




6BF RELINE PROJECT

Construction Safety Study

6BFR-PRJ-REP-0007
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Confidential



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1. EXECUTIVE SUMMARY

The “must achieve” project objectives for the No. 6 Blast Furnace Reline (6BFR) Project include:

- No life-changing injuries as a result of the Project.
- Overall environmental performance of Port Kembla Steel Works (PKSW) must be improved by the Project.
- The technology included and equipment selected by the Project must support the PKSW target of 12% reduction in CO₂ emissions intensity by 2030.
- No unplanned interruptions to PKSW operations during execution.

BlueScope Steel (AIS) Pty Ltd (BlueScope) has operated blast furnace technology continuously at PKSW since 1928, and the blast furnace processes are mature and well managed.

The reline project scope is well known to BlueScope. The most recent reline was completed on the currently operating No. 5 Blast Furnace in 2010. 6BFR is similar in scope for the bulk of the reline, however will employ new technologies to improve operational and environmental performance as discreet additional construction activities.

Staging of the reline over the relatively long time period of three years, allows for an “early works” period where works are primarily equipment removal and enabling works for the reline installation activities. Design for the early works period is mostly complete. During the course of the furnace reline, design for the installation scope will continue and will be completed prior to constructions works.

A blast furnace reline would typically be conducted over a 3-6 month timeframe. This work would be continuous over 24 hrs, 7 days per week. The 6BFR timeframe of 3 years allows time to manage emerging issues and risks, and to conduct work in a more considered way and with more consistent technical and managerial support for the work front.

A large portion of engineering design is well advanced and managed under the 6BFR Design Management Plan. The more advanced and mature an engineering design is at the planning and execution phases of a construction project, the lower the likelihood of unexpected problems.

The 6BFR Project Team is comprised of a significant number of experienced blast furnace personnel, many with prior reline experience. The control of construction work by this experienced team will ensure design is fit for purpose, construction is to design, and operational risk during commissioning and afterwards is minimised.

Construction risks have been identified in design reviews, formal risk assessments and Construction Hazard Assessment Implication Review (CHAIR) processes. Construction risks are then managed with BlueScope’s Safe System of Work (SSW) access control system and mature high-risk work procedures.

A suite of project-specific management plans have been developed for the 6BFR Project specifically to manage the identified risks, and were reviewed for this study. Objectives, processes, roles and responsibilities are clearly defined to manage the identified project risks.

Most project risks have little potential for offsite impacts and are unlikely to affect the public due to the location of laydown areas, support facilities, including office accommodation and ablutions, carparking, equipment staging areas and service infrastructure located within the PKSW boundary and the distance from the project site to the PKSW boundary. Any risks to the public will be managed with prescribed controls to minimise and mitigate any impact.

The No. 6 Blast Furnace (6BF) will be returned to service under a detailed and well-managed Commissioning Management Plan. Operating and maintenance personnel will be prepared with procedures and training delivered by the project Manuals, Training, Equipment, and Commissioning (MTEC) team prior to 6BF being returned to service. This will ensure 6BF is commissioned and operated to meet its process design parameters in a well-planned, controlled manner.

2. OUTLINE OF PROPOSED AND EXISTING OPERATIONS

2.1. Purpose of this document

The purpose of this document is to deliver the requirements of the NSW Department of Planning and Environment for a Construction Safety Study as a part of the integrated hazards-related assessment process, in consideration of BlueScope's development application for the No.6 Blast Furnace reline at its Port Kembla Steelworks.

The Construction Safety Study is carried out to ensure facility safety during construction and commissioning activities associated with the proposed development. The focus of the study is construction-related hazards with the potential to affect site operations, which may in turn lead to off-site impacts.

Specifically, this document will give particular attention to:

- Demolition of existing plant and structures
- Contamination
- Hazardous materials for demolition / construction
- Excavation hazards
- Interaction with continuing operations
- Drainage arrangements
- Natural events
- Hazardous materials during commissioning
- Sequencing of commissioning activities.

2.2. Project Overview

The project involves the reline of 6BF over a period of approximately 3 years to return it to service and commence ironmaking after 5BF ceases operation. Major construction work will be required within the blast furnace and surrounding facilities to deliver the project.

The reline of the furnace initially involves removal of remaining burden material and iron skull, followed by stripping of the staves, refractories and hearth from inside the shell. In places, repairs to the furnace shell will be required. Once stripped, installation of the new hearth, sidewall refractories and staves will be completed, together with repairs/replacement of the tuyeres, tapholes, furnace cooling systems, and instrumentation. Significant work will also be required to prepare each of the 6BF ancillary systems for continuous operation across the duration of the new campaign.

Following construction and equipment commissioning, 5BF will be ramped down and decommissioned. 6BF will then be hot-commissioned and ramped up for operation. 5BF and 6BF will not operate concurrently.

2.3. Site Location and surrounding Environment

The project is located in Port Kembla in the Wollongong Local Government area and Illawarra region of NSW. Sydney is approximately 80 km to the north of Port Kembla, while the Wollongong Central Business District is approximately 2.5 km to the north, and Lake Illawarra is approximately 3 km to the south. Port Kembla is the main industrial centre of the Illawarra region.

The PKSW site is zoned IN3 – Heavy Industrial under State Environmental Planning Policy (Transport and Infrastructure) 2021 (T&I SEPP). PKSW and the adjacent Springhill Works together comprise the largest site in the Port Kembla industrial area, occupying approximately 750 ha, and are mostly built around the western and southern side of Port Kembla's Inner Harbour. The PKSW site is a multi-use industrial area which includes storage, manufacturing, port berths, private internal roads, and offices. Access to PKSW is provided by Springhill Road, Five Islands Road and Flinders Street, and then private internal roads within PKSW.

The project site is an established (brown-field) site located within the PKSW. The land to which this project applies, including all connecting infrastructure and materials handling elements that require upgrades as part of the project, is within the southern section of the No.2 Works, and is part of the ironmaking facilities, located within Lot 1 DP 606434. Ancillary construction facilities will also be required, and will be located within the project site shown in Figure 3.

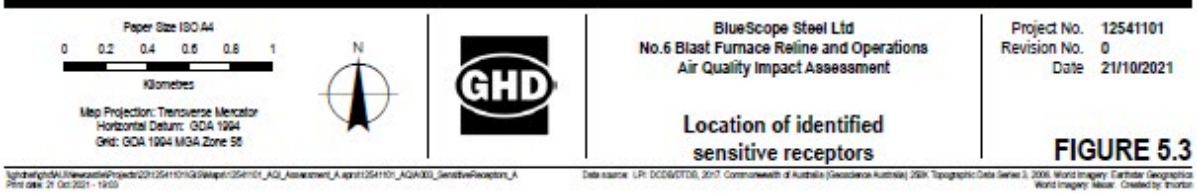


Figure 1: Location of Sensitive Receivers
Extracted from *Blast Furnace No.6 Reline Project Air Quality Impact Assessment* (p. 19) GHD, 2022.

