



Keyton™

KMRs 2021

Environment Health & Safety
Keyton Minimum Requirements

March 2021

Introducing the KMRs

Keyton is a leader in environment, health and safety (EH&S) and we need to constantly challenge our performance and push the boundaries so that our approach to EH&S is aligned to the evolution of the Keyton strategy, remains effective, and is fit for purpose for the sectors and markets in which we operate.

The stages of governance outlined in KMRs 1-4 (investment, design and procurement, establishment, and delivery) provide a specific focus on low likelihood, high impact events that have the potential to lead to catastrophic and fatal outcomes.

The KMRs apply to all Keyton operations. This includes all Keyton projects, developments, assets, joint ventures (JVs), alliances, partnerships, multi-site teams, facilities and offices.

The KMRs do not apply to tenancies once handed over to operating entities with management or control of a tenancy or third party users of that tenancy(s).

Keyton has brought across the KMRs in full. Unless permission is given by Head of SSW, all requirements are Keyton requirements. A review of the KMRs and their long-term applicability to Keyton will commence in 2024.

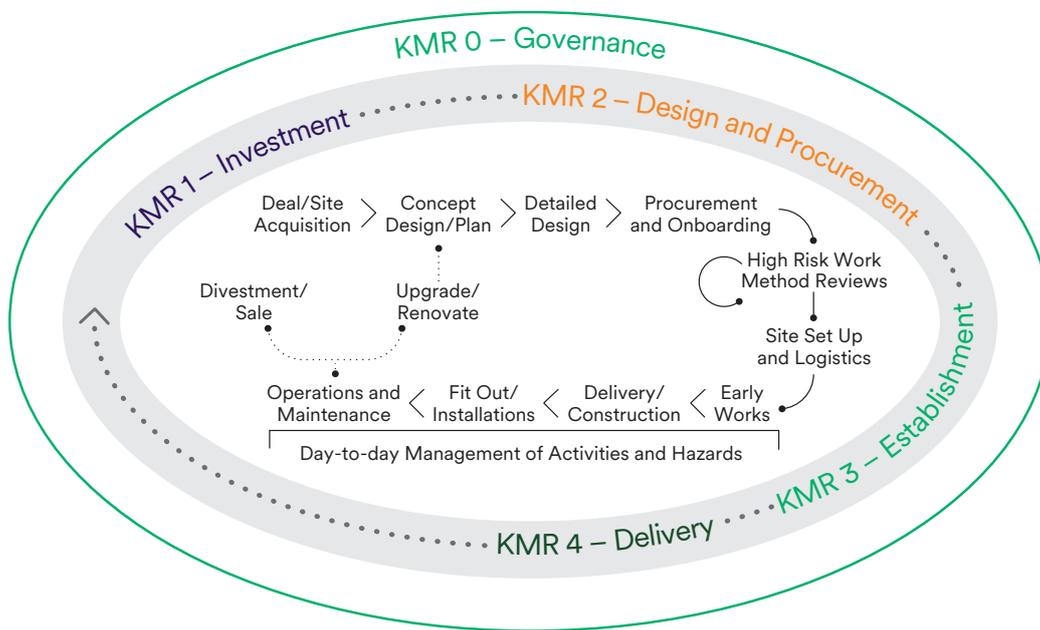


Figure 1: KMR application across the property and construction lifecycle

The KMR Framework consists of five elements covering the following areas:

KMR 0 – GOVERNANCE

KMR 0 outlines the requirements of Group, regions and business units in the areas of governance, assurance, reporting and performance management.

KMR 1 – INVESTMENT

KMR 1 is focused on investment requirements and the assessment of new work and investment opportunities in identifying EH&S risks that can directly or indirectly impact environment, health and safety outcomes in delivery or asset operations.

KMR 2 – DESIGN AND PROCUREMENT

KMR 2 outlines the mandatory design controls aimed at eliminating environmental damage and fatal risks through effective planning, design and procurement, set against the 20 KMR risk events detailed within KMR 4 (Delivery).

KMR 3 – ESTABLISHMENT

KMR 3 focuses on establishing locations and places that care, including minimum requirements for site set up, welfare, accommodation facilities, appropriate working hours and more broadly how personal injury risks and high likelihood, low impact environmental events will be managed by the operations team.

KMR 4 – DELIVERY

KMR 4 addresses the protocols for managing work activities (outlined in KMR 4.0) in the delivery phase of our operations and is inclusive of asset operations and maintenance. This KMR sets out the mandatory controls and performance standards aimed at eliminating risks across the 20 KMR risk events that could result in incidents with the potential to cause fatalities or significant environmental damage. Through addressing the question of ‘What’s the worst that could happen?’ KMR 4 provides the controls required to prevent these potential incidents from occurring.

There are a range of terms used throughout the KMRs requiring clarification. Further information on implementing the KMRs and a glossary of key terms can be found on the KMRs Resources section of the EH&S microsite accessible via Pulse intranet.

KMR 0 – GOVERNANCE

- 0.1 Management governance
- 0.2 Assurance
- 0.3 Reporting
- 0.4 Performance management

KMR 1 – INVESTMENT

- 1.1 Risk reviews – new work and investment opportunities
- 1.2 Independent project reviews

KMR 2 – DESIGN AND PROCUREMENT

- 2.1 Design and procurement control
- 2.2 Design standards
- 2.3 Review processes
- 2.4 Procurement

KMR 3 – ESTABLISHMENT

- 3.1 Establishing places that care
- 3.2 Establishing locations
- 3.3 Establishing governance

KMR 4 – DELIVERY

- 4.0 Activity Management

Risk events 1-10 – critical controls and performance standards

- 4.1 Fall of person
- 4.2 Fall of material/object
- 4.3 Vehicle and plant incident (work sites)
- 4.4 Uncontrolled release of electrical energy
- 4.5 Fire and explosion
- 4.6 Crane and hoisting equipment incident
- 4.7 Impact from moving parts of machines
- 4.8 Excavation and stockpile collapse
- 4.9 Failure of structures (temporary or permanent)
- 4.10 Occupational health exposure

Risk events 11-20 – critical controls only

- 4.11 Public health exposure
- 4.12 Mental health and fatigue
- 4.13 Degradation or pollution of the environment
- 4.14 Vehicle and plant incident (public areas)
- 4.15 Uncontrolled release of stored energy (non-electrical)
- 4.16 Tunnel collapse
- 4.17 Failure of fixtures or fittings
- 4.18 Drowning
- 4.19 Confined space incident
- 4.20 Essential service failure

KMR 0

Governance



Governance

Group, region and business unit oversight

Management governance | Assurance | Reporting | Performance management

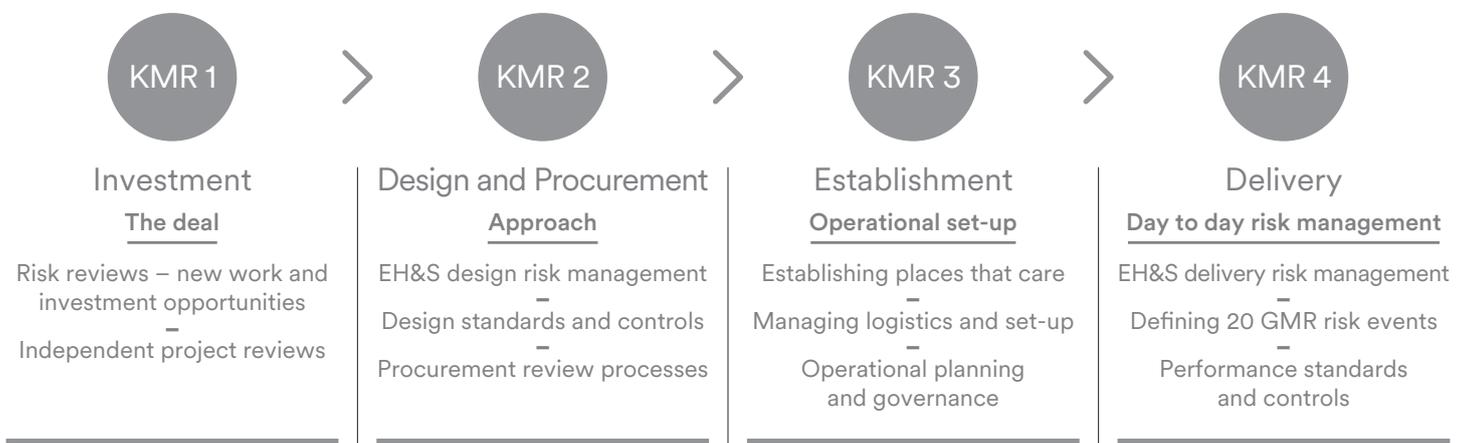


Figure 2: KMR framework – KMR 0: Governance

Preamble

KMR 0 addresses the requirements of Keyton for establishing the governance structures, including the approach to assurance, learning, culture, behaviours and performance management protocols required to more effectively govern EH&S across the organisation, throughout the operational lifecycle as outlined in KMRs 1 to 4.

KMR 0 also provides a framework for achieving the requirements of ISO 45001 and ISO14001.

Where there is a difference between Keyton standards and those required by legislation, codes, standards and other external requirements, the higher standard will apply.

When an operation or region creates documentation to assist in the implementation of the KMRs in a local context, an approved document control system must be implemented.

0.1 MANAGEMENT GOVERNANCE

Keyton will determine the resources required (both management resources and EH&S resources) to establish, implement and maintain the KMRs to provide effective oversight and management of EH&S at Group, region and business unit levels across the organisation.

0.1.1 Leadership Teams

Controls

- i) A Keyton Board Committee is to be in place to govern EH&S performance across Keyton with the committee convening on a quarterly basis.
- ii) EH&S leadership teams must be established across Group, regions and all business units (meeting at least quarterly) to review EH&S performance, cascade objectives, management initiatives and key EH&S messages and provide a forum for key EH&S risk and compliance issues to be elevated.

- iii) EH&S leadership teams will oversee the roll out of all EH&S cultural programs and messaging to maintain EH&S as an organisational priority and will monitor lead and lag indicators in line with the organisational objectives and targets.
- iv) Leadership teams must conduct safety, environment and wellbeing focussed leadership site visits and record outcomes in the EH&S reporting platform.

0.1.2 EH&S Teams

Controls

- i) Group, regions and business units will have EH&S teams to provide adequate resources for the implementation of all KMR and regulatory EH&S implementation and assurance requirements. EH&S teams are to be supported by subject matter experts from within businesses and Integrated Solutions teams for technical support.
- ii) Group must develop an EH&S strategic plan annually, aligned with the Keyton Group strategic plan.
- iii) Group will manage the delivery of organisation wide projects and initiatives and will review the progress of implementation quarterly.

0.1.3 EH&S Roles and Responsibilities

Controls

- i) Group will provide a framework (e.g. EH&S RACI matrix) that defines and assigns EH&S roles and responsibilities and the application of KMRs throughout the organisation for Group, Region, Business Units.
- ii) The roles and responsibilities identified for key individual roles will be documented in a range of existing business processes (e.g. Career Job Framework, role charters, partnership agreements, KMR implementation guides) and communicated to the relevant persons.

0.1.4 EH&S Regulatory Requirements

Controls

- i) Group EH&S will have responsibility for addressing statutory reporting requirements attributable to Keyton Group and that applicable requirements are managed and communicated.
- ii) Regions and business units are required to identify, record, update and communicate the requirements of all local, national and international EH&S legislation, recognised codes, standards and external requirements applicable to operations. Where there is a difference between Keyton standards (Group or Regional) and those required by legislation, codes, standards and other external requirements, the higher standard will apply.
- iii) Personnel shall hold qualifications and relevant experience to address EH&S regulatory requirements and undertake training in the principals of EH&S legal requirements applicable to their role.

0.2 ASSURANCE & LEARNING

Keyton will identify specific controls to manage EH&S risks associated with all operations. Documentation must clearly outline how all controls must be implemented. Assurance programs will be in place to provide effective reviews of the implementation of EH&S risk management practices. EH&S learning and development programs will be established to assist the development of employees.

0.2.1 Policy

Controls

- i) Group EH&S will develop and communicate a Keyton Group EH&S Policy, signed by the Keyton Group Chief Executive Officer (CEO), which outlines the commitment to apply standards, processes and controls to meet the requirements of international standards for Environmental Management (ISO14001), and Occupational Health & Safety (ISO45001).
- ii) Regions and business units will only provide a separate EH&S policy where required for regulatory or system certification purposes. All policies must align with the Group EH&S Policy.
- iii) All Group-wide EH&S policies and standards must be developed in consultation with the regions and business units, regularly reviewed and communicated across the organisation.
- iv) For EH&S subject matter not addressed in Group standards, regions and business units can develop and apply standards in accordance all applicable regulatory and industry requirements.

0.2.2 Risk Assessment

Controls

- i) Group EH&S will provide EH&S specific criteria to be incorporated into the Group risk management framework, including the 'Risk Appetite Statement', to identify, evaluate, act upon, review and monitor risks.
- ii) Group EH&S will provide input to Group Risk on any EH&S related requirements of crisis management and business continuity planning.
- iii) Each region and business unit will monitor that the EH&S requirements of risk and crisis response protocols are in place, reviewed and tested at an agreed frequency according to the Group risk management framework.
- iv) Operations will determine the EH&S Risks applicable for

their scope of works, document these in management plans and operational risk registers (see KMR 3), evaluate the risks using the Keyton risk framework, and address any legal requirements as well as the hierarchy of risk control (see KMR 4.0)

0.2.3 Minimum Standards

Controls

- i) Group EH&S will develop, maintain and distribute EH&S KMRs applicable across all Keyton operations. The KMRs are applicable across the following scenarios where Keyton is:
 - In a construction based role as General Contractor, Main Contractor, Management Contractor, Construct Only Contractor, Construction Manager, Project Manager, Joint Venture Contractor, Alliance Partner, PFI, PPP, Design & Construct (single or two stage).
 - Acting as the developer or partner in a development consortium.
 - Asset or facility manager (including Keyton occupied offices) and any operations and maintenance contracts or opportunities.
 - Owner of 50% or greater of any asset/opportunity (including Keyton managed funds).
- ii) Group EH&S will provide controls and performance standards for the KMR risk events applicable across Keyton (see KMR 4).
- iii) Regions and business units must provide guidance for operations on how KMR performance standards and controls will be applied by providing information on how workplace activities with fatal risk exposure (i.e. where controls in KMR 4 are applicable) will be managed. KMR implementation guidance should provide clarity on requirements for different stages of the property and construction lifecycle (e.g. investment, design, procurement, delivery and, management, operations and maintenance), address sector and legislative requirements, and provide visual representation of items always required or not permitted on Keyton operations.
- iv) Group will provide a protocol for the management of any exemptions to the KMRs. Where an exemption is sought (e.g. due to historic or contractual circumstances) the approval can only be provided by the Region CEO who will notify the Group Head of EH&S. All KMR exemptions approved must be catalogued at each Group EH&S Leadership Team meeting.
- v) Regions and Business Units must verify that compliance to all applicable KMRs can be achieved on all operations where Keyton has taken the decision not to manage works directly and has instead engaged a 3rd party Principal/General Contractor or Asset Manager in lieu of managing activities under the operational control of Keyton employees.

0.2.4 Competency and Development

Controls

- i) Group EH&S (with support from Group Learning & Development) will develop EH&S learning material (e.g. EH&S Passport) to assist in understanding KMR application.
- ii) Group EH&S will develop content on Keyton's EH&S culture and expectations for use in learning and development and communication initiatives.
- iii) Regions and Business Units must implement the Group EH&S learning content at the volume and timeframes specified by Group, maintaining records of completion for any modules that are not recorded on the organisation's internal learning platform (e.g. Workday learning).
- iv) In line with the Group L&D framework, regions and business units will identify any EH&S learning needs applicable to the sector, jurisdiction and Keyton contractual role within their operating geography (e.g. government mandated induction, compliance or competency requirements related to EH&S). Records must be maintained within approved learning management systems.
- v) Regions, business units and related operations must review the statutory competency requirements of Keyton employees (and supply chain employees conducting acute high-risk activities) and determine that applicable competence and/or compliance requirements have been addressed for the work they are to conduct, manage or oversee. Records must be maintained within approved learning management systems.

0.2.5 Operations Reviews

Controls

- i) Regions and business units must develop Annual EH&S Assurance Plans for how they propose to conduct assurance activities across the portfolio of operations for the upcoming financial year and submit to Group EH&S, making revisions as changes occur. The EH&S Assurance Plans will determine the frequency, scope, methodology, reporting requirements and management of actions for any operational EH&S risk reviews, assurance reviews or audits, addressing operational risk and any regulatory or systems assurance requirements. EH&S Assurance Plans will address how business units independently sample and assess operations for EH&S performance and KMR compliance at agreed intervals.
- ii) Any actions arising due to non-conformities identified as part of assurance reviews must be closed out within the agreed timeframes and based on the level of risk associated with the non-conformity. Results of audits and reviews, including actions, evidence of completion and effectiveness of actions will be recorded in the EH&S reporting platform.
- iii) Group EH&S will maintain oversight of the internal auditing process and support each region and business unit to complete assurance reviews against the requirements of KMRs 0 and 1.

0.2.6 Document, Data and Records Control

Controls

- i) Regions and business units must define and implement document identification and data control protocols (in line with the group records management, data governance, data security and controlled documents frameworks, including document retention and naming conventions) applicable to their operation and the provision of information and communications technology systems for document and record management.

0.3 REPORTING

Keyton will establish, implement and maintain procedures for regular evaluation of risk management, compliance and performance against strategic objectives, targets and applicable legal requirements. Operational performance reporting against EH&S risks and controls is required. The recording of all incidents is required to enable a holistic and global assessment of EH&S performance.

