licensed Nuclear Site.
2. Access to the Site is by an access road from the A470.
3. Access to the secure Site boundary is via the Gatehouse with vehicles entering via an adjacent gate.
4. Access to the RCA is via the ACP with an adjacent vehicle gate. The opportunity to retire the RCA is also available which change configuration and access controls as detailed within the NRS guidance in Appendix 5 of the TSOW [2].
5. The Site and RCA are used by NRS and other Contractors as detailed in Appendix 3 of the TSOW [2].

6. The boundaries of the working areas (PC boundary) are detailed in Appendix 3 of the TSOW [2].
7. Occasional access to areas within the RBs will be required by NRS but these will be negotiated with the Contractor. An indicative list of routines is provided in Appendix 11 of the TSOW [2].
8. The central section of the building containing the former nuclear reactor pressure vessel, known as the bioshield, is excluded from the Contractor's working area and remains the responsibility of NRS.
9. Areas for welfare, office facilities and laydown, processing areas will be provided outside the RCA, on the former turbine hall footprint as shown in Appendix 3 of the TSOW [2]. These areas will be part of the PC boundary.
10. Access to other areas e.g. transiting between Contractor areas may be though areas under the control of NRS as PC.

9 SIGNIFICANT DESIGN AND CONSTRUCTION HAZARDS

9.1 Significant design assumptions and suggested work methods

- All works shall comply with the relevant legislation, regulations and approved codes of practice.
- All demolition works shall be undertaken in accordance with BS6187. Attention is drawn to the collated information on asset condition and configuration as detailed previously within this PCI. Specific attention is drawn to information on the load paths in Appendix 11 and Structural Interdependencies [7] in Appendix 17 of this PCI.
- All temporary works shall be undertaken in accordance with BS5975 with Principal Designer touchpoints as detailed in the TSOW [2].
- For design stage identified hazards refer to the Design Risks Assessments (DRA) included within Appendix 20 of this PCI.

9.2 Information on significant risks identified during design

A non-exhaustive list is provided here. For details on design risks refer to the Design Risk Assessment in Appendix 20 of this PCI.

a) Complex structure with multiple inherent and dynamic structural interdependencies.
b) Building geometry and limited room to transport building materials.
c) Poor lighting and degraded plant/built environment.
d) Discrete soft stripping and controlled demolition. This includes a mixture of substrates from timber and plasterboard to monolithic reinforced concrete and single leaf brickwork.
e) Crushing of demolition materials to aggregated product.
f) Working with hazardous substances including liquid plastics, concrete and liquid encapsulation products.
g) Working adjacent and over open lift shafts and voids.
h) Working close to operational areas.
i) Control of ignition sources, combustible and flammable materials.
j) Works in proximity to live electrical and mechanical plant.
k) Weather.
l) Fire.

10 ENVIRONMENTAL ASPECT CONTROL

The Contractor will give due regard to the Site's environmental permit conditions. These aspects shall be suitably and sufficiently addressed through the Contractor's environmental management arrangements mitigating any adverse impacts or non-compliance. The expectation is that the Contractor's control measures will include proactive management arrangements inclusive of agreed action levels and project specific monitoring protocols. It should be recognised that these figures cover the Site entirety and collaboration with NRS will be necessary to ensure project contributions remain within tolerable limits (as necessary). The onus is on the Contractor to formulate a methodology which takes into account the environmental conditions and incorporates appropriate control measures. Where there is a condition that cannot be controlled by reasonably practicable means, the Contractor shall identify this to NRS at the earliest opportunity.

Due consideration shall be given to clause 15.6 of BS 6187, which states that when the structure is weakened in the demolition process and work cannot be completed during the working day, the structure should be left in a condition capable of withstanding appropriate wind loads, which may take into account seasonal and probability factors.

10.1 Use of explosives

Demolition methods involving gravity fall or detonating explosives will not be permitted unless there are overwhelming reasons to do so.

10.2 Noise

Planning permission permitted working is 07:30 to 18:00 Monday to Friday & 08:00 to 13:00 Saturday. Noise arising from the Site shall not exceed $L_{Aeq\ (1hour)}$ = 50dB measured free field at the nearest residential property (Figure 51) while works are in progress during the aforementioned hours. At other times, noise level from the Site shall not exceed $L_{Aeq\ (1hour)}$ = 40dB measured free field at the nearest residential property (Ty Gwyn). Temporary operations which exceed these criteria shall need to be notified to the local authority in advance and shall not exceed $L_{Aeq\ (1hour)}$ = 67dB free field expressed in the same manner as above at the nearest residential property. Operations shall not exceed the noise limit set out above at any dwelling or longer than a total of eight weeks in any 12-month period without the prior approval of the local planning authority. Temporary operations shall not be carried out outside the hours 07:30 to 18:00 Monday to Friday and 08:00 to 13:00 on Saturdays except in an emergency. NRS shall retain the responsibility for noise monitoring at the nearest residential property and the Contractor shall conduct noise surveys more local to the works to ensure compliance with conditions of the Planning Consent.

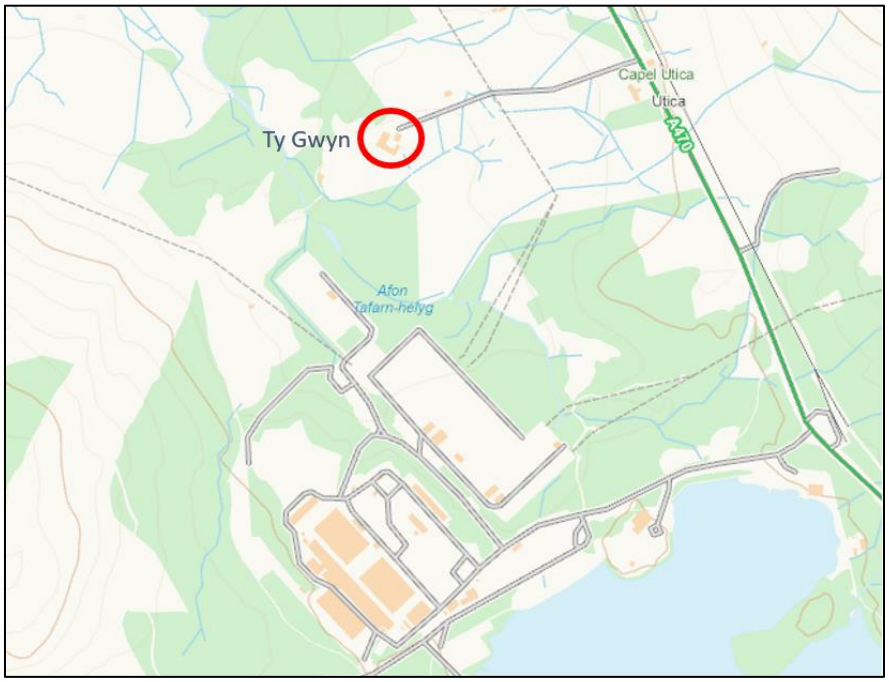


Figure 51: Location of nearest residential property (Ty Gwyn)

10.3 Vibration

Vibration (ground) monitoring to be factored into the formulated regime of oversight as part of the works. Attention is drawn to permanent works limitations for tolerance of dynamic loading and the Contractor shall incorporate measures to limit impact/damage in accordance with BS7385-2 (vibration limits for cosmetic damage of 50mm/s at 4Hz).

10.4 Water management

Total water discharge limits and quality thresholds cannot exceed those given for the site. Mindful of the contribution's arising from the scope of work, the Contractor will be required to design, implement and assure (with evidence) suitable and sufficient control measures to mitigate any adverse impact e.g. design of measures to control water volume and quality discharged to the site surface water system (source-pathway-receptor risk assessment). The Site discharge consent to Trawsfynydd Lake shall not exceed the following thresholds:

- pH window of 6.0-9.0 to be maintained.
- Turbidity limit of 50mg/ltr of suspended solids (surface water sewers).
- Turbidity limit of 60mg/ltr of suspended solids (sewers).
- Water appearance to be clear of all surface contaminates.
- Maximum surface water discharge limit of 310l/s*
- Maximum foul sewer discharge limit of 350m³/day.**
- Dust propagation lower action limit of 250mg/m³/day.

*Flows above 310l/s can be accepted (discharged to Afon Tafarn Helyg watercourse) provided that it can be demonstrated that 310l/s is being discharged to the lake at the same time.

**The new Sewerage Treatment Works (STW) on site has been designed for a flow of 350m³/day (4l/s), which allows for 750 persons on site (with potential for up to 950 persons). The maximum number of persons on site in recent months is approximately 240.

Separate BAT/BPM assessments have been carried out for the surface run-off water and the captured concrete cutting/coring wastewater. The assessments concluded that the preferred route for the surface run-off water is discharge via the Diversion Culvert to Trawsfynydd Lake providing there are suitable and sufficient controls for water quality to ensure proactive management against the Site discharge limits. The preferred route for captured cutting/coring wastewater, regarded as trade effluent, is via the STW. All trade effluent shall be contained by proportionate means, monitored and transported to discharge directly to the Site sewage system. As a result, coring wastewater will be subject to routine sampling and analysis prior to discharge. An IBC discharge station is currently located local to a foul drain in the centre courtyard areas between both RBs. Bulk trade effluent shall not be permitted for discharge to the surface water system. For further details on waste protocols refer to guidance in Appendix 5 of the TSOW [2].

In all cases lower trigger levels shall be agreed with NRS in advance of the works ensuring demonstrable proactive management. The Contractor shall have environmental control measures in place to ensure that discharge limits are not exceeded and are proactively managed. The Contractor's monitoring regime shall interface with NRS oversights to ensure that control measures are adequate.

There is no de-minimis level of activity for release of liquors. In accordance with the Site's EPR-16 permit, best available techniques will be used by the Contractor to 'minimise the activity of gaseous and aqueous radioactive waste disposed by discharge to the environment'. Operations that present a contamination risk will be subject to suitable and sufficient control measures. Contaminated liquors may be discharged to the Modular Active Effluent Treatment Plant (MAETP) (EPR-16 permitted discharge route) however throughout is limited to a maximum of 12m³ per week.

10.5 Dust propagation

The Contractor shall be required to incorporate robust control measures to mitigate impact arising from nuisance dust propagation and fine particle emissions resultant from works. Current action levels are specified by the Site as follows:

- Static action level 150µg/m³ corrected average (0.15mg/m³).
- Dynamic action level 250µg/m³ corrected average (0.25mg/m³).

10.6 Winter, breeding birds and protected species

The Contractor will give due cognisance to the existing ecological surveys in Appendix 18 of this PCI and the existing NRS applied control measures to mitigate nesting or contact with protected species. NRS employ a pest control company who attend site a few times a month who use bird dispersal techniques such as falconry. These locally secured services will cease to cover the Contractor's areas of work at point of area handover. For the duration of the project, the Contractor shall be responsible for implementing suitable and sufficient control measures to mitigate ingress of flora and fauna (inclusive of nesting birds and protected species). Attention is drawn to the ecology survey and historical nesting of birds within the Contractor's working area (Ringed Plover on the former Administration Block footprint during lockdown).

With regards to the material placement works at the north end of the site, ecological mitigation and management measures may be required, including but not limited to:

- If invasive non-native species are discovered (note - no invasive species have been identified in ecology surveys to date), they will be removed under the supervision of SQEP.
- The use of artificial lighting shall be limited to short periods at the start and end of the working day during winter months.
- Vegetation within the works area shall be maintained at a low level prior to commencement of works to deter ecological receptors.
- The works area shall be inspected by SQEP Ecologist prior to commencement of works for the presence of nesting birds.
- Although mammals and reptiles have not been identified within the works area, precautionary checks shall be completed by SQEP prior to the commencement of works.
- The following pre-works checks shall be completed:
    - Nesting birds.
    - Mammals (e.g. dormouse, badgers).

A bat survey was undertaken at the north end of site in August 2024 by Cambrian Ecology [24]. The survey concluded the proposed works would not result in a negative impact to bats, and no mitigation measures were necessary.

10.7 Snowdonia National Park

The Site is located within the Snowdonia National Park. The Park also carries Dark Sky Reserve Status. As a result, lighting introduced as part of the scheme will need to be reflective of this constraint with appropriate energy efficiency and avoidance of light spill.

The buildings shall be of appropriately sympathetic appearance and in accordance with the requirements of the Planning Authority and National Assembly for Wales (letter ref. A-PP049-07-016 dated 31st July 2003).

11 CLIENT BRIEF INFORMATION & LEGISLATION REQUIREMENTS

11.1 Existing Records and Plans

There are significant numbers of drawings covering this area of the plant and should a particular detail be of concern or require further investigation, the drawing register of 34,000 drawings can be interrogated to establish whether further detail is available. Many original construction and as-built drawings are available for inspection at NRS's Site office. In addition, NRS retains an extensive catalogue of source data on the RBs including maintenance and operational manuals, EANs and H&S File. Whilst much of the salient information contained within these sources has been utilised to generate this PCI all referenced material is available upon request. Further details are also available from the H&S File [6] available upon request.

11.2 Environment, Health & Safety Performance Goals

- NRS believes that the protection of the environment and the health and safety of our workforce, Contractors and the public are fundamental to our business.
- Excellence in environment, health (including welfare), safety and quality (EHS&Q) is an integral part of our business and is essential to our commercial success.

11.3 Client commitments

- Making safety the top priority in management decisions and the planning and execution of work.
- Maintaining high standards of nuclear safety.
- Preventing injury and ill health at work to all people at our Sites.
- Ensuring that environmental impacts are minimised from our activities and the NRS contributes to sustainability and environmental improvement.
- Ensuring that our activities, products and services comply with applicable legal, contractual and other requirements to which the company subscribes.
- Ensuring our Sites and information are secure.
- Continually improving the effectiveness of the management system to enhance environmental, occupational health and safety and business performance.
- Working in partnership with employees, stakeholders, Contractors, tenants and the rest of our industry to improve performance.

11.4 Target Zero

Improving safety performance is a core priority for NRS. The goal is to ensure that we deliver a "Target Zero" approach to safety:

- Zero accidents.
- Zero incidents.
- Zero harm.

11.5 Client's expectation of the Contractor(s)

- No injuries to personnel.
- No dangerous occurrences, as defined in Reporting of Injuries, Disease and Dangerous Occurrences 2013 (RIDDOR-13). Reporting of all incidents and near miss events, unsafe conditions and work-related illnesses to the NRS Project Manager as soon as possible and within 24 hrs maximum. Co-operate with any investigations and provide NRS with copies of any notifications submitted to the HSE/ONR.
- No breach of Regulations.
- Conduct the work in accordance with guidance published by the HSE, Environment Agency (EA), Natural Resources Wales (NRW) and the NRS Contractor Site Instructions (CONSIs).
- Good standards of housekeeping in all construction areas and facilities, throughout the duration of the project.
- Protect the environment.
- Reduce, re-use and recycle waste SFARP.
- 'Do not walk by' an unsafe act and be prepared to stop work which appears to be unsafe.

- Be receptive to feedback (e.g. behavioural observation feedback).
- Do not undertake work other than through appropriate SSoW procedures.
- Observe the safe access/egress to the workplace utilising footpaths, crossings and handrails.
- The use of mobile devices while walking or driving causes distraction and is strictly forbidden.
- Comply with the NRS drug and alcohol testing procedures.
- The burning of material by open fire is prohibited.
- Contractors to provide evidence, before commencement of Site work, that suitable and sufficient health and safety training has been completed and employees have suitable skill, knowledge, experience and training for the work. Individuals may otherwise be refused access to the Licensed Site.
- Not to use or interfere with the NRS plant, tools or equipment without specific permission being provided in writing.
- Develop and implement a Health and Safety Written Arrangements (CONSI-03) which explain how they will manage and deliver their work compliantly.
- Advise the NRS Project Manager of arrangements for providing information and consulting with employees, including subcontractors on Health, Safety and Environmental matters.
- Meet the requirements of the NRS minimum standards and expectations booklet.
- Cooperate in the human performance and behavioural safety programmes where required.
- Lone working is not permitted unless it has been risk assessed and suitable controls put in place, work should not migrate to lone working.
- To maintain a healthy working relationship with NRS ensuring a collaborative approach to health and safety throughout the project.

These requirements apply in respect of the Contractor's own employees and subcontractors engaged. Any individual employed by the Contractor who fails to properly observe any safety rules, or who causes or takes unnecessary safety risk may be excluded from the Site and any involvement with the Works. NRS accepts no liability for any consequence as a result of this being implemented.

11.6 Client's responsibilities for Health and Safety

- To provide induction training for access to the Licensed Site
- To provide information / instruction on relevant NRS procedures.
- To provide safety from the system on all operational plant and equipment.
- To ensure adequate arrangements are in place for the co-ordination of activities, cooperation and communication between the project and the rest of the Licensed Site.
- To provide radiological personal protective equipment where necessary.
- To undertake such audits and inspections considered necessary to satisfy and demonstrate that work is being undertaken safely and compliantly.

11.7 Learning from events

NRS has an open reporting policy and encourages the reporting of events, near misses, accidents and good practices from all persons on Site. Should you need to report any of the above inform your Line Manager or Supervisor and report using the Q-PULSE reporting tool or paper copy equivalent.

The Contractor is expected to foster a good reporting culture, whilst utilising and contributing to the existing reporting systems in use by NRS. Further details on Operational Experience are available upon request.

12 PROJECT PLANNING AND MANAGEMENT

Attendance at the following key planning meetings is the expectation of NRS (Table 29):

Type of meeting	Frequency	Responsibility	Tool/ Procedure/ Document Used
Planning and Co-ordination meetings	Daily	NRS Project Manager / NRS Site Engineer and Contractor's Manager / Supervisor	Project Schedule, Safety Performance, Co-ordination of the current activities
Construction Office meeting	Daily	NRS Site Engineers and the Contractor's representative when required	Discuss safety, operational plant changes and priorities
Project progress meetings	Weekly / fortnightly	NRS Project Manager, NRS Project Engineer, NRS Design Authority, NRS Site Engineer, Contractors	PD-025 Programme & Project Management process
Site Contractors Safety Forum	Monthly	NRS Construction Manager and representatives from all Contractors	Contractors Safety Forum actions and issues register

Table 29: Schedule of key planning meetings

12.1 Communication

Given the other decommissioning activities which will be taking place on Site, it is important that all personnel recognise the presence of other NRS operations and Contractors adjacent to their work areas and across Site. Whilst every effort will be made by NRS to schedule each activity and manage these interfaces in the best way possible, all Contractors must show due consideration and liaise fully to assist in managing interfaces to prevent clashes.

Where interfaces exist or are likely, the Contractor shall coordinate activities with the Construction Office. To support cohesive accident and emergency planning, NRS have generated an interfacing document [25] to assist with mapping Contractor and NRS arrangements.

The Contractor will be expected to attend and contribute to a number of NRS health and safety management groups, including but not limited to (terms of reference available upon request):

- Traffic Management Group.
- Fire Safety Group.
- Construction Forum.
- Emergency Planning Steering Group.

12.2 General site provision / requirements

For this project, NRS shall contractually appoint the Principal Contractor under the requirements of CDM-15 and therefore there will be specific requirements to segregate the works from other Site activities where NRS remain the Principal Contractor or other externally appointed Principal Contractors are undertaking works.

Robust communication and liaison with NRS and stakeholders shall be upheld at all times.

Daily and weekly meetings are held on Site to co-ordinate all the forthcoming proposed working activities, the Contractor will be expected to participate in these meetings.

12.3 Contractor Site Instructions

Any Contractor who works on a NRS Site or its associated premises must work to any relevant statute law, supplemented by the requirements of the CONSIs. These set minimum standards that the Contractor must at least match and are to be written into all contract documentation as appropriate to the work. The CONSI's are listed in the Scope [1].

12.4 Personal Protective Equipment

General PPE requirements – All personnel shall wear Hi-Viz jacket or vest whilst on company property, this includes car parks, access roads and general circulation around Site.

A number of locations on Site require additional general requirements; these areas are demarked by signage and red lines painted on the ground. Once over any red line the following are mandatory PPE requirements:

- 'Hi-Viz' jacket or vest.
- Hard Hat.
- Safety boots.
- Light eye protection to be carried and worn if local requirements state.
- Hearing protection to be carried and worn if local requirements state.
- Gloves carried and worn if required.

When working in designated radiological areas additional radiological PPE will be worn as specified by a NRS Accredited Health Physicist. All work which takes place in an RCA must comply with the local Radiological Safety Rules. Additional PPE required for complying with the local Radiological Safety Rules will be provided by NRS. Further details are provided in Appendix 5 of the TSOW [2].

All personnel working inside the RCA must wear an Electronic Personnel Dosimeter (EPD) which will be supplied by NRS for radiological dose measurement purposes. Any classified worker involved in the works must provide their radiation passbook to dosimetry prior to commencement of works. In addition, if the classified worker has their own legal dosimeter, then this must also be worn in addition to the EPD. These requirements can be amended in certain scenarios refer to the NRS radiological guidance for the project in Appendix 5 of the TSOW [2].