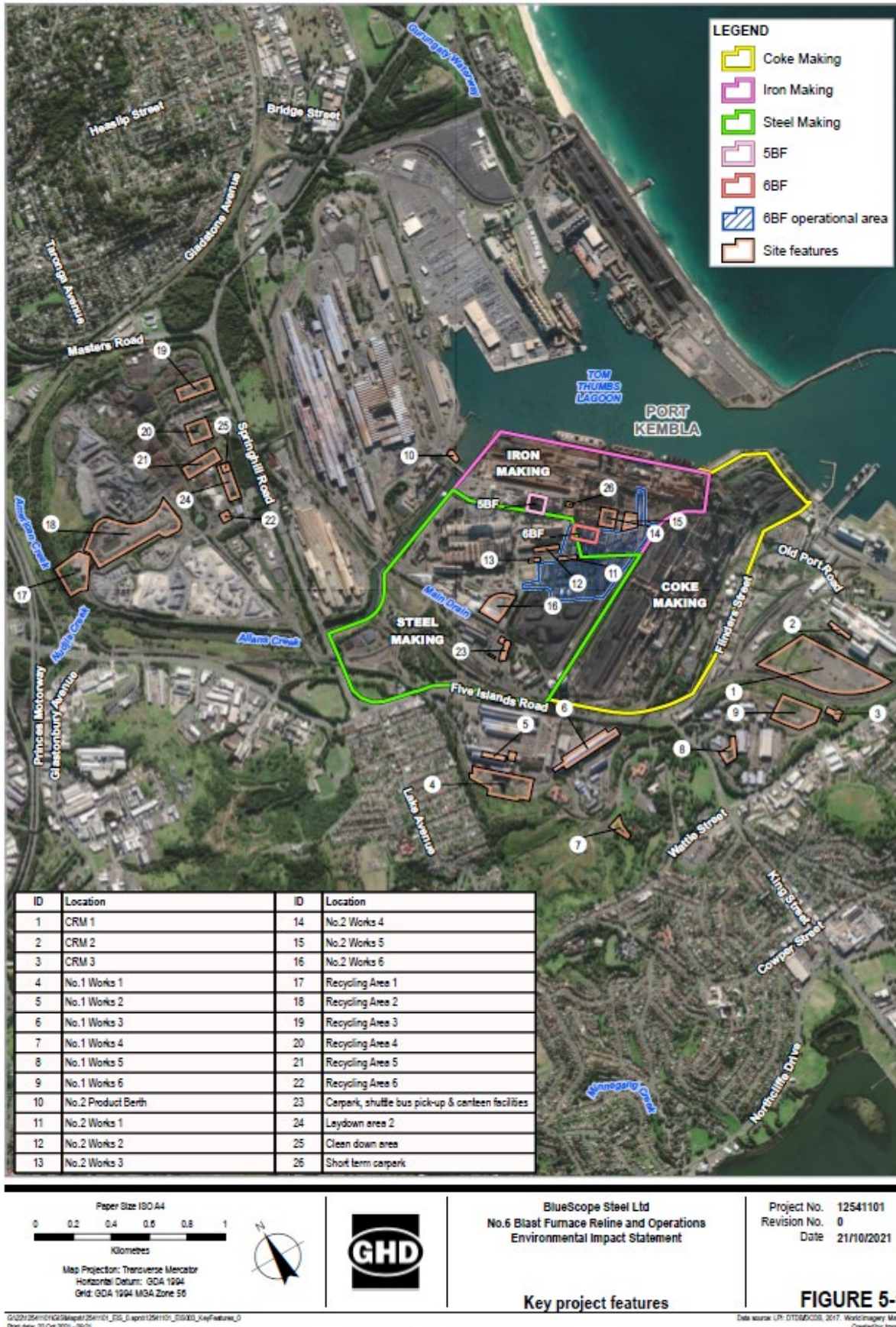


Figure 2: Project site and laydown areas
 Extracted from *Blast Furnace No.6 Reline Project Environmental Impact Statement* (p. 28) GHD, 2022.

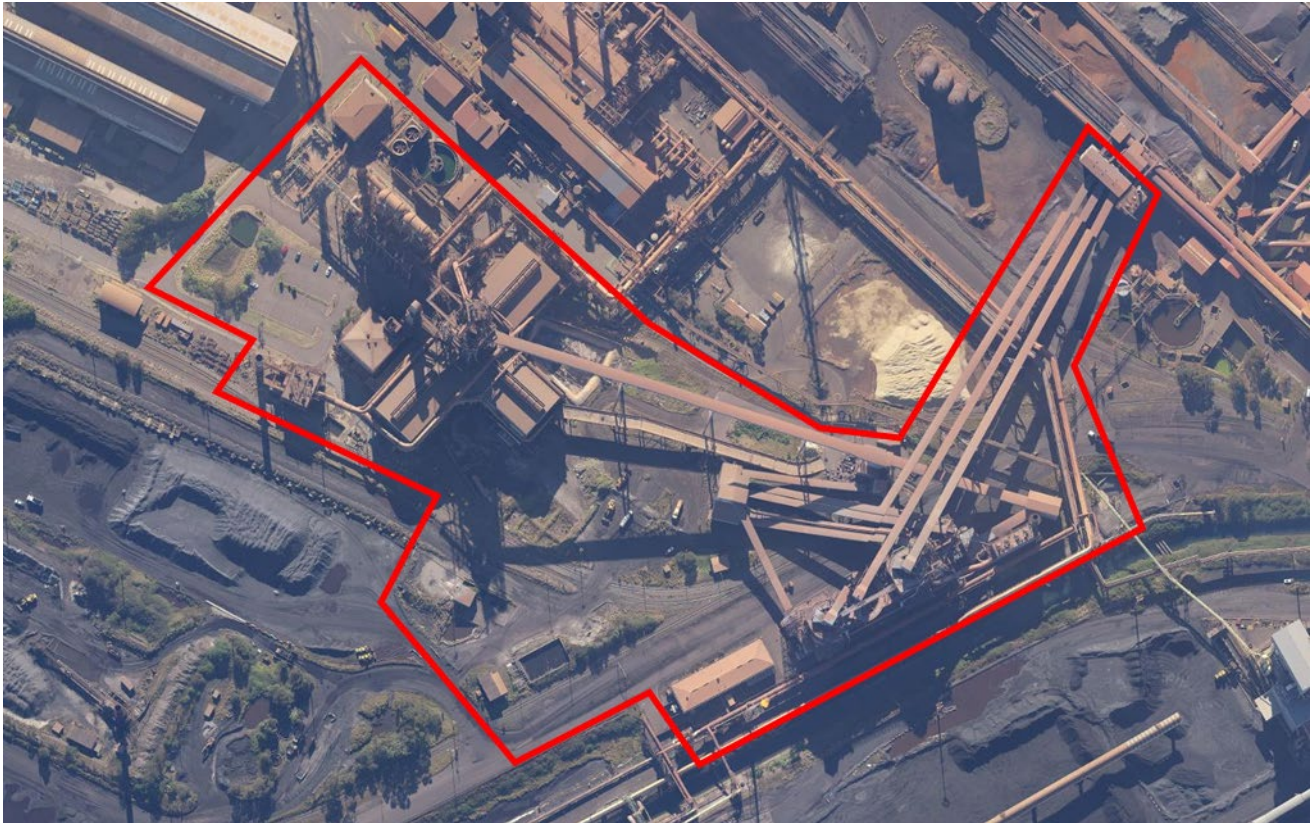


Figure 3: 6BF Reline Project Site

2.4. No. 6 Blast Furnace Reline Project

The project involves the relining of 6BF over a period of approximately 3 years to return it to service and commence ironmaking after 5BF ceases operation. Ironmaking at 5BF will conclude prior to ironmaking commencing at 6BF. The project will incorporate advances in technology being used, including several improvements in 6BF compared to the currently operating 5BF, resulting in lower overall emissions from the site.

Major construction work will be required within the blast furnace and surrounding facilities, and activities will involve the following tasks:

- Preparatory works
- Removal of the remaining burden materials
- Removal of the iron skull
- Removal of worn carbon block refractories in the hearth
- Removal of worn refractories in the remainder of the vessel
- Demolition of other equipment including:
 - Cooling staves which protect the blast furnace shell
 - Hot Blast Main refractory lining where required, including the expansion joints
 - Clarifier tank and associated equipment where required
- Repairs to the blast furnace shell where required
- Installation of a new clarifier tank and associated equipment
- Installation of the new hearth, sidewall refractories and staves

- Replacement of tuyeres, tap-holes and instrumentation
- Repair, maintenance and/or upgrade of ancillary equipment including:
 - Furnace Cooling systems
 - Hot Blast System including the stoves, with the addition of a stove Waste Gas Heat Recovery (WGHR) system
 - Gas system, with addition of a Top Gas Recovery Turbine (TRT)
 - Furnace Top, including the charging equipment, bleeder valves and outrigger crane
 - Casthouse Floors and associated equipment
 - Stockhouse (raw materials feed system)
 - Automation and power systems
 - Services.
- Installation of a new slag granulation system.

Following completion of these works, 6BF will be commissioned. During the commissioning and ramp-up phase, all services will be brought back into live condition and the integrity of the control, monitoring and safety systems verified. Various parts of the plant will be reheated, and pressure and leak tests conducted. The cooling systems will also be filled and flushed. Ramp-up is expected to take several days, with a general increase in production reaching full production capacity within one or two months.

Operation of 6BF will generally be the same as the existing operations at 5BF. Specific locations of certain activities within the PKSW site will change due to the transfer of operations to 6BF, however, any changes to operating hours, staffing numbers or changes to the quantity or characteristics of inputs to or outputs from the blast furnace will be minimal.

2.5. Study Methodology

- This Construction Safety Study has been prepared in accordance with the Department of Infrastructure, Planning and Natural Resources' Hazardous Industry Planning Advisory Paper No. 7, "Construction Safety Study Guidelines".
- The Guidelines specify that the study is to identify hazards, which arise in the construction process, and which could result in significant levels of risk on the construction site and to surrounding land users, and a review of those processes aimed at ensuring that the plant is constructed in accordance with the design intent, to an appropriate level of quality, and in a safe and environmentally compliant manner.
- A small group of key personnel who are familiar with the project and plant reviewed the existing documentation for adequacy against the requirements of the guidelines.

2.6. Study Team

Members of the team included past and present operations personnel as well as individuals who have been integral members of previous Blast Furnace Relines:

- Tim Rodwell Project Manager 6BFR Project
- Matt Handicott Construction Manager 6BFR Project
- Brendan Moss Commissioning Manager 6BFR Project
- James Tarlinton Engineering Manager 6BFR Project
- Brian Kelly MTEC Manager 6BFR Project
- David Otsyula HSE Manager 6BFR Project

2.7. Familiarisation with Past, Existing and Proposed Operation

- The study team for the Construction Safety Study were selected to ensure the critical safety aspects of conducting a Blast Furnace Reline were identified.
- Members of the Study Team have filled critical roles in previous Blast Furnace Relines that have been undertaken by BlueScope. The Study Team also reviewed documentation from these previous projects and international experience to ensure all safety and quality critical aspects have been taken into account.
- A full-time Project Team was formed for the initial reline concept and will be maintained through to implementation and also during the start-up and re-establishment of normal operations.
- All engineering and design work follows the BlueScope and Reline Engineering and Quality Management System that ensures specified reviews are conducted by technical operations, maintenance and construction personnel on schedule and prior to approval and sign-off by the relevant senior personnel from these disciplines.

2.8. Review of Other Studies and Documentation

The following tools and documentation were used and reviewed:

- PHAs were conducted for each major process area of the Reline
- HAZOPs
- Fire Safety Study
- CHAIRs
- Existing BlueScope Procedures
- Reline specific plans and procedures
- Project Schedule
- EIS
- Emergency Plans
- FDS (including PIDs and PFDs).