0.3.1 Management Reporting

Controls

- i) Group EH&S will prepare a report identifying EH&S performance across Keyton on a quarterly basis for review by the Keyton Board and Group EH&S leadership team. Actions arising from these reports and related meetings will be communicated.
- ii) Regions and business units will notify Group EH&S of significant breaches of EH&S legislative or regulatory requirements. Group EH&S will determine if the notified breach requires disclosure to the Keyton Board and/or within the Annual Report. Group EH&S will also coordinate the Keyton response to any EH&S information due to any external investor or analyst request or reputational reporting requirements.

0.3.2 Operations Reporting

Controls

- i) Group EH&S will provide an IT solution for all operations to report on EH&S and provide guidance material on the use of the EH&S reporting platform and EH&S reporting requirements for all Keyton operations.
- ii) Regions and business units will support all operations in the reporting of all known incidents – including actual and potential impacts of injury, illness, property damage, plant/equipment damage or harm to the environment. Reporting will incorporate all operations (including post-practical completion incidents).
- iii) Regions and business units will provide all operations with access to record EH&S observations on the Keyton EH&S reporting platform using mobile devices and cater for both 'safe' and 'at risk' scenarios.
- iv) Hours worked and the number of employees and sub-contractors on site must also be recorded in the EH&S reporting platform on a monthly basis. Evidence must be readily available for audit or other assurance processes to demonstrate how working hours were calculated.
- v) Regions and business units will monitor all operations to determine that incident reporting protocols are followed, and EH&S reporting requirements are implemented for consistent reporting of operational EH&S performance against planned objectives and targets.

0.3.3 Incident Management

Controls

- i) Group EH&S will define incident and observation reporting requirements for all operations.
- ii) Group EH&S will develop appropriate protocols, standards and workflows to classify, report and notify senior management of critical incidents. This aligns with the group crisis framework, which will be enacted if the triggers for a crisis are met.
- iii) Business units will determine that all statutory reporting in the event of a notifiable incident is conducted and recorded in compliance with statutory requirements and that appropriate people interact with any government or industry authorities.
- iv) Group EH&S will define protocols for the investigation of critical incidents by personnel trained in applying the required incident investigation methodology.
- v) Regions and business units will develop and implement protocols and standards for any investigations under legal privilege.
- vi) All Critical Incidents on Keyton operations must be investigated using the Keyton 8 Step™ incident investigation methodology and entered into the Keyton online EH&S reporting platform. It is expected that investigation draft reports, senior management reviews (including the agreement of the recommendations and preventative actions) have been concluded within 30 days of the event. Any changes to this timing must be agreed with the Region Head of Environment Health & Safety (EH&S).
- vii) Incident investigation teams will work with regions and business units to establish and monitor actions, provide lessons learned from all critical incident investigations and to provide relevant information to other Keyton operations.

0.4 PERFORMANCE MANAGEMENT

Keyton will review the performance of teams and individuals against established EH&S objectives, targets and the requirements of EH&S roles and responsibilities. This includes the application of both reward and consequence management in relation to EH&S performance outcomes. Effective management of change and knowledge sharing will drive continual improvement in performance and the establishment of annual strategic planning objectives and targets applicable at organisational and operational levels.

0.4.1 Performance Recognition

Controls

- i) All levels of management in Group, regions, business units and operations will identify individuals and teams (inclusive of supply chain partners where applicable) who have performed in a manner that champions and advances EH&S at Keyton (e.g. exceptional performance against established responsibilities, transparency in reporting, excellence in EH&S communication, development of innovative technical EH&S solutions, leading practice or overcoming adverse EH&S circumstances) and apply any applicable local or regional reward and recognition outcomes (including nomination for employee excellence awards).

- ii) Where management of EH&S has (or feasibly could have) resulted in adverse incident and compliance outcomes, investigations must notify management of any findings where negligence, sabotage or inadequate EH&S management or leadership practices may have contributed to the outcomes. Any resulting consequence management action is to be aligned with regional performance management frameworks and Group standards (e.g. Employee Code of Conduct, Supplier Code of Conduct).

0.4.2 Change Management

Controls

- i) Group EH&S will review the group policy and standards in response to applicable EH&S lessons learned, regulatory, organisational or other relevant changes.
- ii) Regions and businesses are to implement a documented change management process which includes a review of the risks associated with changes to Group documents, operational controls, contractual arrangements, regulatory requirements and design standards that impact how KMR controls are to be implemented at an operational level.
- iii) Regions and operations are to implement processes to identify how the management of change is applied at the operational level as it applies to activity management in KMR 4.0, particularly where change is required once a high-risk work activity has commenced.
- iv) Variations to design, planned construction or asset management approaches, changes in scope, and adjustments due to time and cost adjustments on an operation requires reassessment against the KMR requirements before proceeding with the proposed changes.

0.4.3 Continual Improvement and Innovation

Controls

- i) Lesson learned and any best practice obtained from incident investigations (including alerts where findings identify potentially significant risks on other operations) are to be recorded in the EH&S reporting platform to be available to Group, Regions and Businesses for wider communication.
- ii) Group EH&S will facilitate the collation and sharing of lessons learned and leading practices between regions and functions.
- iii) Group EH&S, in consultation with regions and business units, will regularly review the suitability, adequacy and effectiveness of the KMRs and prioritise action and resolution through the strategic planning process.
- iv) Regions and business units will address changes applicable as a result of alterations to legislation or industry standards, audit or other assurance outcomes, product recalls, industry alerts, incident alerts and lessons learned or changes to organisational structures or arrangements. Actions to address audit findings that are material in nature or other assurance outcomes and related changes must be managed in the EH&S reporting platform.
- v) Innovation resulting in the application of improved methods and equipment to manage critical risks is encouraged and facilitated through the Keyton innovation pathway and must include a review to determine that adherence to the KMRs has been maintained before implementing.

KMR 1

Investment



Governance

Group, region and business unit oversight

Management governance | Assurance | Reporting | Performance management



KMR 1

Investment

The deal

Risk reviews – new work and investment opportunities
 Independent project reviews



KMR 2

Design and Procurement

Approach

EH&S design risk management
 Design standards and controls
 Procurement review processes



KMR 3

Establishment

Operational set-up

Establishing places that care
 Managing logistics and set-up
 Operational planning and governance



KMR 4

Delivery

Day to day risk management

EH&S delivery risk management
 Defining 20 GMR risk events
 Performance standards and controls

Figure 3: KMR framework – KMR 1: Investment

Preamble

Keyton has identified a range of underlying organisational factors that have contributed to increasing the EH&S risk profile of Keyton operations. Many of these factors were not identified and managed at the investment stage and incident investigations show these items have directly or indirectly contributed to serious incidents occurring. KMR 1 addresses the requirement for leadership across all levels of the organisation to effectively consider the risk to EH&S performance from financial and non-financial decisions in the investment, establishment, planning, design, delivery and management phases of the operational lifecycle. KMR 1 provides opportunities to set up operations teams for success from the earliest phases of the operational lifecycle.

1.1 RISK REVIEWS – NEW WORK AND INVESTMENT OPPS

All new work and investment opportunities require an assessment of operational risks that can directly and indirectly impact EH&S outcomes during the delivery of work activities. KMR 1 risk reviews must commence in the pipeline, origination/acquisition stage of new work or investment opportunities and continue throughout the conversion, final approval and pre-commencement stages. Elements of KMR 1 require ongoing assessment throughout the construction, operations, maintenance and management phases of both construction and asset operations. The findings from EH&S risk reviews must be included in all investment submissions to Group, Regional and Business Unit Investment Committees and be endorsed by the respective EH&S lead as determined by the risk profile (e.g. per Limits of Authority, scale and/or complexity). KMR 1 risk reviews must be captured in the applicable Keyton online reporting platform used in each Region.

1.1.1 Risk Categories

Controls

i) All new work and investment opportunities must be assessed against the Keyton investment risk categories. Each business unit will identify investment risk questions or scenarios that address risk prompts relevant to the geography, sector and contract types for new work and investment opportunities. Risk prompts deemed an applicable risk for the new work or investment opportunity will require an action to be identified that will contribute to the risk being eliminated or mitigated.

- ii) Records of all KMR 1 risk reviews must be provided using either: the online platform for new work or investment opportunities used by the business unit, or; the Keyton online EH&S reporting platform.
- iii) KMR 1 risk reviews must be re-visited throughout the operational lifecycle to monitor (a) if any of the KMR 1 risk prompts previously deemed ‘not applicable’ are required to be reclassified as ‘applicable’, and (b) to monitor any previous KMR 1 review actions to determine if they have been progressed or closed out.
- iv) KMR 1 risk prompts are to be completed as the new work or investment opportunity evolves from pipeline through to conversion. The three components of information to be assessed as the KMR 1 process applies through pipeline, origination/acquisition and conversion are identified as follows:
 - **Part A:** Business level risk – does the new work or investment opportunity fit with our strategy and risk appetite? (identified at ‘Go/No Go’).
 - **Part B:** Operational risk (roles & responsibilities) – do the specific risks of the new work or investment opportunity inhibit KMR implementation? (identified prior to deal commitment or bid submission and monitored until site commencement).
 - **Part C:** Operational risk (change management) – do changes in circumstances for financial and non-financial indicators increase the risk of adverse health, safety, wellbeing or environmental outcomes? (identified post deal commitment or bid submission and monitored throughout the operational lifecycle).
- v) All completed Part A and Part B assessments must be verified by the business unit Head of EH&S.
- vi) All new work and investment opportunities will be required to adhere to any additional Keyton standards applied to the business unit. This includes the requirements of the Risk Appetite Framework, Limits of Authority (LoA’s), and the application of the Project Environmental and Social Risk Assessment.

Table 1
KMR 1 Risk Prompts: PART A - Alignment with organisation risk appetite

These KMR 1 risk prompts are to be assessed at the ‘Go/No Go’ stage for new work and investment opportunities and are to be monitored during the conversion process (prior to deal commitment or bid submission) as part of determining if the new work or investment opportunity is consistent with the Keyton risk appetite framework. All applicable risk prompts require actions to be generated to eliminate or mitigate the risk.

PART A. BUSINESS LEVEL RISK (Does the opportunity fit with our risk appetite?)	
Risk Category	Risks Requiring Identification and Actions
Geography	<p>Country, city, jurisdiction (i.e. LL experience/capability)</p> <ul style="list-style-type: none"> Local legislation or enforcement practices are not fully aligned with implementing Keyton KMRs in full. The new work or investment opportunity is not in a city with an existing Keyton office and/or is located remotely (e.g. 2+ hours or more door-to-door from the Keyton office that would be providing management oversight).
Sector	<p>e.g. UR, Residential, Commercial, Industrial, Retail, Education, Telco, Civil, Defence, Healthcare etc</p> <ul style="list-style-type: none"> Keyton have not worked in this sector in this geography previously. Local supply chain custom and practice for EH&S (e.g. high-risk activities, equipment, worker welfare) differs from KMR-compliant practices.
Contract/Role Type	<p>e.g. Dev’t, CM, PM, D&C, PC, JV, Construct only, FM, Consulting, IM, Client etc.</p> <ul style="list-style-type: none"> The Keyton role or contract type (or a lack of clarity around roles & responsibilities) inhibits full operational control of all EH&S practices. Keyton have not worked for this client or consortium previously.
Scale	<p>Contract size, site footprint, proposed building scale/height, workforce numbers.</p> <ul style="list-style-type: none"> The financial value or physical dimensions of the proposed works (footprint, floor space, structural height etc.) represents a significant risk to develop, construct, manage or maintain. There will be a peak workforce of over 1,000 persons on site.
Complexity	<p>Engineering/construction difficulty, latent conditions, stakeholder issues.</p> <ul style="list-style-type: none"> The opportunity has significant engineering/technical challenges (e.g. as identified by assessing the technical or engineering complexity related to one or more of the 13 Acute High Risk Activities listed in KMR 2.3.3). The opportunity has significant stakeholder management challenges and/or ethical investment issues (e.g. community/political opposition, industrial relations, climate risk, environmental or social risk).

Table 2
KMR 1 Risk Prompts: PART B – Operational risk: roles and responsibilities

These KMR 1 risk prompts are to be assessed prior to deal commitment or bid submission and are to be monitored until site commencement. All applicable risks require actions to be generated to eliminate or mitigate the risk.

PART B. OPERATION-SPECIFIC RISK – FIXED (Do the project specifics inhibit KMR implementation?)	
Risk Category	Risks Requiring Identification and Actions
Design Control	<p>Keyton ability to control/influence project design and constructability</p> <ul style="list-style-type: none"> • Keyton does not have control or influence of any of the following - concept design and/or detailed design and/or construction methodology and/or facility operations and maintenance outcomes. • Design will be incomplete before works commences or product selection issues have not been resolved (e.g. combustible materials).
Approvals and Conditions	<p>Project planning & approvals/consent/conditions (e.g. remediation)</p> <ul style="list-style-type: none"> • National or local environmental/planning approvals for the new work or investment opportunity (or for component elements, e.g. traffic management) represent significant time, cost or risk challenges if not resolved satisfactorily. • Latent environment conditions and/or conditions of consent (e.g. contamination, remediation, occupational health risks) present significant challenges to the successful delivery of the proposed project or asset.
Keyton Team and Oversight	<p>Keyton team capability/availability, required management oversight</p> <ul style="list-style-type: none"> • The preferred experience or quantity of Keyton team members to oversee the project or asset (related to the scale and complexity) has not yet been achieved or confirmed. • Significant numbers/frequency of assurance and leadership oversight/visits will be required for delivery of the project or asset.
Supply Chain Capability	<p>Supply chain experience/capability to meet Keyton standards</p> <ul style="list-style-type: none"> • Some key supply chain partners have no experience of working with Keyton and/or consistently meeting the KMRs. • Some (or all) works to be awarded to a 3rd party General/Main Contractor and/or Keyton will not have full visibility over supply chain procurement or labour hire practices.
Adjacency Risk	<p>Risk from neighbouring projects/activities, logistics & interface issues</p> <ul style="list-style-type: none"> • Proximity hazards exist from neighbouring or adjacent activities, facilities or environments. • Public interface management is required for traffic management, lifting, or permanent/temporary structural works.

Table 3
KMR 1 Risk Prompts: PART C – Operational risk: change management

These KMR 1 risk prompts are to be assessed before deal commitment or bid submission and monitored throughout operational delivery (e.g. Projects in Delivery – PiD). All applicable risk scenarios require actions to be generated to eliminate or mitigate the risk.

PART C. OPERATION-SPECIFIC RISK – DYNAMIC (Do project changes impact on safe work delivery?)	
Risk Category	Risks Requiring Identification and Actions
Scope Change	<p>Changes in design, commercial arrangements, roles and responsibilities or project deliverables</p> <ul style="list-style-type: none"> • There has been a change in scope related to design or procurement requiring revision to the project or operational plan. • There are unapproved scope changes requiring resolution.
Schedule	<p>Delays to design/procurement/construction schedules</p> <ul style="list-style-type: none"> • There are fixed project delivery date(s) with large penalties for delays. • The programme has been delayed and is >30days behind schedule for design and/or procurement and/or delivery.
Budget/Costs	<p>Adverse changes in strike GPM/cashflow/contingency/budget availability.</p> <ul style="list-style-type: none"> • Cost Plans or Capex budget does not allow for achieving preferred standards of equipment, worker facilities, or levels of supervision. • There has been a significant regression in either the projected profit, cashflow, or available contingency budget reported for the operation.
Resourcing	<p>Keyton and/or supply chain resource availability or supervision levels</p> <ul style="list-style-type: none"> • Keyton team do not have sufficient resources to meet the preferred levels of oversight/supervision for all areas and/or operating hours (e.g. weekends and/or night shift). • Supply chain resourcing for supervision of high-risk activities is not adequate (i.e. not of sufficiently quality or quantity and not with ratio of at least 1:8).
Morale	<p>Project and/or individual hours of work, morale/culture, safety performance</p> <ul style="list-style-type: none"> • Workers are required on the site more than 5 days per 7 days, workers are required to work >60 hours per week, worker shifts are required >12 hours per day, or extra work is required on weekends or double-shifts, or arrangements are required for workers to fly in and out, or drive in and drive out. • Appropriate welfare facilities (as outlined in KMR 3) or required learning and development programs are not being provided.