12.5 Welfare provision

All welfare facilities shall be provided by the Contractor as detailed within the Scope [1]. Storage and laydown areas shall be designated by NRS. See Appendix 3 of the TSOW [2] for full details. The Site has limited central messing facilities open to personnel selling hot and cold food between 07:30 to 15:00 on all normal working days. Outside of these core hours limited mess room and vending machines are available. Toilet facilities are available at various locations across Site and in specific locations within the RCA. These facilities shall not be relied upon by the Contractor however may be utilised for certain phases of the contract subject to agreement with NRS e.g. premobilisation.

Should shower and change facilities be required for the works, opportunities existing for connection to services however arrangements for such shall be agreed in advance will NRS.

NRS will provide an agreed location for offices, drying rooms, drinking water and messing facilities to be provided by the Contractor. A number of supplementary facilities owned and operated by NRS are available however these should not be relied upon by the Contractor.

The Contractor shall notify NRS of indicative spatial and service needs well in advance of the works.

12.6 Security

Security vetting is required for access to Site for workers, for full details see the Scope [1]. Triple bar training (Existing Sites (TBES) Nuclear Skills Academy) and Site induction training are required for unescorted access to the Licensed Site, for full details see the Scope [1]. Before any Contractor personnel can commence work on Site, they must comply with these baseline requirements. Further details on access are available from NRS. All individuals undertaking works shall be demonstrably competent.

To access Site, individuals must provide proof of identity. Persons who do not hold a NRS pass will be issued with a 'temporary pass' after providing three forms of suitable and original proof of identity. This must include at least one form of photographic identification. This identification must be Government issued. The following are examples of acceptable identification documents:

- Valid signed passport.
- Valid photo card driving license.
- Utility bill with proof of residence (within 3 months).

If no form of photographic identity is available, please contact the NRS for further advice. Please be aware that if individuals arrive at Site without prior appointment or acceptable identification, they will be refused entry.

Normal access to the Site is through the main gate and turnstiles adjacent to the Security Lodge which is located adjacent to the main car park.

Access hours for non-Site based personnel are limited to 08:00 to 17:00. Any Site visitors shall adhere to the NRS security access protocols which requires prior written notice to NRS (F-417 for general access a minimum of 2 working days prior to planned visit). Refer to external visitor user guidance document for further information [26]. Additional protocols apply for access to radiologically controlled areas, with notice submitted via NRS forms a minimum of 2 working days prior to panned visit. For Site based authorised personnel, extended working hours may be granted by NRS in writing.

All individuals entering Site are issued with a NRS pass by the Site Security Team which must be presented to enable access to Site. All persons on Site must wear their pass at all times. This should be visible unless identified as a safety risk. Where a challenge is encountered, any deviation shall be agreed with NRS in writing. Passholders must surrender their pass to the Security Lodge upon departing Site if the individual ceases employment or is excluded from Site. All individuals accessing Site may be subject to a personal and baggage search in accordance with NRS search policy. Permission to search is a condition of Site access. At any time on Site or when departing Site additional searches may be undertaken by authorised NRS personnel.

There are a number of areas within the secondary envelope which are subject to Security Assessment Principles (SyAPs) requiring robust control of access and routine surveillance by NRS. There are some areas where transient works are unavoidable, such as the charge face in both RBs. For these areas, the Contractor shall ensure works are demonstrably controlled and agreed with NRS prior to works commencement.

12.7 Site access

All those undertaking works on NRS property shall comply with the company reverse parking policy.

Drivers of vehicles requiring access onto Site shall present themselves to the Security Lodge for appropriate processing and instruction. Drivers of delivery vehicles will need to be escorted by the Contractor’s representatives, holding a NRS pass, at all times. There are specific requirements for the clearance of vehicles exiting Site, including search and radiological clearance. A NRS form will be required for radiological clearance of items.

For ‘skip’ lorries specific waste and environmental protocols exist to manage the clearance of skips onto and off Site. For further details refer to the Scope [1], TSOW [2] and PWMP [3].

12.8 Prohibited items

A number of items are prohibited from Site unless a ‘letter of authority’ has been issued by the Site Security Officer. The prohibited items are:

- Animals.
- Explosives.
- Firearms.
- Class A, B and C drugs.
- Alcohol.

The use of cameras or filming equipment on Site can be permitted on a case-by-case basis. Those seeking to undertake such activity shall apply to NRS Security Team for a valid ‘camera permit’. A minimum of 2 working days shall be needed for permit approvals. The use of mobile phone cameras is strictly prohibited. It is unacceptable to share (via text or picture) any Site details. Mobile phones are allowed on Site but not to take photographs.

12.9 Working and construction areas

Sufficient arrangements must be put in place to ensure that only authorised persons are allowed into any construction areas. On a construction project, an authorised person is one who has; undergone an appropriate Site induction, is accessing the Site in accordance with the provisions of the Site induction and has made the Contractor's Site management aware of the intent before entering the construction area. The Contractor shall allow NRS personnel access to the working areas as required to monitor the works in accordance with the Scope [1] and the TSOW [2].

The Contractor shall ensure adequate and safe arrangements are in place to facilitate continued operation and statutory maintenance of the asset as detailed in the Appendix 11 of the TSOW [2].

12.10 Requirements relating to the health and safety of the others

The Contractor shall erect hoarding around the working areas. The boundary of the working areas is shown on the drawing in Appendix 3 of the TSOW [2]. The hoarding shall be designed, installed and maintained to an appropriate standard. The configuration should be suitable and sufficient with due regard given to the conditions of use – typically 2.4m in height from solid proprietary system. These measures shall be designed for the prevailing conditions, intended use and design life. There shall be robust access controls capturing workforce details for effective security and emergency management arrangements.

Suitable provision shall be included for periodic plant access or emergency vehicular access. These arrangements shall be agreed with NRS prior to establishment of the areas.

For satellite work areas, alternative arrangements could be agreed with NRS for controlling access. In these instances, proprietary fencing systems could be utilised by the Contractor with due regard given the performance requirements as detailed previously.

12.11 Protected areas

The Site features listed assets of Dragon's Square and the Dame Sylvia Crowe Garden. The locations of these are detailed in Appendix 3 of the TSOW [2].

The Contractor shall take all necessary precautions to mitigate adverse impact to these assets inclusive of housed flora and fauna.

In addition to the above areas, there are RCA areas enclosed within the capping roof and side walls, including those listed in Table 26 and Table 27, which require adequate control.

12.12 Specific transport arrangements or vehicle movement restrictions

The Site speed limit is 10mph and 20mph on the approach road. When driving through the radiological vehicle monitor the speed limit is 5mph.

The Site operates a vehicle search policy. Seat belts must be worn and under no circumstances should a mobile phone be used whilst driving. Vehicle cabs shall be always kept clear and clean.

For vehicle movements, including reversing, suitable and sufficient control measures should be employed to control hazards. Vehicular access to Site is limited to essential vehicles only. Where the Contractor requires vehicular access to the Working Area, they shall comply with the NRS requirements for access onto/around the licensed Site. Prior agreement is needed to bring vehicles on to the licensed Site.

A one-way traffic routing exists on the Site as detailed in the existing traffic management plan [27] included in Appendix 3 of the TSOW [2]. The existing arrangements have been provisionally adapted to accommodate the project as detailed in Appendix 3 of the TSOW [2]. The Contractor shall review these details and include for infrastructure improvements as part of the works demonstrably applying the principles of prevention. This may include provision for signage, segregation, road marking, housekeeping, lighting, access and security.

These details shall be subject to agreement with NRS ensuring there are no adverse impacts on other decommissioning operations. Reversal of these measures shall also be covered by the Contractor. It should be noted that the existing Site vehicle monitor can only accommodate vehicles of up to 3.5m width.

For the transfer of material between working areas, the Contractor shall limit vehicle movements SFARP whilst applying the principles of prevention. Should change to the existing traffic management arrangements or use of other roadways be required to facilitate the works, prior arrangements shall be made with NRS. Robust measures shall be utilised by the Contractor to ensure vehicular and pedestrian segregation.

12.13 Client permit-to-work systems

Work in certain areas or on plant may require a safety document issued under the Company's Electrical and Mechanical (E&M) Safety Rules. Only persons who have been appointed as Competent Persons under NRS E&M Safety Rules may receive safety documents.

12.14 Smoking and parking restrictions

All those using the Site must observe the reverse parking policy. Parking of vehicles not essential to the works is to be in the main car parks outside the Site security boundary.

Smoking on Site is only permitted in designated places outside the RCA. All personnel must park their vehicles in any of the cark parks provided. Parking on verges, roadways and other areas will not be permitted.

On the NRS Site smoking is not permitted in the working areas, offices, mess areas and the like in accordance with the law. Three specified smoking areas are provided if required. If the Contractor wishes to provide supplementary arrangements external to the RCA but within their designated working areas, details shall be agreed with NRS in order to ensure appropriate co-ordination and management.

12.15 Restrictions on deliveries or waste collection or storage

Deliveries of large items will be agreed with NRS in advance. This will allow the consideration of any specific vehicle access routes required.

Wastes arising from the project will be managed in accordance with the PWMP [3] supplied by NRS. This provides guidance on the requirements for segregation, packaging and disposal of waste from the licensed Site.

Please be aware that specific requirements will be required for the management of any radioactive waste. Within the working areas it is known that small quantities of radioactive material exist. For further details on managing working areas and clearing these materials refer to NRS guidance included in Appendix 5 of the TSOW [2].

13 ADDITIONAL INFORMATION FROM AN EXISTING H&S FILE

The live H&S File [6] has been utilised to generate this PCI and associated appendices. As the document includes signposting, further details associated with the H&S File [6] are available upon request.

14 OTHER INFORMATION

For additional details also refer to the Scope [1] and TSOW [2].

To ensure a consistent interpretation and alignment Table 30 and Figure 52 provide definition of key terms associated with the NRS Risk Assessment Process [28]. The expectation is that the Contractor's procedures shall align or better, mitigating potential for drift in the robust assessment of risk. Where the Contractor's arrangements differ, these shall be notified to NRS as part of the tender process.

Term	Explanation
SFARP	The degree of risk in a particular situation can be balanced against the time, trouble, cost and physical difficulty of taking measures to avoid the risk.
Hazard	Something with the potential to cause harm (this can include articles, substances, plant or machines, methods of work, the working environment and other aspects of work organisation).
Risk	The likelihood of potential harm from that hazard being realised. The extent of the risk will depend on: i. the likelihood of that harm occurring. ii. the potential severity of that harm i.e. of any resultant injury or adverse health effect. iii. the population which might be affected by the hazard i.e. the number of people who might be exposed.
Suitable and sufficient	The risk assessment should identify the risks arising from or in connection with work. The level of detail in a risk assessment should be proportionate to the risk. Once the risks are assessed and taken into account, insignificant risks can usually be ignored, as can risks arising from routine activities associated with life in general, unless the work activity compounds or significantly alters those risks. The level of risk arising from the work activity should determine the degree of sophistication of the risk assessment.
Significant Risks	Significant risks are those that are not trivial in nature and are capable of creating a real risk to health and safety which any reasonable person would appreciate and would take steps to guard against. A risk of high probability that is likely to create an impact of some significance. What can be considered as 'insignificant' will vary from site to site and activity to activity, depending on specific circumstances. Any activity that scores 10 or above in the risk rating matrix.
Likelihood	The score range used to derive a risk rating by applied scores: 1 = Very unlikely 2 = Unlikely 3 = Possible 4 = Likely 5 = Very likely
Severity	The score range used to derive a risk rating by applied scores: 1 = Negligible: Injury not requiring first aid 2 = Minor: Minor injuries needing first air 3 = Harmful: Superficial injuries. Irritation from dust. Ill health leading to temporary discomfort. 4 = Severe: Lacerations. Burns. Concussion. Sprains. Ill health. RIDDOR reportable injuries / diseases. 5 = Major: Amputations. Major fractures. Fatal Injuries.
Risk rating	The outcome from scoring likelihood and severity on a risk matrix and is used to identify if further reduction measures are required.

Likelihood	Severity				
	1 - Negligible	2 - Minor	3 - Harmful	4 - Severe	5 - Major
5 - Very Likely	5	10	15	20	25
4 - Likely	4	8	12	16	20
3 - Possible	3	6	9	12	15
2 - Unlikely	2	4	6	8	10
1 - Very Unlikely	1	2	3	4	5

Table 30: Definition of key risk assessment terms

RISK RATING	ACTION AND TIMESCALE
TRIVIAL (1-3)	No further action is required other than to implement any existing control measures.
TOLERABLE (4-9)	The risk has been reduced to a level that is deemed tolerable. However, consideration should be given to whether further risk reduction measure can continue to be applied if it is reasonably practicable to do so and the costs (in terms of time, people and resources) are not grossly disproportionate. Monitoring is required to ensure that the controls are maintained.
MODERATE (10-16)	Efforts should be made to reduce the risk, but the costs of prevention should be carefully measured and limited. Risk reduction measures should be implemented before work commences. Where the moderate risk is associated with extremely harmful consequences, further assessment will be necessary to establish more precisely the likelihood of harm as a basis for determining the need for improved control measures. General access under the Area Hazard Assessment should be limited and only permitted by exception.
INTOLERABLE (20 -25)	Work must not be started until the risk has been reduced. Considerable resources may have to be allocated to reduce the risk. Where the risk involves work in progress, urgent action should be taken. No work is to proceed if the risk is intolerable, the work will need to be re-evaluated and an engineered alternative sought that reduces the risk rating. Access – general access under the Area Hazard Assessment should not be permitted.

Figure 52: Risk rating outcomes and proposed actions

15 INFORMATION TO BE PROVIDED BY THE CONTRACTOR

For details on documentation requirements, touch points and hold points refer to the Scope [1] and TSOW [2].

Regarding Operation & Maintenance (O&M) Manuals, records shall be supplied as a separate document to the Lifetime Quality Record (LTQR). The Contractor shall proactively contribute to the Health & Safety File as works progress. Upon completion, the Contractor shall provide the necessary details on residual hazards in a separate document for NRS to utilise in compiling and updating the existing Health and Safety File. The document shall comply with the typical content as detailed within the appendices of this PCI.

REFERENCES

[1] *TRAWS/L28302/DOC/0124 Height Reduction Scope (Tender Works Information),* 2023.
[2] *TRAWS/L28302/DOC/0034 Reactor Building Height Reduction Technical Scope of Work,* 2023.
[3] *TRAWS/L28302/PWMP/0804 Project Waste Management Plan,* 2023.
[4] *RC/54/A0/52411 Trawsfynydd Decommisioning Site Plan,* 2023.
[5] *TRAWS/EAN/19/046 Safestore Reactor Buildings Space Numbering,* 2021.
[6] *TRAWS/L28302/DOC/0033 Reactor Building Health and Safety File,* 2023.
[7] *TRAWS/L28302/DOC/0100 Structural Interdependencies of Primary Elements of Structure,* 2023.
[8] *TRAWS/EAN/23/005 Reactor Buildings Pre-Cast Concrete Panels Overview,* 2023.
[9] *Structural Integrity Management Plan (SIMP), Volumes 1 to 4,* 2010.
[10] *TRAWS/EAN/12/036 Reactor Buildings: Principal Load Paths and Consolidated Data on Historical Loading & Capacity Determination,* 2023.
[11] *TRAWS/EAN/23/010 Reactor Buildings 1 & 2 External & Internal Defects - Overall Repair Strategy,* 2023.
[12] *TRAWS/EAN/23/008 Reactor Buildings Condition Report,* 2023.
[13] *Decommissioning Action Plan Trawsfynydd Site TRAWS/L28302/DOC/0145,* 2024.
[14] *TRAWS/L28302/DOC/0022 Hazard Identification (HAZID) Study,* 2021.
[15] *Health and Safety Executive (HSE) Research Report 204,* 2023.
[16] *TRAWS/EAN/22/032 Summary of Ground Conditions in Areas South, North, East and West of Reactor Buildings,* 2023.
[17] *Lighting Protection Systems - Safestores. Visual Inspection and Testing,* 2022.
[18] *TRAWS/L28302/DOC/0183 Response to Clarification 102: Potential Land Quality Issues,* 2024.
[19] *TD/REB/REP/8007 Assessment of Resistance of the Trawsfynydd Pile Cap Slab (Standpipe Area) to a Dropped Load,,* 1991.
[20] *TD/REB/REP/8002 Assessment of Resistance of the Trawsfynydd Pile Cap Peripheral Areas to a Dropped Load,,* 1991.
[21] APC, *Supporting Report No. MAT 11 Concrete - Strength and Mixes for Safestore Structure,* c1960.
[22] *TRAWS/EAN/10/82 Reactor Safestores Cover Plate Over Existing Openings Design Criteria,* 2011.
[23] NRS Ltd, *TRAWS/L28302/DOC/0080 Reactor Buildings Height Reduction Project Awareness of Radiological Requirements,* 2023.
[24] C. Ecology, *Trawsfynydd Power Station Proposed Filling Works, Potential Bat Roost Tree Survey,* August 2024.
[25] *TRAWS/24/010 Trawsfynydd Height Reduction Contingency Arrangements (PC Interfacing),* 2024.
[26] *User Guidance: NRS Online Visitors System - External Visitor (Non NRS),* 2024.
[27] *TRA/3210/LA/11203 Trawsfynydd Decommissioning Site Traffic Management Scheme,* 2018.
[28] *S-048 MXL Company Standard for Conventional Risk Assessment,* 2022.
[29] *TRAWS/L28302/DOC/0032 Reactor Building Height Reduction Pre Construction Information,* 2023.

APPENDIX 1 – CAST IN-SITU REINFORCED CONCRETE

Document Number	Document Title	Document	Issue date	Version
DD-10-00-C5535	G.A. & REINFORCEMENT DETAILS OF WALLS S1, S4-S10; N1, N4-N10 FROM 75'-3" LEVEL SHEET 1 OF 6	Drawing	13/10/61	007
DD-10-00-C5536	G.A. & REINFORCEMENT DETAILS OF WALLS S4 & N4 FROM 75'-3" LEVEL SHEET 2 OF 6	Drawing	13/10/61	007
DD-10-00-C5537	G.A. & REINFORCEMENT DETAILS OF WALLS S1 & N1 FROM 75'-3" LEVEL SHEET 3 OF 6	Drawing	13/05/63	006
DD-10-00-C5538	G.A. & REINFORCEMENT DETAILS OF WALLS S6 & N6 FROM 75'-3" LEVEL SHEET 4 OF 6	Drawing	30/08/61	007
DD-10-00-C5539	G.A. & REINFORCEMENT DETAILS OF WALLS S10 & N10 FROM 75'-3" LEVEL SHEET 5 OF 6	Drawing	24/10/61	007
DD-10-00-C5540	G.A. & REINFORCEMENT DETAILS OF WALLS S2 & S3 FROM 75'-3" LEVEL SHEET 6 OF 6	Drawing	26/04/63	012
DD-10-00-C5545	DETAILS OF BEAMS E10, E16, E17, E28, E52, E55 & STEELWORK	Drawing	22/06/61	002
DD-10-00-C5583	DETAILS OF WALLS N2 & N3 FROM +75'-3" LEVEL	Drawing	12/03/62	005
DD-10-00-C5584	GA & REINFORCEMENT DETAILS OF WALLS S11 & S12 FROM =75'-3" LEVEL	Drawing	12/01/62	005
DD-10-00-C5585	DETAILS OF WALLS N11 & N12 FROM +75'-3" LEVEL	Drawing	17/11/61	004
DD-10-00-C5586	DETAILS OF PLENUM WALLS (NORTH & SOUTH END)	Drawing	15/03/62	002
DD-10-00-C5603	DETAILS OF N.W., S.E, & S.W. FLOORS (103'-3" LVL)	Drawing	01/09/61	004
DD-10-00-C5604	R.C. DETAILS OF SECTIONS OF N.W., S.E., & S.W. FLOORS at 103'-3" LEVEL	Drawing	01/09/61	004
DD-10-00-C5605	G.A. & REINFORCEMENT DETAILS OF WALLS - SOUTH END FROM 124'-2" & 133'-2" TO 179'-0" LEVEL	Drawing	01/09/61	002
DD-10-00-C5606	G.A. & REINFORCEMENT DETAILS OF WALLS (SOUTH END) FROM 124'-2" & 133'-2" TO 179'-0" LEVEL	Drawing	01/09/61	002
DD-10-00-C5607	G.A. & REINFORCEMENT OF WALLS (SOUTH END)	Drawing	01/09/61	001
DD-10-00-C5609	R.C. DETAILS OF SLABS AT 117'-3" LEVEL SOUTH	Drawing	01/08/61	002
DD-10-00-C5610	R.C. DETAILS OF SECTIONS THROUGH SLAB AT SOUTH LEVEL 117'-3"	Drawing	30/08/61	003
DD-10-00-C5611	R.C DETAILS OF SLABS, BEAMS, & SECTIONS AT 117'-3" LEVEL NORTH	Drawing	01/08/61	002
DD-10-00-C5614	G.A. & REINF'T DETAILS OF WALLS SOUTH & NORTH END	Drawing	11/01/62	002
DD-10-00-C5616	PRECAST UNITS OVER ACCESS OPENINGS AT 131'-3" LEVEL	Drawing	28/11/62	001
DD-10-00-C5617	OUTLINE OF SECTIONS THROUGH SLAB AT 131'-3" LEVEL SOUTH	Drawing	09/01/62	004
DD-10-00-C5620	REINF'T DETAILS OF 131'-3" LEVEL SLAB (SOUTH)	Drawing	16/01/62	002
DD-10-00-C5621	REINF'T DETAILS OF 131'-3" LEVEL SLAB (SOUTH)	Drawing	03/07/62	002
DD-10-00-C5623	G.A. & R.C. DETAILS OF COL. W30 (N.E) & W6 (W16) S.E	Drawing	17/01/62	001
DD-10-00-C5624	G.A. & REINF'T DETAILS OF WALL NA	Drawing	01/09/61	001
DD-10-00-C5625	G.A. & REINF'T DETAILS OF WALLS NB, NC, & ND	Drawing	01/09/61	001
DD-10-00-C5626	G.A. & REINF'T DETAILS OF WALLS NE, NF, AND NG	Drawing	01/10/61	001
DD-10-00-C5627	G.A. & REINF'T DETAILS OF WALLS S2 & S3	Drawing	01/11/61	002
DD-10-00-C5628	G.A. & REINF'T DETAILS OF COL. E6 FROM 112'-10" -179'-0"	Drawing	02/11/61	001
DD-10-00-C5632	G.A. & REINFORCEMENT DETAILS OF WALLS N2 & N3	Drawing	01/11/61	001
DD-10-00-C5633	R.C DETAILS AT 131'-3" LEVEL SOUTH	Drawing	26/03/93	001