2.9. Operational and Organisational Safeguards

Health and safety will be managed in accordance with the BlueScope Steel Limited HSEC Policy, the BlueScope Steel Limited OH&S Management System (BSL-OHS-01-01) and the BlueScope Steel Safety Beliefs

The Study Team, prior to undertaking the study, reviewed the following safeguards:

- Blast furnace operating procedures
- Reline specific plans and procedures
- BlueScope Design Control Standards and Procedures.

2.10. Safety Assurance

The following tools and processes will be used to ensure that the design intent and specification is met:

- 6BFR-PRJ-PLN-0006 *6BFR Design Management Plan*
- BlueScope Design Control Standards and Procedures
- Technical specifications
- Functional descriptions

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- Construction contracts (with legal obligations)
- Inspections
- Audits.

3. HAZARDS IDENTIFIED AND PROPOSED SAFEGUARDS

The following tools and processes were used to identify the hazards associated with the construction work during the 6BFR Project:

- PHAs
- Design Reviews
- HAZOPs
- CHAIRs
- Construction Risk Assessments
- Site incidents, accidents, history and events review.

The hazards identified have been listed in Appendix A - 6BF Reline Construction Risks and Controls. This list contains the existing and additional control measures to ensure each hazard's risk rating is managed to an acceptable level.

There were several scenarios identified by the study team as having the potential for off-site impacts. These scenarios included asbestos, contamination, and dust emissions associated with construction activities.

3.1. Asbestos

The existing 6BF was built in 1996, and consequently does not contain asbestos. Asbestos is known to exist under the floor of the "Capital Store" located in the former No.1 Open Hearth Building. Asbestos may be found when excavating in the Slag Granulation site currently used for stockpiling coal. BlueScope have a comprehensive Asbestos Policy (DIV-OHS-01-30) defining the roles and responsibilities of managing potential contaminated materials. (The Asbestos Policy is available on request). The 6BFR Project will ensure Asbestos Awareness is included in the Project Inductions for site construction personnel.

BlueScope's Unexpected Finds Procedure (MA-ENV-03-11) covers the process to follow in the event of an unexpected find, including asbestos. All asbestos will be managed in accordance with BlueScope's existing Asbestos Management Procedure (BZ-SEQ-S-03-117).

3.2. Contamination

PKSW is listed as a contaminated site by the EPA, and ongoing management is conducted in accordance with Environment Protection Licence 6092. Given the industrial land use of the site and the results of previous soil investigations, there is potential to encounter previously unidentified contamination during construction. BlueScope's Unexpected Finds Procedure (MA-ENV-03-11) covers the process to follow in the event of an unexpected find including contaminated material.

Any contaminated soils requiring disposal will be classified in accordance with the EPA's Waste Classification Guidelines prior to disposal via an appropriately licenced facility.

Where possible, all chemicals will be banded or otherwise contained. BlueScope's Spill Response Guidelines (MA-ENV-11-02) outlines the necessary steps to be taken to prepare for or respond to spills. Spill kit locations with the 6BFR project area will be provided in a clearly identified location. Spill kit locations will also be recorded in the 6BFR Emergency Response Plan (MA-BF6-EMG-01).

3.3. Dust Generation

During construction, the local air quality could potentially be impacted as a result of the following emissions:

- Dust generation from the demolition activities (including the removal of refractory materials)

- Dust generation from construction activities, particularly materials handling and machinery and truck movements.

The nearest residential areas to the construction sites are not expected to be impacted by dust, due to distance to these areas (1.5 km), and the low potential for significant dust generation.

Appendix A - 6BF Reline Construction Risks and Controls details the existing controls measures to control dust as well as the additional control measures that will be implemented by the Reline Project prior to commencement of the Construction phase. Project Document 6BFR-PRJ-PLN-0008 *6BFR Construction Environmental Management Plan* details the control measures to ensure compliance with the DECC requirements.

3.4. Excavations and Penetration

During the construction civil works will be conducted at various locations on the site. This work will require excavations and, in some cases, driving of piles for foundation support.

BlueScope has a comprehensive divisional procedure DIV.ES.ADM-033 *Excavation and Penetration Procedure* to ensure both desktop and site surveys are conducted prior to the commencement of any excavation or penetration. No excavation is planned outside the PKSW site boundary.

Excavated material will be managed in accordance with BlueScope's procedure *Management of Excavated Soil at PKSW* (MA-ENV-02-01).

3.5. Overhead Traffic Clearance Safety

During construction works there will be a significant amount of mobile equipment on the site. One of the risks identified by the team was the potential for a crane or elevated work platform striking an overhead structure, e.g. a gas main.

The team identified the following control measures that will mitigate this risk:

- Logistics route surveys for all inbound oversize loads
- PKSW internal Roads have classified Heavy Vehicle routes
- Surveys of all height restricted areas
- Signage at all height restricted areas
- Height sensing indicators at height restricted areas.
- 6BFR-PRJ-PLN-0020 *6BFR Construction Traffic Management Plan* details the process for managing project Logistics movements.

3.6. Noise and Vibration

During construction works there will be several sources of noise and vibration that could impact on the amenity of neighbouring sites. The team identified the following sources:

- Skull blasting inside the furnace
- Piling
- Excavation and groundworks
- Construction equipment combustion engines.

6BFR-PRJ-PLN-0032 *6BFR Noise and Vibration Management Plan* describes the control measures for managing noise and vibration emissions from 6BFR construction activities. The controls include operating within the approved hours of work for the project unless noise is monitored and noise levels are not detected at the receptor locations, containing noise as much as practicable, selection of equipment used by noise emission levels, and monitoring weather conditions that unfavourably direct construction noise emissions towards receptors and community areas.

In accordance with Condition B39 of the Infrastructure Approval, should blasting be required, noise and vibration monitoring will be performed during the first two blasting events to determine compliance with Conditions B37 and B38. Details of the standards, guidelines, and methodology for this monitoring is detailed as part of the Noise and Vibration Management Plan provided in 6BFR-PRJ-PLN-0032.

3.7. Demolition of Existing Plant and Structures

Demolition works may be required within the 6BFR Project scope, and such works will be conducted in accordance with NSW Work Health and Safety Regulation 2017 Part 4.6 Demolition. Where the project work involves demolishing or dismantling a structure or part of a structure that is either load bearing or related to the physical integrity of the structure, licensed demolition service providers will be engaged for these activities. The demolition regulator will be notified prior to commencing demolition works in the required timeframes.

3.8. Hazardous Materials for Demolition/ Construction

In some instances, hazardous materials will need to be stored on site for the purposes of demolition and construction. At times during the project, temporary storage and use of liquid fuels, LPG, and explosives will be required.

Hazardous Chemicals and Dangerous Goods used on site during construction will be managed in accordance with BSL procedure BZ-SEQ-03-116 *Hazardous Chemicals and Dangerous Goods Management*, and will be stored in compliance with regulations. Safety Data Sheets for all chemicals stored on site will be readily available through a hazardous substances register, ChemAlert. Hazardous liquids will be banded in accordance with MA-ENV-02-03 *Environment Requirements for Bunding of Storage Tanks*.

3.9. Interactions with Continuing Operations

The introduction of process gases into the PKSW Energy Services network is managed with BlueScope Standard Operating Procedures (SOPs), to ensure the introduction does not generate hazards within this network. These SOPs are currently in use with 5BF, and are mature and well managed. The primary input to this process is the furnace top gas analyser. Intention to introduce energy sources is notified, approved, and communicated through the Notice of Intent to Introduce Energy (NOI) process.

All members of the Commissioning teams will receive a detailed induction. Personnel tasked with operating and maintaining the plant and processes will have been trained and competency assessed by the Project MTEC team prior to commissioning commencement. Standard Operating Procedures produced by the MTEC team will be employed by the Commissioning team.

- 6BFR-PRJ-PLN-0015 *6BFR Commissioning Management Plan* describes the control measures for managing commissioning risk. MA.DIV-ENG-RK-100.1 *Gas Regulations Manual* shall be followed to ensure the safety of all personnel on site, while energy sources are progressively made live.

3.10. Drainage Arrangements

The 6BF site has established stormwater drainage consisting of a series of sumps and collection tanks which capture the 'first flush' of rainfall events and any potential spills. As part of the project, the slag handling area will be prepared with hardstand and graded to new internal drains that will flow into either the slag pit settling pond or the granulator settling pond. The new slag pit settling pond will capture all slag handling surface drainage (slag pit, adjacent slag pit roads, and slag haulage truck wash areas), and will provide additional capacity to capture the first flush during rain events. The 6BFR Project will engineer a suitable drainage system prior to civil works commencement, to manage the capture and containment of surface runoff.

A Soil and Water Management Plan has been developed for the construction of the project (6BFR-PRJ-PLN-0033). This plan incorporates an Erosion and Sediment Control Plan that was prepared in accordance with the *Blue Book - Managing Urban Stormwater: Soils and Construction* (4th edition, Landcom, 2004).

3.11. Natural Events

Significant natural weather events like high winds, storms and lightning have the potential to adversely affect construction activities. Weather monitoring will occur throughout the life of the project, and stringent monitoring of wind and lightning risks will occur, particularly with respect to cranes and other lifting equipment.