1.1.2 Process Alignment

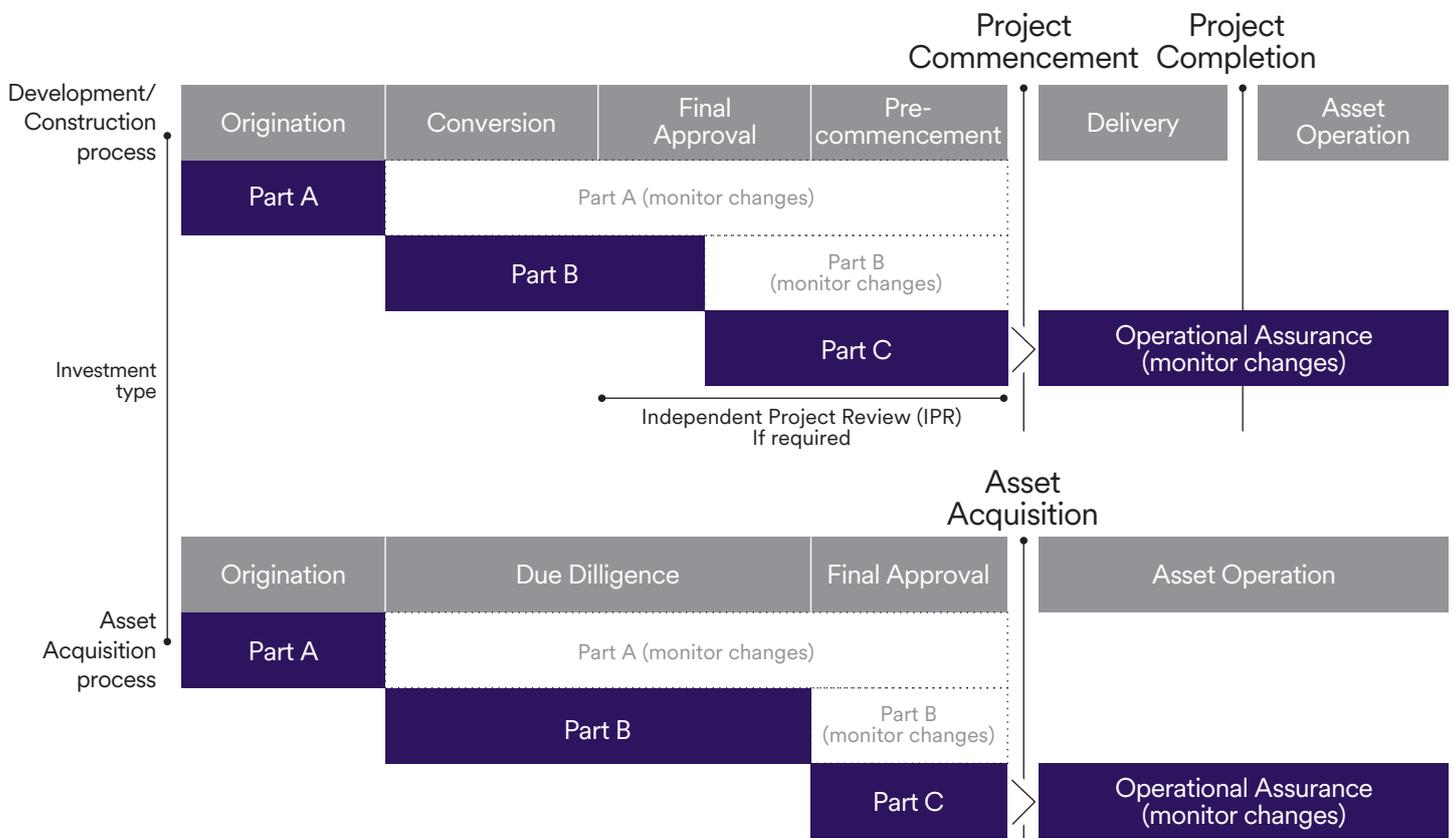
Controls

i) All teams working on new work and investment opportunities will complete the assessment of items in sections A, B, and C for KMR 1 using the online reporting platform prescribed by the business unit (e.g. Enablon, Compass, PCP, Digital Mentor). Part A and Part B assessments will be revisited at intervals prescribed by the business unit, up to and including project commencement or asset acquisition. Part C assessments will be monitored throughout construction delivery and/or asset operations as part of the business unit reporting and

assurance protocols for operations in delivery (e.g. PiD – Projects in Delivery reports in construction businesses). Table 4 summarises and aligns these processes and further highlights the phases whereby the risk categories in Tables 1, 2 and 3 will be assessed.

ii) All actions arising as a result of a KMR 1 review must have an action owner(s) allocated and these items will continue to be monitored until closed out.

Table 4
Example KMR 1 Application pathway for different types of opportunities



1.2 INDEPENDENT PROJECT REVIEWS

An Independent Project Review (IPR) is a review of the applicable risks and management actions identified for each new work and investment opportunity and is conducted by persons independent of the bid or acquisition team. The IPR is an additional line of defence for supporting new work and investment opportunities with a higher risk profile to assess the capacity for ongoing compliance with KMRs 2, 3 and 4.

1.2.1 Independent Review Protocols

Controls

i) To trigger an IPR, the new work or investment opportunity being assessed must have one or more of the following criteria present:

- Any new work or investment opportunity that represents a new sector for Keyton to be working in for the city/area.
- Any construction assignments where the Keyton role or contract type does not allow for Keyton to have design authority for concept or detailed design, namely: Construct Only, Construction Management (CM fee or agency), Project Management (PM), or Guaranteed Maximum Price (GMP).
- Project complexity score and/or the overall Project Risk Score is rated as 'high' due to one or more technical, logistics, or engineering issues (e.g. related to an acute high risk activity such as multi-storey demolition, site contamination/remediation issues, construction height >40 floors, multiple residential balconies, structural cantilevers or transfer floors, tunnelling, railway or road possession work etc).
- Total construction value of the project exceeds A\$500m.
- Where an exemption for applying part of the KMRs has been requested for Region CEO approval.

ii) In the absence of any automated process to trigger an IPR based on risk prompts, any of the individuals or groups listed below are authorised to call for an IPR to be completed for a new work or investment opportunity requiring their review:

- Business Unit Managing Director (MD)
- Group or Region CEO
- Group, Region or Business Unit Head of EH&S
- Group Head of Operational Assurance & Performance (OAP)
- Group Chief Commercial & Risk Officer (CCRO)
- Region Chief Engineer
- Regional Investment Committee (RIC)
- Global Investment Committee (GIC)

Notification of the requirement to conduct an IPR must go to the bid leader and Region Head of EH&S.

- iii) The IPR must include personnel from outside of the team working directly on the bid/submission/ proposal to review the following items:
- a. Review all KMR 1 risk factors to determine that the correct KMR 1 risk prompts have been identified as being 'applicable' or 'not applicable' for the new work or investment opportunity.
 - b. Review all proposed actions to eliminate or mitigate risk to confirm that the best available actions, resources and timeframes are nominated to address the applicable risks.
- iv) IPRs can be conducted by personnel from within the business unit if the reviewers are not working directly on the bid/proposal/submission. The review should seek input from subject matter experts (e.g. from Integrated Solutions or parties external to Keyton) where specific risks related to the scale or complexity of the new work or investment opportunity are identified (e.g. acute high -risk activities, scheduling etc).
- v) More than one IPR may be required where the new work or investment opportunities involves multiple buildings, phased developments, or significant changes in scope after an initial IPR has been completed.
- vi) An IPR can form part of an existing business unit review process for new work or investment opportunities or projects in conversion (e.g. Pre-Authorisation Reviews, Bid Review) so long as the requirements outlined in KMR 1.2.1 (iii) are addressed and the outcomes are recorded as required in KMR 1.2.1 (vii).
- vii) The results of any IPR must be uploaded to the reporting platform prescribed by the business unit (e.g. Enablon, Digital Mentor) and verified by the Region Head of EH&S. Open actions are to be monitored until closed out.

KMR 2

Design and Procurement



Figure 4: KMR framework – KMR2: Design and Procurement

Preamble

The design and procurement stage for operations provides opportunities to identify and eliminate significant risks that could otherwise be present in the site establishment, delivery, and operations and maintenance phases of the property and construction lifecycle.

Depending on the opportunity type, the ability to control or influence concept design provides a unique chance to eliminate risks to people, property or the environment during both construction and asset operation. In circumstances where the concept design has been completed by parties other than Keyton, there often remains a secondary opportunity to influence detailed design (e.g. design and construct contracts), in particular the design of temporary and permanent structures, as well as infrastructure.

Where Keyton contract types mean there is not any opportunity to influence design (e.g. construct only contracts, operations and maintenance contracts) there remains the opportunity to conduct methodology reviews to determine the best available methods of work to mitigate any residual risk.

Effective procurement practices are important given the role the supply chain plays in delivering work across a variety of Keyton operations. Procurement includes both the selection of consultants, subcontractors and supply chain partners as well as the procurement of plant, materials and equipment.

2.1 DESIGN AND PROCUREMENT CONTROL

All Keyton operations must be evaluated to determine the extent of design and procurement control available to Keyton.

2.1.1 Assessing Design and Procurement Control

Control

All operations must identify and record the level of control Keyton has relating to design and procurement.

Performance Standard

- i) Each operation must assess the capacity of Keyton to control or influence the following elements:
 - Concept design of permanent structures and fixed infrastructure.
 - Detailed design of permanent structures and fixed infrastructure.
 - Design of temporary structures and access systems (including construction and demolition methodology).
 - Design of services installations (e.g. electrical, Fire Safety Systems, Heating, Ventilation and Air Conditioning (H.V.A.C) and other utilities).
 - Design of fit-out for internal spaces (e.g. commercial, retail, and residential).
 - Design of operations and maintenance approach and associated equipment.
 - Procurement of machinery, equipment and systems for installation.
 - Procurement of trades and service providers for construction, manufacture, operation maintenance and demolition.
 - Specification and procurement of products, materials and substances that are non-hazardous.
- ii) All operations must record the sector, contract type and capacity to control design and procurement when initially set-up for reporting in the Keyton EH&S reporting platform.

2.2 DESIGN STANDARDS

On any Keyton operation where there is a design for fabrication, manufacturing, erection, construction, commissioning, demolition, disassembly, decommissioning, operation or maintenance, the design must seek to eliminate or minimise the risks of any KMR 4 risk event(s) occurring.

2.2.1 Design Standards

Control

Each Region will determine if it is to establish and apply design standards that would apply to asset or construction sectors relevant to the business (e.g. retail, residential, commercial). Any design standards developed by a Keyton Practice or Integrated Solutions will be applied across specified Regions.

Performance Standard

- i) Design standards must state the geography, sector and contract types for which the standard applies, and provide clarity on the requirements to be applied at the appropriate sections of the property and construction lifecycle (e.g. investment, concept design, detailed design, procurement etc).
- ii) All Keyton design standards developed and applied must address opportunities to eliminate or mitigate the critical risk events identified in KMRs 4.1-4.20 as well as the opportunity to reduce the risk of injury to persons from high risk manual tasks and related musculoskeletal injury in construction, operations and maintenance. Where there is a difference between Keyton standards and those required by legislation, codes, standards and other external requirements, the higher standard must be applied.
- iii) Keyton design standards must identify the date for the next document review to promote continual improvement and to apply any learnings from incidents, alerts, product recalls, or changes in process requirements.
- iv) All Keyton operations must determine if there are any Group or Regional design standards that are applicable and notify the Region Head of EH&S where any Design Standards cannot be applied due to client, commercial, technical or other reasons.

2.3 REVIEW PROCESSES

All Keyton operations must influence and develop optimal EH&S design solutions and review processes to eliminate significant and fatal risks identified in the design where practical; or where elimination is not practical minimise the risk of any KMR 4 or significant risk event occurring.

2.3.1 Design and Development Briefs

Control

All Keyton operations responsible for design or development briefs, including process designs for manufacturing, fabrication or installation, are required to identify the KMR requirements and prioritise EH&S outcomes.

Performance Standard

- i) Development briefs must prioritise EH&S outcomes and concept designs must be assessed against the requirement to prevent KMR 4 risk events from occurring during construction, operations and maintenance.
- ii) Design briefs must identify requirements to address all applicable Keyton design standards and EH&S requirements for construction, manufacturing, installation, end use, operations, maintenance, demolition and re-use.
- iii) Any design and construct (D&C) work that Keyton defers to a third-party contractor and/or consultant for completion must

undertake a Keyton led design review (following the process defined by each business unit) to provide assurance that the contractor/consultants design for both permanent and temporary works are aligned with the Keyton KMRs, relevant regional legislation, codes and standards, and any locally applied EH&S standards.

- iv) All temporary works should prioritise proprietary systems. All structural loads, fixtures and fittings designed and constructed by a third-party contractor must address the requirements outlined in KMR 4.

2.3.2 EH&S in Design Reviews

Control

All operations that control or influence design must adhere to a design review process applicable to the relevant sector and contract type and follow the protocols applied by each Region to implement the design review processes. Design reviews must consider constructability, maintainability, serviceability, performance, end use and operability. All operations requiring a design review must collaborate with Integrated Solutions.

Performance Standard

- i) All operations required to manage a design review process must inform Integrated Solutions to determine the design review process and the application of any Region or Group design standards applicable for that operation.
- ii) After consultation with Integrated Solutions, the operations team must advise of the design review support they propose to engage as part of addressing any Region protocols, noting that only the following options are available:
 - (a) A member of the Integrated Solutions team (e.g. design manager, architect, technical manager), OR
 - (b) An alternate Keyton employee identified as having the required competency to conduct a design review, OR
 - (c) A consultant from a third-party panel maintained by the business unit or Integrated Solutions.
- iii) All operations required to manage a design review process will adhere to the framework applied by the Region relevant to the geography, sector and contract type.
- iv) All Keyton design review protocols must be incorporated in risk and opportunity planning (sometimes referred to as a R.O.A.D. Review) to positively influence how a building or structure is built, and how equipment and facilities will be managed, used and maintained, or how a building structure will be demolished. The review must confirm that structural designers have provided evidence that structural load calculations have been validated or reviewed as part of the designer's internal assurance processes. The review will also address all stored (dangerous) energy systems where a loss of containment could lead to an inadvertent dangerous energy release.
- v) All design review protocols must assess the exposure to KMR 4 risk events, seek to eliminate risks through design and apply the hierarchy of risk control (KMR 4.0). Where elimination is not possible, risks can be mitigated through the application of KMR standards, regulatory and code requirements, lessons learned, EH&S Alerts, Keyton design standards or alerts (e.g. certainty in design and delivery alerts and guidelines (CIDD) alerts, and Technical Notes).
- vi) The outcomes of all design review processes with the potential to have a material effect on EH&S (including impacts to schedule, resourcing or the sequence of work) resulting from a design review process must be recorded by the operation

on the relevant online reporting platform (as directed by the Region) so the information is available to Integrated Solutions and EH&S teams (as well as Practices where applicable).

- vii) Significant risks identified in the design review process which have not been eliminated must be transferred to the operation's risk register with actions monitored until close out/resolution.
- viii) Where the 'design schedule' is overdue or delayed for a project in delivery (affecting the critical path and related scheduling and/or sequencing of works), the operation must be subject to an assurance review to identify the risks associated with the delay and to nominate the support required from the business unit and/or Integrated Solutions teams.

2.3.3 Methodology Reviews (Construction, Engineering, Manufacturing)

Control

All operations must independently review the methodologies provided for all acute high risk activities (AHRA) to manage or eliminate risks and to optimise EH&S outcomes in delivery. All operations requiring a methodology review must collaborate with Integrated Solutions.

Performance Standard

- i) All construction and manufacturing operations must undertake an independent methodology review(s) to determine the most risk effective manner to undertake acute high risks activities as they relate to construction, engineering or manufacturing works.
- ii) The review(s) of proposed work methodologies must be undertaken to address any of the following thirteen (13) Acute High Risk Activity (AHRA) scenarios:
 1. Steel or concrete frame erection for high rise building or construction works.
 2. Structural alterations that require significant temporary support to prevent catastrophic collapse.
 3. Tower crane erection, climbing, descent, commissioning or decommissioning.
 4. Any lifting operation classified as a special lift (due to load type or public risk).
 5. New or altered excavations or tunnelling operations where unplanned ground collapse is possible.
 6. Major changes in live traffic conditions (e.g. major traffic switch, truck mounted attenuators).
 7. Demolition of any load bearing and multi-storey structures (>10m/30ft).
 8. Design, installation or major maintenance of mobile cranes, derrick cranes, gantry cranes, hoists, mast climbers, swing stage scaffolds, piling rigs, concrete boom pumps, and building maintenance units.
 9. Erection of temporary structures or partly completed permanent structures with loadbearing requirements (e.g. pre-cast concrete, prefabricated structures).
 10. Installation or maintenance of any asset-related essential service/ 'life safety' system.
 11. Installation or maintenance of stored energy systems (including elevator installation/fit out and work on live power).
 12. The handling, storage or transport of hazardous materials (including asbestos) and activities generating respirable dust.
 13. Installation or maintenance of public facing (outward/overhead) fixtures and fittings of both temporary

(e.g. hoardings, ceiling panels) and permanent elements (e.g. façade) a where failure presents the risk of a fatality.

- iii) All operations required to manage a methodology review process for an Acute High Risk Activity must discuss and agree with Integrated Solutions regarding the support that is required from:
 - (a) A member of the Integrated Solutions team (e.g. engineer from a relevant field or subject matter expert), OR
 - (b) An alternate Keyton employee identified as having the required technical competency to conduct the review, OR
 - (c) A qualified engineer/consultant from a third-party panel maintained by the business unit or Integrated Solutions.

All reviewers must be independent of the work team or stakeholder group who has proposed the initial methodology that is being reviewed.

- iv) All methodology reviews for an acute high risk activity will adhere to the KMRs and any additional KMR implementation requirements applied by the Region relevant to the geography, sector and contract type.
- v) Methodology reviews may be required early in the operational lifecycle to address an issue identified in an Independent Project Review (IPR – KMR 1.2.1) or as part of an action arising from a Design Review process (KMR 2.3.2).
- vi) All methodology reviews for acute high risk activities must occur prior to the mobilisation on site of any equipment or work crews proposed to undertake the work to allow for changes in equipment, personnel or methodology to be facilitated where required.
- vii) Activities must not commence until all required regulatory approvals, permits or conditions of consent are in place to conduct the work as designed.
- viii) Integrated Solutions must be notified of the outcome of methodology reviews they have facilitated so that any significant findings or actions can be recorded and communicated as lessons learned.
- ix) A change control process must be in place to manage any proposed changes in methodology with risks addressed and formally recorded.

2.3.4 Operations and Maintenance Approach (End Users)

Control

All assets with operations and maintenance responsibilities must review the design, methods, equipment and techniques proposed for use to provide optimal EH&S outcomes for the operations and maintenance delivery team.

Performance Standard

- i) For operations involved in the operations and maintenance of fixed assets, the approach to operations management must be reviewed prior to the procurement of equipment or suppliers and reviewed at the end of existing contracts or operational cycles and address the requirements outlined in KMR 4.
- ii) As a minimum, the following operations and maintenance activities must be reviewed with decisions recorded, including justification for the methodology and/or equipment:
 - Building Maintenance Units (BMU), Powered Vertical Access Equipment (PVAE) and related access systems, including the use of any bosun chairs, cradles, gondolas, mast climbers and swing stages.