DD-10-00-C5634	SECTIONS THROUGH SLAB AT 131'-3" LEVEL (NORTH)	Drawing	01/01/62	001
DD-10-00-C5642	G.A. & REINFORCEMENT DETAILS OF WALLS (NORTH & SOUTH)	Drawing	01/12/61	002
DD-10-00-C5643	ADDITIONAL WALLS & SLABS (SOUTHWEST)	Drawing	13/07/62	001
TRA/3630/ST/24311	SAFESTORES/REACTORS 1&2 PRECAST PANELS STRUCTUAL STRENGTHENING AND REPAIRS R2 WEST SIDE CORE HOLE PLATING AS BUILT	Drawing	22/04/2015	1
TRA/3630/ST/24336	Boiler Box Walls Strengthening Work Arrangement	Drawing	04/10/2012	06
TRA/3630/ST/24337	Boiler Box Walls Strengthening Work Details Sheet 1	Drawing	04/10/2012	07
TRA/3630/ST/24339	EXTERNAL WALL PANELS ABOVE LEVEL 9 STRENGTHENING WORK DETAILS SHT 4	Drawing	04/10/2012	01
TRA/3630/ST/24340	EXTERNAL WALL PANELS ABOVE LEVEL 9 STRENGTHENING WORK ARRANGEMENT ELEVATIONS B1A, B2A, B1B, B2B	Drawing	04/10/2012	04
TRA/3630/ST/24341	External Wall Panels Above Level 9 Strengthening Work Arrangement	Drawing	04/10/2012	06
TRA/3630/ST/24342	External Wall Panels Above Level 9 Strengthening Work Details Sheet 1	Drawing	04/10/2012	06
TRA/3630/ST/24343	Reactor 1 LiDAR Survey Cross-sections at Truss Locations	Drawing	20/06/2011	01
TRA/3630/ST/24344	Reactor 2 LiDAR Survey Cross-sections at Truss Locations	Drawing	20/06/2011	01
TRA/3630/ST/24345	External Wall Panels Above Level 9 Strengthening Work Details Sheet 2	Drawing	04/10/2012	05
TRA/3630/ST/24346	North & South RC Wall Pier Strengthening Above Level 9 High Level & Roof Truss Layout	Drawing	07/09/2011	04
TRA/3630/ST/24347	North & South RC Wall Pier Strengthening Above Level 9 Sections Sheet 1	Drawing	07/09/2011	04
TRA/3630/ST/24348	North & South RC Wall Pier Strengthening Above Level 9 Details Sheet 1	Drawing	04/10/2012	06
TRA/3630/ST/24349	Boiler House Wall Strengthening Details Sheet 2	Drawing	07/09/2011	05
TRA/3630/ST/24350	Boiler House Wall Strengthening Details Sheet 3	Drawing	20/06/2011	03
TRA/3630/ST/24351	Boiler Box Walls Strengthening Work Below Capping Roof Arrangement	Drawing	12/07/2012	04
TRA/3630/ST/24352	Boiler Box Walls Strengthening Work Below Capping Roof Details Sheet 1	Drawing	15/08/2012	05
TRA/3630/ST/24353	Boiler Box Mechanical Encapsulation R1 South	Drawing	21/05/2015	01
TRA/3630/ST/24354	Boiler Box Mechanical Encapsulation R1 North	Drawing	21/05/2015	01
TRA/3630/ST/24355	BOILER BOX WALLS STRENGTHENING WORK BOILER BOX 3 BELOW CAPPING ROOF	Drawing	15/08/2012	02
TRA/3630/ST/24356	Boiler Box Mechanical Encapsulation R2 South	Drawing	21/05/2015	01
TRA/3630/ST/24357	Boiler Box Mechanical Encapsulation R2 North	Drawing	21/05/2015	01
TRA/3630/ST/26867	Wind Load Remedial Works - Phase 1 North and South RC Wall Piers Frame R1-4-N	Drawing	15/05/2013	01
TRA/3630/ST/26868	Wind Load Remedial Works - Phase 1 North and South RC Wall Piers Frame R1-4-S	Drawing	15/05/2013	01
TRA/3630/ST/26869	Wind Load Remedial Works - Phase 1 North and South RC Wall Piers Frame R1-6-N	Drawing	15/05/2013	01
TRA/3630/ST/26870	Wind Load Remedial Works - Phase 1 North and South RC Wall Piers Frame R1-6-S	Drawing	15/05/2013	01
TRA/3630/ST/26871	Wind Load Remedial Works - Phase 1 North and South RC Wall Piers Frame R1-8-N	Drawing	15/05/2013	01
TRA/3630/ST/26872	Wind Load Remedial Works - Phase 1 North and South RC Wall Piers Frame R1-8-S	Drawing	15/05/2013	01
TRA/3630/ST/26873	Wind Load Remedial Works - Phase 1 North and South RC Wall Piers Frame R1-10-N	Drawing	15/05/2013	01
TRA/3630/ST/26874	Wind Load Remedial Works - Phase 1 North and South RC Wall Piers Frame R1-10-S	Drawing	15/05/2013	01
TRA/3630/ST/26875	Wind Load Remedial Works - Phase 1 North and South RC Wall Piers Frame R2-04-N	Drawing	15/05/2013	01
TRA/3630/ST/26876	Wind Load Remedial Works - Phase 1 North and South RC Wall Piers Frame R2-04-S	Drawing	15/05/2013	01
TRA/3630/ST/26877	Wind Load Remedial Works - Phase 1 North and South RC Wall Piers Frame R2-06-N	Drawing	15/05/2013	01

TRA/3630/ST/26878	Wind Load Remedial Works - Phase 1 North and South RC Wall Piers Frame R2-6-S	Drawing	15/05/2013	01
TRA/3630/ST/26879	Wind Load Remedial Works - Phase 1 North and South RC Wall Piers Frame R2-08-N	Drawing	15/05/2013	01
TRA/3630/ST/26880	Wind Load Remedial Works - Phase 1 North and South RC Wall Piers Frame R2-8-S	Drawing	15/05/2013	01
TRA/3630/ST/26881	Wind Load Remedial Works - Phase 1 North and South RC Wall Piers Frame R2-10-N	Drawing	15/05/2013	01
TRA/3630/ST/26882	Wind Load Remedial Works - Phase 1 North and South RC Wall Piers Frame R2-10-S	Drawing	15/05/2013	01
TRA/3630/ST/26885	Wind Load Remedial Works - Phase 1 Boiler Box Walls	Drawing	15/05/2013	01
TRA/3630/ST/26886	Wind Load Remedial Works - Phase 1 Boiler Box Walls Details	Drawing	15/05/2013	01
TRA/3630/ST/26887	Wind Load Remedial Works - Phase 1 External Wall Panels Above Level 9	Drawing	15/05/2013	01
TRA/3630/ST/26888	Wind Load Remedial Works - Phase 1 External Wall Panels Above Level 9 Details	Drawing	15/05/2013	01
TRA/3630/ST/26889	Wind Load Remedial Works - Phase 1 North and South RC Wall Piers High Level and Roof Truss Layout	Drawing	15/05/2013	01
TRA/3630/ST/26890	Wind Load Remedial Works - Phase 1 North and South RC Wall Piers Sections	Drawing	15/05/2013	01
TRA/3630/ST/26891	Wind Load Remedial Works - Phase 1 North and South RC Wall Piers Details Sheet 1	Drawing	15/05/2013	01
TRA/3630/ST/26892	Wind Load Remedial Works - Phase 1 North and South RC Wall Piers Details Sheet 2	Drawing	15/05/2013	01
TRA/3630/ST/26893	Wind Load Remedial Works - Phase 1 North and South RC Wall Piers Details Sheet 3	Drawing	15/05/2013	01
TRA/3630/ST/26894	Wind Load Remedial Works - Phase 1 131 Level Rails Pictorial View R1 South	Drawing	15/05/2013	01
TRA/3630/ST/26895	Wind Load Remedial Works - Phase 1 131 Level Rails Pictorial View R1 North	Drawing	15/05/2013	01
TRA/3630/ST/26896	Wind Load Remedial Works - Phase 1 131 Level Rails Pictorial View R2 South	Drawing	15/05/2013	01
TRA/3630/ST/26897	Wind Load Remedial Works - Phase 1 131 Level Rails Pictorial View R2 North	Drawing	15/05/2013	01
TRA/3630/ST/43980	Wind Load Remedial Works - Phase 1 Boiler Box 1 - Level 36.250	Drawing	16/05/2013	01
TRA/3630/ST/43981	Wind Load Remedial Works - Phase 1 Boiler Box 1 - Level 33.270	Drawing	16/05/2013	01
TRA/3630/ST/43982	Wind Load Remedial Works - Phase 1 Boiler Box 1 - Level 30.980	Drawing	16/05/2013	01
TRA/3630/ST/43983	Wind Load Remedial Works - Phase 1 Boiler Box 1 - Level 27.760	Drawing	16/05/2013	01
TRA/3630/ST/43984	Wind Load Remedial Works - Phase 1 Boiler Box 2 - Level 36.250	Drawing	16/05/2013	01
TRA/3630/ST/43985	Wind Load Remedial Works - Phase 1 Boiler Box 2 - Level 33.270	Drawing	16/05/2013	01
TRA/3630/ST/43986	Wind Load Remedial Works - Phase 1 Boiler Box 2 - Level 30.980	Drawing	16/05/2013	01
TRA/3630/ST/43987	Wind Load Remedial Works - Phase 1 Boiler Box 2 - Level 27.760	Drawing	16/05/2013	01
TRA/3630/ST/43988	Wind Load Remedial Works - Phase 1 Boiler Box 3 - Level 36.250	Drawing	16/05/2013	01
TRA/3630/ST/43989	Wind Load Remedial Works - Phase 1 Boiler Box 3 - Level 33.270	Drawing	16/05/2013	01
TRA/3630/ST/43990	Wind Load Remedial Works - Phase 1 Boiler Box 3 - Level 30.980	Drawing	20/05/2013	01
TRA/3630/ST/43991	Wind Load Remedial Works - Phase 1 Boiler Box 3 - Level 27.760	Drawing	20/05/2013	01
TRA/3630/ST/43992	Wind Load Remedial Works - Phase 1 Boiler Box 4 - Level 36.250	Drawing	20/05/2013	01
TRA/3630/ST/43993	Wind Load Remedial Works - Phase 1 Boiler Box 4 - Level 33.270	Drawing	20/05/2013	01

TRA/3630/ST/43994	Wind Load Remedial Works - Phase 1 Boiler Box 4 - Level 30.980	Drawing	20/05/2013	01
TRA/3630/ST/43996	Wind Load Remedial Works - Phase 1 Boiler Box 9 - Level 36.250	Drawing	20/05/2013	01
TRA/3630/ST/43997	Wind Load Remedial Works - Phase 1 Boiler Box 9 - Level 33.270	Drawing	20/05/2013	01
TRA/3630/ST/43998	Wind Load Remedial Works - Phase 1 Boiler Box 9 - Level 30.980	Drawing	20/05/2013	01
TRA/3630/ST/44000	Wind Load Remedial Works - Phase 1 Boiler Box 10 - Level 36.250	Drawing	20/05/2013	01
TRA/3630/ST/44001	Wind Load Remedial Works - Phase 1 Boiler Box 10 - Level 33.270	Drawing	20/05/2013	01
TRA/3630/ST/44002	Wind Load Remedial Works - Phase 1 Boiler Box 10 - Level 30.980	Drawing	20/05/2013	01
TRA/3630/ST/44003	Wind Load Remedial Works - Phase 1 Boiler Box 10 - Level 27.760	Drawing	20/05/2013	01
TRA/3630/ST/44004	Wind Load Remedial Works - Phase 1 Boiler Box 11 - Level 36.250	Drawing	20/05/2013	01
TRA/3630/ST/44005	Wind Load Remedial Works - Phase 1 Boiler Box 11 - Level 33.270	Drawing	20/05/2013	01
TRA/3630/ST/44006	Wind Load Remedial Works - Phase 1 Boiler Box 11 - Level 30.980	Drawing	20/05/2013	01
TRA/3630/ST/44007	Wind Load Remedial Works - Phase 1 Boiler Box 11 - Level 27.760	Drawing	20/05/2013	01
TRA/3630/ST/44008	Wind Load Remedial Works - Phase 1 Boiler Box 12 - Level 36.250	Drawing	20/05/2013	01
TRA/3630/ST/44009	Wind Load Remedial Works - Phase 1 Boiler Box 12 - Level 33.270	Drawing	20/05/2013	01
TRA/3630/ST/44010	Wind Load Remedial Works - Phase 1 Boiler Box 12 - Level 30.980	Drawing	20/05/2013	01
TRA/3630/ST/44011	Wind Load Remedial Works - Phase 1 Boiler Box 12 - Level 27.760	Drawing	20/05/2013	01
TRA/3630/ST/44012	SAFESTORE 1 BOILER BOX 3 - BELOW LEVEL 24.300 STRENGTHENING WORKS AS BUILT	Drawing	13/02/2013	01
TRA/3630/ST/44013	SAFESTORE 1 BOILER BOX 3 - BELOW LEVEL 21.790 STRENGTHENING WORKS AS BUILT	Drawing	13/02/2013	01
TRA/3630/ST/44014	SAFESTORE 1 BOILER BOX 3 - BELOW LEVEL 19.380 STRENGTHENING WORKS AS BUILT	Drawing	13/02/2013	01
TRA/3630/ST/44015	BOILER BOX WALLS STRENGTHENING WORKS BELOW CAPPING ROOF DETAILS SHEET 1 AS BUILT	Drawing	13/02/2013	01
TRA/3630/ST/44016	BOILER BOX WALLS STRENGTHENING WORKS BELOW CAPPING ROOF AS BUILT	Drawing	13/02/2013	01
TRA/3630/ST/44017	Boiler Box 3 Below Capping Roof Strengthening Works Crack Sealing	Drawing	17/06/2014	1
TRA/3630/ST/44188	WIND LOADING REMEDIALS - PHASE 2 STRENGHTENING WORK ABOVE LEVEL 9 KEY PLAN R1&R2	Drawing	18/06/2014	02
TRA/3630/ST/44189	WIND LOADING REMEDIALS - PHASE 2 EXTERNAL WALL PANELS ABOVE LEVEL 9 STRENGTHENING WORK ARRANGEMENT ELEVATIONS R1	Drawing	18/06/2014	03
TRA/3630/ST/44190	WIND LOADING REMEDIALS - PHASE 2 EXTERNAL WALL PANELS ABOVE LEVEL 9 STRENGTHENING WORK ARRANGEMENT ELEVATIONS R2	Drawing	18/06/2014	03
TRA/3630/ST/44192	WIND LOADING REMEDIALS - PHASE 2 EXTERNAL WALL PANELS ABOVE LEVEL 9 STRENGTHENING WORK DETAILS SHEET 1	Drawing	18/06/2014	02
TRA/3630/ST/44193	WIND LOADING REMEDIALS - PHASE 2 EXTERNAL WALL PANELS ABOVE LEVEL 9 STRENGTHENING WORK DETAILS SHEET 2	Drawing	18/06/2014	02
TRA/3630/ST/44194	WIND LOADING REMEDIALS - PHASE 2 EXTERNAL WALL PANELS ABOVE LEVEL 9 STRENGTHENING WORK DETAILS SHEET 3	Drawing	18/06/2014	03

TRA/3630/ST/44195	WIND LOADING REMEDIALS - PHASE 2 EXTERNAL WALL PANELS ABOVE LEVEL 9 STRENGTHENING WORK DETAILS SHEET 4	Drawing	18/06/2014	02
TRA/3630/ST/44199	Wind Loading Remedials - Phase 2 Steel Beam Strengthening to Top of Interspaces (126'1" Approx)	Drawing	28/09/2015	05
TRA/3630/ST/44202	WIND LOADING REMEDIALS - PHASE 2 BOILER BOX WALLS STRENGTHENING WORK ARRANGEMENT	Drawing	18/06/2014	04
TRA/3630/ST/44203	WIND LOADING REMEDIALS - PHASE 2 BOILER BOX WALLS STRENGTHENING WORK DETAILS SHEET 1	Drawing	18/06/2014	02
TRA/3630/ST/44801	WIND LOADING REMEDIALS BOILER BOXES BELOW CAPPING ROOF KEY PLAN	Drawing	16/01/2017	02
TRA/3630/ST/44802	WIND LOADING REMEDIALS BOILER BOXES BELOW CAPPING ROOF TYPICAL ARRANGEMENT IN CORNER BOILER BOXES	Drawing	22/09/2016	04
TRA/3630/ST/44803	WIND LOADING REMEDIALS BOILER BOXES BELOW CAPPING ROOF TYPICAL ARRANGEMENT IN CENTRAL BOILER BOXES	Drawing	16/01/2017	03
TRA/3630/ST/44804	BOILER BOX WALLS STRENGTHENING WORK BELOW CAPPING ROOF DETAILS	Drawing	23/05/2013	01
TRA/3630/ST/44844	Wind Loading Remedials Boiler Boxes Below Capping Roof Details - Sheet 2	Drawing	19/09/2016	2
TRA/3630/ST/45157	TRAWSFYNYDD SITE EXTERNAL ENVELOPE WORKS-PHASE 1 R1 NORTH ELEVATION-PROPOSED CRACK SEALING	Drawing	04/07/2014	4
TRA/3630/ST/45158	TRAWSFYNYDD SITE EXTERNAL ENVELOPE WORKS-PHASE 1 R1 EAST ELEVATION-PROPOSED CRACK SEALING	Drawing	04/07/2014	4
TRA/3630/ST/45159	TRAWSFYNYDD SITE EXTERNAL ENVELOPE WORKS-PHASE 1 R1 SOUTH ELEVATION-PROPOSED CRACK SEALING	Drawing	04/07/2014	4
TRA/3630/ST/45160	TRAWSFYNYDD SITE EXTERNAL ENVELOPE WORKS-PHASE 1 R1 WEST ELEVATION-PROPOSED CRACK SEALING	Drawing	04/07/2014	4
TRA/3630/ST/45161	TRAWSFYNYDD SITE EXTERNAL ENVELOPE WORKS-PHASE 1 R2 NORTH ELEVATION-PROPOSED CRACK SEALING	Drawing	04/07/2014	4
TRA/3630/ST/45162	TRAWSFYNYDD SITE EXTERNAL ENVELOPE WORKS-PHASE 1 R2 EAST ELEVATION-PROPOSED CRACK SEALING	Drawing	04/07/2014	4
TRA/3630/ST/45163	TRAWSFYNYDD SITE EXTERNAL ENVELOPE WORKS-PHASE 1 R2 SOUTH ELEVATION-PROPOSED CRACK SEALING	Drawing	04/07/2014	4
TRA/3630/ST/45164	TRAWSFYNYDD SITE EXTERNAL ENVELOPE WORKS-PHASE 1 R2 WEST ELEVATION-PROPOSED CRACK SEALING	Drawing	04/07/2014	4
TRA/3630/ST/45168	TRAWSFYNYDD SITE EXTERNAL ENVELOPE WORKS-PHASE 1 R1 & R2 GROUND FLOOR WEST CONCRETE REPAIRS	Drawing	29/06/2018	4
TRA/3630/ST/45205	TRAWSFYNYDD SITE EXTERNAL ENVELOPE WORKS - PHASE 2/3 R1 & R2 PROPOSEDCONCRETE REPAIRS TO HIGH LEVEL WALLS ABOVE STEAM PIPE RISERS	Drawing	08/04/2016	2
TRA/3630/ST/45765	Safestore/Reactors 1 & 2 precast panels structural strengthening and repairs R1 South high pier repairs as built	Drawing	30/03/2015	1
TRA/3630/ST/45766	Safestore/Reactors 1 & 2 precast panels structural strengthening and repairs R1 North high pier repairs as built	Drawing	30/03/2015	1
TRA/3630/ST/45767	Safestore/Reactors 1 & 2 precast panels structural strengthening and repairs R2 South high pier repairs as built	Drawing	30/03/2015	1
TRA/3630/ST/45768	Safestore/Reactors 1 & 2 precast panels structural strengthening and repairs R2 North high pier repairs as built	Drawing	30/03/2015	1