Weather alerts are provided to Plant Owners and other site stakeholders from a weather Early Warning Network (EWN) subscription service. The 6BFR Project has an assigned Plant Owner who is responsible for Permitting access to the project site to complete work. In the event of inclement weather, the Work Owner will communicate the current weather alert level for work groups to take prescribed actions. The Project will establish inclement weather Trigger Action Response Plans (TARPs) for wind and lightning.

Emergencies during the 6BFR Project will be managed in accordance with the No.6 Blast Furnace Emergency Response Plan MA-BF6-EMG-01, including those emergencies arising from natural events.

3.12. Hazardous Materials during Commissioning

Commissioning will interact with hazardous materials in the form of available fuel gases including carbon monoxide and nitrogen, and will generate raw process gas including carbon monoxide and molten slag and iron. These materials and their hazards are encountered progressively at differing phases of commissioning. BlueScope gas regulations apply when fuel gases are introduced and process gases generated.

All members of the Commissioning teams will receive a detailed induction. Personnel tasked with operating and maintaining the plant and processes will have been trained and competency assessed by the Project MTEC team prior to commissioning commencement. Standard Operating Procedures produced by the MTEC team will be employed by the Commissioning team.

6BFR-PRJ-PLN-0015 *6BFR Commissioning Management Plan* describes the control measures for managing commissioning risk. An isolation system (complying with DIV-OHS-01-11 *Isolation Regulations*, DIV-OHS-01-12 *Isolation Locking Regulations*, DIV-OHS-01-13 *Warning Tag and Barricade Regulations* and MA.DIV-ENG-RK-100.1 *Gas Regulations Manual*) shall be followed to ensure the safety of all personnel on site, while energy sources are progressively made live.

3.13. Sequencing of Commissioning Activities

Commissioning introduces hazards during the transient period between construction on what is largely “dead” plant with regards to process energy sources and a live operating plant, with progressive introduction of these sources of energy and process hazards. Additionally, this will occur for the first time, and may be in a manner that is transient before steady state is reached.

The sequence of commissioning activities will ensure that protection systems/devices, e.g. emergency stops, over current, over pressure, over travel, over temperature, etc. will be commissioned before any main circuit energisation or movement of equipment is attempted. Changes to plant & equipment status, including deeming equipment or systems “live”, and the initial operation of equipment which may impact on other work, or present a hazard, shall be communicated to all affected personnel. Communication will be by distribution of a “Notification of Intent to Energise or Operate Plant”.

All members of the Commissioning teams will receive a detailed induction. Personnel tasked with operating and maintaining the plant and processes will have been trained and competency assessed by the Project MTEC team prior to commissioning commencement. Standard Operating Procedures produced by the MTEC team will be employed by the Commissioning team.

6BFR-PRJ-PLN-0015 *6BFR Commissioning Management Plan* describes the control measures for managing commissioning risk. An isolation system (complying with DIV-OHS-01-11 *Isolation Regulations*, DIV-OHS-01-12 *Isolation Locking Regulations*, DIV-OHS-01-13 *Warning Tag and Barricade Regulations* and MA.DIV-ENG-RK-100.1 *Gas Regulations Manual*) shall be followed to ensure the safety of all personnel on site, while energy sources are progressively made live.

4. ASSESSMENT OF OPERATIONAL SAFEGUARDS

4.1. Existing Safeguards

Appendix A - 6BF Reline Construction Risks and Controls lists the existing safeguards related to the identified construction-related hazards.

The 6BFR Project will utilise existing BlueScope procedures. Health and safety will be managed in accordance with the BlueScope Steel Limited (BSL) HSEC Policy, OH&S Management System (BSL-OHS-01-01), and Safety Beliefs (BSL-OHS-P-01-01).

4.2. Additional Safeguards

A number of project-specific safeguards will be implemented as a result of the hazard identification and review of the existing safeguards. Those additional, or project-specific, safeguards are listed in Appendix A - 6BF Reline Construction Risks and Controls.

4.3. Project Management Plans

The following project plans have been developed for the 6BFR Project, and were reviewed for the Construction Safety Study:

- 6BFR-PRJ-PLN-0001 *6BFR Project Execution Plan*
- 6BFR-PRJ-PLN-0003 *6BFR Construction Management Plan*
- 6BFR-PRJ-PLN-0004 *6BFR Communications Plan*
- 6BFR-PRJ-PLN-0005 *6BFR Document Management Plan*
- 6BFR-PRJ-PLN-0006 *6BFR Design Management Plan*
- 6BFR-PRJ-PLN-0007 *6BFR Safety Management Plan*
- 6BFR-PRJ-PLN-0008 *6BFR Construction Environmental Management Plan*
- 6BFR-PRJ-PLN-0009 *6BFR Quality Management Plan*
- 6BFR-PRJ-PLN-0011 *6BFR Risk Management Plan*
- 6BFR-PRJ-PLN-0013 *6BFR Community Consultation Strategy*
- 6BFR-PRJ-PLN-0015 *6BFR Commissioning Management Plan*
- 6BFR-PRJ-PLN-0020 *6BFR Construction Traffic Management Plan*
- 6BFR-PRJ-PLN-0021 *6BFR Logistics Management Plan*
- 6BFR-PRJ-PLN-0023 *6BFR MTEC Strategy*
- 6BFR-PRJ-PLN-0032 *6BFR Noise and Vibration Management Plan*
- 6BFR-PRJ-PLN-0033 *6BFR Soil and Water Management Plan*
- 6BFR-PRJ-PLN-0034 *6BFR Dust Management Plan*
- 6BFR-PRJ-REG-0001 *6BFR Project Risk Register*
- 6BFR-PRJ-REG-0010 *6BFR Change Register*

Prior to commissioning, 6BF Blow-in Plan will be developed and implemented. This document is currently in draft.

5. SAFETY ASSURANCE

5.1. Quality Assurance Philosophy

BlueScope holds certification to ISO 9001, and accordingly has systems and procedures in place to ensure that the work undertaken during the Reline is built according to the design specification and quality.

To ensure the work is conducted according to the specifications, BlueScope uses quality suppliers, designers and contractors. BlueScope uses the documented design processes, specifications, contracts, procedures, quality auditing and Inspection and Test Plans (ITPs).

Additionally, BlueScope has adopted the MTEC process. People with on-site plant operational, electrical or mechanical maintenance experience principally fill the roles in this process. The role is responsible for understanding and contributing to the operability of the plant during the design phase, and developing the documentation (manuals, procedures, training packages) that will enable the operations personnel to effectively operate and maintain the plant at the completion of the project. The role is also expected to consult with operations personnel during the term of the project, deliver training packages, and participate in all facets of the commissioning phase.

5.2. Involvement of all participants

A significant number of BlueScope and contract employees have been engaged in the Project Team, bringing with them significant blast furnace technical and operational experience and knowledge. The Project Lead Team regularly meets with key stakeholders from all departments that interface with the Blast Furnaces. The project's Steering Committee includes members of the executive lead team and relevant managers across the business, including the senior manager in the organisation who oversees the production process. Additionally, through an Early Contractor Involvement (ECI) process, the project team has worked very closely with key fabrication, mechanical, electrical, refractory and engineering design and installation contractors to ensure that the scope is understood, and all hazards are documented and mitigated. Documentation of hazards prior to the construction execution has been facilitated through CHAIRs, HAZOPs, Design Reviews and Risk Assessments.

During execution of the work, communication and employee involvement will be facilitated through Toolbox Meetings, JSEAs, Project Team Meetings, Project Safety Committee, and Daily Project Meetings.

5.3. Documentation

The project has a comprehensive document control system, which provides all necessary documentation for the safe installation, maintenance and operation of 6BF. All documents are stored securely on the project document management system, and will be transferred to the BlueScope Documentum Records System at the project conclusion.

To document and show BlueScope's commitment to Health and Safety, a series of documents, tools and checklists have been developed to assist in compliance with the project's Safety Management Plan, as well as to ensure compliance with the NSW Work Health and Safety Act and Regulation.

These documents include but are not limited to the following:

- BlueScope Policies and Procedures
- Risk Register
- Communications
- Site Rules and Procedures
- Permits.

5.4. Materials of Construction

Materials of construction have been developed through past experience, vendor recommendation, and technological improvements. Quality checks are being conducted on materials received to date to ensure they comply with the relevant standards and specifications.

The engineering drawings detail the material specifications for each of the components used in the project. These engineering drawings are used in the inspection and testing process to validate compliance with the specification.

5.5. Fabrication

BlueScope has engaged contractors who comply with the quality assurance standards. Each of the contracts specify the preparation of documented quality assurance plans. These are in conjunction with the specifications and drawings used to ensure compliance to the designed specifications. Regular meetings and site inspections are conducted to ensure compliance.

5.6. Installation

A detailed installation program has been developed for the Reline, which outlines the critical path.

Inspection and Test Plans (ITPs), surveys, NDT, Welding inspections, etc. have been incorporated into the contractors' installation work to ensure there is appropriate sign-off for critical work during the Reline.

Each installation contractor will prepare a Safety Management Plan in line with the Project Safety Management Plan (6BFR-PRJ-PLN-0007). This requires risk assessments and risk reduction initiatives in line with appropriate Australian Standards, NSW Work Health & Safety Act 2011, NSW Work Health & Safety Regulation 2017, and SafeWork NSW Codes of Practice.

5.7. Critical Verification/Safety Reviews

The detailed installation program will incorporate safety critical work that must be checked prior to continuation of work. A pre-start checklist will be developed to ensure all design and installation aspects have been met prior to commencing operations.