- Height access equipment including Mobile Elevating Work Platforms (e.g. scissor/boom lifts and cherry pickers).
- Access to, and work on, roofs and the application of fall restraint and/or prevention controls.
- Work within penetrations, risers, shafts and voids, including lift or elevator installation and maintenance.
- Access and maintenance of any telecommunications tower, power pole or other similar installation.
- Any activity proposing the use of a safety harness as the primary means of fall protection.
- Installation, maintenance, commissioning or replacement of machinery or plant process equipment.
- Operations and maintenance access on, over or adjacent to a road or railway and airport.
- Working on or near pressurised gas distribution mains, consumer piping or pressurised hydraulic or other fluid or pneumatic systems.
- Working on or adjacent to energised live overhead or underground services.
- Entry into, and work within, any confined spaces.
- Work in an area where there are artificially created extreme temperatures.
- Working in, around or over water.
- Installation and/or maintenance of any asset-related essential service/ 'life safety' system (including fire safety systems).
- Handling of hazardous materials/substances.
- Façade and glass installation or replacement.
- MEP systems or element maintenance and replacement.

2.3.5 Value Engineering

Control

All operations that are required to carry out value engineering reviews as a subset of change management must not proceed with options that materially increases environment, health, safety and wellbeing risk related to design, delivery, operations or maintenance.

Performance Standard

- Any value engineering process undertaken to re-evaluate the approach to design, construction, operations or maintenance must not create additional EH&S risks in delivery or compromise the effectiveness of the controls outlined in KMR 4, which must be implemented.
- Issues for consideration as part of a value engineering process that have the potential to adversely impact working conditions, negatively impact worker wellbeing, compromise the quality and quantity of work supervision, reduce previously agreed resourcing levels, propose the procurement of cheaper plant and equipment, or promote compressed work programmes/schedules, must be re-evaluated (including revisiting the design review process if design is impacted) so that no change is to be applied where there is an increase in the risk of KMR 4 risk events occurring as a result of the proposed value engineering approach.

- All operations conducting value engineering exercises must provide records of all decisions made that relate to impacts on design, programme, resourcing, the approach or management of high risk activities, the standard of welfare facilities, or the management of hazards or logistics on the operation.

2.3.6 Manufacturing and Fabrication Equipment

Control

All operations conducting manufacturing, installation or the fabrication of any jigs, tooling and machines, whether permanent or temporary, must have all product elements designed, built and tested by a person with appropriate skills and competency in accordance with all applicable instructions and standards.

Performance Standard

- All elements such as jigs, tools, machines, plant or automated equipment (and any associated attachments) must be proprietary. Where proprietary systems are not practical or do not exist, non-proprietary systems can be created, provided an appropriately qualified engineer, with registration in accordance with local authority requirements in the related discipline, verifies in writing the compliance of the solution with the relevant codes and standards.
- During fabrication, manufacturing and installation activities the controls outlined in KMR 4 must be implemented. Any higher standards or alternative controls outlined in regional legislation, codes or standards (particularly for elements where the KMRs do not cover the item in similar detail) must be applied.
- A robust inspection and testing regime, to appropriate standards, must be implemented for every element fabricated or manufactured for Keyton operations.
- Records of all inspections and testing undertaken are to be maintained to meet the requirements of each Keyton region (or that of local legislation and contractual requirements where no regional inspection standards are applied).

2.4 PROCUREMENT

All Keyton operations must implement an ongoing procurement strategy to evaluate the capacity and competence of supply chain partners including manufacturers, contractors, service providers and suppliers.

2.4.1 Product and Equipment Selection

Control

All Keyton operations must procure equipment, products and materials that comply with the regional legislation, codes and standards and the performance standards specified in KMR 4.

Performance Standard

- Suppliers of products and equipment must be evaluated to determine the ability to provide the specified products or equipment consistently and in accordance with the requirements outlined in the KMRs, including all statutory and regulatory requirements specific to the equipment, products and materials.
- All products or equipment procured must address any applicable controls and performance standards outlined in KMR 4 (and be included in the design review process to determine if compliance with any performance and serviceability requirements related to the design has been attained).

- iii) Proprietary or engineered systems procured to create permanent or temporary structures and access systems must be certified by a qualified and registered structural engineer where manufacturer certification does not exist. Steel fabricators must provide evidence that quality assurance and quality control processes have been adhered to. These will include records of visual observations, weld maps, and any prescribed non-destructive examination of finished welds addressing different sub-packages (e.g. canopy steel, internal structural stairs) and weld types (e.g. butt welds, fillet welds).
- iv) Products and equipment received on Keyton operations must be inspected to verify that documented specifications and requirements have been met, and that all specified documentation has been provided including identification and traceability, test certificates, service records and plant risk assessments.
- v) All products, materials and substances that are proposed to be procured that are classified as hazardous must be reviewed for substitution for a non-hazardous product or substance.
- vi) Where any product, material or substance is procured that is classified as hazardous, a Safety Data Sheet (SDS) with a publication date of not more than five years must be provided and risks assessed to assist in the identification and management of hazards, handling, use and storage of the product, material or substances and related personal protective requirements.
- vii) A documented record must be maintained outlining the procurement process for any product or equipment procured that relate to a life safety system(s) (e.g. fire rated elements and/or materials required for fire suppression); powered vertical access (e.g. elevators, hoists, escalators and travellers) and lifting equipment (e.g. cranes) where the impacts of a failure to perform as intended, present a risk of fatality to members of the public or workers.
- viii) Contract documents or supply agreements must include a requirement that material and test certificates be provided to validate compliance of the items supplied with local authority requirements and standards.

2.4.2 Supply Chain Selection

Control

All contractors and service providers engaged to work on Keyton operations must fully support the implementation of the KMRs and demonstrate capability to operate to those standards.

Performance Standard

- i) All contractors and service providers formally engaged to provide design, construction, manufacturing, management or maintenance services must undertake preliminary screening (via the supplier platform applied in each operating business). Any pre-qualification and selection process applied must include an assessment of the contractors/service providers ability to meet all KMR and legislative requirements (including adequate insurance cover) relevant to their proposed works package and EH&S risk exposure.
- ii) Contractors and service providers must acknowledge the Keyton Supplier Code of Conduct and must not be permitted to subcontract performance of any part of their works package without Keyton written approval which must have regard to the assessment of the contractor/service providers ability to meet all applicable KMRs or legislative and insurance requirements relevant to their proposed works package and EH&S risk exposure.
- iii) The EH&S responsibilities of key contractors and service

- providers, and the significant risks associated with their works package, must be clearly defined for each engagement.
- iv) The relevant KMRs, and any other EH&S product, materials and equipment requirements, must be provided to contractors and service providers to adequately plan and price the proposed works package. The quality and accuracy of the contractor or service provider documentation must be a key factor in the selection process.
- v) Contractors and service providers must employ adequate numbers of frontline leaders/supervisors, provide proof of competency for key workers (particularly those carrying out high risk work activities or undertaking work where proof of competency is required by law), and collaborate with Keyton in pursuing compliance with the KMRs.
- vi) Where it is assessed that a contractor or service provider may not be able to meet the KMRs or legal requirements, they must not be engaged unless the operation has no other feasible option available. In this situation a mitigation plan must be prepared and approved by the Region CEO as a KMR exemption before any contract can be awarded.
- vii) All new contractor and service provider contractual documentation must contain clauses that clearly outline the KMRs and any other applicable EH&S standards, product, material and equipment performance and or assurance requirements.
- viii) Contractors and service providers contract conditions or service agreements must clearly identify that Keyton has the authority to enforce compliance obligations and stop any work identified as dangerous or non-compliant with KMRs or legislation. Keyton will have the right to employ a third party(s) to rectify such non-compliances and levy the cost to the relevant party.
- ix) Where a client organisation instructs Keyton to provide direct EH&S oversight for third party works, the KMRs must be applied as the EH&S standards for any third-party contractors or service provider activities.
- x) Where design is outsourced to a third party(s) the requirements of KMR 2 must be applied, together with relevant regional legislation, standards and codes and be included in contract conditions or service agreements. The output of these requirements must be provided by the third party to Keyton to inform ongoing risk management processes.

KMR 3

Establishment

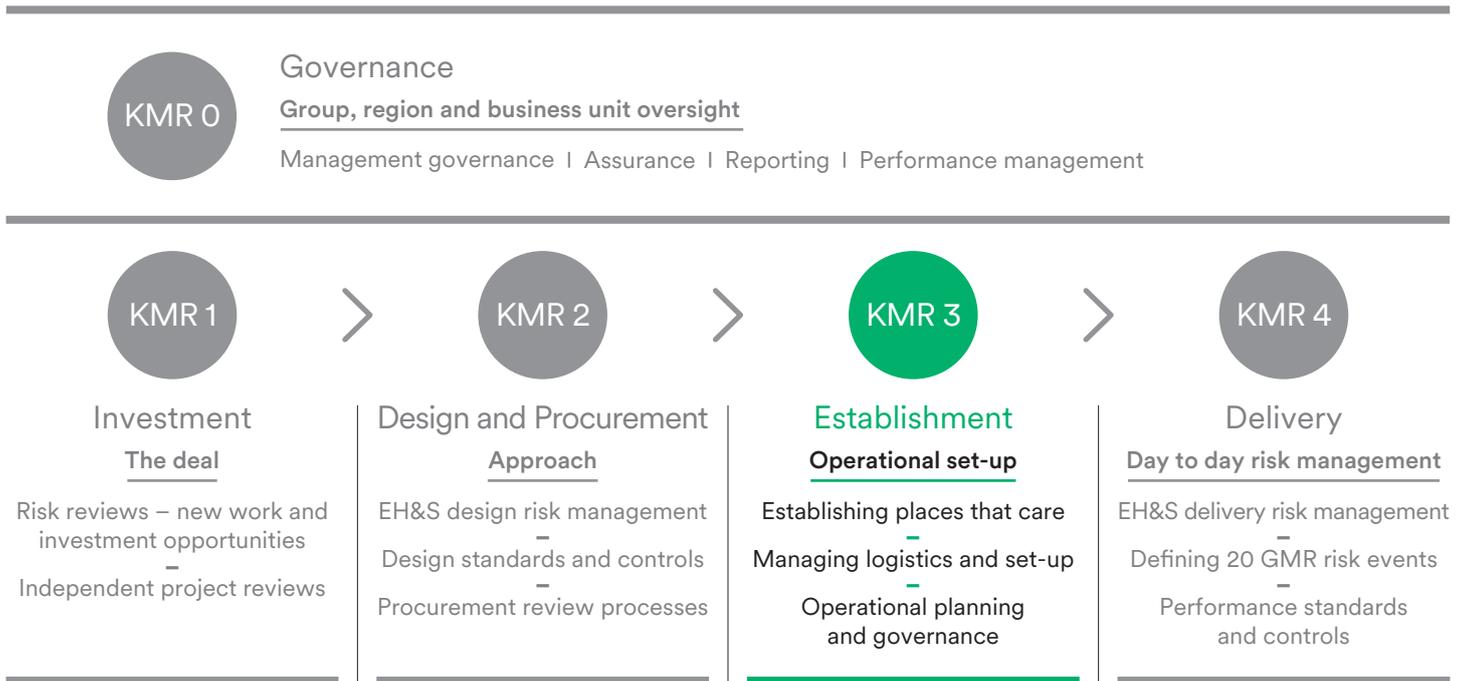


Figure 5: KMR Framework – KMR 3: Establishment

Preamble

KMR 3 outlines the minimum requirements for the creation of healthy and safe workplaces.

These requirements align with the Keyton vision to create the best places and the aspiration to establish places that care.

For any Keyton operation a documented EH&S management plan must be developed (including local stakeholder considerations) and implemented. As a minimum, the plan must outline how all EH&S risks, including those identified by the KMRs, will be managed and will include access/egress, workplace hazards and risks, boundary control, emergency scenario and evacuation planning, housekeeping, welfare and learning programs that support the establishment of places that care.

KMR 3 is comprised of the following:

3.1 Establishing Places That Care

- 3.1.1 Working Conditions
- 3.1.2 Welfare Facilities
- 3.1.3 Training and Competence
- 3.1.4 Eh&S Communications and Consultation
- 3.1.5 Engagement, Reward and Recognition

3.2 Establishing Locations

- 3.2.1 Site Layout
- 3.2.2 Site Access
- 3.2.3 Security Arrangements
- 3.2.4 Hazard Reduction
- 3.2.5 Personal Protective Equipment
- 3.2.6 Emergency Planning and Evacuation Procedures
- 3.2.7 Site Induction

3.3 Establishing Governance

- 3.3.1 Eh&S Management Plan
- 3.3.2 Operational Eh&S Responsibilities
- 3.3.3 Operational Eh&S Governance
- 3.3.4 Reporting Requirements

3.1 ESTABLISHING PLACES THAT CARE

Keyton operations must provide industry leading practice for welfare and accommodation facilities. Workforce communication and consultation initiatives must be in place and supported by access to relevant EH&S and wellbeing learning and development opportunities. Keyton operations must also establish controls on working hours and best in class employee engagement programs and initiatives.

3.1.1 Working Conditions

Control

Working conditions at all Keyton operations must not adversely affect people's health, safety and wellbeing or their ability to carry out their work. Those conducting high risk work and related activities must be fit for the inherent requirements of their work tasks.

Performance Standard

- i) Hours of work must be established on each Keyton operation that do not put workers' health, safety or wellbeing at risk. Protocols must be established by the operation or business unit for circumstances where any workers will be required to work more than 60 hours per week. The application of wellbeing leave, workplace rosters, and other initiatives to reduce the risk of excessive working hours must be in place.
- ii) Dependent on the operation type and location, consideration must be given to journey travel times to and from an operation, particularly if personnel are required to fly in/fly out; or drive in/ drive out to reach the work location; or are involved in high risk work.

- iii) All workers must be fit for work. Each operation must assess factors known to effect health and wellbeing. This includes identifying the risk of fatigue, providing rostering with adequate breaks between shifts, identify work tasks where health surveillance is required, establish and monitor the duration of shifts, manage the risk of drug and alcohol related impairment, and assess any pre-declared medical condition, injury or illness.
- iv) Protocols must be established for the management of adverse climatic conditions (e.g. heat, cold, snow, rain, storms, ambient air quality, lightning and wind). Determine which activities should cease when threshold protocols are exceeded. Early warning weather systems are to be established where particular climatic conditions represent a significant risk (e.g. high winds, lightning, earthquakes, bushfires).
- v) Operations must monitor any worker(s) required to work in a remote location(s) or conduct lone work to manage their health and safety. This includes maintaining regular contact and establishing protocols for communication and emergency response.

3.1.2 Welfare Facilities

Control

To create the best places to work and places that care, all Keyton operations must provide amenities and welfare facilities that are industry leading practice.

Performance Standard

- i) Assess welfare requirements and provide industry leading facilities prior to works on site commencing. The facilities are to reflect the hazards present, number of users, proposed length of site occupation, and the differing needs of users of the facilities.
- ii) Based on maximum worker numbers, provide sufficient toilet facilities within easy access of working areas. All toilets within defined operational locations must be connected into the mains or similar (e.g. self-contained units) and cleaned at least daily.
- iii) Provide hot and cold washing facilities which are appropriate for the number of employees and the work being undertaken. These facilities within defined operational locations must include hot/cold water for washing and clean, cool water for drinking, and appropriate hand sanitiser and/or soaps.
- iv) Showers and changing facilities should be provided, particularly where the work type and shift pattern increases the likelihood of these facilities providing benefits to employees.
- v) Provide appropriate break out areas that are heated, cooled or air conditioned as necessary, particularly in hot or cold climates.
- vi) Provide enhanced levels of welfare facilities for high risk works or adverse environmental conditions (e.g. showers and personal protective equipment (PPE) cleaning facilities to remove contamination from the work activities or after work in extreme temperatures).
- vii) Where Keyton provides site-based office accommodation, the office facilities must provide adequate lighting, ventilation, as well as heating/cooling or air conditioning where conditions demand. The office space should be cleaned or maintained daily and office furniture is to be provided that meets the ergonomic requirements prescribed by any applicable office codes of practice.

- viii) Where an operation has an onsite canteen/kitchen, nutrition guidance should follow the guidelines in the Keyton Health and Wellbeing framework.
- ix) Where Keyton are responsible for providing off-site living accommodation for Keyton employees and/or the supply chain, industry leading practice (in line with modern slavery requirements and guidance where applicable) must be procured and applied prior to commencing work. Keyton should conduct inspections to provide assurance that the workers accommodation addresses both legislative requirements and any additional standards Keyton have applied to the accommodation facilities.
- x) Each operation must identify and implement specific welfare initiatives that demonstrate care for frontline workers and employees, e.g. flu vaccinations, healthy food options or other initiatives. (The Keyton health and wellbeing framework outlines program options that could be implemented).
- xi) For operations where workers (Keyton or supply chain) are exposed to the risk of infectious diseases due to geography (e.g. malaria) or potential human contact (e.g. hepatitis for first responders), controls such as adequate vaccinations should be identified and in place.

3.1.3 Training and Competence

Control

All workers with EH&S roles and responsibilities related to legal or KMR requirements must be suitably qualified with verified proof of competency relevant to their role.