TRA/3630/ST/45769	Safestore/Reactors 1 & 2 precast panels structural strengthening and repairs R1 West side core hole plating built	Drawing	30/03/2015	1
IDN_0262	Concrete Strengths and Mixes for Safestore Structure	Report	C1960	N/A

APPENDIX 2 – PRECAST PANELS

Document Title	Document Number	Rev
Reactor Buildings - Pre-cast Concrete Panels Overview	**TRAWS/EAN/23/005**	**1**
TRAWS/EAN/23/005 Appendix A - Original PCCP As Built Drawings	**TRAWS/EAN/23/005**	**1**
Details of Units XZZZ/0/V	DD-10-00-C-05477	
Details of Units N/0	DD-10-00-C-05479	
Details of Units RT/0 & RT/1	DD-10-00-C-05481	
Details of Units S/F Types UY/10 & UY/11	DD-10-00-C-05482	
Details of Units PY/20 - PY/21 - PY/22 - PY/23	DD-10-00-C-05483	
Typical Fixing & Weathering Details to PC Cladding	DD-10-00-C5350	D
Details of Units A/0 & B/0	DD-10-00-C5351	
Details of Units C/0	DD-10-00-C5352	
Details of Units D/0, XE/0 & XF/0 & E/0	DD-10-00-C5354	
Details of Units XG/0, XG/1 & XG/2	DD-10-00-C5355	
Details of Units H/0 & H/0/H	DD-10-00-C5357	
Details of Units K/0,1 & 2, K/0/H, H1 & H2, K/1/H1 & K/2/H2	DD-10-00-C5358	
Details of Units J/0,1 & 2, J/0/H, J/1/H & J/2/H	DD-10-00-C5359	
Details of Units L/0 & L/0/H	DD-10-00-C5360	
Details of Units MM/1 & 2, MM/1/H & MM/2/H	DD-10-00-C5361	
Details of Units J/3 & J/3/H, J/33 & J33/H	DD-10-00-C5365	
Details of Units J/4 & 5 & J/4 & 5/H	DD-10-00-C5366	
Details of Units J/6 & J/7, J/36 & J/37	DD-10-00-C5367	
Details of Units J/8/H & J/9, J/34/H4 & J35	DD-10-00-C5368	
Details of Units J/30, J/31 & J/32	DD-10-00-C5369	
Details of Units C/F Type SS/0	DD-10-00-C5551	
Details of Units C/F Type PQ/0 & PQ/1	DD-10-00-C5552	
Details of Units S/F Type S/10 & S/12	DD-10-00-C5553	
Details of Units S/F Type VV/12	DD-10-00-C5557	
TRAWS/EAN/23/005 Appendix B - Structural Strengthening and Repair Drawings	**TRAWS/EAN/23/005**	**1**
INTERNAL REMEDIAL WORKS TO WESTERN STAIRCASES R1 SOUTHWEST (1 of 2) CONCRETE REPAIRS AS BUILT SHEET 1 of 8	TRA-3210-ST-26852	2
INTERNAL REMEDIAL WORKS TO WESTERN STAIRCASES R1 SOUTHWEST (2 of 2) CONCRETE REPAIRS AS BUILT SHEET 2 of 8	TRA-3210-ST-26853	2
INTERNAL REMEDIAL WORKS TO WESTERN STAIRCASES R1 NORTHWEST (1 of 2) CONCRETE REPAIRS AS BUILT SHEET 3 of 8	TRA-3210-ST-26854	2
INTERNAL REMEDIAL WORKS TO WESTERN STAIRCASES R1 NORTHWEST (2 of 2) CONCRETE REPAIRS AS BUILT SHEET 4 of 8	TRA-3210-ST-26855	2
INTERNAL REMEDIAL WORKS TO WESTERN STAIRCASES R2 NORTHWEST (1 of 2) CONCRETE REPAIRS AS BUILT SHEET 5 of 8	TRA-3210-ST-26856	2
INTERNAL REMEDIAL WORKS TO WESTERN STAIRCASES R2 SOUTHWEST (2 of 2) CONCRETE REPAIRS AS BUILT SHEET 6 of 8	TRA-3210-ST-26857	2
INTERNAL REMEDIAL WORKS TO WESTERN STAIRCASES R2 NORTHWEST (1of 2) CONCRETE REPAIRS AS BUILT SHEET 7of 8	TRA-3210-ST-26858	2
INTERNAL REMEDIAL WORKS TO WESTERN STAIRCASES R2 NORTHWEST (2 of 2) CONCRETE REPAIRS AS BUILT SHEET 8 of 8	TRA-3210-ST-26859	2
R1 PCC Panels Strengthening and Repairs West Side - Internal - Ground to 5th Level - North Repair and Bracket Locations	TRA-3630-ST-24432	7
R1 PCC Panels Strengthening and Repairs West Side - Internal - Ground to 5th Level - South Repair and Bracket Locations	TRA-3630-ST-24434	8
R1 PCC Panels Strengthening and Repairs West Side - Internal - Charge Hall Repair and Bracket Locations	TRA-3630-ST-24436	11
R1 PCC Panels East Side - Internal - Ground to 5th Level - North Repair and Bracket Locations	TRA-3630-ST-24438	7
R1 PCC Panels East Side - Internal - Ground to 5th Level - South Repair and Bracket Locations	TRA-3630-ST-24440	7
Safestore-Reactor 1 Precast Panels Structural Strengthening and Repairs - East Side - Internal - Charge Hall Repair and Bracket Locations	TRA-3630-ST-24442	6
R1 PCC Panels Strengthening and Repairs - Internal - Gas Circ Halls Repair and Bracket Locations	TRA-3630-ST-24444	4
R2 PCC Panels West Side - Internal - Charge Hall	TRA-3630-ST-24453	2
R2 PCC Panels West Side - Internal - Ground to 5th Level - North Repair and Bracket Locations	TRA-3630-ST-24462	6

R2 PCC Panels Strengthening and Repairs - West Side - Internal - Ground to 5th Level - South Repair and Bracket Locations	TRA-3630-ST-24464	6
R1 PCC Panels Strengthening and Repairs - West Side - Internal - Charge Hall Repair and Bracket Locations	TRA-3630-ST-24466	9
R2 PCC Panels Strengthening and Repairs - East Side - Internal - Ground to 5th Level - North Repair and Bracket Locations	TRA-3630-ST-24468	6
R2 PCC Panels Strengthening and Repairs - East Side - Internal - Ground to 5th Level - South Repair and Bracket Locations	TRA-3630-ST-24470	6
R2 PCC Panels Strengthening and Repairs - East Side - Internal - Charge Hall Repair and Bracket Locations	TRA-3630-ST-24472	12
R2 PCC Panels North and South Side - Internal	TRA-3630-ST-24474	3
Safestore-Reactor 1 Interspaces Structural Strengthening and Repairs Internal Elevations Repair and Bracket Locations	TRA-3630-ST-24486	1
Safestore-Reactor 2 Interspaces Structural Strengthening and Repairs Internal Elevations Repair and Bracket Locations	TRA-3630-ST-24487	1
TRAWS/EAN/23/005 Appendix C - PCCP Detailed Information Spreadsheet	**TRAWS/EAN/23/005**	**1**
Pre-cast Concrete Panels Excel Sheet - Issued		1
TRAWS/EAN/23/005 Appendix D - Defect Panel Drawings	**TRAWS/EAN/23/005**	**1**
PROPOSED REPLACEMENT PANEL FRAMEWORK DETAILS EXISTING DETAILS	0730_01	2
LIFTING BEAM AND TEMPORARY RESTRAINT GENERAL ARRANGEMENT	0730_02	2
LIFTING BEAM AND TEMPORARY RESTRAINT	0730_03	2
INFILL CLADDING PANEL DETAILS	0730_04	3
3D VIEWS OF LIFTING FRAME	0730_05	2
CONSTRUCTION METHOD STATEMENT	0730_06	1
TRAWS/EAN/23/005 Appendix E - Supplementary Drawings	**TRAWS/EAN/23/005**	**1**
PC Cladding Panels in Relation to Slab Edge Beams	DD-10-00-C-05474	A
Slab Edge to PRC Panels Seals Typical Details	DD-10-16-00-A02229	B
Slab Edge to PRC Panels Seals General Arrangements	DD-10-16-00-A02230	A
PCC Panels Sealing Details 1	TRA-3630-ST-24415	1
PCC Panels Structural Strengthening and Repairs West Side - External - Ground to Roof Level Typical Joint Sealant Details	TRA-3630-ST-24416	3
PCC Panels Sealing Details 3	TRA-3630-ST-24417	2
SS2 Defect Location Plan Fifth Floor +75'3" Space(s) 2551	TRA-3630-ST-46073	2
Other Drawings		
REMEDIAL WORKS TO WESTERN STAIRS TIE BEAM 9 PROP R2 NW 32` LEVEL AS BUILT	TRA-3210-ST-26851	1
REMEDIAL WORKS TO WESTERN STAIRCASES SUPPORT CHANNELS TO W0526 5A & 6A AS BUILT	TRA-3210-ST-26860	1
Remedial Works to Western Staircases Site Plan	TRA-3210-ST-44865	4
Remedial Works to Western Staircases R1 and R2 Building Elevation	TRA-3210-ST-44866	5
Internal Remedial Works to Western StaircasesR1 Southwest (1 of 2) Brackets - As Built Sheet 1	TRA-3210-ST-44867	7
Internal Remedial Works to Western StaircasesR1 Southwest (2 of 2) Brackets - As Built Sheet 2	TRA-3210-ST-44868	7
Internal Remedial Works to Western Staircases R1 Northwest (1 of 2) Brackets - As Built Sheet 3	TRA-3210-ST-44869	7
Internal Remedial Works to Western Staircases R1 Northwest (2 of 2) Brackets - As Built Sheet 4	TRA-3210-ST-44870	7
Internal Remedial Works to Western Staircases R2 Southwest (1 of 2) Brackets - As Built Sheet 5	TRA-3210-ST-44871	7
Internal Remedial Works to Western Staircases R2 Southwest (2 of 2) Brackets - As Built Sheet 6	TRA-3210-ST-44872	7
Internal Remedial Works to Western Staircases R2 Northwest (1 of 2) Brackets - As Built Sheet 7	TRA-3210-ST-44873	7
Internal Remedial Works to Western Staircases R2 Northwest (2 of 2) Brackets - As Built Sheet 8	TRA-3210-ST-44874	7
Remedial Works - Brackets Type A	TRA-3210-ST-44875	7
Remedial Works - Brackets Type B	TRA-3210-ST-44876	7
Remedial Works - Brackets Type C	TRA-3210-ST-44877	6
Remedial Works - Brackets Type D	TRA-3210-ST-44878	6
Panels Structural Strengthening and Repairs - Concrete Panel - Concrete Column Brackets Single Panel Brackets Type RT, RB, ST AND SB	TRA/3630/ST/24412	11

SAFESTORE/REACTOR 1&2 PRECAST PANELS STRUCTURAL STRENGHTENING AND REPAIRS CONCRETE PANEL - STEEL COLUMN BRACKETS SINGLE PANEL BRACKETS TYPE C&D	TRA/3630/ST/24413	10
SAFESTORE/REACTOR 1&2 PRECAST PANELS STRUCTURAL STRENGHTENING AND REPAIRS CONCRETE PANEL - STEEL COLUMN BRACKETS SINGLE PANEL BRACKETS TYPE E	TRA/3630/ST/24414	08
SAFESTORE/REACTOR 1&2 PRECAST PANELS STRUCTURAL STRENGHTENING AND REPAIRS EAST & WEST SIDE - INTERNAL - GROUND TO 5TH LEVEL TYPICAL BOARD SEALING PROCEDURES TO WINDOWS AS BUILT	TRA/3630/ST/24418	4
PCC Panels Window Details 2	TRA/3630/ST/24419	1
R1 PCC Panels West Side - External - Ground to 5th Level - North Site Clearance	TRA/3630/ST/24420	2
R1 PCC Panels West Side - External - Ground to 5th Level - South Site Clearance	TRA/3630/ST/24421	3
R1 PCC Panels West Side - External - Charge Hall	TRA/3630/ST/24422	2
R1 PCC Panels West Side - Internal - Charge Hall	TRA/3630/ST/24423	2
R1 PCC Panels East Side - External - Ground to 5th Level - North Site Clearance	TRA/3630/ST/24424	3
R1 PCC Panels East Side - External - Ground to 5th Level - South Site Clearance	TRA/3630/ST/24426	3
R1 PCC Panels North and South Side - External	TRA/3630/ST/24430	1
R1 PCC Panels West Side - External - Ground to 5th Level - North Repair and Joint Sealant Locations	TRA/3630/ST/24431	3
R1 PCC Panels West Side - External - Ground to 5th Level - South Repair and Joint Sealing Locations	TRA/3630/ST/24433	3
R1 PCC Panels Structural Strengthening and Repairs West Side - External - Charge Hall Repair and Joint Sealant Location	TRA/3630/ST/24435	3
R1 PCC Panels East Side - External - Ground to 5th Level - North Repair and Sealant Locations	TRA/3630/ST/24437	3
R1 PCC Panels East Side - External - Ground to 5th Level - South Repair and Sealant Locations	TRA/3630/ST/24439	3
R2 PCC Panels West Side - External - Ground to 5th Level - North	TRA/3630/ST/24450	2
R2 PCC Panels West Side - External - Ground to 5th Level - South	TRA/3630/ST/24451	2
R2 PCC Panels West Side - External - Charge Hall	TRA/3630/ST/24452	2
R2 PCC Panels East Side - External - Ground to 5th Level - North Site Clearance	TRA/3630/ST/24454	3
R2 PCC Panels East Side - External - Ground to 5th Level - South Site Clearance	TRA/3630/ST/24456	6
R2 PCC Panels East Side - Internal - Charge Hall Site Clearance	TRA/3630/ST/24459	2
R2 PCC Panels North and South Side - External	TRA/3630/ST/24460	1
R2 PCC Panels West Side - External - Ground to 5th Level - North Repair and Joint Sealant Locations	TRA/3630/ST/24461	3
R2 PCC Panels West Side - External - Ground to 5th Level - South Repair and Joint Sealing Locations	TRA/3630/ST/24463	3
R2 PCC Panels Strengthening and Repairs West Side - External - Charge hall Repair and Joint Sealing Location	TRA/3630/ST/24465	3
R2 PCC Panels East Side - External - Ground to 5th Level - North Repair and Sealant Locations	TRA/3630/ST/24467	3
R2 PCC Panels East Side - External - Ground to 5th Level - South Repair and Sealant Locations	TRA/3630/ST/24469	3
R2 PCC Repairs - Concrete Panel - Concrete Column Brackets Double Panel Brackets Type AT, AB, BT & BB.	TRA/3630/ST/24475	7
SAFESTORE/REACTOR 1&2 PRECAST PANELS STRUCTURAL STRENGTHENING & REPAIRS CONCRETE PANEL - STEEL COLUMN BRACKETS DOUBLE PANEL BRACKET TYPE CT, CB, DT, AND DB	TRA/3630/ST/24476	6
PCC Repairs Structural Strengthening and Repairs Concrete Panel Brackets Double Panel Bracket Type ED	TRA/3630/ST/24477	7
PCC Repairs Structural Strengthening and Repairs West Side-External-Ground to Roof Level Typical Joint Sealant Details to Fuel Chute	TRA/3630/ST/24478	2
Safestore 1 & 2 Precast Panels Structural Strengthening and Repairs Lower Double Panel Brackets Type CB Alternative Fixing Arrangement	TRA/3630/ST/24479	6
Safestore 1 & 2 Precast Panels Structural Strengthening and Repairs Lower Double Panel Brackets Type DB Alternative Fixing Arrangement	TRA/3630/ST/24480	6
Safe store - Reactor 1 & 2 precast panel Structure strengthening and repairs concrete panel brackets - Type x, y & z sheet 1 of 2	TRA/3630/ST/24481	3

Safe store - Reactor 1 & 2 precast panel Structure strengthening and repairs concrete panel brackets - Type x, y & z sheet 2 of 2	TRA/3630/ST/24482	3
Safestore-Reactor 1&2 Precast Panels Structural Strengthening & Repairs Concrete Panel - Cast in-Situ Concrete Wall Brackets Double Panel Brackets Type QT&QB	TRA/3630/ST/24483	2
Safestore-Reactor 1&2 Precast Panels Structural Strengthening & Repairs Concrete Panel - Concrete Column Brackets Single Panel Bracket Type VT	TRA/3630/ST/24484	2
Safestore-Reactor 1 & 2 Interspaces Structural Strengthening and Repairs Details of Bracket Type M And N	TRA/3630/ST/24488	01
Safestore-Reactor 1 & 2 Interspaces Structural Strengthening and Repairs Details of Bracket Type LB And LT	TRA/3630/ST/24489	01
Safestore-Reactor 1 & 2 Interspaces Structural Strengthening and Repairs Details of Bracket Type P	TRA/3630/ST/24490	02
Safestore-Reactor 1 & 2 Interspaces Structural Strengthening and Repairs Details of Bracket Type J	TRA/3630/ST/24491	01
Safestore-Reactor 1 & 2 Interspaces Structural Strengthening and Repairs Details of Bracket Type LY17 And LY20	TRA/3630/ST/24492	01
Safestore-Reactor 1&2 Precast Panels Structural Strengthening & Repairs Concrete Panel Brackets -Concrete Column Brackets Single Panel Brackets - Type Y*& Z* - Sheet 1 of 2	TRA/3630/ST/24493	03
Safestore-Reactor 1&2 Precast Panels Structural Strengthening & Repairs Concrete Panel Brackets -Concrete Column Brackets Single Panel Brackets - Type Y*& Z* - Sheet 2 of 2	TRA/3630/ST/24494	02
Safestore 1 & 2 Precast Panels Structural Strengthening and Repairs Lower Double Panel Brackets Type AB Alternative Fixing Arrangement	TRA/3630/ST/24495	03
Safestore 1 & 2 Precast Panels Structural Strengthening and Repairs Lower Double Panel Brackets Type BB Alternative Fixing Arrangement	TRA/3630/ST/24496	03
Safestore 1 & 2 Precast Panel Structural Strengthening and Repairs Concrete Panel - Steel Column Brackets Double Panel Top Brackets Type Kit and WT	TRA/3630/ST/24497	02
Safestore 1 & 2 Precast Panels Structural Strengthening and Repairs Double Panel Type ED Alternative Fixed Location	TRA/3630/ST/24498	03
Safestore-Reactor 1&2 Precast Panels Structural Strengthening & Repairs Concrete Panel Brackets -Concrete Column Brackets Single Return Panel Brackets - Type OL & OR	TRA/3630/ST/24499	03
Safestore 1 & 2 Precast Panel Structural Strengthening and Repairs Concrete Panel - Steel Column Brackets Single Panel Brackets Type UT*	TRA/3630/ST/24660	02
Safestore - Reactor 1 Precast Panels Structural Strengthening and Repairs Concrete Panel - Steel Column Brackets Double Panel Bracket Type DB	TRA/3630/ST/24661	02
Safestore - Reactor 1 Precast Panels Structural Strengthening and Repairs Concrete Panel - Steel Column Brackets Single Panel Bracket Type TB	TRA/3630/ST/24662	02
Safestore - Reactor 1 & 2 Precast Panel Structural Strengthening and repairs concrete panel bracket bracket types x, y & z	TRA/3630/ST/24663	02
Safestore - Reactor 1 & 2 Interspaces Structural Strengthening and Repairs Details of Bracket Type LB11	TRA/3630/ST/24665	1
Safestore-Reactor 1 Interspaces Structural Strengthening and Repairs Internal Elevations Repair and Bracket Locations	TRA/3630/ST/24670	1
Trawsfynydd Site Remedial Works to Western Staircase Brackets Alternative Type A	TRA/3630/ST/24711	2
TRAWSFYNYDD SITE EXTERNAL ENVELOPE WORKS-PHASE 1 REMEDIAL WORKS TO BRACKETS IN WESTERN STAIRCASES	TRA/3630/ST/45172	4
Safestore/Reactors 1 & 2 precast panels structural strengthening and repairs concrete panel brackets bracket-type X, Y, & Z- Sheet 1 of 2	TRA/3630/ST/45762	1
Safestore/Reactors 1 & 2 precast panels structural strengthening and repairs concrete panel brackets bracket-type X, Y, & Z- Sheet 1 of 2	TRA/3630/ST/45763	1