Other critical steps that will be undertaken include Critical Procedure Audits, Safety Management Plan Audits, Critical Control Verifications, and audits specifically focussed on high-risk activities.

5.8. Training/Qualifications

To ensure that all work performed during the reline is conducted safely, all personnel must be competent for the work they are undertaking.

Each employee entering the construction site must have completed the 6BFR Induction.

Where a High Risk Work (HRW) Licence is required, contractors working on the site must have a registration of competency for their employees. HRW Licence holders must be able to provide the Licence on request.

Where a HRW Licence is not required, other systems are in place to ensure that people have received the appropriate training to conduct their work. These systems have been outlined in 6BFR-PRJ-PLN-0007 *6BFR Safety Management Plan*, and in the induction process.

Training of employees in new or modified equipment that will be installed during the reline will be completed. Detailed procedures and presentations are being deployed to Blast Furnace departmental employees through an extensive training process.

The MTEC process will develop and deliver training packages that will enable the operations personnel to effectively operate and maintain the plant at the completion of the project.

5.9. Definition of Responsibilities.

The roles and responsibilities of members of the Project Team with respect to workplace safety are defined in the Safety Management Plan (6BFR-PRJ-PLN-0007).

5.9.1. All Personnel

Each individual on the Project is expected to fulfil the following responsibilities:

- a. Performing their duties in a manner that does not create situations where they can cause injury to themselves, others, equipment or the environment.
- b. Personally knowing and adopting the BlueScope Safety Beliefs.
- c. Cooperating with others to ensure that all parties can fulfil their safety responsibilities.
- d. Abiding by all the Project's safety rules outlined in the Safety Management Plan (6BFR-PRJ-PLN-0007).
- e. Intervening immediately to correct any unsafe acts or conditions they observe when it is safe to do so. They should look after themselves and their fellow workers.
- f. Reporting all actual or potential (near miss) safety issues/incidents.
- g. Maintaining all safety and environmental systems and equipment at all times.
- h. Maintaining a safe means of access and egress to the work areas at all times.
- i. Maintaining a high level of housekeeping on and around the site.
- j. Maximising recycling of resources used on the Project.
- k. Completing safety audits and inspections as scheduled.

5.9.2. Project Manager

The Project Manager demonstrates safety leadership, and is accountable for the overall project safety standards, including:

- a. Showing safety leadership that is highly visible, models the desired behaviours, and creates urgency and accountability around safety through ongoing personal involvement.
- b. Ensuring appropriate systems and roles are established and audited to ensure compliance with WHS legislation, standards and codes.
- c. Ensuring a project Risk Register is established and maintained. This shall include a non-compliance recording (NCR) system to monitor effective closeout of non-conformance.
- d. Ensuring regular reviews and updates are made to the project Risk Register, including hazard identification, risk assessment, and measures to control risks.
- e. Ensuring that the work methodologies, estimates and schedules developed for the Project give adequate consideration to safety.
- f. Ensuring all safety incidents are correctly investigated and reported, results analysed to monitor trends, and improvements put in place to mitigate the risks. Personal involvement in a significant proportion of incident investigations.
- g. Ensuring that the safety performance of the Project is monitored through recording and reporting of safety statistics.
- h. Establishing and maintaining an effective project-specific WHS Committee and other structured forms of communication. The WHS Committee will be established prior to major site works commencing on site.
- i. Working with the Construction Manager to establish a Safe System of Work (SSW) permit system for sites where plant ownership has formally been handed over to the 6BFR Project Team.

- j. Participating in safety meetings, audits and inspections.
- k. Working to continually improve the project Safety Management System and WHS performance by encouragement, leadership, and personal involvement in the development of safety improvement initiatives.
- l. Encouraging the involvement of all project participants (including contractors and other external organisations involved) in the improvement of safety performance.
- m. Participating directly, or encouraging participation by Project Team members, in relevant industry forums set up to improve safety performance and support other relevant safety research and development.
- n. Supporting internal risk-based networks and other relevant external networks that promote WHS improvement.
- o. Recognising achievements in safety performance or safety initiatives and celebrating or rewarding these achievements.
- p. Encouraging a healthy balance between work and home life.

5.9.3. Area Managers

The Area Managers report to the Project Manager, and are accountable for the safe execution of works within their assigned area including:

- a. Exhibiting safety leadership that is highly visible, models the desired behaviours, and creates urgency and accountability around safety through ongoing personal involvement.
- b. Supporting and maintaining a safe and healthy workplace that adheres to BlueScope policies and other applicable laws, regulations, standards and codes for the workplace.
- c. Ensuring that a safety culture is instilled within their area team, and that risk management, safe systems of work, procedures and practices are followed in all aspects of the work.
- d. Providing project management for the scope elements for which the role is responsible, from Feasibility through to commissioning, maintaining a focus on safety, environmental and community impacts, progress, issues, schedule and budget.
- e. Informing the Project Manager of any emergent potential safety issues.
- f. Participating in safety meetings, audits and inspections.

5.9.4. Engineering Manager

The Engineering Manager reports to the Project Manager and is accountable for ensuring safety is incorporated into plant and equipment design, including:

- a. Identifying, controlling (through elimination or mitigation) and documenting the risks, during the design phase of the Project.
- b. Establishing and implementing a Design Management Plan to ensure appropriate design reviews are completed utilising tools such as HAZOP, CHAZOP, and the MTEC process.
- c. Ensuring safe constructability of design through engaging key construction and plant personnel in design reviews using tools such as the Construction Hazard Assessment Implication Review (CHAIR) process.
- d. Ensuring safe access and egress is provided to the designed plant to allow appropriate construction and ongoing operational and maintenance activities, including emergency response activities.
- e. Ensuring the human and machine interface issues are considered, so that equipment can be used and maintained without harm.
- f. Ensuring safe isolation and verification requirements are provided in the designed plant.
- g. Advising and reporting on safety aspects of the design to the Construction Team and Plant Owner alike.
- h. Participating in safety meetings, audits and inspections.

5.9.5. Construction Manager

The Construction Manager is accountable for the safe execution of the 6BFR Project works during the construction phase. In particular, this role includes:

- a. Exhibiting leadership on safety matters that is highly visible, models the desired behaviours, and creates urgency and accountability around safety through ongoing personal involvement.
- b. Ensuring a safe work site is established and maintained through the duration of the construction work.
- c. Maintaining a listing of pre-qualified site work contractors that have been endorsed as understanding the full safety requirements and expectations of the project, and whose systems have been reviewed to assure compliance with same.
- d. Ensuring new project sitework contractors are audited to assure systems meet the full safety requirements and expectations of the project.
- e. Ensuring all Contractors have a copy of the Safety Management Plan (6BFR-PRJ-PLN-0007) on site, and understand its requirements.
- f. Ensuring all site personnel have clearly defined responsibilities for safety management that are clearly communicated to them, are understood, and are implemented.
- g. Contributing to the design process by involvement in constructability studies and other risk reviews such as CHAIRs.
- h. Ensuring that a system is in place so that personnel working on the construction site are inducted and appropriately trained, and that a high level of safety awareness is proactively promoted and maintained.
- i. Establishing a Safe System of Work (SSW) permit system for sites where plant ownership has formally been handed over to the 6BFR Project Team.
- j. Ensuring a system is in place that manages hours of work in line with company and industry guidelines.
- k. Implementing procedures to ensure work methods developed for the project give adequate consideration to safety, and reflect actual task status.
- l. Ensuring that Job Safety and Environment Analyses (JSEAs) and Safe Work Method Statements (SWMSs) comply with the requirements of the NSW Work Health and Safety Regulation.
- m. Ensuring that isolations are carried out in line with company Isolation Regulations (DIV-OHS-01-11).
- n. Liaising with project, operational and maintenance personnel on site safety matters.
- o. Ensuring construction-related incidents are recorded, reported and investigated to root cause. Ensuring corrective actions are completed.
- p. Assessing and monitoring the safety management capability of contractors and other service providers.
- q. Ensuring the implementation of the requirements of the 6BFR Safety Management Plan (6BFR-PRJ-PLN-0007), 6BF Emergency Response Plan (MA-BF6-EMG-01), 6BFR Construction Environmental Management Plan (6BFR-PRJ-PLN-0008), and the various Contractor safety and environment management plans under these umbrella plans.
- r. Participating in safety meetings, audits and inspections.
- s. Ensuring a system for safe site access and evacuation is in place.
- t. Liaising with the Commissioning Manager and jointly agreeing to a handover plan that adequately covers parallel Construction and Commissioning activities.