Performance Standard

- i) Familiarise all Keyton workers with the Keyton EH&S vision, culture and KMRs and complete any EH&S training applicable to their role (e.g. Keyton EH&S Passport) as well as awareness and training opportunities that address the organisation's environment, health, safety and wellbeing framework.
- ii) Where a Keyton employee or contractor has a position or responsibility that requires statutory training or accreditation (e.g. statutory EH&S coordinator, operator of plant and equipment, first aid, fire warden) the employee or contractor must have undertaken the relevant industry or statutory training and must only fulfil the task or responsibility that they have the competency or accreditation to carry out.
- iii) Keyton and contractors are required to verify competency (certificates, licences, training records or knowledge testing) where required before any work can commence that relates to high risk activities (e.g. operation of mobile plant or equipment, high risk work activities that require a licence, the servicing of plant or equipment).
- iv) All Keyton and contractor frontline leaders must provide any competency requirements necessary for their appointed role as determined by each Keyton operating business unit.
- v) All operations will provide access to frontline leaders to complete the Keyton Frontline Leaders program (1-day course). This course is required for all operatives who are putting people to work, particularly high risk activities. These roles include supervisors, foreman, leading hands, superintendents, construction managers, package managers and site engineers from both Keyton and the supply chain teams. All Keyton business units will outline the minimum completion requirements for frontline leaders working on the operation.

3.1.4 EH&S Communications and Consultation

Control

EH&S communications and consultation protocols must be established with stakeholders on each operation as part of assurance and change management processes, including provision of opportunities for worker feedback.

Performance Standard

- i) Operations must communicate information detailing the location(s) and nature of high risk activities, areas or works where risks exist that could impact anyone not involved in performing the activity. Clearly identify areas where entry is forbidden, or where special precautions apply.
- ii) The management team of each operation must establish arrangements for promoting worker feedback on hazard reporting and improving EH&S and wellbeing standards, work practices or performance.
- iii) Keyton and contractors must conduct EH&S well-being (mental and physical) briefings, toolbox talks or other consultation initiatives at appropriate intervals on topics relevant to the activities on the operation, including any alerts, lessons learned, or other information issued by the business unit.
- iv) Undertake consultation and communication with key internal and external stakeholders through public meetings or forums, using signage, newsletters, emails or other information media prior to significant changes in operations or activities.
- v) EH&S alerts and any applicable lessons learned issued to the operations by Keyton management must be communicated in a timely manner with recommendations or required actions applied where applicable, particularly if the notification results in adjustments to any procedures, methodologies or protocols.
- vi) Workers must be briefed on the proposed work methods for their scope of work and given an opportunity to suggest an alternate method.
- vii) Changes to any previously agreed or documented work methods must involve consultation with the workers undertaking the activity. Any proposed changes must be assessed to determine if there has been changes in application of preventative controls outlined in KMR 4, or in the application of the Hierarchy of Risk Control (KMR 4.0). Any proposed changes must be communicated, including reinforcing all applicable controls and rescue arrangements.

3.1.5 Engagement, Reward and Recognition

Control

All Keyton operations must identify effective programs and initiatives to engage, reward and recognise frontline personnel who work on Keyton operations.

Performance Standard

- i) Identify and implement operational wide engagement programs and initiatives to facilitate the creation of the best workplaces.
- ii) Operations must establish and communicate the protocols for reward and recognition for innovative practice and behaviours that support positive EH&S and wellbeing outcomes. In addition, a consequence management framework must be in place to respond to findings of reckless or deliberate actions resulting in imminent or immediate risk of serious harm to a worker or the public, or adverse health and wellbeing outcomes, or material harm to the environment.

- iii) All Keyton 'People Managers' at the operation are responsible for demonstrating leadership to their direct reports by exemplifying positive EH&S behaviours, visibility in monitoring work activities, and effectively communicating EH&S messages. EH&S roles and responsibilities are to be formally documented and clearly communicated by each Manager to their direct report(s).

3.2 ESTABLISHING LOCATIONS

All Keyton operations required to segregate the work activities from the public must provide adequate barriers, emergency planning protocols and briefings as part of any site inductions.

3.2.1 Site Layout

Control

All operations site layouts must consider the movement of people, vehicles, plant and equipment.

Performance Standard

- i) All operations must review traffic interface risk with public roads and implement suitable physical barrier separation and warning signage to manage exit/entry points, delivery areas, pedestrian crossing points, walkways, parking areas and vehicle speed limits.
- ii) Outdoor artificial lighting must be provided for all locations where workers or members of the public require access outside of daylight hours.
- iii) Suitable indoor lighting must be provided for all work tasks and access requirements. Temporary lighting must not create a trip or fire hazard.
- iv) Any operations with regular and/or large-scale delivery requirements must implement a delivery booking system and dedicated areas for deliveries, material storage and lay down. Vehicle holding areas must be created where there is a risk of queuing inside and outside the operation that could impact roadways or pedestrian access or egress.
- v) Establish protocols to determine when common plant located on the operation such as cranes, hoists, elevating work platforms, elevators and forklifts is to be used to handle product and materials delivered to site to avoid over reliance on just using the available plant and equipment of the contractor/subcontractor receiving the materials.
- vi) Any Keyton operation that provides warehousing or other similar temporary storage facilities must be planned, designed and inspected as part of procurement and installation phases and be verified by an independent engineer as structurally engineered to hold the weights, shapes and quantities planned for storage.

3.2.2 Site Access

Control

All operations where high-risk activities are being undertaken must prevent any danger to the public or unauthorised access by providing suitable physical barriers where members of the public could gain access to the works.

Performance Standard

- i) All operations where building or construction works are in progress, including rectification or minor capital works, must be securely fenced to prevent unauthorised access, display warning signs, and be supervised during working hours.

- ii) Access to site must be managed by the site access system specified in the region. Review protocols must be established to determine that only authorised persons are granted access.
- iii) Fencing or hoarding solutions must be engineered and regularly inspected to prevent unauthorised access. Where fencing the entire site is not practicable, areas of high risk and items of plant within the operation must be formally risk assessed and be secured from unauthorised access.
- iv) Where a site is extensive in length (e.g. road and rail construction or upgrade projects, residential communities or operating assets under management such as retail centres and retirement communities) or where discrete short term activities are being undertaken (e.g. multi-site and maintenance teams) and fencing the entire site perimeter is not practicable, the extent and location of any signage, fencing and physical barriers must be determined by a formal risk assessment so that the public cannot readily access or interface with high risk activities or site hazards.
- v) Any short-term activity (less than one day) or an activity extending beyond the pre-existing site boundary requires the erection of suitable physical barriers to prevent unauthorised access based on an assessment of risk (e.g. temporary fencing).
- vi) Risks to the public must be assessed related to both construction activities and operations and maintenance requirements. Consideration should be given to the size, materials and placement of hoardings, fences and any other permanent and temporary barriers, as well as the management of plant, vehicle and pedestrian traffic to determine that appropriate structures, protocols and risk management measures are in place.

3.2.3 Security Arrangements

Control

Security arrangements must be in place to address the risks to workers and the public from hazards and activities present on the operation or its immediate surrounding environment.

Performance Standard

- i) Security protocols must be in place that reflect the operation type, geographic location and risks applicable to the protection or exclusion requirements for workers and the public. Where Keyton has control over an asset, office, construction site or other work location, access must be controlled to prevent unauthorised access to secure areas (e.g. plant rooms, confined space, roof areas, plant or equipment).
- ii) Areas closed to the public within managed operations must be clearly defined, and measures implemented to prevent unauthorised entry to these areas (e.g. plant rooms).
- iii) Any unoccupied areas on an operation (e.g. undeveloped land owned by Keyton where no work is underway) must be subject to a risk assessment to determine if the area needs to be secured to prevent access or if it would be more appropriate to allow public access.
- iv) Where the risk of criminal or anti-social activity is identified, appropriate levels of physical surveillance by security guards and closed-circuit television (CCTV) and arrangements with security companies must be in place or other means identified through a risk assessment (particularly for monitoring those travelling, working alone, or working after hours) must be in place.

3.2.4 Hazard Reduction

Control

All operations must effectively manage site conditions and tidiness to minimise the risk of creating unnecessary hazards or impacts on the environment that can contribute to an incident.

Performance Standard

- i) Effectively manage tidiness/housekeeping and storage areas to maintain clean and tidy work areas and facilities.
- ii) All main access ways, emergency routes and passageways must be clearly lit, marked, kept clean, maintained in good condition and kept free from obstructions and debris to eliminate the risk of slips and trips.
- iii) The location of stacked or stored materials must be effectively managed to prevent the risk of toppling or falling which could impact work areas, access routes or site facilities.
- iv) All main access ways must have surfaces that are appropriate for their intended use and the local environment. Floor surface selection must consider the type of operation, the geographic environment, the volume of pedestrian traffic, the types of users, and the ease of maintaining surfaces free from spillages and contamination to reduce the risk of slips and trips.
- v) All hazardous substances, chemicals, combustibles, flammables and other dangerous goods and materials must be safely stored and adequately segregated in accordance with safety data sheets (SDS) with warning signs (placards) displayed, physical barriers and/or bunding in place where required, and specified adequate safety equipment available (e.g. extinguishers, spill kits). All safety data sheets (SDS) must be available on site in hard copy or be easily accessible online.
- vi) Electrical items presenting a risk of fire or electrocution must be placed correctly or fixed into position.
- vii) Waste receptacles must be present to handle general waste, hazardous waste, and recyclable materials. Implement processes for the regular collection of all waste and recyclable materials.
- viii) All operations must identify repetitive manual handling work tasks that present a risk of musculoskeletal disorders and eliminate or mitigate the exposure through revised methods of work, material movement or material handling.
- ix) To avoid cut and puncture wounds all sharp objects, sharp tools, equipment and materials must be used in accordance with the manufacturer's recommendations and when handled by workers they must wear appropriate personal protective equipment (e.g. abrasion/cut resistant gloves specific to that task). Sharp objects, tools, equipment and materials must be stored safely when not in use away from access/egress areas to prevent inadvertent contact and cut or puncture injuries.
- x) All operations must develop and implement controls to minimise the risk of occupational health exposure related to adverse workplace conditions including, respirable dust including silica, diesel particulates, noise, ultraviolet radiation and other health risk factors presenting immediate or longer term fatal risks (depending on exposure types).

3.2.5 Personal Protective Equipment (PPE)

Control

All operations must establish protocols for PPE including general and specific application.

Performance Standard

- i) All operations must establish general PPE standards depending on the operation type and activity risk. When deciding on the standards to be applied, consider as a minimum the application of head protection, protective footwear, eye protection, ultraviolet light (sunlight) protection, hand protection, high visibility clothing and the areas of the operation where PPE is not required to be worn.
- ii) Other items of task specific PPE must be identified through risk assessment and must be provided and worn (e.g. hearing protection in areas where noise levels exceed the local legislative thresholds, dust mask for respirable dust protection; gloves to protect against sharp objects, tools or materials, clothing and other forms of protection to meet the local environmental conditions, helmet flap to protect against ultraviolet light).
- iii) Any additional PPE required to be implemented in response to legislative changes, environmental conditions or events (e.g. air pollution events), or for pandemic and disease control response, must be of the specified type and meet all specified codes and standards where prescribed.
- iv) PPE selected and provided for use must be routinely inspected and maintained in accordance with the manufacturer's requirements or related regional codes or standards to determine that the PPE provided remains fit for its required purpose.

3.2.6 Emergency Planning and Evacuation Procedures

Control

All Keyton operations must have an established emergency preparedness and response plan prepared that is specific to the operation and addresses all statutory emergency preparedness and response requirements, is communicated to all relevant people, and is routinely tested for effectiveness.

Performance Standard

- i) Emergency management planning must:
 - a. Link with regional business continuity planning and crisis management protocols and include details of people with key responsibilities, includes potential and actual credible emergency response scenarios and contact details for liaison with relevant people within Keyton, emergency services, external authorities, and third parties such as clients.
 - b. Appoint and formally train sufficient wardens in emergency procedures, including the need to check areas are clear of people in an evacuation and basic firefighting techniques where appropriate.
 - c. Identify members of the emergency response team including fire wardens and first aiders who have been formally appointed and trained in their emergency responsibilities.
 - d. Incorporate a risk assessment (undertaken by a person deemed to have the correct levels of competency) to determine the requirements for incident response equipment, including the number and content of first aid kits, number of fire extinguishers and their location, and requirements for any risk-based items such as Automated External Defibrillators (AED), oxy viva resuscitator, oxygen, stretcher, bleed kit, spill kit or other items if required.

- e. Include the requirements for practicing response to the identified scenarios (e.g. fire drills, heightened security threats).

- ii) All emergency response management requirements, including emergency preparedness and response plans, first aid provisions and emergency response drills, must be revised at least annually (or more frequently for higher risk workplaces such as construction operations). This can be in conjunction with local emergency services or a suitably qualified fire contractor.
- iii) Operations must practice emergency response scenarios for effectiveness. These must be recorded.

3.2.7 Site Induction

Control

All workers and visitors entering an operation for work purposes must be given adequate EH&S instructions.

Performance Standard

- i) Induct all workers contractors, visitors and service providers before commencing work, giving consideration to language barriers and the nature of their work or risk exposure.
- ii) The induction must include content specific to the operation (e.g. details of any site rules, EH&S specific standards, safety hazards and risks, health and wellbeing, environmental aspects and impacts, emergency response, consultation arrangements, key personnel, and other important information).
- iii) On operations where site access is restricted, all people (i.e. workers and visitors) entering and leaving the location must be recorded and provided with adequate EH&S instructions (e.g. access cards, visitor identification, information cards identifying risks, emergency response and site layout) with visitors to be escorted at all times. Visitors to construction operations must also be provided any additional PPE and receive notification of specific visitor requirements or protocols they are required to follow.

3.3 ESTABLISHING GOVERNANCE

All Keyton operations must establish effective governance and create an active plan for how EH&S risks are identified and managed on the operation with clear responsibilities defined and active leadership oversight in place.

3.3.1 EH&S Management Plan

Control

All Keyton operations must have an EH&S management plan that clearly identifies the applicable EH&S risks and how they are to be managed at the operation.

Performance Standard

- i) The EH&S management plan must:
 - Identify and include stakeholder specific requirements and the unique operational risks from KMRs 1 and 2 which need to be managed (e.g. protocols for methodology reviews for acute high risk activities).
 - Address all requirements listed within KMR 3 and include plans or other methods to address all monitoring requirements from any applicable KMR risk events outlined in KMR 4.
 - Comply with all applicable legal and regulatory requirements in preparing and maintaining an operating EH&S management plan.

- Identify arrangements for the scheduled inspection and maintenance of specific plant and equipment used to manage critical risks and identify that it is fit for purpose. (e.g. test and tag electrical items, residual current device checks, fire systems, fall restraint and rigging equipment, first aid kits).
 - Include any occupational health monitoring required by risk assessment.
 - Outline the management of access/egress, workplace hazards and risks, boundary control, emergency and evacuation planning, housekeeping, wellbeing and EH&S learning programs that establish places that care.
- ii) The EH&S management plan must be cross referenced to the Project Execution Plan, regularly reviewed and updated to include significant changes to risks or risk controls.
- iii) For established workplaces identified as low risk (e.g. office operations), the plan must be reviewed and updated at least annually. For high risk workplaces (e.g. construction sites) the plan must be reviewed and updated more regularly as outlined by the business unit.

3.3.2 Operational EH&S Responsibilities

Control

All Keyton operations must have EH&S roles and responsibilities clearly defined between organisations and within individuals and teams.

Performance Standard

- i) Outline roles and responsibilities for the operation, including responsibilities for monitoring all applicable KMR controls to appropriate persons (who may be from within the Keyton team, a contractors/service provider, or other stakeholders). These responsibilities must be clearly communicated and documented.
- ii) The most senior Keyton leader on each operation is responsible for oversight of all EH&S responsibilities attributed to Keyton. Any responsibilities delegated by the senior Keyton leader to other employees are to be clearly documented in individual roles and responsibilities and clearly communicated to each individual.

3.3.3 Operational EH&S Governance and Assurance

Control

All Keyton operations must establish an EH&S leadership team or equivalent to provide governance and oversight for EH&S performance management. Operations with small teams or dispersed work fronts (e.g. multisite operations) may have EH&S leadership teams which operate at the sub-business unit level.

Performance Standard

- i) The EH&S leadership team must:
- a. Meet at least quarterly, be chaired by the most senior Keyton leader on the operation and engage with partners such as clients, contractors and service providers in reviewing progress against EH&S objectives and targets, strategic planning and other initiatives specific to the operation.

- b. Monitor compliance with the KMRs and regulatory requirements and examine information from any EH&S events, incidents, reviews, audits, or observations recorded.
 - c. Review incidents and investigations to provide appropriate actions, follow up and close out.
 - d. Monitor the status of the key operational risks identified in KMRs 1-4.
 - e. Monitor progress against people-related requirements including but not limited to: workforce consultation, engagement, training delivery, hours of work, welfare facilities and health and wellbeing initiatives.
 - f. Document outcomes related to the above and communicate these to the workforce where appropriate.
- ii) All Keyton operations must receive an independent assessment at intervals set by the Business Unit and cover the requirements of all KMRs that are applicable on the operation and correspond with actual or upcoming changes in risk profile and/or actual EH&S performance outcomes. The independent EH&S assessment must be undertaken by a Keyton or third-party employee or contractor deemed to have sufficient competency but is not based full-time on the operation (to provide independence from the operations team).
- iii) All operations subject to audits from clients, regulators, or other third parties (e.g. as part of ISO certification or national accreditation requirements) must communicate requirements to Region/Business Unit EH&S teams and the operational EH&S leadership team to obtain support in managing and facilitating the audit process.

3.3.4 Reporting Requirements

Control

All operations must report on EH&S incidents and compliance as a means of performance tracking and establish improvement opportunities.