APPENDIX 3 – EXTERNAL ELEVATIONS

Document Title	Document Number	Rev
Louvre Infill Specification	TRA/3630/ST/24443	4
Reactor 1 West Elevation Louvre Infill	TRA/3630/ST/24445	3
Reactor 1 East Elevation Louvre Infill	TRA/3630/ST/24446	2
Reactor 2 West Elevation Louvre Infill	TRA/3630/ST/24447	3
Reactor 2 East Elevation Louvre Infill	TRA/3630/ST/24448	2
Typical Steelwork and Cladding Arrangements to Shield Cooling Inlets	TRA/3630/ST/24449	5
TRAWSFYNYDD SITE EXTERNAL ENVELOPE WORKS-PHASE 1 R1 & R2 PROPOSED HIGH -LEVEL VENTILATION LOUVRES	TRA/3630/ST/45150	3
TRAWSFYNYDD SITE EXTERNAL ENVELOPE WORKS-PHASE 1 R1 & R2 PROPOSED CLADDING FOR BOILER BOX LOUVRES	TRA/3630/ST/45151	3
TRAWSFYNYDD SITE EXTERNAL ENVELOPE WORKS-PHASE 1 R1 & R2 DEBRIS CATCHER OVER BOILER BOX LOUVRES	TRA/3630/ST/45152	3
TRAWSFYNYDD SITE EXTERNAL ENVELOPE WORKS-PHASE 1 LONG WINDOW TO LOW-LEVEL-PROPOSED ELEVATION R1 NW, R1 SW AND R2 NW	TRA/3630/ST/45153	3
TRAWSFYNYDD SITE EXTERNAL ENVELOPE WORKS-PHASE 1 R1 & R2 PROPOSED WINDOWS TO MISCELLANEOUS OPENINGS	TRA/3630/ST/45154	3
CLADDING FOR OPENING MADE BY REMOVAL OF HASKINS DOOR CANOPIES	TRA/3630/ST/26435	2
REACTOR 1 & 2 HASKINS CANOPY CLADDING FRAME FABRICATION DRAWING. SHEET 1 OF 2	TRA/3630/ST/26436	1
REACTOR 1 & 2 HASKINS CANOPY CLADDING FRAME FABRICATION DRAWING. SHEET 2 OF 2	TRA/3630/ST/26437	1
TRAWSFYNYDD SITE EXTERNAL ENVELOPE WORKS - PHASE 2/3 R1 & R2 WORKS TO HASKINS DOORS AND CANOPY	TRA/3630/ST/45212	2
SAFESTORES/REACTORS 1&2 PRECAST PANELS STRUCTUAL STRENGTHENING AND REPAIRS HASKIN CANOPIES-DRAIN PIPE DETAIL AS BUILT	TRA/3630/ST/24312	1
SAFESTORES/REACTORS 1&2 PRECAST PANELS STRUCTUAL STRENGTHENING AND REPAIRS CONCRETE REPAIRS TO SHIELD COOLING GARGOYLE OVERVIEW	TRA/3630/ST/24313	1
SAFESTORES/REACTORS 1&2 PRECAST PANELS STRUCTUAL STRENGTHENING AND REPAIRS CONCRETE REPAIRS TO SHIELD COOLING GARGOYLE DETAIL 1 - AS BUILT	TRA/3630/ST/24314	1
SAFESTORES/REACTORS 1&2 PRECAST PANELS STRUCTUAL STRENGTHENING AND REPAIRS CONCRETE REPAIRS TO SHIELD COOLING GARGOYLE DETAIL 2 - AS BUILT	TRA/3630/ST/24315	1
SAFESTORES/REACTORS 1&2 PRECAST PANELS STRUCTUAL STRENGTHENING AND REPAIRS CONCRETE REPAIRS TO SHIELD COOLING GARGOYLE DRAINAGE OUTLET INTERNAL 1 - AS BUILT	TRA/3630/ST/24316	1
SAFESTORES/REACTORS 1&2 PRECAST PANELS STRUCTUAL STRENGTHENING AND REPAIRS CONCRETE REPAIRS TO SHIELD COOLING GARGOYLE DRAINAGE OUTLET INTERNAL 2	TRA/3630/ST/24317	1
TRAWSFYNYDD SITE EXTERNAL ENVELOPE WORKS - PHASE 2/3 R1 & R2 EAST & WEST GROUND FLOOR ELEVATIONS EXISTING AND DEMOLITION	TRA/3630/ST/45201	3
TRAWSFYNYDD SITE EXTERNAL ENVELOPE WORKS - PHASE 2/3 R1 & R2 EAST & WEST GROUND FLOOR ELEVATIONS - CLADDING	TRA/3630/ST/45202	3
TRAWSFYNYDD SITE EXTERNAL ENVELOPE WORKS - PHASE 2/3 R1 & R2 PROPOSED SECONDARY GLAZING TO GROUND FLOOR WINDOWS	TRA/3630/ST/45207	02
TRAWSFYNYDD SITE EXTERNAL ENVELOPE WORKS - PHASE 2/3 R1 & R2 PROPOSED GRILLES TO WINDOWS	TRA/3630/ST/45208	01
TRAWSFYNYDD SITE EXTERNAL ENVELOPE WORKS - PHASE 2/3 R1 & R2 PROPOSED DETAILS FOR WALL CLADDING TO GROUND FLOOR ELEVATIONS	TRA/3630/ST/45209	02
Safestore/Reactors 1 & 2 precast panels structural strengthening and repairs steelwork arrangement to shield cooling inlets detail 1 as built	TRA/3630/ST/45728	01
Safestore/Reactors 1 & 2 precast panels structural strengthening and repairs steelwork arrangement to shield cooling inlets detail 2 -as built	TRA/3630/ST/45729	01
Safestore/Reactors 1 & 2 precast panels structural strengthening and repairs steelwork arrangement to shield cooling inlets detail 3 -as built	TRA/3630/ST/45730	01
Safestore/Reactors 1 & 2 precast panels structural strengthening and repairs steelwork arrangement to shield cooling inlets detail 4-as built	TRA/3630/ST/45731	01

Safestore/Reactors 1 & 2 precast panels structural strengthening and repairs steelwork arrangement to shield cooling inlets detail 5-as built	TRA/3630/ST/45732	01
Safestore/Reactors 1 & 2 precast panels structural strengthening and repairs steelwork arrangement to shield cooling inlets detail 6 -as built	TRA/3630/ST/45733	01
Safestore/Reactors 1 & 2 precast panels structural strengthening and repairs steelwork arrangement to shield cooling inlets detail 7-as built	TRA/3630/ST/45734	01
Safestore/Reactors 1 & 2 precast panels structural strengthening and repairs steelwork arrangement to shield cooling inlets detail 8 -as built	TRA/3630/ST/45735	01
Safestore/Reactors 1 & 2 precast panels structural strengthening and repairs concrete inlets - as built	TRA/3630/ST/45736	01
Safestore/Reactors 1 & 2 precast panels structural strengthening and repairs concrete repairs to shield cooling inlets R1 Northwest - as built	TRA/3630/ST/45737	01
Safestore/Reactors 1 & 2 precast panels structural strengthening and repairs concrete repairs to shield cooling inlets R1 Northeast A - as built	TRA/3630/ST/45738	01
Safestore/Reactors 1 & 2 precast panels structural strengthening and repairs concrete repairs to shield cooling inlets R1 northeast B -as built	TRA/3630/ST/45739	01
Safestore/Reactors 1 & 2 precast panels structural strengthening and repairs concrete repairs to shield cooling inlets - as built	TRA/3630/ST/45740	01
Safestore/Reactors 1 & 2 precast panels structural strengthening and repairs concrete repairs to shield cooling inlet R2 Southwest - as built	TRA/3630/ST/45741	01
Safestore/Reactors 1 & 2 precast panels structural strengthening and repairs flashing detail to steam pipe risers shield cooling inlets - as built	TRA/3630/ST/45742	01
Trawsfynydd Site External Envelope Works - Phase2/3 Door Schedule & Details - R2 Northwest Proposed Details for Wall Cladding / Doors to Ground Floor Elevations	TRA/3630/ST/46129	04
TRAWSFYNYDD SITE EXTERNAL ENVELOPE WORKS-PHASE 1 DOOR SCHEDULE & DETAILS	TRA/3630/ST/45171	04
TRAWSFYNYDD SITE EXTERNAL ENVELOPE WORKS - PHASE 2/3 R1 & R2 VENTILATION PIPE AND RAINWATER PIPE REMOVAL	TRA/3630/ST/45204	02
TRAWSFYNYDD SITE EXTERNAL ENVELOPE WORKS - PHASE 2/3 R1 & R2 DOOR SCHEDULE & DETAILS	TRA/3630/ST/45206	03
Safestore/Reactors 1 & 2 precast panels structural strengthening and repairs West side 75' level roof access (blue doors) detail sheet 1 - perspective - as built	TRA/3630/ST/45744	01
Safestore/Reactors 1 & 2 precast panels structural strengthening and repairs West side 75' level roof access (blue doors) detail sheet 2 - front view - as built	TRA/3630/ST/45745	01
Safestore/Reactors 1 & 2 precast panels structural strengthening and repairs West side 75' level roof access (blue doors) detail sheet 3 - rear view - as built	TRA/3630/ST/45746	01
Safestore/Reactors 1 & 2 precast panels structural strengthening and repairs West side 75' level roof access (blue doors) detail sheet 4 - section - as built	TRA/3630/ST/45747	01
Safestore/Reactors 1 & 2 precast panels structural strengthening and repairs West side 75' level roof access (blue doors) detail sheet 5 - frame details - as built	TRA/3630/ST/45748	01
Safestore/Reactors 1 & 2 precast panels structural strengthening and repairs East stair small windows replacement external view - as built	TRA/3630/ST/45750	01
Safestore/Reactors 1 & 2 precast panels structural strengthening and repairs East stair small windows replacement internal view - as built	TRA/3630/ST/45751	01
Safestore/Reactors 1 & 2 precast panels structural strengthening and repairs West stair small windows replacement external view - as built	TRA/3630/ST/45752	01
DETAILS OF BEAMS E10, E16, E17, E28, E52, E55 & STEELWORK	DD/10/00/C5544	B
G.A. of Steelwork Supporting Steam Pipes	DD/10/00/C5619	01
G.A. of East Annexe at 75'3" Level (F.F.L)	DD/10/00/C5444	H
Lightweight Cladding Repairs Refurbishment of Cladding To Vertical Pipe Ducts, Reactors 1 & 2	RC-54-A0-74218	A

APPENDIX 4 – PRECAST STAIRCASES

Document Title	Document Number	Rev
Main Staircases W/02, W/03, E/03, E/04 Details	DD-10-16-00-A02034	B
Main Staircases W/03, W/02 Key Plans	DD-10-16-00-A02033	C
Main Staircases W/03, W/02 Key Sections	DD-10-16-00-A02027	B
Main Staircases E/04, E/03 Key Plans	DD-10-16-00-A02362	C
Main Staircases E/04, E/03 Key Sections	DD-10-16-00-A02025	A
SW Staircase NW Staircase Similar but Handed Precast Units A & C	DD-10-00-C-05190	C
SW Staircase NW Staircase Similar but Handed Precast Units B & E	DD-10-00-C-05191	C
SW Staircase NW Staircase Similar but Handed Precast Units D	DD-10-00-C-05192	B
R1 SE Staircase NE Staircase Similar but Handed	DD-10-00-C-05270	A
R1 SE Staircase NE Staircase Similar but Handed	DD-10-00-C-05271	A
SE Staircase NE Staircase Similar but Handed Precast Units A, B & C	DD-10-00-C-05272	B
SE Staircase NE Staircase Similar but Handed Precast Units D	DD-10-00-C-05273	A
SE Staircase NE Staircase Similar but Handed Precast Units E	DD-10-00-C-05274	A
R2 SE Staircase NE Staircase Similar but Handed	DD-11-00-C05173	
R2 SE Staircase NE Staircase Similar but Handed	DD-11-00-C05174	
R2 SW Staircase NW Staircase Similar but Handed	DD-11-00-C05175	
R2 SW Staircase NW Staircase Similar but Handed	DD-11-00-C05176	
Typical Western Elevation to the Staircases	TRA/3210/ST/24081	3
Typical Northern Elevation to the Staircases	TRA/3210/ST/24082	3
Typical Plan of Western Staircases	TRA/3210/ST/24083	3
Long and Short Panel Elevations - Details 1 and 2	TRA/3210/ST/24084	3
Panel Jamb and Window Head - Details 3 and 4	TRA/3210/ST/24085	4
Window Head Panel Junction and Window Jamb - Details 5 and 6	TRA/3210/ST/24086	4
Staircase Roof - Detail 7	TRA/3210/ST/24087	3
Windowsill/Boiler Box Wall Junctions - Details 8 and 9	TRA/3210/ST/24088	3
Purpose made window to Low-level Long Panel Elevation	TRA/3210/ST/24089	4
Purpose made window to Low-level Short Panel Elevation	TRA/3210/ST/24090	4
Column restraint to Precast Panel in Northwest Staircase	TRA/3210/ST/24091	2
Ventilation Louver detail at the head of the Staircases	TRA/3210/ST/24092	3

APPENDIX 5 – MAIN ROOF, SKYLIGHTS, STACKS & ROOF AREAS

Document Title	Document Number	Rev
Reactor Building No.1 Roof Plan	DD-10-00-A2254	R
General Arrangement of Main Roof Steelwork. Reactor Building No. 2	DD-11-15-00-R1100	
West Gable Wind Girder	DD-10-15-00-R1311	
General Arrangement of Main Roof Steelwork. Reactor Building No. 1	DD-10-15-00-R1300	A
Boiler House Roofs, No. 2 Reactor Building	DD-11-15-00-R1201	
Reactor Building No. 2, Section - Boiler House Roofs	DD-11-15-00-R1202	
Reactor Building No. 2, Section - Boiler House Roofs	DD-11-15-00-R1203	
Arrangement of Steel Frame to Roof Glazing, Boiler Houses, No.2 RB	DD-11-15-00-R1213	
GA & RC Details of Bottom Section of Precast Shield Cooling Stacks	DD-10-00-C5615	G
GA & RC Details of Top Section of Precast Shield Cooling Stacks	DD-10-00-C5647	B
Proposed Covers to Cooling Stacks SS1 and SS2	TRA/3210/ST/14274	3
Kettle Vent	TRA/3660/ST/11266	1
Drum Vent	TRA/3660/ST/11267	1
Roof Repair Arrangement and Details Sheet 1	TRA/3660/ST/11268	B
Roof Repair Arrangement and Details Sheet 2	TRA/3660/ST/11269	A
Reactor 1 Repairs to Building Fabric Modification Roof Cladding Support North & South Ends OF Maintenance Bay	TRA/3630/ST/24505	1
Reactor 1 Roof Waterproofing	TRA/3630/ST/26778	3
Reactor 2 Roof Waterproofing	TRA/3630/ST/26779	2
Reactor Buildings Skylight Remedials Details at Base of Lights	TRA/3630/ST/45598	4
Reactor Buildings Skylight Remedials Typical Plan on Roof Showing Handrails Around Skylights	TRA/3630/ST/45599	3
TRAWSFYNYDD SITE EXTERNAL ENVELOPE WORKS-PHASE 1 R1 ROOF STACKS-DEPLANTING OF SERVICES PLUS MISCELLANEOUS CONCRETE REPAIRS	TRA/3630/ST/45166	4
TRAWSFYNYDD SITE EXTERNAL ENVELOPE WORKS-PHASE 1 R2 ROOF STACKS-DEPLANTING OF SERVICES PLUS MISCELLANEOUS CONCRETE REPAIRS	TRA/3630/ST/45167	4
External Envelope Works - Phase 2/3 R1+R2 East & West Elevations Second Floor Low Level Roof Proposed Rainwater Outlet Details	TRA/3630/ST/42701	1
TRAWSFYNYDD SITE EXTERNAL ENVELOPE WORKS-PHASE 1 R1 GAS CIRCULATOR/FIRST FLOOR ROOF PROPOSED	TRA/3630/ST/45135	3
TRAWSFYNYDD SITE EXTERNAL ENVELOPE WORKS-PHASE 1 R2 GAS CIRCULATOR/FIRST FLOOR ROOF PROPOSED	TRA/3630/ST/45136	3
TRAWSFYNYDD SITE EXTERNAL ENVELOPE WORKS-PHASE 1 R1 & R2 PROPOSED ROOF DETAILS	TRA/3630/ST/45139	3
TRAWSFYNYDD SITE EXTERNAL ENVELOPE WORKS-PHASE 1 R1 & R2 PROPOSED HANDRAILING & STAIRCASES	TRA/3630/ST/45141	3
TRAWSFYNYDD SITE EXTERNAL ENVELOPE WORKS-PHASE 1 R1 & R2 PROPOSED MAIN ROOF DETAILS	TRA/3630/ST/45170	3
TRAWSFYNYDD SITE EXTERNAL ENVELOPE WORKS - PHASE 2/3 R1 GAS CIRCILUATOR/FIRST FLOOR ROOF EXISTING	TRA/3630/ST/45190	2
TRAWSFYNYDD SITE EXTERNAL ENVELOPE WORKS - PHASE 2/3 R2 GAS CIRCILUATOR/FIRST FLOOR ROOF EXISTING	TRA/3630/ST/45191	2
TRAWSFYNYDD SITE EXTERNAL ENVELOPE WORKS - PHASE 2/3 R1 GAS CIRCILUATOR/FIRST FLOOR ROOF EXISTING PROPOSED	TRA/3630/ST/45192	2
TRAWSFYNYDD SITE EXTERNAL ENVELOPE WORKS - PHASE 2/3 R2 GAS CIRCILUATOR/FIRST FLOOR ROOF EXISTING PROPOSED	TRA/3630/ST/45193	2
TRAWSFYNYDD SITE EXTERNAL ENVELOPE WORKS - PHASE 2/3 R1 & R2 SECOND FLOOR ROOF ACCESS SCREEN REPLACEMENT	TRA/3630/ST/45194	2
TRAWSFYNYDD SITE EXTERNAL ENVELOPE WORKS - PHASE 2/3 R1 & R2 EXISTING AND DEMOLITION ROOF DETAILS	TRA/3630/ST/45195	2
TRAWSFYNYDD SITE EXTERNAL ENVELOPE WORKS - PHASE 2/3 R1 & R2 PROPOSED GAS CIRCULATOR HALL ROOF OUTLET DETAILS & SEALING TO PRECAST PANEL JOINTS	TRA/3630/ST/45210	1
TRAWSFYNYDD SITE EXTERNAL ENVELOPE WORKS - PHASE 2/3 R1 & R2 PROPOSED ROOF DETAILS	TRA/3630/ST/45211	4
Reactor Building 1 New Roof Conductor System	TRA/3210/EL/14290	B
Reactor Building 2 New Roof Conductor System	TRA/3210/EL/14291	A
General Arrangement of Steelwork to West Gable	DD/10/15/00/R01007	1
Gas Circulator House Roof (South) (North Similar)	DD/10/00/C5228	F

Boiler Houses Roofs, No. 1 Reactor Building, Nuclear Power Station, Trawsfynydd	DD/10/15/00/R1401	D
Maintenance Bay & Charge Face, Reactor, Trawsfynydd Nuclear Power Station. Decking Diagram, Elevations and Sections	DD/10/16/00/R00438	A
Maintenance Bay & Charge Face, Reactor, Trawsfynydd Nuclear Power Station. Sections & Details	DD/10/16/00/R00439	A
Maintenance Bay & Charge Face, Reactor, Trawsfynydd Nuclear Power Station. Sections & Sketch	DD/10/16/00/R00440	A
South Boiler House, Reactor 1, Trawsfynydd Nuclear Power Station. Decking Diagram, Elevations and Sections	DD/10/16/00/R00459	AA
South Boiler House, Reactor 1, Trawsfynydd Nuclear Power Station. Part Decking Diagram, Elevations and Sections	DD/10/16/00/R00460	B
South Boiler House, Reactor 1, Trawsfynydd Nuclear Power Station. Typical Details	DD/10/16/00/R00467	B
West Gable Wind Girders Structural Calculations	46-108930-12926	
West Gable Wind Girders Structural Calculations	46-108927-12927	
West Gable Wind Girders Structural Calculations	46-108927-12928	
West Gable Wind Girders Structural Calculations	46-108927-12929	
West Gable Wind Girders Structural Calculations	46-108927-12930	
West Gable Wind Girders Structural Calculations	46-108927-12931	
West Gable Wind Girders Structural Calculations	46-108927-12932	
West Gable Wind Girders Structural Calculations	46-108927-12933	
West Gable Wind Girders Structural Calculations	46-108927-12934	
West Gable Wind Girders Structural Calculations	46-108927-12935	