5.9.6. Commissioning Manager

The Commissioning Manager is accountable for the safety management of the site during the commissioning phase. Strategies for managing safety during the commissioning phase are documented in the project Commissioning Management Plan (6BFR-PRJ-PLN-0015). In particular, this role includes:

- a. Exhibiting leadership on safety matters that is highly visible, models the desired behaviours, and creates urgency and accountability around safety through ongoing personal involvement.
- b. Liaising with the Area Managers, Construction Manager and the Engineering Manager and jointly agreeing to a handover plan that adequately covers parallel Construction and Commissioning activities.
- c. Creating the Commissioning Management Plan (6BFR-PRJ-PLN-0015) and communicating this to the 6BFR Project Team.
- d. Providing and maintaining a safe work environment during plant commissioning within the site for all personnel, and ensuring that Contractors fulfil their responsibilities in this regard.
- e. Ensuring all commissioning personnel have clearly defined responsibilities for safety management that are clearly communicated to them, are understood and are fulfilled.
- f. Ensuring that a system is in place so that personnel working on the commissioning site are inducted and appropriately trained.
- g. Ensuring that a system is in place that manages hours of work in line with company and industry guidelines.
- h. Ensuring that commissioning isolations are developed and carried out according to DIV-OHS-01-11 *Isolation Regulations* whilst being performed by accredited personnel.
- i. Implementing procedures to ensure work methods developed for the project give adequate consideration to safety and the environment.
- j. Ensure that during commissioning, Job Safety and Environment Analyses (JSEA) and Safe Work Method Statements (SWMSs) comply with the requirements of the NSW Work Health and Safety Regulation.
- k. Liaising with project, operational and maintenance personnel on site safety matters.
- l. Ensuring commissioning-related incidents are recorded, reported and investigated to root cause. Ensuring corrective actions are completed.
- m. Ensuring the implementation of the requirements of the 6BFR Safety Management Plan (6BFR-PRJ-PLN-0007), 6BF Emergency Response Plan (MA-BF6-EMG-01), 6BFR Construction Environmental Management Plan (6BFR-PRJ-PLN-0008), and the various contractor safety and environment management plans under these umbrella plans.
- n. Verifying that the safety design intent is achieved.
- o. Participating in safety meetings, audits and inspections.
- p. Ensuring a system is in place for safe site access to and evacuation from the site.

5.9.7. HSE Manager

The HSE Manager will be responsible for the following:

- a. Advising the Project Manager, Engineering Manager, Construction Manager, Commissioning Manager and Project personnel on workplace health and safety matters to ensure compliance with the NSW Work Health and Safety Regulation.
- b. Providing resource material on safety management and training.
- c. Overseeing the relevance of the project site safety procedures, and recommending improvements or modifications to the Project Manager, Construction Manager and Commissioning Manager.

- d. Coordinating and carrying out site-specific construction safety inductions, and keeping records of these inductions.
- e. Regularly and frequently reviewing and updating the project Safety Management Plan (6BFR-PRJ-PLN-0007) and related plans, and their application.
- f. Implementing and managing the project audit schedule.
- g. Participating in safety meetings, audits and inspections.
- h. Supporting an effective project-specific WHS Committee.
- i. Communicating safety matters with other projects via the safety network.
- j. Maintaining the site Hazardous Materials Register, Hazard Register, induction, training, competency and incident records.
- k. Establishing a set of leading and lagging indicators, and providing expert interpretation of data.
- l. Coordinating the recording of safety statistics. Analysing trends within the safety statistics.
- m. Providing input on safety performance for the various project reports.
- n. Assisting in the safety mentoring of various Contractors and site personnel.
- o. Providing input into the evaluation and selection of Contractors from a safety culture aspect.
- p. Assisting the Project Manager in mentoring the 6BFR Project contractors and suppliers.
- q. Communicating any relevant changes to Work Health and Safety legislation, SafeWork NSW regulations and codes of practice, or BlueScope safety procedures, to the 6BFR Project Team, together with advice on how these are best implemented.
- r. In the event of an injury to a BlueScope employee, undertaking the role of DRO (Departmental Rehabilitation Officer) to assist in the injury management process.

5.9.8. MTEC Manager

The MTEC Manager is accountable for the following:

- a. Ensuring all current and revised plant-specific safety procedures, hazards and risks with current plant are communicated to, and understood by, the 6BFR Project Team.
- b. Ensuring that the current plant risk and hazard registers are available for 6BFR Project personnel.
- c. Coordinating the development of required isolation, commissioning, safety, maintenance and operating procedures for the newly installed plant and modified plant, ensuring these are completed in a timely manner to suit the requirements of the project schedule.
- d. Ensuring availability of key plant personnel for coordinating isolations.
- e. Ensuring that 6BFR Project personnel and service providers are accredited in a timely manner to perform works as SSW Plant Owner, SSW Work Owner, and SSW Person in Charge Service Providers in operating departments that remain under the ownership of the operating department for the SSW process. This is based on the 6BFR Project personnel being assessed as competent by the "Operations Manager" in the SSW system for that department.
- f. Providing expert input to the project Risk Register, and transferring the latent hazards and risks from the 6BFR Project to the new Plant Owner(s) on handover.
- g. Participating in Project Team safety audit quality reviews.
- h. Participating in safety meetings, audits and inspections.

5.9.9. Engineers

Engineering representatives are accountable for ensuring safety systems are incorporated into plant and equipment design. In particular this role includes:

- a. Designing for safety in accordance with relevant Australian, statutory and company standards and/or procedures as stipulated in the project Design Management Plan (6BFR-PRJ-PLN-0006).
- b. Participation in project safety audits and safety meetings.
- c. Ensuring safe access and egress is provided in the plant design to allow appropriate ongoing operational and maintenance activities.
- d. Ensuring human and machine interface issues are considered, so that equipment can be used and maintained without harm.
- e. Ensuring that equipment necessary for safe isolation and verification requirements is designed into the plant.
- f. Contributing as required to the development, documentation, communication and utilisation of procedures for the safe isolation and de-isolation of plant and equipment.
- g. Contributing as required to the process to ensure that personnel are trained in the safe operational practices associated with the new and modified plant associated with the 6BFR Project Team.
- h. Reviewing and resolving through best practice design, all aspects of safety and environment in design reviews through the utilisation of tools such as HAZOP, CHAZOP, HAZAN, and the MTEC process.
- i. Ensuring that any work performed on site is undertaken by pre-qualified contractors, or that the selected vendor is approved for sitework by the Construction Manager.
- j. Identifying any residual risks in the final design, documenting these in the project Risk Register and design documentation (along with the controls for the risk), and clearly communicating these risks to the Construction Manager, Commissioning Manager, MTEC Team, and operators.
- k. Identifying, documenting, and communicating any limitations or operating constraints in the equipment as designed.

5.9.10. Construction Coordinators

Personnel on site involved in construction coordination report to the Construction Manager, and are responsible for the following:

- a. Proactively demonstrating personal commitment to site safety by leading by example and acting as a coach/mentor to the site construction and other personnel on site.
- b. Ensuring that any work performed on site is undertaken by pre-qualified contractors, or that the selected vendor is approved for sitework by the Construction Manager.
- c. Complying with the requirements of the project work instructions for the 6BFR Project site, relevant statutory obligations, SSWs, and other work permits.
- d. Ensuring the implementation of the requirements of the relevant project Management Plans and the various Safety Management Plans, together with the obligations of the regulations and standards.
- e. Conducting safety audits and inspections, and monitoring safety behaviour on site.
- f. Ensuring that Job Safety and Environment Analyses (JSEAs) and Safe Work Method Statements (SWMSs) are completed, and verifying that each JSEA and SWMS is appropriate, thorough, communicated, and followed in accordance with the NSW Work Health and Safety Act and Regulation.
- g. Recording incidents and unsafe acts and conditions into Intalex, after proactively rectifying the issue.
- h. Demonstrating at all times by their proactive actions, the commitment of the project management team to the highest standard of safety and environment management.

- i. Participation in Toolbox Meetings.
- j. Participation in incident investigations.
- k. Participation in safety audits and inspections.
- l. Performing the role of SSW Plant Owner for sites where the site ownership has been formally handed over to the 6BFR Project Team, and ensuring access requirements for works are in accordance with the BlueScope SSW process.
- m. Performing the role of Department Emergency Controller (DEC) for the site if nominated by the Construction Manager.
- n. Assuming the role of SSW Work Owner in some cases where required for the purposes of the BlueScope SSW system, for an area and duration specified by the Construction Manager. This includes ensuring that all aspects of the SSW work pack are prepared to a high standard, with the appropriate sign-offs.

5.9.11. Contractors' Management

The members of the management teams of construction contractors have the following responsibilities for safety and environment management that are to be specifically defined in the contractor's Safety Management Plan:

- a. Leading the contractor's team by example, and demonstrating commitment to Zero Harm principles and to the requirements of 6BFR-PRJ-PLN-0007 *6BFR Safety Management Plan*.
- b. Ensuring that a positive safety culture is developed and maintained within the contractor's team.
- c. Preparing, implementing and maintaining a Safety Management Plan specifically developed for this project (i.e. not generic), incorporating the requirements of 6BFR-PRJ-PLN-0007 *6BFR Safety Management Plan* and the 6BFR Project. The contractor's Safety Management Plan shall be amended and reviewed with the Construction Manager as required throughout the life of the contract, to cover the changing working requirements and environment.
- d. Ensuring that JSEA and SWMS are developed that adequately address the safety issues, and comply with NSW Work Health and Safety Regulation requirements.
- e. Ensuring that all members of the contractor's workforce have clearly defined responsibilities for safety management, and that these responsibilities are clearly communicated, understood, and fulfilled by them.
- f. Ensuring that all members of the contractor's workforce are suitably trained and competent for the role in which they are employed. Providing the Construction Manager with a copy of personnel training history if requested.
- g. Maintaining an auditable system that records details of each employee's training, inductions, and accreditation.
- h. Ensuring that plant and equipment brought onto site complies with statutory regulations, and establishing a system for checking that compliance is in place.
- i. Ensuring that all activities undertaken by the contractor comply with the requirements of their Safety Management Plan, and with the relevant statutory, company and contractual requirements.
- j. Ensuring that the work areas managed by the contractor are kept safe.
- k. Providing PPE and other equipment necessary for the safe execution of the tasks being undertaken.
- l. Ensuring timely notification of all incidents (within 2 hours) to the Construction Manager (or in their absence, the HSE Manager or Project Manager) and the contractor management representative.
- m. Participating in incident investigations.
- n. Participating in company and contractor safety audit programs.
- o. Making available documents and records for regular safety audits.
- p. Providing a proactive rehabilitation system for the contractor's workforce.