Performance Standard

- i) All event types must be recorded using the Keyton online EH&S reporting platform within 24 hours of being made aware of the event, including actual and potential incidents of injury, illness, property damage, plant damage, or harm to the environment. All operations must also meet the reporting requirements and timeframes outlined for regulatory incident notification and reporting.
- ii) All incidents classified as a Critical Incident must be published within 72 hours of the event occurring.
- iii) All Critical Incidents on Keyton operations must be investigated using the Keyton 8 Step™ incident investigation methodology in accordance with the group standards.
- iv) As part of identifying, managing and reporting on risk, each operation must report on EH&S risk and compliance as determined by their business unit.
- v) All Keyton operations reporting must be inclusive of incidents, observations and assurance reporting related to environment, health, safety and wellbeing (e.g. mental health first aid reporting) with support provided from the local business unit to assist in identifying areas of concern and actions or interventions.

KMR 4

Delivery



Governance

Group, region and business unit oversight

Management governance | Assurance | Reporting | Performance management



KMR 1

Investment

The deal

Risk reviews – new work and investment opportunities
 Independent project reviews



KMR 2

Design and Procurement

Approach

EH&S design risk management
 Design standards and controls
 Procurement review processes



KMR 3

Establishment

Operational set-up

Establishing places that care
 Managing logistics and set-up
 Operational planning and governance



KMR 4

Delivery

Day to day risk management

EH&S delivery risk management
 Defining 20 GMR risk events
 Performance standards and controls

Figure 6: KMR Framework – KMR 4: Delivery

Preamble

KMR 4 addresses the potential for fatal risk outcomes amongst the day-to-day operational activities, hazards and risks that are present across Keyton operations. Whilst many risks to people are present daily, there are 20 different KMR 4 risk events that have been identified that present the most significant risk to people (i.e. the risk of a single or multiple fatalities), or of causing significant environmental damage across Keyton’s operations. These KMR risk events have been assessed using the bow tie risk methodology to determine potential causes and impacts.

Potential causes are addressed by implementing preventative controls which are used to prevent the occurrence of the KMR risk event, whilst the potential impacts are offset with mitigating controls designed to lessen the impact if the event was to occur.

Whilst all 20 KMR risk events have preventative and mitigating controls listed for application, the top 10 KMR risk events at Keyton (identified through analysis of internal incident data) also have performance standards provided which assist in determining appropriate controls to be applied for each work activity. For KMR risk events 11-20, no performance standards are included. If further detail is required regarding how the controls outlined will be achieved this will be provided by the business unit that oversees the operation.

KMR 4 is comprised of the following:

Protocols

4.0 Management of activities

KMR risk events 1-10: critical controls and performance standards

- 4.1. Fall of person
- 4.2. Fall of material/object
- 4.3. Vehicle and plant incident (work sites)
- 4.4. Uncontrolled release of electrical energy
- 4.5. Fire and explosion
- 4.6. Crane and hoisting equipment incident
- 4.7. Impact from moving parts of machines
- 4.8. Excavation and stockpile collapse
- 4.9. Failure of structures (temporary or permanent)
- 4.10. Occupational health exposure

KMR risk events 11-20: critical controls only

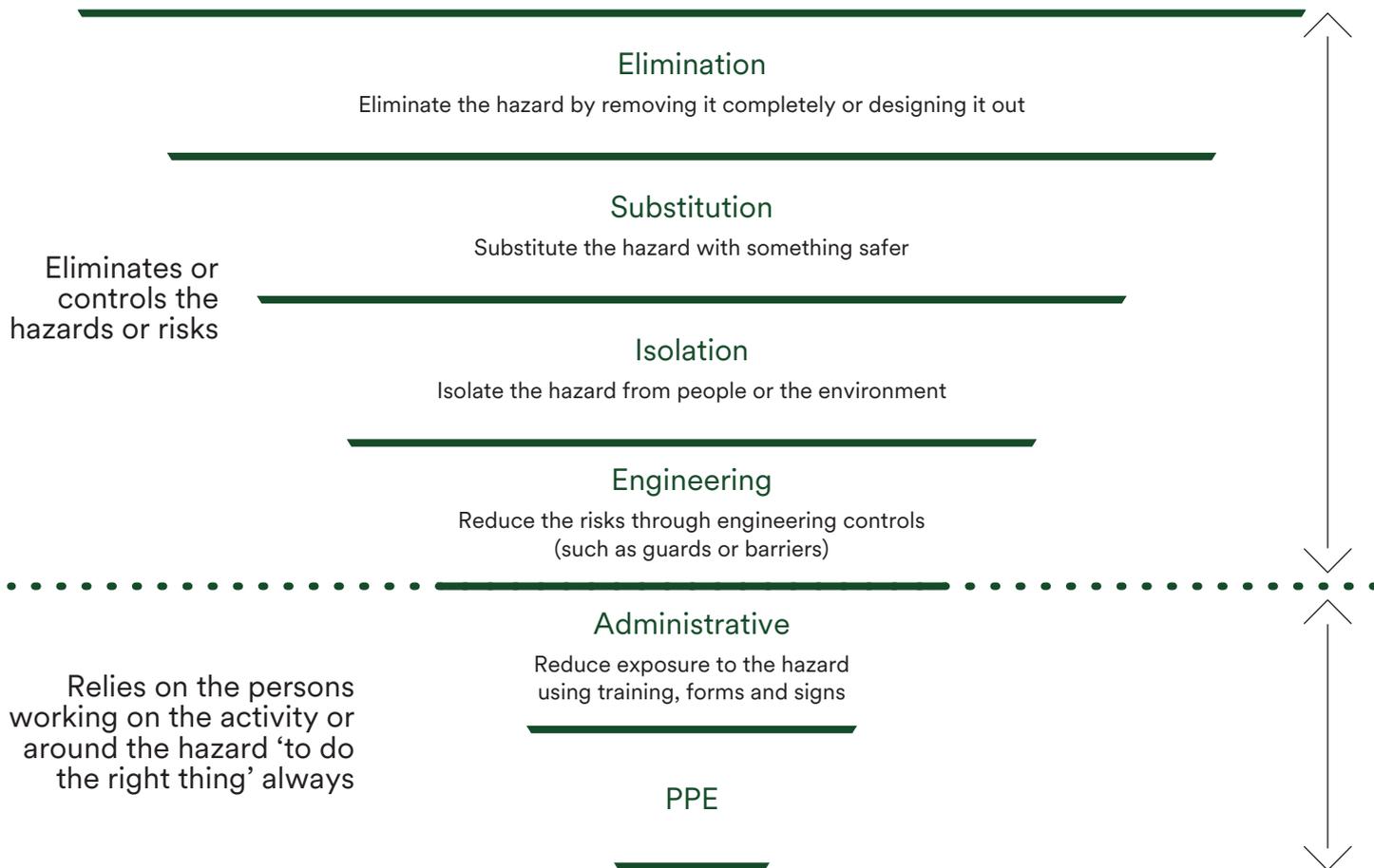
- 4.11. Public health exposure
- 4.12. Mental health and fatigue
- 4.13. Degradation or pollution of the environment
- 4.14. Vehicle and plant incident (public areas)
- 4.15. Uncontrolled release of stored energy (non-electrical)
- 4.16. Tunnel collapse
- 4.17. Failure of fixtures or fittings
- 4.18. Drowning
- 4.19. Confined space incident
- 4.20. Essential service failure

4.0 MANAGEMENT OF ACTIVITIES

For all Keyton operations where any of the 20 KMR risk events apply, activities must be managed by implementing the controls and performance standards against each risk event. The controls outlined in the KMRs address varying elements found within the hierarchy of risk control outlined below. The hierarchy prescribes elimination as the most desirable control outcome through to administration and PPE as the least desirable control outcome.

- **Elimination:** Eliminate the hazard by removing it completely or designing it out.
- **Substitution:** Substitute the hazard with something safer.
- **Isolation:** Isolate the hazard from people, or the environment.
- **Engineering:** Reduce the risks through engineering controls (i.e. controls that are physical in nature, including mechanical devices or engineering processes).
- **Administration:** Reduce exposure to the hazard using administrative actions (i.e. work methods or procedures that are designed to minimise exposure to the hazard).
- **Protection:** Use personal protective equipment (PPE) to limit exposure to the harmful effects of the hazard.

The Hierarchy of Risk Control



Visual representation of the hierarchy of risk control

All operations must address the following six (6) steps in administering the requirements of KMR 4:

Note: Where new risks are identified for any operation that are not outlined in these KMRs, this methodology must be followed to eliminate or manage the risk if elimination is not reasonable.

Step 1:

Identify applicable KMR risk events

Each operation must apply the concept of ‘What’s the worst that could happen?’ (WTWCH) and identify the work activities in their scope where there is a likelihood of exposure to any one of the 20 KMR risk events. Once these activities are identified, they must be planned and managed in accordance with the applicable controls against each KMR risk event.

Step 2:

Determine the engineering controls (or above) to be implemented

As a minimum, at least one preventative control set at the engineering level or above must be in place for each of the identified critical risks. In addition to the (at least) one preventative engineering control, at least one mitigating control must also be in place. If it is not possible to implement any of the controls outlined in KMR 4 (or an equivalent control) the operation must seek a KMR exemption from the Region CEO and provide an alternate work methodology that addresses and manages the risks.

Step 3:

Document the activity methodology

For each activity where a KMR risk event applies, there must be an appropriate documented procedure or method of work outlining the application of critical controls identified in step 2 for that work activity, including protection requirements. Note that some activities may have exposure to more than one KMR risk event. For acute high risk activities, the proposed methodology will be subject to an independent methodology review (KMR 2.3.3). Step 3 and subsequent steps must be re-visited where changes are made to the work methodology or the resources allocated to the activity.

Step 4:

Pre-task discussion with the workers involved

Through a pre-task discussion process (e.g. ‘pre-start’ or ‘safe start’) all workers that will undertake or supervise the work must be consulted and made aware of the contents of the documentation and how the critical controls and performance standards must be applied in response to addressing the potential consequences from reviewing ‘What’s the worst that could happen?’. Communication must also extend to include people other than those directly involved in the activity that could be potentially impacted by the activity. For activities subject to a permit process, this is part of the communication and assurance process. Step 4 must be re-visited at the commencement of each day or shift.

Step 5:

Provide sufficient frontline leaders with proof of competency

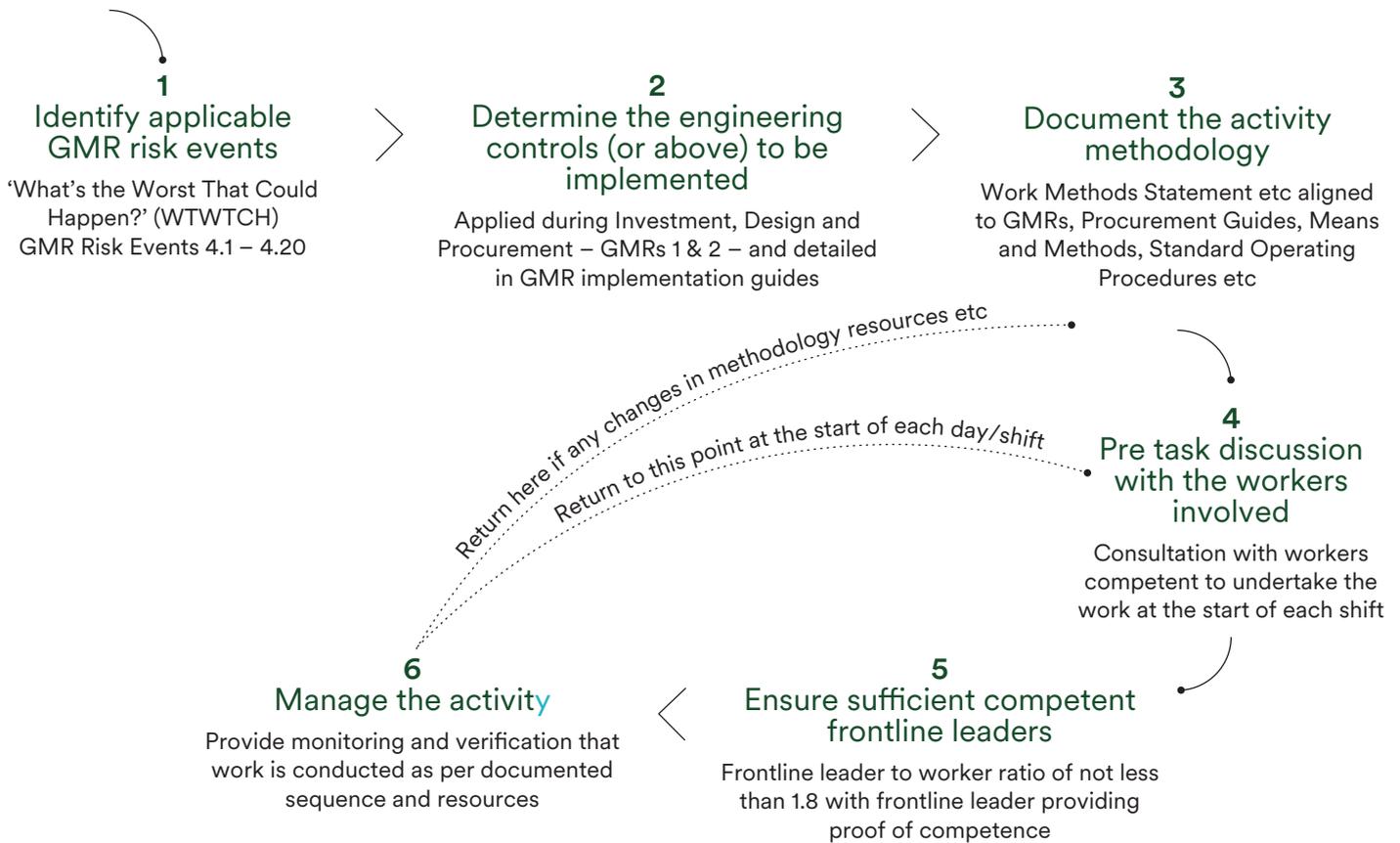
Activities where one or more KMR risk events have been identified must adopt a frontline leader to worker ratio of not less than 1:8. Frontline leaders and workers must provide proof of competency where required for the role undertaken and the KMR front line leader supervision ratio maintained across all shifts and scenarios wherever any of the KMR 4 risk events can occur. Frontline leaders on Keyton operations should be made available to take part in the Keyton Frontline Leader training module.

Step 6:

Manage the activity

Adequate verification and monitoring processes must be in place to determine that each activity is being managed in accordance with the agreed methods outlined in step 3. As a minimum, verification and monitoring must occur at the commencement of each working day/shift, and at regular intervals throughout the course of the day/shift. Wherever there is a change in working conditions, the agreed method of work, or where a change in sequence or scope is introduced, step 3 and subsequent steps must be revised to manage the change. If the scope of works changes, repeat from step 1.

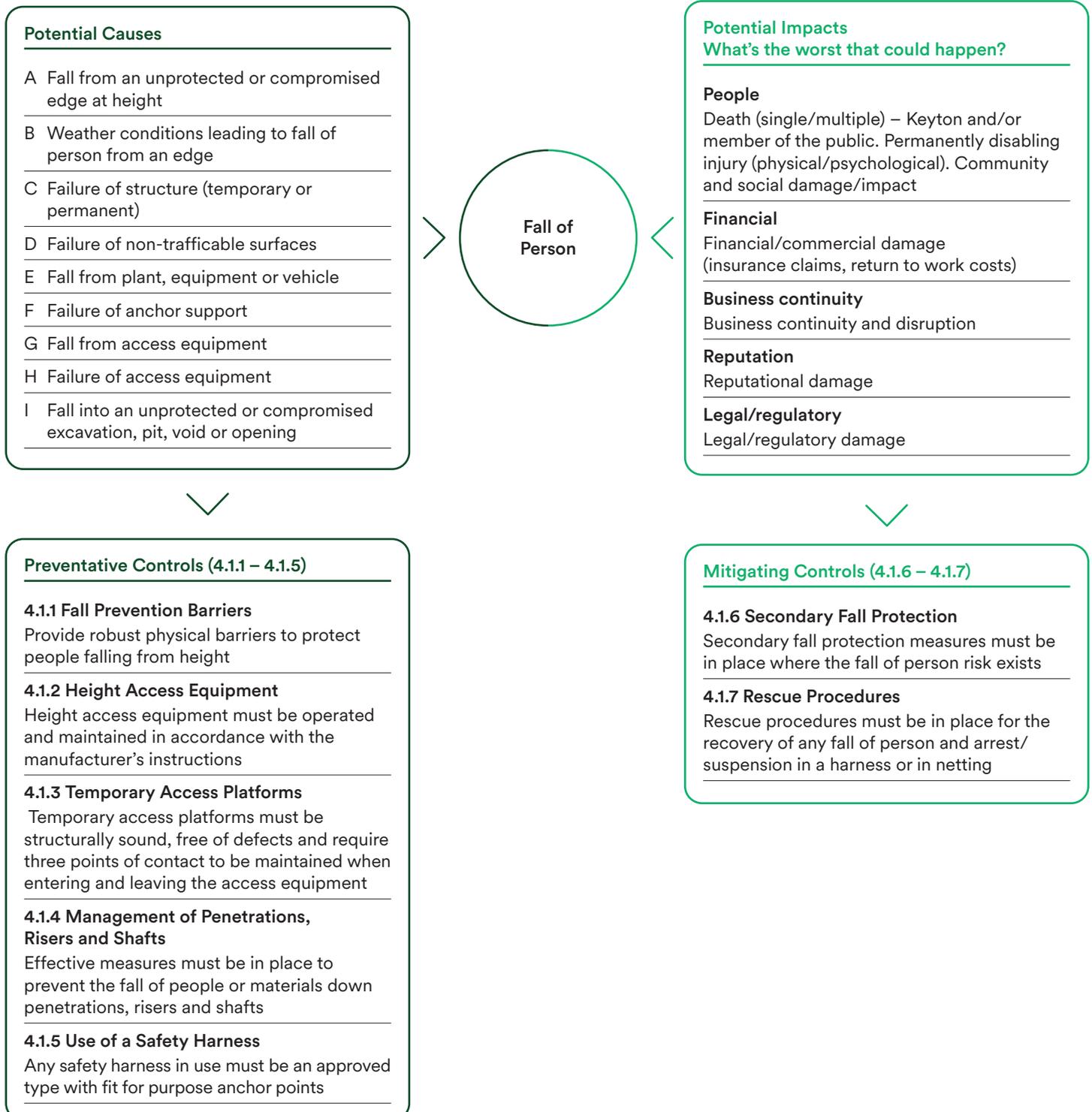
Activity required to deliver work/product



4.1 FALL OF PERSON

Description

These critical controls and performance standards apply to situations where there is a risk of one or more people falling off an edge, object, structure or opening with the potential risk of fatal consequences. It is not intended to apply to slips or trips on the same surface level.