APPENDIX 6 – HOUSED PLANT

Document Title	Document Number	Rev
FMMB Steelwork & Platforms		
GA & Reinforcement Details of Maintenance Block Slab At +125' 3"	DD-10-00-C5629	B
Arrangement of Steelwork in Fuelling Machine Maintenance Bay	DD-10-15-00-R803	B
Plan of Maintenance Bay Stans	DD-10-15-00-R804	B
Steelwork and Stanchion Details for Fuelling Machine Maintenance Bay	DD-10-15-00-R806	N/A
Detail of Plate Girder B1 in Charge Face Maintenance Bay	DD-10-15-00-R808	N/A
Detail of Plate Girder B8 in Charge Face Maintenance Bay	DD-10-15-00-R809	N/A
Detail of Plate Girder B9 in Charge Face Maintenance Bay	DD-10-15-00-R810	C
Reactor No.1 - Charge Face Maintenance Bay Crane Girder details	DD-10-15-00-R811	N/A
Reactor No.1 - Charge Face Maintenance Bay Crane bracing details	DD-10-15-00-R812	N/A
Reactor No.1 - Charge Face Maintenance Bay Crane Girders, Crane Rail and Bridge Rail Details	DD-10-15-00-R813	N/A
Charge Face Maintenance Building	DD-10-15-00-R816	N/A
Detail of Beam B10 in Charge Face Maintenance Bay	DD-10-15-00-R817	A
Detail of Wind Girder and Dunbar plates in Charge Face Maintenance Bay	DD-10-15-00-R818	D
Details of Charge Machine Maintenance Bay roof steelwork prefixed 'R'	DD-10-15-00-R820	C
Maintenance Bay Stanchion E1090A	DD-10-15-00-R822	C
Maintenance Bay Stanchion E850A	DD-10-15-00-R823	B
Maintenance Bay Stanchion E1080A	DD-10-15-00-R824	A
Maintenance Bay Stanchion E810A	DD-10-15-00-R825	B
Maintenance Bay Stanchion E850B	DD-10-15-00-R830	B
Maintenance Bay Stanchion E830B	DD-10-15-00-R832	B
Maintenance Bay Stanchion E810B	DD-10-15-00-R833	D
Maintenance Bay Stanchion E790A	DD-10-15-00-R834	B
Maintenance Bay Stanchion E790B	DD-10-15-00-R839	A
Maintenance Bay Stanchion E860	DD-10-15-00-R840	Illegible
Maintenance Bay Beam T10	DD-10-15-00-R841	
Section Through Fuelling Machine Maintenance Bay between 75'3" and 174'9" levels	DD-10-15-00-R842	A
Maintenance Bay Ties T6 - T9	DD-10-15-00-R843	N/A
Elevation of Fuelling Machine Maintenance Bay Steelwork	DD-10-15-00-R844	F
Fuelling Machine Maintenance Bay Main Staircase Details	DD-10-15-00-R868	C
Fuelling Machine Maintenance Bay Main Staircase - No.3 and 4 Stairways Details	DD-10-15-00-R869	C
Fuelling Machine Maintenance Bay Stairway Mark S7	DD-10-15-00-R870	D
Fuelling Machine Maintenance Bay Main Staircase	DD-10-15-00-R875	G
Fuelling Machine Maintenance Bay Steelwork Plans at 125'3" and 75'3" showing kicker starter angles	DD-10-15-00-R895	C
Fuelling Machine Maintenance Bay Steelwork Details of Steelwork to platforms above 125'11" level	DD-10-15-00-R896	B
Reactor No. 1 - Maintenance Bay Steelwork - detail of ladders Mark PL1 and PL2	DD-10-15-00-R897	N/A
Reactor No. 1 - Maintenance Bay Steelwork - detail of Dunbar Chequer Plates to 133'10" and 141'9" levels	DD-10-15-00-R898	B
Reactor No. 1 - Maintenance Bay Steelwork - arrangement of frame to Blind Box 48	DD-10-15-00-R910	D
Reactor No. 1 - Maintenance Bay Steelwork - Details of 125'0" level platform	DD-10-15-00-R916	N/A
Reactor No. 1 - Maintenance Bay Steelwork - Details and Section on Wind Girder Platform at 125'3" level	DD-10-15-00-R918	A
Reactor No. 1 - Maintenance Bay Steelwork - Details of 125'3" level Platform	DD-10-15-00-R919	A
Reactor No. 1 - Maintenance Bay Steelwork - Details of Handrailing on 149'9" level	DD-10-15-00-R924	N/A
Reactor No. 1 - Maintenance Bay Steelwork - Details of Handrailing on 149'9" level	DD-10-15-00-R925	N/A
Reactor No. 1 - Arrangement of Stairs between 117'3" and 125'3" levels in Maintenance Bay	DD-10-15-00-R935	B
Reactor No. 1 - Details of Stairs between 117'3" and 125'3" levels in Maintenance Bay	DD-10-15-00-R937	C
Details of Handrailing mark AS.15 for Stairs between 117'3" and 125'3" levels in Maintenance Bay (Reactor 1)	DD-10-15-00-R945	A
Details of Handrailing mark AS.17 for Stairs between 117'3" and 125'3" levels in Maintenance Bay (Reactor 1)	DD-10-15-00-R946	A

Details of Handrailing mark AS.18 for Stairs between 117'3" and 125'3" levels in Maintenance Bay (Reactor 1)	DD-10-15-00-R947	A
Maintenance Bay Steelwork: Access Platform to 40Ton Crane Structure (+113'4.5" level) - Reactor No. 1	DD-10-15-00-R953	B
Handrailing to Access Platform to 40 Ton Crane Structure - Reactor No. 1	DD-10-15-00-R958	C
Maintenance Bay Steelwork: Details and Key Plan of handrailing and standards around cantilever crane structure	DD-10-15-00-R960	A
Maintenance Bay Steelwork: East elevation on Blind Box to Door no. 47	DD-10-15-00-R964	C
Maintenance Bay Steelwork: Part elevation on West Wall in Area of Blind 47	DD-10-15-00-R965	C
Maintenance Bay Layout of Cleaning Trolley Rails	DD-10-15-00-R991	B
Fuelling Machine Maintenance Bay General Arrangement Plans At 75'3" & 125'3" Levels	DD-10-00-A2270	E
Fuelling Machine Maintenance Bay Kickers, Starters, Trims, etc. Including Flr. Finishes & Handrailing Key Plans	DD-10-16-00-A2285	G
Fuelling Machine Maintenance Bay 40T Crane Structure & Area E8/03 Access 117'3" Level Platform & Stairs	DD-10-16-00-A2299	A
Charge Machine Maintenance Bay Reactor Building No. 2	DD-11-15-00-R800	1
Fuelling Machine Maintenance Bay Kickers, Starters, Trims, etc. Including Flr. Finishes details – Kickers, Starters (sheet 2 of 5)	DD-10-16-00-A2286	C
Fuelling Machine Maintenance Bay Kickers, Starters, Trims, etc. Including Flr. Finishes details – Kickers, Starters (sheet 3 of 5)	DD-10-16-00-A2287	D
450 Ton Crane		
General Arrangement of 450 Ton EOT Crane	61063	D
Reactors 1 and 2: Details of ladders to walkway to Fuelling Face Crane (75'3" to 93'3 3/8" level)	DD-10-15-00-R1502	N/A
Reactors 1 and 2: Details of ladders to walkway to Fuelling Face Crane (93'3 3/8" to 123' 9 3/8" level)	DD-10-15-00-R1503	N/A
Reactors 1 and 2: Details of ladders to walkway to Fuelling Face Crane (123' 9 3/8" to 153'6" level)	DD-10-15-00-R1504	A
Reactors 1 and 2: Details of ladders to walkway to Fuelling Face Crane (149'9" to 153'6" level)	DD-10-15-00-R1505	A
Reactors 1 and 2: Steelwork details of Walkway to Fuelling Face crane	DD-10-15-00-R1506	A
Reactors 1 and 2: Details of 6" x 4" x 3/8" angles for walkway to Fuelling Face Crane	DD-10-15-00-R1507	A
Reactors 1 and 2: Details of brackets for walkway to Fuelling Face Crane	DD-10-15-00-R1508	A
Reactors 1 and 2: Details of brackets for walkway to Fuelling Face Crane	DD-10-15-00-R1509	A
Reactors 1 and 2: Details of brackets for walkway to Fuelling Face Crane	DD-10-15-00-R1510	A
Reactors 1 and 2: Details of walkway to Fuelling Face Crane	DD-10-15-00-R1511	A
Reactors 1 and 2: Details of handrailing on walkway to Fuelling Face Crane	DD-10-15-00-R1512	A
450 Ton Crane - Extract from Maintenance Handbook		
M 7371 450T E.O.T. Charge Face Crane, Overhaul of LT Bogies, Sk No. 23952	DV-15-00-R038	F
M 7371 450T E.O.T. Charge Face Crane, Overhaul of Crab, Sk No. 23953	DV-15-00-R039	F
450 Ton E.O.T. Charge Face Crane. Arrgt. Of Cross Travel Drive (Drawing no. 61031)	DV-15-10-00-R008	A
450 Ton E.O.T. Charge Face Crane. Arrgt. Of Control Pendant Box (Drawing no. 61107 A)	DV-15-11-00-R025	A
450 Ton E.O.T. Charge Face Crane. Proposed Dtl of Cover Over M Hoist Gears (Drawing no. 61152 A)	DV-15-10-00-R018	A
450 Ton E.O.T. Charge Face Crane. Details and arrangement of 60-Ton snatch block (Drawing no. 61024)	DV-15-10-00-R014	
450 Ton E.O.T. Charge Face Crane. Details of end block, torque arm and guide rod (Drawing no. 61020)	DV-15-10-00-R026	
450 Ton E.O.T. Charge Face Crane (Reactor Housing No. 2). Diagrammatic Layout of Electrical Units and Relative Heights in Housing (Drawing no. 61124)	DV-15-10-00-R031	
450 Ton E.O.T. Charge Face Crane. Diagrammatic Arrgt of Lubrication on Cross Travel Bogies (Drawing no. 61084)	DV-15-10-00-R011	
450 Ton E.O.T. Charge Face Crane. Details of Main Hoist Lifting Screw Nut and Inner Tube (Drawing no. 61018)	DV-15-10-00-R029	
450 Ton E.O.T. Charge Face Crane. Details of Aux. Hoist Barrel, Gears, Shaft and Compensating Pulley Etc. (Drawing no. 61017)	DV-15-10-00-R046	
450 Ton E.O.T. Charge Face Crane. Details of Main Hoist Gearing, Thrust Casting Clutch & Outer Tube (Drawing no. 61019)	DV-15-10-00-R023	A
450 Ton E.O.T. Charge Face Crane. Detail of Cross Travelling Gear Box (Drawing no. 61030)	DV-15-10-00-R050	

General Arrgt. of 450 Ton E.O.T. Crane (Drawing no. 61063)	DV-15-00-R003	D
450 Ton E.O.T. Crane, General Arrgt. of 450 Ton Crab (Drawing no. 61151)	DV-15-00-R022	A
450 Ton E.O.T. Charge Face Crane. Detail of L.T. Trailing Bogies (Drawing no. 60196)		A
450 Ton E.O.T. Charge Face Crane. Arrangement of Main and Auxiliary Hoists (Drawing no. 61041 sheet 3 of 3)	DV-15-10-00-R010	
450 Ton E.O.T. Charge Face Crane. Arrgt of Lubricating System for Lifting Screws	DV-15-10-00-R007	B
450 Ton E.O.T. Charge Face Crane. Arrangement of Main and Auxiliary Hoists (Drawing no. 61041 sheet 1 of 3)	DV-15-10-00-R005	B
450 Ton E.O.T. Charge Face Crane. Arrangement of Main and Auxiliary Hoists (Drawing no. 61041 sheet 2 of 3)	DV-15-10-00-R006	
450 Ton E.O.T. Crane. Details of Lifting Links and Rocker Saddles (Drawing no. 61028)	DV-15-10-00-R009	C
Details of 48" dia. Rail wheel (Driving) (drawing no. 60171)		A
450 Ton E.O.T. Crane. Arrgt. of Clutch Mechanism (Drawing no. 61139)	DV-15-10-00-R032	E
450 Ton E.O.T. Crane. Arrgt. of Proposed Overhaul Equipt (Drawing no. 24022)	DV-15-00-R037	
General Arrgt. of 450 Ton E.O.T. Crane (Drawing no. 61063)	DV-15-11-00-R015	C
450 Ton E.O.T. Charge Face Crane. Detail of X.T. Gears and Shafts etc. (Drawing no. 61032)	DV-15-10-00-R051	
450 Ton E.O.T. Charge Face Crane. Detail of L.T. Gears, Brake Wheel and Deadeye Etc (Drawing no. 60203)		D
Details of 48” dia. Rail Wheel (Trailing) (Drawing no. 60169)		A
General View of SS1 Crane from Capping Roof.JPG	Photo	
General view of SS1 crane from capping roof east side.jpg	Photo	
SS1 (auxiliary gearbox, with rope drum).JPG	Photo	
SS1 (auxiliary).JPG	Photo	
SS1 asbestos panel 3.JPG	Photo	
SS1 asbestos panel.JPG	Photo	
SS1 asbestos tank 2.JPG	Photo	
SS1 Asy and gearbox.JPG	Photo	
SS1 aux hook block.JPG	Photo	
SS1 crane.JPG	Photo	
SS1 gearbox.JPG	Photo	
SS1 granules.JPG	Photo	
SS1 hook block etc.JPG	Photo	
SS1 hook block.JPG	Photo	
SS1 main rope drum.JPG	Photo	
SS1 N long travel.JPG	Photo	
SS1 oil tank.JPG	Photo	
SS1 West long travel.JPG	Photo	
SS1S long travel.JPG	Photo	
SS2 asbestos panel 1.JPG	Photo	
SS2 aux gearbox and rope drum.JPG	Photo	
SS2 aux hook block.JPG	Photo	
SS2 aux.JPG	Photo	
SS2 crane.JPG	Photo	
SS2 East long travel.JPG	Photo	
SS2 gearboxes.JPG	Photo	
SS2 main carriage.JPG	Photo	
SS2 main hook block.JPG	Photo	
SS2 oil tank top.JPG	Photo	
SS2 oil tank.JPG	Photo	
SS2 west long travel.JPG	Photo	
50 Ton Gantry Crane		
50 Ton Elec Overhead Travelling Crane - Crab Arrangement	DV-17-12-00-R24	N/A
50 Ton Gantry Crane - Extract from Maintenance Handbook		N/A
40 Ton Cantilever Crane		
40 Ton Traversing Crane - Arrangement of Crab	DV-17-11-00-R25	N/A
40 Ton Cantilever Crane - Extract from Maintenance Handbook		N/A
10 Ton PRPCC Crane		
Lifting Beams General Arrangement and Connection Details	TFA-AY-00002	H
Partial Relocation of Primary Circuit Components Crane Assembly at 131'3" Level	TFA-AY-00004	03

4-400 Series Double Girder Crane Arrangement. Semi-Goliath Construction Box Girder and Legs	TFA-MC-007	A

APPENDIX 7 – INTERSPACES, MEZZANINE AND PRPCC

Document Title	Document Number	Rev
TRAWSFYNYDD SATESTORE REACTOR 1 AND 2 INTERSPACE OVER GLAZING	TRA/3630/ST/24401	03
TRAWSFYNYDD SITE EXTERNAL ENVELOPE WORKS-PHASE 1 R1 & R2 WATERPROOFING TO INTERSPACE PANELS	TRA/3630/ST/45156	03
INTERSPACE WINDOWS OVERGLAZING R1 NORTH KEY ELEVATION AS BUILT	TRA/3630/ST/45721	02
INTERSPACE WINDOWS OVERGLAZING R1 SOUTH KEY ELEVATION AS BUILT	TRA/3630/ST/45722	02
INTERSPACE WINDOWS OVERGLAZING R2 NORTH KEY ELEVATION AS BUILT	TRA/3630/ST/45723	02
INTERSPACE WINDOWS OVERGLAZING R2 SOUTH KEY ELEVATION AS BUILT	TRA/3630/ST/45724	02
Interspace windows overglazing bespoke window frame to ring (NW2-8) detail 1 - as built	TRA/3630/ST/45726	01
NEW VENTILATION LOUVRES REACTOR 1 PROPOSED NORTH AND SOUTH ELEVATIONS	TRA/3630/ST/26324	04
NEW VENTILATION LOUVRES REACTOR 2 PROPOSED NORTH AND SOUTH ELEVATIONS	TRA/3630/ST/26326	04
NEW VENTILATION LOUVRES REACTOR 1 & 2 DETAILS	TRA/3630/ST/26441	04
NEW VENTILATION LOUVRES REACTOR 1 & 2 SPECIFICATION	TRA/3630/ST/26443	04
Reactor 1 New Ventilation Louvres Below Capping Roof Proposed North and South Elevations	TRA/3630/ST/47244	02
Reactor 2 New Ventilation Louvres Below Capping Roof Proposed North and South Elevations	TRA/3630/ST/47245	02
Reactor 1 & 2 New Ventilation Louvres Below Capping Roof Details	TRA/3630/ST/47246	02
Reactor 1 & 2 New Ventilation Louvres Below Capping Roof Specification	TRA/3630/ST/47247	02
G.A. & REINFORCEMENT DETAILS OF WALLS - SOUTH END FROM 124'-2" & 133'-2" TO 179'-0" LEVEL	DD/10/00/C5605	B
G.A. & REINFORCEMENT DETAILS OF WALLS (SOUTH END) FROM 124'-2" & 133'-2" TO 179'-0" LEVEL	DD/10/00/C5606	B
Reactor 2: Proposed hot gas duct de-planting positions 75' level	TRA/3600/ST/14001	02
Boiler box 1 at 0' level showing as built de-planted cascade bends	TRA/3600/ST/14003	01
Boiler box 2 at 0' level showing as built de-planted cascade bends	TRA/3600/ST/14004	01
Boiler box 3 at 0' level showing as built de-planting cascade bends	TRA/3600/ST/14005	01
Boiler Box 9 at 0' level showing As Built: De-planted Cascade Bends	TRA/3600/ST/14078	01
Boiler Box 12 at 0' level showing As Built: De-planted Cascade Bends	TRA/3600/ST/14084	02
Boiler Box 11 at 0' showing As Built: De-planted Cascade Bends	TRA/3600/ST/14091	01
Boiler Box 10 at 0' showing As Built: De-planted Cascade Bends	TRA/3600/ST/14092	01
Interspace 8/9 @ 15'-9" level showing as built; de-planted cascade bend	TRA/3600/ST/14126	01
Interspace 7/8 at 15'9 level showing as built de-planted cascade bend	TRA/3600/ST/14131	01
Existing 75' Level: Reactor 1 As Built Hot Gas Duct Positions	TRA/3600/ST/14192	01
Interspace 7/8 and 8/9 at 31'" Level Showing Position, Weight & no. of HGD	TRA/3600/ST/14195	02
Boiler box 4 at 0' level showing as built de-planted cascade bends	TRA/3600/ST/14247	01
Boiler box 5 at 0' level showing as built de-planted cascade bends	TRA/3600/ST/14248	01
Boiler box 6 at 0' level showing as built de-planted cascade bends	TRA/3600/ST/14249	01
Boiler box 8 at 0' level showing as built de-planted cascade bends	TRA/3600/ST/14250	01
Interspace 4/5 and 5/6 at 31'6" Level Showing Position, Weight & no. of HGD	TRA/3600/ST/14251	01
STORAGE AREAS - 'F' AND 'G' BOILER SECTIONS - GENERAL ARRANGEMENT - R1 INTERSPACE 4 - 5	TRA/3660/ST/000001	04
STORAGE AREAS - 'F' AND 'G' BOILER SECTIONS - GENERAL ARRANGEMENT - R1 INTERSPACE 5 - 6	TRA/3660/ST/000002	03
STORAGE AREAS - 'F' AND 'G' BOILER SECTIONS - GENERAL ARRANGEMENT - R1 INTERSPACE 7 - 8	TRA/3660/ST/000003	03
STORAGE AREAS - 'F' AND 'G' BOILER SECTIONS - GENERAL ARRANGEMENT - R1 INTERSPACE 8 - 9	TRA/3660/ST/000004	04
Reactor Roof Repairs Safestore 1 South Elevation Showing New Louver Covers	TRA-3210-LA-14292	01
Size Reduction and Proposals for F & G Boiler Sections	TRA-3600-LA-14185	03
Boiler F-G Sect Fig 2	TRA-3600-LA-14186	02
Location of Cascade Bends Reactor 1	TRA-3600-LA-14288	01
Location of Cascade Bends Reactor 2	TRA-3600-LA-14289	01