- q. Ensuring that a worker who is ill or injured receives timely and appropriate medical treatment, and where required, is referred to their company rehabilitation coordinator.

5.9.12. Contractors' Supervisors

The construction contractors' supervisors have the following responsibilities for safety and environment management:

- a. Demonstrating to the contractor's workforce, by their proactive actions and their commitment, the highest standard of safety management.
- b. Complying with the requirements of the employee and contractor workplace safety and environment rules, and relevant company and statutory requirements.
- c. Ensuring the implementation of the requirements of the relevant contractor Safety Management Plan(s).
- d. Ensuring that JSEAs and SWMSs are completed, including involvement from all members of the work team, and verifying that each JSEA and SWMS is appropriate to the task, thorough, communicated, implemented, and followed.
- e. Arranging Toolbox Meetings on a daily basis and/or when there is a significant change in the task at hand, and ensuring that the meetings are of a high standard and appropriate to the task at hand, with all employees on the project attending, and attendance sign-off.
- f. Ensuring that Toolbox Meetings are minuted in their daily diary for daily on site and pre-start Toolbox Meetings, and communicated to the relevant parties.
- g. Ensuring that safety issues that are raised on the job and/or during Toolbox Meetings are followed up in a timely manner, and communicated to the relevant parties.
- h. Ensuring that staff are appropriately trained, and that adequate PPE and resources are available and utilised.
- i. Initiating and completing safety audits and inspections.
- j. Prior to bringing hazardous materials onto site, advising the Safety, Health and Risk Department through the project HSE Manager, and providing appropriate Safety Data Sheets (SDSs) and risk assessments for their use and/or storage.
- k. Reporting incidents, and identifying and correcting unsafe acts and conditions.
- l. Ensuring timely notification of all incidents (within 2 hours) to the Construction Manager (or in their absence, the HSE Manager or Project Manager) and the contractor management representative.
- m. Participating in relevant investigations of incidents and accidents.
- n. Monitoring work undertaken by sub-contractors.

5.9.13. Contractors' Workforce

The personnel of contractors involved in the site work have the following responsibilities:

- a. Proactively addressing safety and environmental issues, looking for improvements, and looking after both themselves and their workmates using the "Take Two" (Stop; Think and Plan for safety) and "Zero Harm" philosophies.
- b. Complying with all safety procedures and statutory requirements.
- c. Ensuring that they are familiar with, and take a proactive role in, the development and application of the JSEA and SWMS for the work to be undertaken, and verifying that each JSEA and SWMS is appropriate, thorough and followed.
- d. Utilising and maintaining the PPE and aids provided.
- e. Reporting all incidents, and identifying all unsafe acts and conditions.



5.9.14. Site Visitors and Non-Inducted Personnel

All non-inducted visitors to the 6BFR Project site have the following responsibilities:

- a. Wearing the required minimum PPE as per chart CH.BZ-SEQ-S-03-10.01 *Minimum Personal Protective Equipment*.
- b. Undertaking an induction prior to entering the site, or being accompanied on site by an approved inducted person at all times.
- c. Demonstrating their presence on the site by signing the Visitors' Register upon arrival and departure from the site.
- d. Observing all safety signage and directions on the construction site.

6. DEMOLITION/CONSTRUCTION/COMMISSIONING PROGRAMS

6.1. Construction program

A detailed project construction program has been developed by experienced reline personnel, and has been based on knowledge acquired during previous blast furnace relines. The program incorporates the commissioning of the plant, and has allowed for the implementation of quality assurance checks. Final confirmation of the program is pending, awaiting completion of all detailed design work and finalisation of Work Method Statements from the mechanical and electrical construction contractors.

See Appendix B for Reline Project Program (Summary).

7. MANAGEMENT OF CHANGE DURING CONSTRUCTION

Changes are logged in the project Change Register (6BFR-PRJ-REG-0010). Changes are assessed for risk. The 6BFR Project Engineering Manager is accountable for approving changes involving technical risk, and the Area Managers are accountable for approving changes affecting scope, schedule, and cost. Changes within the construction period up until an as-built design is produced ready for commissioning, are managed with the Project internal change management process. From commissioning onwards, the project complies with BlueScope Divisional Procedure DIV-OHS-03-205 *Management of Change*. This process tracks the assessed and approved changes to designs and to the plant process.

The Project Team acknowledges that there may be changes to the program that could affect the delivery deadline. The significant changes that may affect the safety assurances have been identified and covered in Section 4 and Section 5.

The Project Team has site-based engineering, operational and maintenance personnel on the team. These personnel are in the process of developing the operational and maintenance procedures and practices for the safe start-up, operation, and maintenance of 6BF upon completion of the reline.

Reviews are progressing on existing fire safety studies, emergency plans and hazard register, to ensure current safety management plans exists before, during and after the completion of the reline.

Additionally, changes will be captured and documented using the following processes:

- Daily Construction Diaries
- Daily Construction Meetings
- As Built Documentation
- Design Control.

8. GLOSSARY AND ABBREVIATIONS

Acronym / Abbreviation	Meaning
5BF	No. 5 Blast Furnace
6BF	No. 6 Blast Furnace
6BFR	No. 6 Blast Furnace Reline
BlueScope	BlueScope Steel (AIS) Pty Ltd
BSL	BlueScope Steel Limited
CHAIR	Construction Hazard Assessment Implication Review
CHAZOP	Control Hazard and Operability Study
EIS	Environmental Impact Statement
EPA	NSW Environment Protection Agency
EPL	Environmental Protection Licence, now known as a POEO Licence
EWP	Elevating Work Platform
FDS	Functional Design Specification
HAZAN	Hazard Analysis
HAZOP	Hazard and Operability Study
HRW	High Risk Work
HSE	Health, Safety and Environment
HSEC	Health, Safety, Environment and Community
IR	Industrial Relations
IT	Information Technology
JSEA	Job Safety and Environmental Analysis
LPG	Liquid Petroleum Gas
MTEC	Manuals, Training, Equipment and Commissioning
NDT	Non-Destructive Testing
OH&S	Occupational Health & Safety
PFD	Process Flow Diagram
PHA	Preliminary Hazard Assessment
PID	Piping & Instrumentation Diagram
PKSW	Port Kembla Steelworks
PPE	Personal Protective Equipment
SWMS	Safe Work Method Statement
SSW	Safe System of Work
WHS	Work Health & Safety

APPENDIX A. 6BF RELINE CONSTRUCTION RISKS AND CONTROLS

Risk	Controls
Working at Height <ul style="list-style-type: none"> Fall from height Ladders, roofs, scaffold, trucks, EWPs, unprotected edges and penetrations, structural failure 	<ul style="list-style-type: none"> SSW System (BZ-SEQ-S-10-10) Engineered Separation Active separation Engineered Fall Prevention Engineered Fall Arrest Administrative Separation and Prevention- Exclusion zones, training and awareness Inspection and maintenance of structures and equipment
Dropped objects <ul style="list-style-type: none"> Tools, equipment, materials, scaffold 	<ul style="list-style-type: none"> SSW system to manage interaction above/below Barricading Exclusion zones PPE (including chin straps) Tethered tools and dilly bags for smaller objects
Mobile Equipment Incident/Pedestrian Interaction <ul style="list-style-type: none"> Collision with mobile equipment and structure or other equipment Operating outside design intent Interaction with pedestrian Unstable ground conditions 	<ul style="list-style-type: none"> Traffic management plan including standard traffic rules, signage Site speed limits Exclusion zone around mobile equipment Barricading Designated walkways Positive communication SSW system to manage interaction Preventative maintenance Pre-start inspections Licensing/competency Safety devices
Lifting Incident <ul style="list-style-type: none"> Dropped load Unstable ground conditions Failed lifting gear Inclement weather Rigging method Exceeding Safe Working Load 	<ul style="list-style-type: none"> Lift study/check sheet Inspection/tagging regime Positive communication SSW system to manage interaction Preventative maintenance Pre-start inspections Licensing/competency Safety devices CraneSafe System Exclusion zone