Risk Event Preventative Controls and Performance Standards

4.1.1 Fall Prevention Barriers

Control

Provide robust physical barriers to protect people falling from height.

Performance Standard

- i) All areas under construction or demolition (including deep excavations) from which a person could fall must be protected by physical barriers of sufficient height and strength to prevent people from falling or being blown off the edge of the structure or into an excavation or opening (e.g. screens, handrails, scaffolds, or guard rails for temporary structures).
- ii) All open edges from which a person could fall in asset operations and maintenance scenarios must also be effectively protected by physical barriers of sufficient height and strength to prevent people from falling (e.g. permanent climb resistant balustrades, guard rails or void screens) addressing the risks associated with the operation such as, likely usage, location, structural stability and weather conditions.
- iii) All mobile work platforms, temporary works platforms, equipment or machinery used for work at height must have edge protection in place to prevent the fall of a person from both the elevated work and from any potential for the platform to be destabilised from adjustment, movement or positioning manoeuvres. Restraining harnesses must be worn and secured to the manufacturer's designated anchor point by people working in MEWPs with booms unless working over water.
- iv) Edge protection must conform to the requirements of the regulations, standards and applicable local codes and have a method of attachment and a supporting structure capable of withstanding the required design loads that will be applied.
- v) Where containment mesh is secured to prevent fall of materials (refer to KMR 4.2.1) from an edge, it must also meet applicable edge protection requirements if required to prevent a fall of a person.

4.1.2 Height Access Equipment

Control

Height access equipment must be operated and maintained in accordance with the manufacturer's instructions.

Performance Standard

- i) Control and prevent unauthorised access to climbable building equipment (e.g. cooling or heating plants and free-standing structures such as antennae, power station cooling towers, storage tanks and power transmission lines or towers).
- ii) Equipment or structures requiring worker access must eliminate or minimise the risk of a fall. Equipment requiring regular maintenance must be installed at, or moved to, ground level to eliminate the need to work at height.
- iii) Access to general construction work areas or floors must be provided by either a full permanent solution or via temporary staircases of adequate width with suitable handrails. Access via custom-built timber ladders is not permitted.
- iv) Suspended access equipment such as bosun chairs, cradles, gondolas and swing stages must only be used where safer means of height access cannot be achieved.

- v) Permanent BMUs such as mechanised cradle systems must provide safe access for cleaning and maintenance, be fixed to the operation's structure, have the safe working load clearly marked, and have sufficient designated safety harness anchor points designed to withstand the forces caused by a fall of any person(s) located anywhere on the platform.
- vi) All mast climbers, swing stage scaffolds and BMUs must be installed, maintained and inspected by an engineer or person(s) technically qualified to do so, following the manufacturer's specifications as a minimum. Details of the design, maintenance, inspections and manufacturer's specifications must be provided.
- vii) All people using mast climbers must attach using a fall restraint lanyard when the mast climber is moving. The lanyard must be attached to either a vertical line independent of the portable vertical access equipment, an engineered anchor point or horizontal static line fabricated and certified by the manufacturer or independent engineer for that purpose, or a transportable temporary independent anchor point engineered for that purpose. Emergency retrieval rescue procedures must be established for work involving a safety harness and lanyards.

4.1.3 Temporary Access Platforms

Control

Temporary access platforms must be structurally sound, free of defects and require three points of contact to be maintained when entering and leaving the access equipment.

Performance Standard

- i) Effective measures are to be in place for the safe erection, dismantling and use of all scaffolds, temporary works and working platforms.
- ii) All scaffolds must be fit for use, all structural members free from visible defects and the erected scaffold is stable and secure to prevent movement or collapse. Scaffolds must be plumb, have adequate cross-bracing, sound footings and be tied into the structure when the height/base ratio is greater than 2:1.
- iii) The use of A-frame scaffolds above two levels (i.e. two levels of A-frame but only a single above ground working platform) for the purposes of façade scaffolding, blockwork or other means is not permitted as it cannot be erected or dismantled in a safe manner to meet the KMRs.
- iv) Working platforms must be closely boarded or planked and free from defects. Remove any damaged boards or planks, debris, materials and waste from scaffolds as soon as it is practicable.
- v) Guard rails, mid-rails and toe boards must be installed on all open sides of platforms representing a fall risk.
- vi) The use of ladders for work at height must be minimised by effective work planning and using safer means of access consistent with the hierarchy of risk control (e.g. MEWPs, scissor lifts, scaffold towers, podium steps and working platforms). Custom-built timber ladders made on site without appropriate tread are not permitted to be used. All stair treads shall be assessed for anti-slip surfaces.
- vii) Maintain three points of contact at all times including when entering and leaving access equipment and when using a ladder to prevent exposure to a fall.
- viii) Climbing up the outside of a scaffold is prohibited.

4.1.4 Management of Penetrations, Risers and Shafts

Control

Effective measures must be in place to prevent the fall of people or materials down penetrations, risers and shafts.

Performance Standard

- i) Construct all lift and elevator shafts to physically protect both those carrying out the construction and those below carrying out the lift installation. Provide safe working platforms for all those working in lift shafts.
- ii) Fully protect openings to lift shafts with a secure full height system that prevents unauthorised entry and the risk of falls of people or materials. Shaft opening protection must remain in place until a safe working platform is provided or the lift doors are in place.
- iii) Check penetrations and risers have either a structural mesh cast in during construction or are fitted with other protection such as metal guard rails or covers.
- iv) All floor openings and pit covers are to be mechanically fixed (i.e. screwed or bolted, not nailed) and have clearly labelled covers. Covers must be constructed to minimise the risk of a trip hazard.
- v) All covers to floor openings and pits are to have adequate load bearing where the cover is to be subjected to mobile plant or other significant loads other than people.
- vi) Remove protective measures only when work is taking place in the opening and prevent the potential fall of a person or fall of material whilst the work is taking place and replace the protective measures when work is completed.
- vii) Permanent balustrades or fencing around voids in public areas must be climb resistant (e.g. with top rails angled away from the void or similar).
- viii) Climbable material or equipment must not be placed within 1m/3.3ft of the balustrade or fencing, unless the balustrade or fencing is extended in height to account for the material or equipment in close proximity.
- ix) Physical barriers must be in place to prevent persons falling into exposed holes or excavations as a result of piling operations.

4.1.5 Use of a Safety Harness

Control

Any safety harness in use must be an approved type with fit for purpose anchor points.

Performance Standard

- i) A safety harness must not be used as a primary means of fall prevention unless required for maintenance of assets, plant or equipment where physical barriers have not been installed. In these circumstances where a harness is being used as the primary means of falls prevention a full body safety harness must be used to provide either fall restraint (preferred) or fall arrest (least preferred) protection. If a full body safety harness is being used as the primary means of fall protection verification of competency in use is required.
- ii) Any safety harness in use must be attached to an appropriate anchor/tie-off point(s) by means of a compatible connector that provides either sufficient fall restraint protection or incorporates a decelerator to provide appropriate fall restraint/arrest. All of these components must be fit for purpose, properly inspected, tested, tagged and maintained in line with the manufacturer's guidelines or related standards and be used only by a person with the proof of competency to do so.

- iii) Any construction activity requiring the use of a safety harness as the primary means of fall prevention must have approval from the Region Head of Health & Safety.
- iv) Workers wearing a safety harness must be attached to a loadbearing element or structure through an approved anchor or tie-off point(s) installed by a person with qualifications or proof of competency per the manufacturer's specification and installation requirements.
- v) As part of the approval process, the design of the system and its load bearing adequacy (of the anchor/tie-off point) must be verified by a qualified independent engineer, consistent with KMR4.9 and an emergency fall arrest retrieval plan must be in place.
- vi) Approval must also verify the fall arrest system has a compatible twin or y-shaped lanyard and energy absorber to provide appropriate fall arrest protection. Workers using a safety harness as a primary means of fall protection must remain attached to the loadbearing element or structure at all times and must never remove both tails of the lanyard at any time.
- vii) Where a safety harness is configured to either fall arrest or fall restraint the related free fall distance and potential for the pendulum effect must be reviewed as part of the approval for use and the safety harness.

Risk Event Mitigating Controls and Performance Standards

4.1.6 Secondary Fall Protection

Control

Secondary fall arrest measures must be in place where the fall of person risk exists.

Performance Standard

- i) Any work at height where all work faces cannot be enclosed must have in place a horizontal catch net (e.g. a diaper net, catch fan, horizontally projecting net or any other structurally designed element) as a secondary measure to prevent a fall of person risk. Where work is conducted outside of the building envelope (e.g. where a person is positioned in an articulated MEWP basket beyond the building envelope and the MEWP is positioned to within 3m/9.8ft of the edge and is perpendicular to the edge) measures must be implemented to prevent both the MEWP and the person from falling (e.g. tethering the MEWP back to the structure using an engineered tie or using engineered wheel stops). All people working in the basket are to be harnessed to the MEWP at all times.
- ii) Fall protection netting must always be a minimum of one bay ahead of the area of work with the exception of the last bay when edge protection has already been fitted.
- iii) A safety harness in use as a primary means of fall protection must be fitted with suspension trauma straps.

4.1.7 Rescue Procedures

Control

Rescue procedures must be in place before work commences for the recovery of any fall of person and arrest/suspension in a harness or in netting.

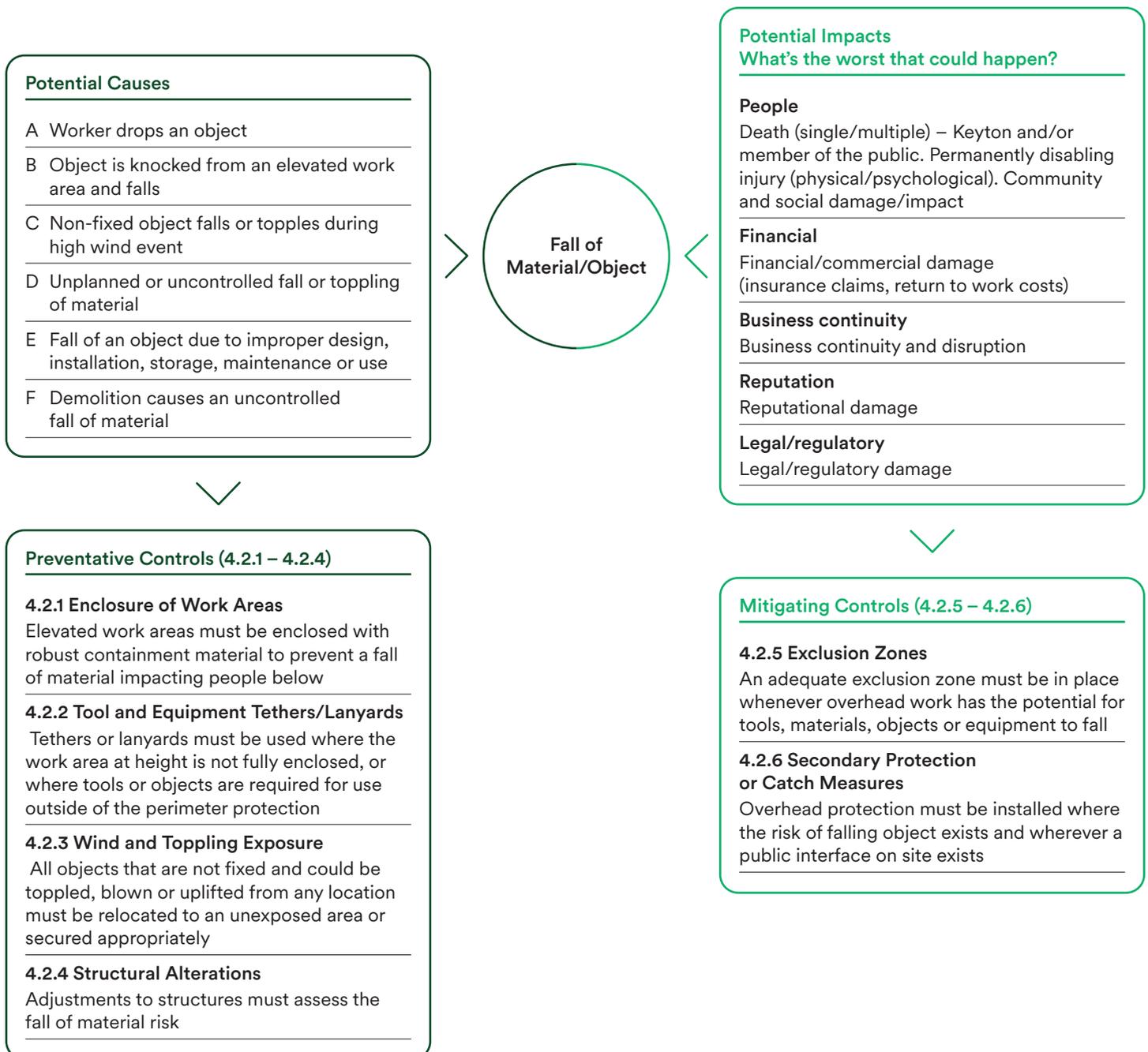
Performance Standard

- i) Rescue and recovery protocols must be in place to recover any person who has fallen into a secondary fall protection element (e.g. horizontal netting or catch fan).
- ii) For all circumstances where a safety harness is in use and configured to either fall arrest or fall restraint a recovery plan must be established that addresses the requirement to reach any person suspended promptly (within 10 minutes) to minimise the risk of death from suspension trauma and that the rescue team are trained in dealing with suspension trauma.

4.2 FALL OF MATERIAL/OBJECT

Description

These critical controls and performance standards apply to events caused by work from an edge of a floor not fully enclosed, inadequate design or installation, high wind, work outside edge protection, inappropriate storage of items, disturbance or demolition leading to a falling object and/or failure of a load. This event is inclusive of works on penetrations/voids, MEWPs, building maintenance works, temporary working platforms (scaffold), demolition, deconstruction, abatement or structural alteration works where the potential for material or objects to fall has been identified. Note: KMRs 4.6 crane and hoisting equipment incident and 4.17 failure of fixtures or fittings address related events.



Risk Event Preventative Controls and Performance Standards

4.2.1 Enclosure of Work Areas

Control

Elevated work areas, including stair towers, must be enclosed with robust containment material to prevent a fall of material impacting people below.

Performance Standard

- i) Perimeter protection addressing the fall of person risk must also address the fall of material risk posed by stored or handled tools, materials, objects or equipment to prevent these from being kicked, knocked or bumped through openings or gaps.
- ii) Any means of containment enclosure must address risks posed by the lateral movement of the largest (weight) and smallest (dimension) items used within any permanent and temporary enclosures. Any enclosure solutions must be installed prior to further work being conducted.
- iii) The fall of material risk associated with temporary voids, penetrations, openings or gaps must be managed. Covers must be designed and securely fastened with warning signage displayed. Covers must be able to sustain the largest weight and prevent penetration by the smallest object.
- iv) For all vertical progressive construction, full height (floor to soffit) edge containment protection must be deployed and in place on multi-storey structures under construction prior to the installation of the facade or permanently designed edge protection solutions. For all auxiliary elements (e.g. scaffolds, hoists, MEWPs, perimeter screens or climbing formwork) a strict 'no gaps' policy must be adopted for both horizontal and vertical gaps. Designed solutions relative to these scenarios must be deployed and maintained to prevent the fall of tools, equipment and materials at all times (e.g. fully boarded out platforms, rubber seals, proprietary engineered hinged flaps and appropriately designed mesh).

4.2.2 Tool and Equipment Tethers/Lanyards

Control

Tethers or lanyards must be used where the work area at height is not fully enclosed, or where tools or objects are required for use outside of the perimeter protection.

Performance Standard

- i) Identify scenarios where tools or objects are required to be used outside of an enclosed work area and prescribe associated controls.
- ii) A tether or lanyard must be used to separately secure each individual tool or object in use beyond any form of edge protection or enclosure. The object must be secured prior to crossing through the edge protection or enclosure.
- iii) Each tether or lanyard and its sub-components securing an object beyond the encapsulation must be fit for purpose and manufactured to resist the falling object's forces.

4.2.3 Wind and Toppling Exposure

Control

All objects that are not fixed and could topple or be blown or uplifted from any location must be relocated to an unexposed area or secured appropriately.