APPENDIX 8 – CAPPING ROOF

Document Title	Document Number	Rev
REACTOR 1 STEELWORK CAPPING ROOF PLAN OF COLUMN BASEPLATES	TRA/3630/ST/0003201	6
REACTOR 1 STEELWORK CAPPING ROOF PLAN	TRA/3630/ST/0003202	12
REACTOR 1 STEELWORK CAPPING ROOF LEVEL PLAN ON STEELWORK	TRA/3630/ST/0003203	9
REACTOR 1, SECTION 1-1, (LONGITUDINAL SECTION)	TRA/3630/ST/0003204	6
REACTOR 1, SECTION 2-2, (CROSS-SECTION)	TRA/3630/ST/0003205	2
REACTOR 1 CAPPING ROOF SECTIONS 3-3 AND 4-4 (AT CHARGE FACE LEVEL)	TRA/3630/ST/0003206	5
REACTOR 1 CAPPING ROOF SECTIONS 5-5 AND 6-6 (AT CHARGE FACE LEVEL)	TRA/3630/ST/0003207	5
REACTOR 1 CAPPING ROOF SECTIONS 7-7 AND 8-8 (AT CHARGE FACE LEVEL)	TRA/3630/ST/0003208	5
REACTOR 1 CAPPING ROOF SECTION 9-9 (AT CHARGE FACE LEVEL)	TRA/3630/ST/0003209	5
REACTOR 1 CAPPING ROOF SECTIONS 10-10 & 11-11 (AT CHARGE FACE LEVEL)	TRA/3630/ST/0003210	5
REACTOR 1 CAPPING ROOF SECTIONS 12-12 & 13-13 (AT CHARGE FACE LEVEL)	TRA/3630/ST/0003211	5
REACTOR 1 CAPPING ROOF SECTIONS 14-14 & 15-15 (AT CHARGE FACE LEVEL)	TRA/3630/ST/0003212	6
REACTOR 2 STEELWORK CAPPING ROOF - PLAN OF COLUMN BASEPLATES	TRA/3630/ST/0003221	7
REACTOR 2 STEELWORK CAPPING ROOF PLAN	TRA/3630/ST/0003222	11
REACTOR 2 CONCRETE CAPPING ROOF LEVEL PLAN OF CONCRETE DECK	TRA/3630/ST/0003223	8
REACTOR 2 CAPPING ROOF SECTION 1-1 (LONGITUDINAL SECTION)	TRA/3630/ST/0003224	5
REACTOR 2 CAPPING ROOF SECTION 2-2 (CROSS SECTION)	TRA/3630/ST/0003225	5
REACTOR 2 CAPPING ROOF SECTION 3-3 & 4-4 (AT CHARGE FACE LEVEL)	TRA/3630/ST/0003226	5
REACTOR 2 CAPPING ROOF SECTION 5-5 & 6-6 (AT CHARGE FACE LEVEL)	TRA/3630/ST/0003227	5
RECATOR 2 CAPPING ROOF SECTION 7-7 & 8-8 (AT CHARGE FACE LEVEL)	TRA/3630/ST/0003228	5
REACTOR 2 CAPPING ROOF SECTION 9A - 9A & 9B - 9B (AT CHARGE FACE LEVEL)	TRA/3630/ST/0003229	5
REACTOR 2 CAPPING ROOF SECTION 10-10 & 11-11 (AT CHARGE FACE LEVEL)	TRA/3630/ST/0003230	5
REACTOR 2 CAPPING ROOF SECTION 12-12 & 13-13 (AT CHARGE FACE LEVEL)	TRA/3630/ST/0003231	5
REACTOR 2 CAPPING ROOF SECTION 14-14 & 15-15 (AT CHARGE FACE LEVEL)	TRA/3630/ST/0003232	5
Capping Roof Phase 2 R1 Key Plan	TRA/3630/ST/26401	03
Capping Roof Phase 2 R2 Key Plan	TRA/3630/ST/26402	04
Height Reduction Enabling Works Capping Roof Phase 2 R1 Southeast Plans	TRA/3630/ST/26403	05
Height Reduction Enabling Works Capping Roof Phase 2 R1 Southeast Details	TRA/3630/ST/26404	05
Height Reduction Enabling Works Capping Roof Phase 2 R1 Southwest Plans	TRA/3630/ST/26405	05
Height Reduction Enabling Works Capping Roof Phase 2 R1 Southwest Details	TRA/3630/ST/26406	05
Height Reduction Enabling Works Capping Roof Phase 2 R1 Northeast Plans	TRA/3630/ST/26407	05
Height Reduction Enabling Works Capping Roof Phase 2 R1 Northeast Details	TRA/3630/ST/26408	05
Height Reduction Enabling Works Capping Roof Phase 2 R1 Northwest Plans	TRA/3630/ST/26409	05
Height Reduction Enabling Works Capping Roof Phase 2 R1 Northwest Details	TRA/3630/ST/26410	06
Height Reduction Enabling Works Capping Roof Phase 2 R2 Southeast Plans	TRA/3630/ST/26411	06
Height Reduction Enabling Works Capping Roof Phase 2 R2 Southeast Details	TRA/3630/ST/26412	06
Height Reduction Enabling Works Capping Roof Phase 2 R2 Southwest Plans	TRA/3630/ST/26413	06

Height Reduction Enabling Works Capping Roof Phase 2 R2 Southwest Details	TRA/3630/ST/26414	06
Height Reduction Enabling Works Capping Roof Phase 2 R2 Northeast Plans	TRA/3630/ST/26415	06
Height Reduction Enabling Works Capping Roof Phase 2 R2 Northeast Details	TRA/3630/ST/26416	06
Height Reduction Enabling Works Capping Roof Phase 2 R2 Northwest Plans	TRA/3630/ST/26417	06
Height Reduction Enabling Works Capping Roof Phase 2 R2 Northwest Details	TRA/3630/ST/26418	06
Height Reduction Enabling Works Capping Roof Phase 2 Bracket Details	TRA/3630/ST/26419	05

APPENDIX 9 – SIDEWALLS

Document Title	Document Number	Rev
Height Reduction Enabling Works Sidewalls and Internals Alterations R1 Basement Floor	TRA/3630/ST/26457	17
Height Reduction Enabling Works Sidewalls and Internals Alterations R1 Ground Floor	TRA/3630/ST/26458	23
Height Reduction Enabling Works Sidewalls and Internals Alterations R1 First Floor	TRA/3630/ST/26459	19
Height Reduction Enabling Works Sidewalls and Internals Alterations R1 Second Floor	TRA/3630/ST/26460	17
Height Reduction Enabling Works Sidewalls and Internals Alterations R1 Third Floor	TRA/3630/ST/26461	17
Height Reduction Enabling Works Sidewalls and Internals Alterations R1 Fourth Floor	TRA/3630/ST/26462	17
Height Reduction Enabling Works Sidewalls and Internals Alterations R1 Fifth Floor	TRA/3630/ST/26463	18
Height Reduction Enabling Works Sidewalls and Internals Alterations R1 Sixth Floor	TRA/3630/ST/26464	15
Height Reduction Enabling Works Sidewalls and Internals Alterations R1 Seventh Floor	TRA/3630/ST/26465	13
Height Reduction Enabling Works Sidewalls and Internals Alterations R1 Eighth Floor	TRA/3630/ST/26466	13
Height Reduction Enabling Works Sidewalls and Internals Alterations R1 Ninth Floor	TRA/3630/ST/26467	12
Height Reduction Enabling Works Sidewalls and Internals Alterations R2 Basement Floor	TRA/3630/ST/26488	11
Height Reduction Enabling Works Sidewalls and Internals Alterations R2 Ground Floor	TRA/3630/ST/26489	13
Height Reduction Enabling Works Sidewalls and Internals Alterations R2 First Floor	TRA/3630/ST/26490	12
Height Reduction Enabling Works Sidewalls and Internals Alterations R2 Second Floor	TRA/3630/ST/26491	12
Height Reduction Enabling Works Sidewalls and Internals Alterations R2 Third Floor	TRA/3630/ST/26492	12
Height Reduction Enabling Works Sidewalls and Internals Alterations R2 Fourth Floor	TRA/3630/ST/26493	12
Height Reduction Enabling Works Sidewalls and Internals Alterations R2 Fifth Floor	TRA/3630/ST/26494	12
Height Reduction Enabling Works Sidewalls and Internals Alterations R2 Sixth Floor	TRA/3630/ST/26495	11
Height Reduction Enabling Works Sidewalls and Internals Alterations R2 Seventh Floor	TRA/3630/ST/26496	09
Height Reduction Enabling Works Sidewalls and Internals Alterations R2 Eighth Floor	TRA/3630/ST/26497	11
Height Reduction Enabling Works Sidewalls and Internals Alterations R2 Ninth Floor	TRA/3630/ST/26498	10
Height Reduction Enabling Works Sidewalls and Internals Alterations East & West Sidewall Elevations & Sections	TRA/3630/ST/26510	16
Height Reduction Enabling Works Sidewalls and Internals Alterations East & West Sidewall Details	TRA/3630/ST/26511	15
Height Reduction Enabling Works Sidewalls and Internals Alterations R1 & R2 - Door Details Sheet 1	TRA/3630/ST/26522	11
Height Reduction Enabling Works Sidewalls and Internals Alterations R1 & R2 - Door Schedule	TRA/3630/ST/26523	21

APPENDIX 10 – CIRCULATOR HALLS

Document Title	Document Number	Rev
External Envelope Works - Phase 2/3 R1 South and R2 North Gas Circulator Halls Elevations Proposed Sliding Folding Doors	TRA/3630/ST/42700	2
TRAWSFYNYDD SITE EXTERNAL ENVELOPE WORKS-PHASE 1 R1 & R2 PROPOSED GAS CIRCULATOR HALL ROOF OUTLET DETAILS & SEALING TO PRECAST PANEL JOINTS	TRA/3630/ST/45140	3
TRAWSFYNYDD SITE EXTERNAL ENVELOPE WORKS - PHASE 2/3 R1 & R2 GAS CIRCULATION HALLS ELEVATIONS EXISTING & DEMOLITION	TRA/3630/ST/45196	3
TRAWSFYNYDD SITE EXTERNAL ENVELOPE WORKS - PHASE 2/3 R1 & R2 GAS CIRCULATION HALLS EXISTING & DEMOLITION-PROPOSED	TRA/3630/ST/45198	3
TRAWSFYNYDD SITE EXTERNAL ENVELOPE WORKS - PHASE 2/3 R1 & R2 GAS CIRCULATION HALLS CLADDING DETAILS	TRA/3630/ST/45199	2
TRAWSFYNYDD SITE EXTERNAL ENVELOPE WORKS - PHASE 2/3 R1 & R2 GAS CIRCULATION HALLS ELEVATION LOUVRE AND CLADDING DETAILS	TRA/3630/ST/45200	2
TRAWSFYNYDD SITE EXTERNAL ENVELOPE WORKS - PHASE 2/3 R1 & R2 GAS CIRCULATION HALLS ELEVATION CLADDING AND SECURITY DOORS	TRA/3630/ST/45203	3

APPENDIX 11 – GENERAL

Document Title	Document Number	Rev
TRAWS/EAN/23/008 Reactor Buildings Condition Report	**TRAWS/EAN/23/008**	**1**
TRAWS/EAN/23/008 Appendix A – SIMP: Executive Summary	**Volume 1 SIMP**	**3**
TRAWS/EAN/23/010 Defects Overall Repair Strategy	**TRAWS/EAN/23/010**	**2**
TRAWS/EAN/23/010 Appendix A – External Defect List	**See TSOW Appendix 7**	**1**
TRAWS/EAN/23/010 Appendix B – External Defect Location Drawings	**See TSOW Appendix 7**	**1**
TRAWS/EAN/23/010 Appendix C – Internal Defect List	**See TSOW Appendix 8**	**1**
TRAWS/EAN/23/010 Appendix D – Internal Defect Location Drawings	**See TSOW Appendix 8**	**1**
TRAWS/EAN/22/032 Summary of Ground Conditions & Services	**TRAWS/EAN22/032**	**2**
TRAWS/EAN/22/032 Appendix A - Site Boreholes Plan (in document)	**Figures A.2 to A.24**	
TRAWS/EAN/22/032 Appendix B - Below ground services & structures drawings	**TRAWS/EAN22/032**	**2**
LAYOUT OF CW PIPES	DD/14/00/C124	U
C.W SYSTEM - DETAILS OF M.S PIPEWORK - BRANCH CONNECTIONS UNDER SET 4 TURBINE HALL	DB/10/00/C119	F
Layout & RC Details of Monotower Tracks	DB/10/00/C5003	B
Layout of Cable Tunnels	DA/13/00/C5003	E
LAYOUT OF SEWERS WITHIN STATION AREA	DA/11/00/C5020	B
Active Drains As built	3950_2D	
SITE LAYOUT AREA KEY	DQ/13/11/00/L0379	1
GENERAL ARRGT. OF UNDERGROUND SERVICES AREA 34	DQ/13/11/00/L301	E
GENERAL ARRGT. OF UNDERGROUND SERVICES AREA 35	DQ/13/11/00/L302	C
GENERAL ARRGT. OF UNDERGROUND SERVICES AREA 40	DQ/13/11/00/L307	A
GENERAL ARRGT. OF UNDERGROUND SERVICES AREA 41	DQ/13/11/00/L308	A
GENERAL ARRGT. OF UNDERGROUND SERVICES AREA 42	DQ/13/11/00/L309	A
GENERAL ARRGT. OF UNDERGROUND SERVICES AREA 43	DQ/13/11/00/L310	A
GENERAL ARRGT. OF UNDERGROUND SERVICES AREA 44	DQ/13/11/00/L311	A
GENERAL ARRGT. OF UNDERGROUND SERVICES AREA 49	DQ/13/11/00/L316	A
GENERAL ARRGT. OF UNDERGROUND SERVICES AREA 50	DQ/13/11/00/L317	A
GENERAL ARRGT. OF UNDERGROUND SERVICES AREA 51	DQ/13/11/00/L318	A
GENERAL ARRGT. OF UNDERGROUND SERVICES AREA 52	DQ/13/11/00/L319	A
GENERAL ARRGT. OF UNDERGROUND SERVICES AREA 53	DQ/13/11/00/L320	A
GENERAL ARRGT. OF UNDERGROUND SERVICES AREA 57	DQ/13/11/00/L324	F
G.A OF UNDERGROUND SERVICES AREA 58	DQ/13/11/00/L325	E
G.A OF UNDERGROUND SERVICES AREA 59	DQ/13/11/00/L326	F
G.A OF UNDERGROUND SERVICES AREA 60	DQ/13/11/00/L327	L
G.A OF UNDERGROUND SERVICES AREA 61	DQ/13/11/00/L328	E
G.A OF UNDERGROUND SERVICES AREA 62	DQ/13/11/00/L329	K
G.A OF UNDERGROUND SERVICES AREA 63	DQ/13/11/00/L330	M
G.A OF UNDERGROUND SERVICES AREA 66	DQ/13/11/00/L333	H
G.A OF UNDERGROUND SERVICES AREA 67	DQ/13/11/00/L334	J
G.A OF UNDERGROUND SERVICES AREA 68	DQ/13/11/00/L335	H
G.A OF UNDERGROUND SERVICES AREA 69	DQ/13/11/00/L336	L
G.A OF UNDERGROUND SERVICES AREA 70	DQ/13/11/00/L337	J
G.A OF UNDERGROUND SERVICES AREA 71	DQ/13/11/00/L338	M
G.A OF UNDERGROUND SERVICES AREA 75	DQ/13/11/00/L342	C
G.A. OF UNDERGROUND SERVICES AREA 76	DQ/13/11/00/L343	A
G.A OF UNDERGROUND SERVICES AREA 77	DQ/13/11/00/L344	E
G.A OF UNDERGROUND SERVICES AREA 78	DQ/13/11/00/L345	F
G.A. OF UNDERGROUND SERVICES AREA 79	DQ/13/11/00/L346	A
G.A OF UNDERGROUND SERVICES AREA 80	DQ/13/11/00/L347	H
GENERAL ARRANGEMENT OF UNDERGROUND SERVICES AREA 84	DQ/13/11/00/L351	G
G.A OF UNDERGROUND SERVICES AREA 85	DQ/13/11/00/L352	D
G.A OF UNDERGROUND SERVICES AREA 86	DQ/13/11/00/L353	F
GENERAL ARRANGEMENT OF UNDERGROUND SERVICES AREA 87	DQ/13/11/00/L354	H
G.A OF UNDERGROUND SERVICES AREA 88	DQ/13/11/00/L355	K
GENERAL ARRANGEMENT OF UNDERGROUND SERVICES - AREA 89	DQ/13/11/00/L356	V
Arrangement of Main Station Earthing	DS/12/00/L002	H
Existing Site Main Electrical Infrastructure	HR/21/02	

R1 DETAILS OF NEW ACCESS DOOR THRESHOLD DETAILS AND PROTECTION TO EXISTING SERVICES	TFA/AZ/00104	E
R1 BUILDING - PROPOSED ROAD SLAB SERVICE PROTECTION DETAILS	TFA/AZ/00107	B
R1&2 BULDINGS PROPOSED ROAD SLAB STRENGTHENING AND SERVICE PROTECTION DETAILS	TFA/AZ/00905	C
Domestic Water System	TRA/3210/LA/10569	13
LAYOUT OF HYDRANT RING MAIN	TRA/3210/LA/10872	7
TRAWSFYNYDD DECOMMISSIONING SITE SURFACE WATER DRAINAGE SYSTEM	TRA/3210/LA/11210	6
Trawsfynydd Decommissioning Site Foul Water Drainage System	TRA/3210/LA/11211	7
TRAWSFYNYDD DECOMMISSIONING SITE OIL DRAINAGE SYSTEM	TRA/3210/LA/11212	4
TRAWSFYNYDD DECOMMISSIONING SITE ACTIVE EFFLUENT DRAINAGE SYSTEM	TRA/3210/LA/11213	4
Position of Tape Rings and Down Conductors - Lightning Protection L.T.S.R. - Supersedes DS/14/00/L001 and 46/4713	TRA/3210/EL/14761	6
Lightning Protection to Turbine Hall Slab	TRA/3210/EL/14762	7
Topographical Survey of Site	TRA/3210/LA/11308	1
Site Monitoring System, Civil Work, Duct Run 02	TRA/3455/LA/47827	4
Site Monitoring System, Civil Work, Duct Run 03	TRA/3455/LA/47828	4
Site Monitoring System, Civil Work, Duct Run 11	TRA/3455/LA/47836	4
Site Monitoring System, Civil Work, Duct Run 13	TRA/3455/LA/47838	2
External Envelope Works - Phase 1 Cable Tunnels Egress Opening Infill Details	TRA/3630/ST/45178	3
On Site Road Gulley Locations	TRA/3210/LA/45614	
Trawsfynydd Decommissioning Site, Administration and Workshop Complex, Drainage General Arrangement Post-Demolition	TRA/3210/LA/47866	01
Administration And Workshop Block Demolition – Infill of Footprint Voids and Mitigation Measures	TRA/3210/LA/47867	01
TRW FIRE HYDRANT SYSTEM SCHEME SKETCH AS BUILT	TRA/ENG/SK/0962	P.01
TRW FIRE HYDRANT SYSTEM AS BUILT PIPE WORK DETAIL	TRA/ENG/SK/0963	P.01
LIGHTNING PROTECTION SYSTEM SAFESTORES 1 & 2 CONNECTION TO HAND RAIL AROUND ROOF LIGHTS SHEET 1 OF 2	TRA/3210/EL/43900	01
LIGHTNING PROTECTION SYSTEM SAFESTORES 1 & 2 CONNECTION TO HAND RAIL AROUND ROOF LIGHTS SHEET 2 OF 2	TRA/3210/EL/43901	02
TRAWS/EAN/22/032 Appendix C - Centre courtyard chambers	**TRAWS/EAN/22/032**	**2**
TRAWS/EAN/22/032 Appendix D - Centre courtyard coring survey	**TRAWS/EAN/22/032**	**2**
TRAWS/EAN/22/032 Appendix E - Previous Lift Plans	**TRAWS/EAN/22/032**	**2**
Appendix E1: 450t Luffer reactor building plan cover Position No1		
Appendix E1: 450t Luffer reactor building plan cover Position No2		
Appendix E2: LTM 1350 Elevation.dwg KDC-A3 Layout	Dwg. 001	
Appendix E2: Drawing1-Layout1-A3 Layout - Canopy Removal	Dwg. 002	
Appendix E2: KDC - Method Statement & Risk Assessment	KDC MS10315	1
Appendix E2: KDC - Method Statement & Risk Assessment	RA 10315	
TRAWS/EAN/12/036 Principal Load Paths	**TRAWS/EAN/12/036**	**4**
TRAWS/EAN/12/036 Appendix 1 - Vertical load path (in document)	**TRAWS/EAN/12/036**	**4**
TRAWS/EAN/12/036 Appendix 2 - East West load path (in document)	**TRAWS/EAN/12/036**	**4**
TRAWS/EAN/12/036 Appendix 3 - North South load path (in document)	**TRAWS/EAN/12/036**	**4**
TRAWS/EAN/12/036 Appendix 4 - Allowable loading drawings	**TRAWS/EAN/12/036**	**4**
Reactor Building 1, Plan at 75'3'' level (5th floor) showing allowable loading	TRA/3630/ST/42697	01
Reactor Building 1, Plan at 131' level (9th floor) South showing allowable loading	TRA/3630/LA/42698	01
TRAWS/EAN/12/036 Appendix 5 - Capping Roof Allowable loading report	**0061**	**2**
REACTOR BUILDING 1 IMPOSED LOAD RESTRICTION TO CAPPING ROOF SHORT TERM	TRA/3630/ST/0003195	2
REACTOR BUILDING 1 IMPOSED LOAD RESTRICTION TO CAPPING ROOF LONG TERM	TRA/3630/ST/0003196	2
REACTOR BUILDING 2 IMPOSED LOAD RESTRICTION TO CAPPING ROOF SHORT TERM	TRA/3630/ST/0003197	2
REACTOR BUILDING 2 IMPOSED LOAD RESTRICTION TO CAPPING ROOF LONG TERM	TRA/3630/ST/0003198	2
TRAWS/EAN/19/046 Safestore Reactor Buildings - Space Numbering	**TRAWS/EAN/19/046**	**1**