Risk	Controls
Fire <ul style="list-style-type: none"> • Switchroom • Material bin • Hot work/flammable materials • Mobile equipment • Smoking • Gases • Grease/oil • Oxy acetylene 	<ul style="list-style-type: none"> • Deluge systems • Smoke detectors • Alarm system • Extinguishers/hose reels/hydrants • Evacuation plans • Emergency response • Hot Work Procedure (DIV-OHS-06-219) including Hot Work Checklist (DIV-OHS-06-219). • Oxy fill checklist • Hazardous work clearance for gas work • Storage with signage of hazardous materials • Impairment system • Tagging for equipment (oxy torches, etc.) • Site fuel management
Asbestos <ul style="list-style-type: none"> • Unexpected finds • Imported components 	<ul style="list-style-type: none"> • Asbestos Register • Excavation permit • Asbestos procedure (BZ-SEQ-S-03-117) • PPE • Contract conditions
Excavation / penetration <ul style="list-style-type: none"> • Damage to/interaction with services • Collapse/engulfment • Roll over • Interaction with mobile equipment and people • Water ingress • Penetration of ground 	<ul style="list-style-type: none"> • Excavation procedure (DIV-ES-ADM-033) • Barricading • Shoring • Benching/battering • Training/competency • Plant/equipment checklist • Communication with crew • SSW system to manage interaction • Licensing/competency • Services searches
Weather / Natural Event <ul style="list-style-type: none"> • Lightning • High Wind • Torrential Rain/hail • Extreme heat 	<ul style="list-style-type: none"> • BF6 Emergency Response Plan (MA-BF6-EMG-01) • Weather alerts • Structures and tanks designed to appropriate codes and standards • PPE • Grounded structure • Site drainage • Job planning • Equipment manufacturers specifications • Wind meters • Encapsulation of some areas
Structural Failure	<ul style="list-style-type: none"> • Structures and tanks designed to appropriate codes and standards • Maintenance and inspection strategies

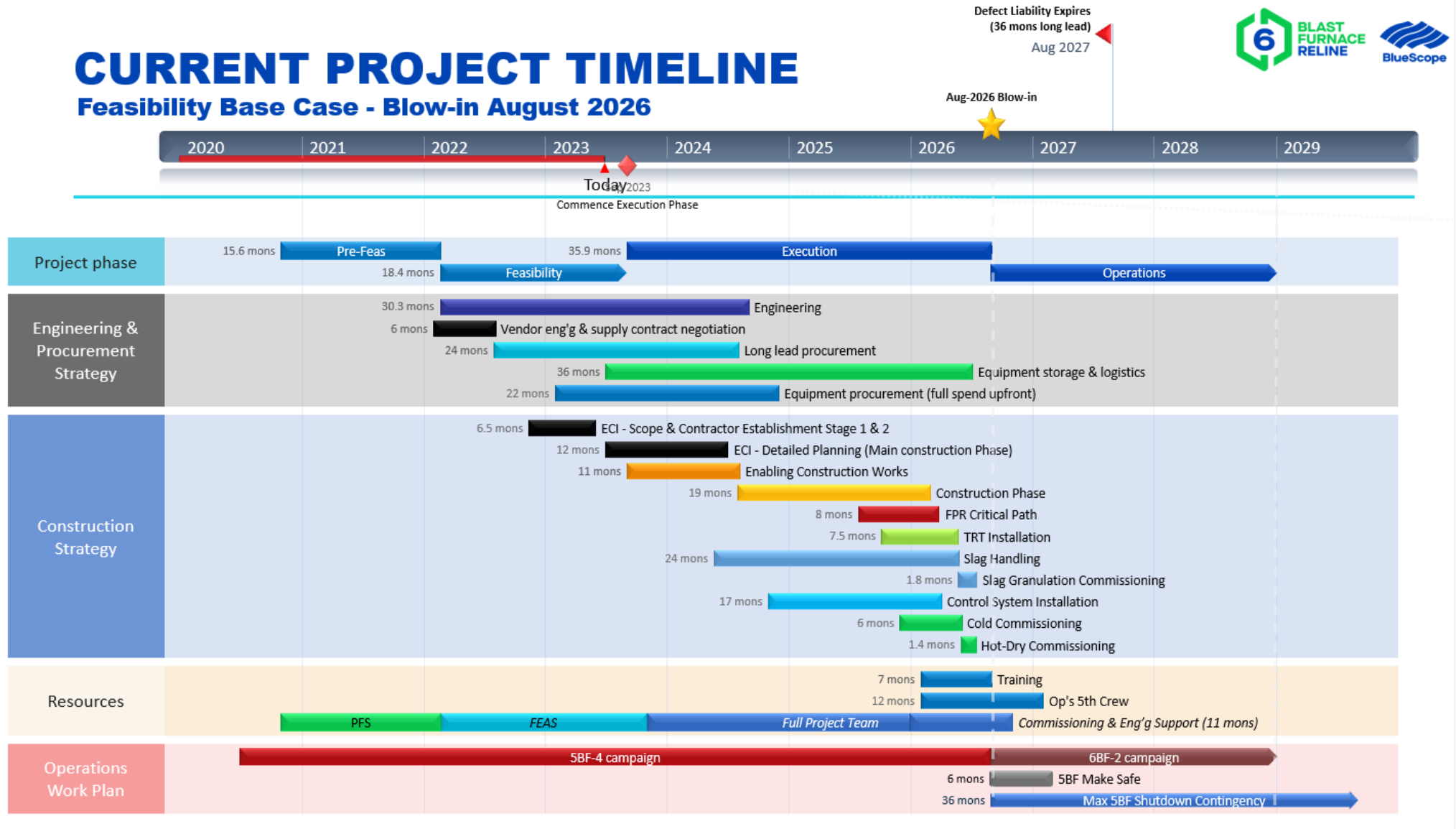
Risk	Controls
Flammable gas leak and ignition	<ul style="list-style-type: none"> • Barriers erected around gas pipe in key areas • Pressure piping and pressure vessel design • Standard operating procedures • Maintenance and inspection strategies • Gas Regulations (MA.DIV-ENG-RK-100.1)
Use/ handling of explosives	<ul style="list-style-type: none"> • Licensed explosives contractor • Handling procedures • Safe Working Method Statement • Use as minimal amounts as possible • Containment (within blast furnace)
Loss of containment of chemicals, including dangerous goods	<ul style="list-style-type: none"> • Purpose designed chemical store, including bunds • Inspection and maintenance strategies • Handling procedures • Standard operating procedures • Spill kits
Contact with chemicals, including dangerous goods	<ul style="list-style-type: none"> • Transfer and handling procedures • Standard operating procedures • PPE • Hazardous Chemicals and Dangerous Goods Management Procedure (BZ-SEQ-03-116) • Explosives storage magazines comply with AS 2187.1 • Dangerous goods labelling • Safety Data Sheet access and inclusion in work instructions
Electric Shock	<ul style="list-style-type: none"> • SSW Permit System (BZ-SEQ-S-10-10) • Isolation Regulations (DIV-OHS-01-11) • Personal/group locks and isolation board system
Hot Work	<ul style="list-style-type: none"> • SSW Permit System (BZ-SEQ-S-10-10) • Hot Work Procedure (DIV-OHS-06-219) including Hot Work Checklist (DIV-OHS-06-219).
Confined Space	<ul style="list-style-type: none"> • SSW Permit System • Confined and Controlled Space Procedure (DIV-OHS-06-101) • Confined Space Register
Stored Energy	<ul style="list-style-type: none"> • CoP Live Equipment (BSL-OHS-C-03-25) • Training and Induction • JSEAs, Toolbox and Take 2
Exposure to Dust/Silica	<ul style="list-style-type: none"> • Hygiene stations • Air extraction and filtration from work areas • Air hygiene monitoring • Dust suppression at disposal bins
Hand and Workshop Tools	<ul style="list-style-type: none"> • Standard for Hand and Workshop Tools (BZ-SEQ-S-10-241) • Manual Tasks Code of Practice (BZ-OHS-C-03-30)

Risk	Controls
Transport and logistics	<ul style="list-style-type: none"> • Traffic Management Plan (6BFR-PRJ-PLN-0020) • Logistics route surveys • Surveys of height restricted areas • Height sensing indicators at height restricted areas • Heavy Vehicle National Law (HVNL) compliance
Dust Generation from Refractory Demolition and Earthworks Logistics	<ul style="list-style-type: none"> • Dust Management Plan • Dust Monitoring and works cessation where unable to be controlled • Stockpile sizes kept to minimum • Water suppression at points of dust generation • Equipment washdown and/or truck body shakers at exits from earthworks construction areas • Monitoring of unfavorable weather conditions and action plans • Truck loads covered
Noise and Vibration	<ul style="list-style-type: none"> • Noise and Vibration Management Plan (6BFR-PRJ-PLN—0032) • Work within approved hours of work • Noise and vibration monitoring during blasting operations • Equipment selection with noise levels as criteria • Monitoring of unfavorable weather conditions and action plans • Training and Induction
Contamination	<ul style="list-style-type: none"> • Unexpected Finds Procedure (MA-ENV-03-11) • Spill Response Guidelines (MA-ENV-11-02) • BF6 Spill Kit Locations identified and maintained per BF6 Emergency Response Plan (MA-BF6-EMG-01) • Bunding for chemical and fuel storage per Environment Requirements for Bunding of Storage Tanks (MA-ENV-02-03)
Interactions with Continuing Operations	<ul style="list-style-type: none"> • Commissioning Management Plan (6BFR-PRJ-PLN-0015) • Gas Regulations Manual (MA.DIV-ENG-RK-100.1) • Notice of Intent to Energize (NOI) process • Stakeholder engagement and consultation • Training and Induction
Hazardous Materials During Commissioning	<ul style="list-style-type: none"> • Commissioning Management Plan (6BFR-PRJ-PLN-0015) • Gas Regulations Manual (MA.DIV-ENG-RK-100.1) • Isolation Regulations (DIV-OHS-01-11) • Isolation Locking Regulations (DIV-OHS-01-12) • Warning Tag and Barricading (DIV-OHS-01-13) • Training and induction

APPENDIX B. RELINE SUMMARY PROGRAM

CURRENT PROJECT TIMELINE

Feasibility Base Case - Blow-in August 2026





DOCUMENT END