TRAWS/EAN/10/082 Reactor Safestores Cover Plate over Penetrations Design Criteria	**TRAWS/EAN/10/082**	**4**
Other drawings & photos		
TRAWSFYNYDD SITE EXTERNAL ENVELOPE WORKS-PHASE 1 R1 NORTH REMEDIAL WORKS	TRA/3630/ST/45120	04
TRAWSFYNYDD SITE EXTERNAL ENVELOPE WORKS-PHASE 1 R1 EAST REMEDIAL WORKS	TRA/3630/ST/45121	03
TRAWSFYNYDD SITE EXTERNAL ENVELOPE WORKS-PHASE 1 R1 SOUTH REMEDIAL WORKS	TRA/3630/ST/45122	03
TRAWSFYNYDD SITE EXTERNAL ENVELOPE WORKS-PHASE 1 R1 WEST REMEDIAL WORKS	TRA/3630/ST/45123	03
TRAWSFYNYDD SITE EXTERNAL ENVELOPE WORKS-PHASE 1 R2 NORTH REMEDIAL WORKS	TRA/3630/ST/45124	03
TRAWSFYNYDD SITE EXTERNAL ENVELOPE WORKS-PHASE 1 R2 EAST REMEDIAL WORKS	TRA/3630/ST/45125	03
TRAWSFYNYDD SITE EXTERNAL ENVELOPE WORKS-PHASE 1 R2 SOUTH REMEDIAL WORKS	TRA/3630/ST/45126	03
TRAWSFYNYDD SITE EXTERNAL ENVELOPE WORKS-PHASE 1 R2 WEST REMEDIAL WORKS	TRA/3630/ST/45127	03
TRAWSFYNYDD SITE EXTERNAL ENVELOPE WORKS-PHASE 1 R1 & R2 HIGH LEVEL ROOFS KEY PLAN	TRA/3630/ST/45128	03
TRAWSFYNYDD SITE EXTERNAL ENVELOPE WORKS-PHASE 1 R1 & R2 FIFTH FLOOR ROOFS KEY PLAN	TRA/3630/ST/45129	03
TRAWSFYNYDD SITE EXTERNAL ENVELOPE WORKS - PHASE 2/3 R1 NORTH REMEDIAL WORKS	TRA/3630/ST/45180	03
TRAWSFYNYDD SITE EXTERNAL ENVELOPE WORKS - PHASE 2/3 R1 EAST REMEDIAL WORKS	TRA/3630/ST/45181	04
TRAWSFYNYDD SITE EXTERNAL ENVELOPE WORKS - PHASE 2/3 R1 SOUTH REMEDIAL WORKS	TRA/3630/ST/45182	03
TRAWSFYNYDD SITE EXTERNAL ENVELOPE WORKS - PHASE 2/3 R1 WEST REMEDIAL WORKS	TRA/3630/ST/45183	04
TRAWSFYNYDD SITE EXTERNAL ENVELOPE WORKS - PHASE 2/3 R2 NORTH REMEDIAL WORKS	TRA/3630/ST/45184	03
TRAWSFYNYDD SITE EXTERNAL ENVELOPE WORKS - PHASE 2/3 R2 EAST REMEDIAL WORKS	TRA/3630/ST/45185	03
TRAWSFYNYDD SITE EXTERNAL ENVELOPE WORKS - PHASE 2/3 R2 SOUTH REMEDIAL WORKS	TRA/3630/ST/45186	03
TRAWSFYNYDD SITE EXTERNAL ENVELOPE WORKS - PHASE 2/3 R2 WEST REMEDIAL WORKS	TRA/3630/ST/45187	04
TRAWSFYNYDD SITE EXTERNAL ENVELOPE WORKS - PHASE 2/3 R1 & R2 HIGH LEVEL ROOFS KEY PLAN	TRA/3630/ST/45188	03
TRAWSFYNYDD SITE EXTERNAL ENVELOPE WORKS - PHASE 2/3 R1 & R2 FIFTH FLOOR ROOFS KEY PLAN	TRA/3630/ST/45189	03
Safestore/Reactors 1 & 2 precast panels structural strengthening and repairs key elevation east side as built	TRA/3630/ST/45758	1
Safestore/Reactors 1 & 2 precast panels structural strengthening and repairs key elevation north side as built	TRA/3630/ST/45759	1
Safestore/Reactors 1 & 2 precast panels structural strengthening and repairs key elevation west side as built	TRA/3630/ST/45760	1
Low Level Waste Management ISO Container Building Survey & Preparatory Civil Works	RC-54-A0-78635	B
Low Level Waste Management ISO Container Building Survey Location of ISO Container Building	RC-54-A0-78216	B
Waste Transfer Building Fire System Layout	TRA/3420/EL/26656	3
Waste Transfer Building Lighting Layout	TRA/3420/EL/26657	3
Electrical Distribution System FED Store & Maintenance Area 415V Distribution Boards DB434 & DB435 Single Line Diagram	TRA/3420/EL/26658	04
Waste Transfer Building Power Layout	TRA/3420/EL/26659	3
Trawsfynydd Site New Waste Transfer Building Site Location and General Arrangement	TRA/3420/LA/26563	05
Trawsfynydd Site New Waste Transfer Building Foundation Details and Setting Out	TRA/3420/LA/26564	05
Trawsfynydd Site New Waste Transfer Building Steelwork Layout	TRA/3420/LA/26565	05
Aerial View.jpg	Photo	N/A

North Elevation 1.jpg	Photo	N/A
North Elevation 2.jpg	Photo	N/A
North Elevation 3.jpg	Photo	N/A
Details of Shield Cooling Stack Drainage at Level 131'3"	DD/10/16/00/A2252	A

APPENDIX 12 – ORIGINAL BUILD SEQUENCE

Document Title	Document Number	Rev
Original photographs of construction phase	TRAWS/L28302/DOC/093	-

APPENDIX 13 – ROOM MATRIX

Document Title	Document Number	Rev
RB1 Room Matrix	Appendix 13	-
RB2 Room Matrix	Appendix 13	-

APPENDIX 14 – ROOM PHOTOGRAPHS (NON-EXHAUSTIVE)

Document Title	Document Number	Rev
General Site Photographs	TRAWS/L28302/DOC/0135	02
Room Photograph sheets RB1		
Photo Sheet RB1 – Typical General Plant & Materials to be Removed	TRAWS/L28302/DOC/0101	01
Photo Sheet RB1 – Typical Stairs	TRAWS/L28302/DOC/0102	01
Photo Sheet RB1 – Gas Circ Halls	TRAWS/L28302/DOC/0103	01
Photo Sheet RB1 – Corridors East	TRAWS/L28302/DOC/0104	01
Photo Sheet RB1 – Corridors West	TRAWS/L28302/DOC/0105	01
Photo Sheet RB1 – Interspaces	TRAWS/L28302/DOC/0106	01
Photo Sheet RB1 – Boiler Box	TRAWS/L28302/DOC/0107	01
Photo Sheet RB1 – Charge Hall Under Capping Roof	TRAWS/L28302/DOC/0108	01
Photo Sheet RB1 – Charge Hall Above Capping Roof	TRAWS/L28302/DOC/0109	01
Photo Sheet RB1 – Shield Cooling Fan Room	TRAWS/L28302/DOC/0110	01
Photo Sheet RB1 – 131' Level	TRAWS/L28302/DOC/0111	01
Photo Sheet RB1 – Roofs R1 & R2	TRAWS/L28302/DOC/0112	01
Photo Sheet RB1 – External Views	TRAWS/L28302/DOC/0132	02
Room Photograph sheets RB2		
Photo Sheet RB2 – Typical General Plant & Materials to be Removed	TRAWS/L28302/DOC/0113	01
Photo Sheet RB2 – Typical Stairs	TRAWS/L28302/DOC/0114	01
Photo Sheet RB2 – Gas Circ Halls	TRAWS/L28302/DOC/0115	01
Photo Sheet RB2 – Corridors East	TRAWS/L28302/DOC/0116	01
Photo Sheet RB2 – Corridors West	TRAWS/L28302/DOC/0117	01
Photo Sheet RB2 – Interspaces	TRAWS/L28302/DOC/0118	01
Photo Sheet RB2 – Boiler Boxes	TRAWS/L28302/DOC/0119	01
Photo Sheet RB2 – Charge Hall Under Capping Roof	TRAWS/L28302/DOC/0120	01
Photo Sheet RB2 – Charge Hall above Capping Roof	TRAWS/L28302/DOC/0121	01
Photo Sheet RB2 – Shield Fan Room	TRAWS/L28302/DOC/0122	01
Photo Sheet RB2 – Top Duct 131' Floor	TRAWS/L28302/DOC/0123	01
Photo Sheet RB2 – External Views	TRAWS/L28302/DOC/0133	02

APPENDIX 15 – LC28 INTERNAL INSPECTIONS

Document Title	Document Number	Rev
Trawsfynydd LC28 2018 Inspection for Safestore 1 & 2	60X50005/Traws LC28 2018/000/350.K/001	4
Trawsfynydd Site Asset Care 2023 Structural Inspection of Safety Related Structures in Compliance with LC28	100115413 | TT-MA006-XX-RP-C-00001	03
Traws-L28302-DOC-0032 Appendix 15 Table 2 – Summary of defects from 2023 LC28 Inspection	N/A	N/A

APPENDIX 16 – LC28 EXTERNAL INSPECTION

Document Title	Document Number	Rev
Report on the De-Scale and Inspection of Cast In-situ Concrete Areas of Trawsfynydd Power Station	J3S5316-TRAW-RP01	Oct-21
Report on the De-Scale and Inspection of Cast In-situ Concrete Areas of Trawsfynydd Power Station	TRAW-RP01 Report	Oct-24

APPENDIX 17 – STRUCTURAL INTERDEPENDENCIES REPORT

Document Title	Document Number	Rev
Structural Interdependencies Report	TRAWS/L28302/DOC/0100	Apr-23

APPENDIX 18 – ECOLOGY SURVEYS

Document Title	Document Number	Rev
Trawsfynydd Ecology Surveys 2021 (By Cartmel Ecology Ltd.)	N/A	01/12/2021
Trawsfynydd filling works Preliminary Ecological Appraisal (PEA) Issue 2	HR-ARUP-XX-XX-RP-YE-0001	P01
Trawsfynydd Power Station Proposed Filling Works Potential Bat Roost Tree Survey (2)		15/08/2024

APPENDIX 19 – ASBESTOS SURVEYS

Document Title	Document Number	Rev
Demolition Surveys RB1		
SS1 Ground Floor Height Reduction Demolition Survey	170637	2
SS1 1st Floor Height Reduction Demolition Survey	170226	2
SS1 2nd Floor Height Reduction Demolition Survey	170211	2
SS1 3rd Floor Height Reduction Demolition Survey	170276	2
SS1 4th Floor Height Reduction Demolition Survey	170357	2
SS1 5th Floor Height Reduction Demolition Survey	170631	2
SS1 6th Floor Height Reduction Demolition Survey	170578	2
SS1 7th Floor Height Reduction Demolition Survey	170508	2
SS1 8th Floor Height Reduction Demolition Survey	170376	2
SS1 9th Floor Height Reduction Demolition Survey	170356	2
Demolition Surveys RB2		
SS2 Ground Floor Height Reduction Demolition Survey	171412	2
SS2 1st Floor Height Reduction Demolition Survey	171418	2
SS2 2nd Floor Height Reduction Demolition Survey	171370	2
SS2 3rd Floor Height Reduction Demolition Survey	171111	2
SS2 4th Floor Height Reduction Demolition Survey	171268	2
SS2 5th Floor Height Reduction Demolition Survey	171078	2
SS2 6th Floor Height Reduction Demolition Survey	170811	2
SS2 7th Floor Height Reduction Demolition Survey	171074	2
SS2 8th Floor Height Reduction Demolition Survey	170714	2
SS2 9th Floor Height Reduction Demolition Survey	170713	2
Demolition Survey SSCR		
Site Security Control Room (SSCR)	172193	1
Demolition Survey HHISO and Waste Transfer Building		
Half Height ISO and Waste Transfer Buildings	172213	3
Other		
Asbestos Containing Materials (ACMs) Remediation Options Guidance	AM-REP-015	1

APPENDIX 20 – DESIGN RISK ASSESSMENTS

Document Title	Document Number	Rev
Design Risk Assessment	TRAWS/L28302/DOC/0020	03
Designer Risk Assessment	ARUP DOCUMENT 283552	02

APPENDIX 21 – HAZARD IDENTIFICATION AID-MEMOIRE

1	Physical hazards										
Reference	Descriptor	Hazard Present	Reference	Descriptor	Hazard Present	Reference	Descriptor	Hazard Present	Reference	Descriptor	Hazard Present
1.1	Access/ Egress	X	1.11	Radiation – Ionising	X	1.21	Fire	X	1.31	Entanglement/ Drawing In	
1.2	Unstable Structures	X	1.12	Radiation – Non-Ionising		1.22	Explosion		1.32	Impact	X
1.3	Unstable Ground	X	1.13	Radioactive Contamination	X	1.23	Slips, Trips & Falls - Same Level	X	1.33	Crushing	X
1.4	Underground services/voids	X	1.14	Microwave		1.24	Lifting Operations	X	1.34	Ejection	X
1.5	Excavations	X	1.15	Power - Hydraulic		1.25	Working at Height	X	1.35	Cutting	X
1.6	Ground Water	X	1.16	Power - Pneumatic		1.26	Vibration: HAVS	X	1.36	Stabbing, inc. splinters	
1.7	Overhead plant etc.	X	1.17	Power -- Electrical (Mains)	X	1.27	Vibration: WBV	X	1.37	Abrasion	
1.8	Confined Spaces	X	1.18	Power - electrical (Battery)		1.28	Noise	X	1.38	Shear	X
1,9	Deep water		1.19	Stored Energy	X	1.29	Vehicles/ Plant Collision	X	1.39	Temporary works	X
1.10	Fragile/brittle materials	X	1.20	Thermal (Above/below ambient)		1.30	Vehicles/ Plant Overturn	X	1.40	Weather	X
									1.41	Degrading assets overhead and underfoot	X
									1.42	Contaminated land	X

2	Chemical hazards		3	Biological hazards		4	Ergonomic hazards		5	Personnel hazards	
2.1	Fibres (Asbestos)	X	3.1	Bacterial	X	4.1	Manual Handling	X	5.1	Lone Working	
2.2	Fibres	X	3.2	Viral		4.2	Postural		5.2	Shift Work	
2.3	Dust (Respirable silica)	X	3.3	Fungal		4.3	Repetitive Actions	X	5.3	Pregnant Women	
2.4	Dust	X	3.4	Fauna	X	4.4	Seating		5.4	Nursing Mothers	
2.5	Fumes	X	3.5	Flora	X	4.5	Display Equipment		5.5	Young People	
2.6	Vapour	X				4.6	Lighting		5.6	Fatigue	
2.7	Gas					4.7	Heating		5.7	Stress	
2.8	Asphyxiant					4.8	Ventilation		5.8	Violence	
2.9	Mists					4.9	Control Systems		5.9	Interfaces with other work	X
2.10	Aerosols	X				4.10	Control Displays		5.10	Off-site hazard	X
2.11	Liquids	X							5.11	Environmental Impact	X
2.12	Solids	X							6	Other Hazards	
2.13	Carcinogen	X							6.1	Nearby structures	X
2.14	Corrosive/ Irritant	X							6.2	Hot working	X
2.15	Toxicity	X									
2.16	Dermatitis	X									

Hazard Identification Approval		
Designer: Gareth Van Heerden (PDA & PEL)	**Signature:**	**Date:** 06/11/2024
For additional details refer to Design Risk Assessments appended to this PCI.		

APPENDIX 22 – HEALTH & SAFETY FILE TYPICAL CONTENTS

1 PROJECT INFORMATION

1.1 Project title and reference number.
Name and reference number of project, building(s) or part of building contained within this file.

1.2 Site building(s) reference.
Unique reference number for building.

1.3 Dates of construction, de-planting or demolition.
Provide all relevant dates, depending on the phase of the building work.

1.4 Historic information.
Brief historic background information describing the relevant history of the building.

1.5 DPAF number(s), title(s) and status.
Relevant DPAFs only.

1.6 Planning and building regulation certificates including any planning constraints.

1.7 Environmental permissions.
Most up to date Environmental Permitting Regulations permits.

2 OUTLINE OF WORK UNDERTAKEN AND COMPLETION STATUS

2.1 Original intent.

2.2 Scope delivered.
In addition to what was built, include a description of steps taken to overcome any unanticipated significant problems, add information on methods of construction where special techniques were necessary, e.g. ground freezing, propping, dewatering.

2.3 Scope outstanding.

2.4 Gap management.

3 HAZARDS

3.1 Technical descriptions of any installed isolations or features.

3.2 Methods of construction that have relevance to modification, maintenance and dismantling.
For example, pre-tensioned concrete requires dismantling in a particular way to avoid sudden failures.

3.3 Residual hazards, i.e. hazards unmanaged at completion of design e.g. Lead paint, asbestos, contaminated land, buried services etc. In this section provide information on the hazards in the building as it currently stands.

3.4 Construction materials used.
List of significant construction materials used in order to highlight any hazardous materials for maintenance/dismantling purposes (e.g. hazardous or flammable substances, lead paint, epoxy grout, fungicidal paints, special coatings which should not be burnt off, substances containing isocyanates). Reference to drawings or specifications can be made for more detailed material inventories.

3.5 Maintenance hazards.
Any hazards that will affect maintenance procedures (e.g. lifting arrangements; designed-in lifting points; solutions for large or heavy or unusual items of plant, especially at height or below ground level).

3.6 Demolition hazards.
Hazards that will affect demolition. Reference should be made to Section 3.2 or Section 4.4 if required in order to avoid duplication.

3.7 Hazard management plan.
Details of or reference to any plan for the management of hazards within the building.

3.8 Summary area hazard schedule.
This may be available for radiological hazards, as an example. Refer to any relevant summary area hazard schedules.

3.9 Summary risk assessment.
Provide reference where available to a risk assessment outlining the existing hazards in the building.

4 GENERAL DETAILS

4.1 Existing structures – changes.

4.2 New structures.

4.2.1 Description.
Brief description of what was built.

4.2.2 Principles of design or manufacture.
For example: unusual stability concepts; bracing; sources of substantial stored energy, including pre or post tensioned members; sequences or order of removal; alterations to the structure; load transfer details or temporary works envisaged to alter or demolish.
Provide relevant reference to Basis of Design or Specification. The design or manufacturing principles may have relevance during alteration or demolition activities.

4.2.3 Floor and roof loadings.
Provide brief detail of any significant loading restrictions and reference to relevant calculations.

4.3 Fire safety strategy.
Provide a description or refer to any documentation detailing the general fire safety strategy.

4.4 Details of location and nature of utilities and services.
This section should provide reference to design or as-built drawings showing the nature, location and markings of any significant utilities and services, such as:

4.4.1 Fire-fighting systems.
4.4.2 Electrical.
4.4.3 Gas.
4.4.4 Telecom.
4.4.5 Fibre optic.
4.4.6 Microwave and radio.
4.4.7 Water.
4.4.8 Drainage.
4.4.9 Schedules of installed items e.g.

- Alarms.
- Fire/smoke alarm sensors.
- Doors.
- Cables.
- Pipe supports.
- Valves.
- Dampers.
- Instruments.
- Drawings.
- Asset register.

Or make reference where available to existing documentation providing schedules of installed items.

4.5 Current Certificates of test (LOLER1998, PSSR 2000, etc.).
4.6 Current Certificates of thorough examination (LOLER 1998, PSSR 2000, etc.).
4.7 Certificates of conformity (PUWER 1998).

5 DRAWINGS

5.1 Details of as-built drawings and plans used and produced throughout the construction process.
Information and as-built drawings of the structure.

5.2 Details or drawings updated as part of the work.
Provide reference to any drawings which have been updated to show more accurate information (i.e. location of services) resulting from surveys.

6 STRUCTURAL MAINTENANCE

6.1 Parts of the structure requiring maintenance.
6.2 Schedule for maintenance.
6.3 Maintenance procedures and requirements for the structure.
6.4 Method statements for maintenance.
6.5 Information for the removal or dismantling of the structure.
Where necessary, refer to Sections 3.2 and 3.6 to avoid duplication of information.

7 MAINTENANCE OF PLANT AND EQUIPMENT WITHIN THE STRUCTURE

7.1 List of plant items requiring maintenance.
7.2 List of plant items governed by Maintenance Schedule* and Environmental Maintenance Schedule entries and associated work specifications* (*Nuclear Installations Act 1965 – Site Licence Requirements).
7.3 Equipment and maintenance facilities within the structure.
7.4 Fire/gas detection systems.

7.5 Lifting equipment and pressure systems equipment and any pre-existing written schemes of examination.
7.6 Information for removal or dismantling.
7.7 References to operational and/or isolation details.
7.8 Information on the maintenance of any facilities.
7.9 Work specifications for maintenance procedures and schedules for plant and equipment installed as part of the structure.