Performance Standard

- i) Stored materials, temporary barriers, fencing and signage must be assessed for the risk of toppling through assessing appropriate storage locations for the relevant material type. Consideration must be given to storage heights, equipment racks, exclusion zones, and the suitability of materials used to keep stored loads or materials stable. Risks of toppling from wind, vibration, or impacts from people, plant or equipment must be used to determine the appropriateness of any storage location and methodology.
- ii) Storage solutions for large items that have been assessed as presenting a toppling risk (e.g. trusses, large glazing panels, heavy equipment with a height to base ratio of greater than 3 to 1) shall be reviewed by an engineer.
- iii) All operations must have information available relating to maximum wind gusts and the placement of objects, either temporary or permanent, and must consider the risk of objects being blown or uplifted by wind from any elevated position. Provide early weather warning systems for operations where there is the risk of windblown falls of materials.
- iv) All objects that could be blown from elevated positions must be firmly fixed, secured or relocated to a less exposed area.
- v) Provide protocols to cease work activity at height when wind thresholds are exceeded, with protocols inclusive of the need to monitor components located at height such as any pulleys, guide rollers, swing gates or maintenance units.
- vi) Activities and equipment that can release materials from height (e.g. spoil from piling operations) must be assessed with physical controls on the equipment or exclusion zones in place.

4.2.4 Structural Alterations

Control

Adjustments to structures must assess the fall of material risk.

Performance Standard

- i) All structural alteration work or structural change work must have a building and services survey completed by a qualified and registered structural engineer to determine the sequence of works and assess the risk of failure of structure or fall of material.
- ii) In the event of any proposed changes to the planned activity or sequence, a documented review must be completed to assess how the structural alterations could be affected.

Risk Event Mitigating Controls and Performance Standards

4.2.5 Exclusion Zones

Control

An adequate exclusion zone must be in place whenever overhead work has the potential for tools, materials, objects or equipment to fall.

Performance Standard

- i) Exclusion zones must be established below or around all areas where there is a risk of people being struck by falling materials (e.g. below works on the cladding of a building, around mobile crane works, loading/unloading activities, atriums and MEWPs in use).
- ii) Exclusion zones must be of adequate size, take into account the risks such as potential arc of fall, deflections and bounce distances, be delineated by physical barriers and have clear signage prohibiting unauthorised entry. The integrity of any exclusion zones must be regularly checked.
- iii) Under no circumstance may a person enter an exclusion zone whilst work is being carried out overhead.

4.2.6 Secondary Protection or Catch Measures

Control

Overhead protection must be installed where the risk of falling objects exists and wherever a public interface on site exists.

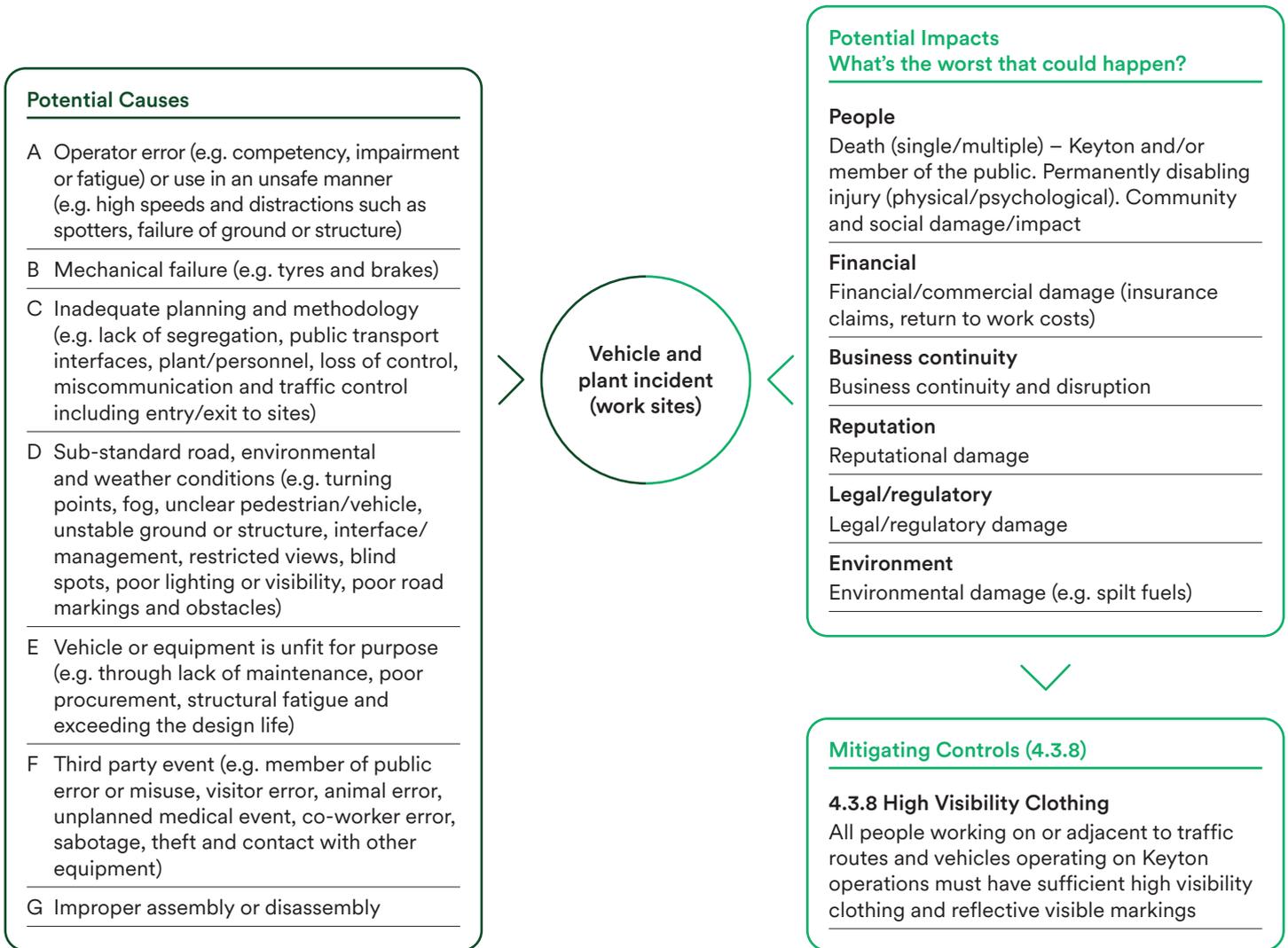
Performance Standard

- i) Identify in construction and asset works any scenarios where overhead protection must be installed, particularly where an engineering control preventing the fall of material cannot be implemented, people below cannot be completely excluded, enclosure or tether/lanyard requirements cannot be met, or where an object's mass, positioning or height from next floor level could cause a fatal injury if it fell onto a person.
- ii) For all structural work on any vertical progressive multi-storey construction, a secondary catch system (e.g. a diaper net, catch fan, horizontally projecting net or any other structurally designed element) must be positioned immediately below any areas where this work is being undertaken above (e.g. at the level just below the screens) and the application must consider the arc of any potential fall of material.
- iii) Where there is the potential for members of the public and/or workers to be impacted by a fall of material, a designed and engineered overhead protection (e.g. crash deck) must be appropriately positioned and of adequate strength and coverage taking into account potential material types and the arc of any potential fall of material.
- iv) Overhead protection or catch systems must be designed to avoid failure due to impact with the object it will intercept as a result of over spilling, puncture holes, melting by hot objects, corrosion or overload by weather events (e.g. seasonal maximum wind, rain, hail or snow).
- v) Provide details of how the safe retrieval of a fallen object from overhead protection or catch systems will be achieved.

4.3 VEHICLE AND PLANT INCIDENT (WORK SITES)

Description

These critical controls and performance standards apply to the operation and movement of all vehicles in defined construction zones and include heavy equipment and fixed and mobile plant where the impacts of an event could result in a fatality. It does not cover traffic on Keyton assets (e.g. retail, residential or commercial) or the use of Keyton light vehicles on public roads.



Preventative Controls (4.3.1 – 4.3.7)

4.3.1 Traffic Management

Vehicle routes on construction and haul roads must effectively manage the risks to vehicles and people

4.3.2 Pedestrian and Vehicle Segregation

All operations must assess the risks presented by the movement of pedestrians, materials and vehicles and implement appropriate safety measures to eliminate or minimise these risks

4.3.3 Parking and Traffic Routes

Traffic routes and parking arrangements must be in place to avoid vehicle-to-vehicle and vehicle-to-pedestrian conflict

4.3.4 Use of Light Vehicles on Site

Keyton tool of trade vehicles operating in defined construction or engineering zones must be in good working order and operated in a safe manner

4.3.5 Use of Plant, Equipment and Vehicles

Effective controls must be in place for managing the use of all mobile plant, equipment and vehicles used for ground and civil works, including skid-steer loaders, excavators, backhoes, graders, scrapers, bulldozers, dump trucks, rollers and compactors

4.3.6 Installation, Inspection, Maintenance and Dismantling

Fixed and mobile plant must be installed, erected, adjusted, inspected, maintained and dismantled in safe locations, in accordance with the manufacturer's requirements and by qualified personnel

4.3.7 Vehicle and Plant Recovery and Rescue

Effective measures must be in place for the recovery of vehicles and plant immobilised or bogged in mud, sand or other type of similar traction resistant ground conditions

Risk Event Preventative Controls and Performance Standards

4.3.1 Traffic Management

Control

Vehicle routes on construction and haul roads must effectively manage the risks to vehicles and people.

Performance Standard

- i) Traffic management plans must address the interface with public roads and provide effective controls addressing prohibited vehicles, height and weight restrictions, path of travel, access points, pedestrian access routes, routes for different vehicles or plant, reversing requirements, signs and traffic control aids, technology application, site traffic maintenance and protected position(s) of the traffic controllers ensuring an escape route is available in the event of an emergency.
- ii) Traffic management or vehicle movement plans must be current and define the engineering controls to prevent vehicles striking another vehicle, structure or pedestrian.
- iii) Separate traffic plans are needed for each stage and area of the operation when the discrete phases of work result in changes to the operating and traffic environment.
- iv) Vehicle routes must facilitate the safe movement of the types of vehicles and levels of traffic likely to use them. This must be achieved by avoiding hazards such as steep inclines, tight bends, requirements to reverse in confined areas, inadequate lane widths and any issues related to roundabouts, one-way routes and signage.
- v) Regular inspections are required to determine that the implementation of the controls is consistent with the traffic management plan, have not been altered or changed or degraded in condition over time.

4.3.2 Pedestrian and Vehicle Segregation

Control

All operations must assess the risks presented by the movement of pedestrians, materials and vehicles and implement appropriate safety measures to eliminate or minimise these risks.

Performance Standard

- i) Pedestrians are to be separated from dedicated vehicle, plant and equipment routes by appropriate physical barriers designed to mitigate any potential impacts.
- ii) Light and heavy equipment and plant must be separated using appropriate measures such as physical barriers or earth berms and demarcated using visible signage indicating routes and directions to prevent interaction.
- iii) Activities such as plant maintenance or refuelling must be undertaken in areas specifically designed to provide barriers between workers and other heavy equipment.
- iv) Route sightlines must be unobstructed and adequately lit to provide good visibility. Blind spots and corners are to be avoided, or where they do exist, have mirrors installed or other technology installed that effectively eliminate sight restrictions. Plant, equipment or materials must not be placed at vehicle entries/exits to operations and therefore creating obstructed route sightlines.

- v) Signage and road markings must provide clear instructions to pedestrian and vehicle route users and be located in positions which allow users to see them and have time to respond. Signs and road markings must be constructed and located so as not to present hazards to drivers or pedestrians.
- vi) Loading and unloading areas must be clearly defined. These areas must be separate from parking or access routes for private vehicles and away from pedestrian routes. If reversing cannot be eliminated, then it must be controlled by establishing pedestrian exclusion zones.
- vii) Speed limits must be set to reduce the risks associated with pedestrian movements. Speed calming measures such as raised crossings, humps on approach to crossings and rumble strips must be implemented in areas where pedestrians and vehicles could interface.
- viii) Construction sites must provide separate site entrance and exit points for pedestrians and vehicles. When vehicles and pedestrians are in close proximity due to nearby locations such as security entrance points or where doors open directly onto vehicle routes, engineering controls must be provided to keep pedestrians and vehicles apart (e.g. by fitting physical barriers or providing separate routes).
- ix) The use of people as traffic signallers must be eliminated wherever possible, particularly around heavy equipment operations. Where the use of people as traffic signallers are required such as for pedestrian access areas or to manage public road interface, only trained traffic signallers are to be used. In these instances, a risk assessment must be undertaken to identify where technology can be implemented to replace or remove the signaller. Any traffic signallers must have a designated safe zone to stand in whilst directing traffic movements.
- x) Implement safety measures where work is undertaken next to active roads, train lines or similar, to protect workers from impacts with moving vehicles, trains or associated debris. For large sites, physical barriers or truck mounted attenuators must be used to protect workers from road traffic. Where this cannot be achieved, low speed limits must be in place (less than or equal to 40km per hour [25mph]) in combination with traffic calming measures, hazard signage, demarcation lines and barriers to minimise risk for workers and the public.

4.3.3 Parking and Traffic Routes

Control

Traffic routes and parking arrangements must be in place to avoid vehicle-to-vehicle and vehicle-to-pedestrian conflict.

Performance Standard

- i) Provide clear signage in carparks, along traffic routes and foot traffic areas to indicate location information, speed limits, hazards and precautions.
- ii) Provide clearly defined pedestrian routes in safe zones using hard barriers, flagging and other visual delineation to facilitate safe access and egress.
- iii) Locate height bars and signage to entrances to warn drivers of any applicable height limits. Provide safe exit routes for oversized vehicles.
- iv) Where amenities are provided, delineated stable, weather-resistant car parking must be provided.

4.3.4 Use of Light Vehicles on Site

Control

Keyton tool of trade vehicles operating in defined construction zones must be in good working order and operated in a safe manner.

Performance Standard

- i) Vehicles used as a tool of trade by Keyton personnel must be operated in a safe manner at all times.
- ii) Light vehicles on operations must be of a high visibility colour (e.g. white) and have reflective taping, flashing lights, a first aid kit, a fire extinguisher, a spill kit and survival or emergency equipment suitable for the operating environment.
- iii) Vehicles proposed for hire or purchase must have a recognised national new car safety rating (e.g. five-star Australasian New Car Assessment Program (ANCAP) rating or equivalent national standard).
- iv) Vehicles provided by Keyton as a tool of trade shall be fitted with in-vehicle management systems, reversing cameras and hand brake warning systems.
- v) Seatbelts must be used at all times by all occupants and drivers of vehicles whilst the vehicle is moving.
- vi) Mobile phones must only be used by the driver of a tool of trade vehicle whilst the vehicle is stationary and in a parked safe location. The exception to this is for emergency and incident response vehicles, using hands free communications in a response situation, where alternative communication methods are not available.
- vii) All drivers must be appropriately licensed for the vehicle being operated.
- viii) Drivers must be fit for work (i.e. not affected by medication, drugs or alcohol).
- ix) When parked, all vehicles must be fundamentally stable (i.e. the vehicle will not move even with the vehicle in neutral and with no brakes applied) with the handbrake effectively applied, placed in gear and on level ground. Wheels must be situated in spoon drains, gutters or against wheel stops. If fundamentally stable parking cannot be achieved appropriately sized wheel chocks must be available and implemented.
- x) All Keyton vehicles must have inspection and maintenance protocols in place for all safety related items such as wheels and tyres, steering, suspension and braking systems, seats and seat belts, lamps, indicators, mirrors and reflectors, windscreen and windows including windscreen wipers and washers, the vehicle structure itself and any other safety related item on the vehicle body, chassis or engine including instrumentation.
- xi) Pre-start inspections must be completed to determine that the lighting and braking systems are in proper working order.
- xii) Vehicles must not be used above the manufacturer defined maximum load limit and loads must be suitably restrained so the load remains stable on the vehicle during normal driving conditions. Loads must not protrude from the vehicle in a way that could injure people, damage property or obstruct others' paths.
- xiii) Wheel nut indicators must be fitted to all vehicle wheels where not precluded by the design.

4.3.5 Use of Plant, Equipment and Vehicles

Control

Effective controls must be in place for managing the use of all mobile plant, equipment and vehicles used for ground and civil works, including skid-steer loader, excavators, backhoes, graders, scrapers, bulldozers, dump trucks, rollers and compactors.

Performance Standard

- i) All mobile plant in use on Keyton operations must have been subject to a risk assessment conducted by the supplier/ manufacturer in accordance with regional legislation and codes or standards with the risk assessment remaining with the plant. Inspections must be conducted in accordance with regional legislation, codes or standards and the manufacturers recommendations.
- ii) Any modifications made to plant and equipment, such as retrofitting additional safety systems, must be completed by qualified persons and following consultation with the manufacturer to determine that any proposed changes will not introduce new risks.
- iii) Operating mobile plant and equipment must have seat belts for all occupants, adequate lighting (e.g. headlights, tail, turn, brake, strobe and flashing lights), identified isolation or lockout points, adequate walkways, railing, steps or grab handle combinations and boarding facilities. Where possible, mobile plant with alternative emergency egress from the cabin should be provided. Additional items such as reversing alarms, wheel chocks, a horn, a handbrake alarm and effective windscreen wipers must also be in place and functioning as intended.
- iv) Technological advances must be considered for collision avoidance, fatigue management, pedestrian proximity notification and visibility improvement, particularly where personnel are required to enter the potential impact zone of operating plant, vehicles and equipment.
- v) All mobile plant and equipment must have protection where there is a risk of rollover, tip over or impact by falling objects (e.g. loading or unloading, work on stockpiles or steep inclines, work below other material or activities or where manufacturer's specifications require it). Any modifications made to plant and equipment, such as retrofitting additional safety systems, must be completed by qualified persons and following consultation with the manufacturer to determine that any proposed changes will not introduce new risks.
- vi) Replace or re-certify protection equipment and fixtures after a rollover, tip over or falling object damage and before further use.
- vii) Prohibit the use of mobile phones when the plant or equipment is in use.
- viii) Protocols must be provided for the use of plant and equipment on slopes and batters to avoid vehicle rollovers. Technology solutions must be in place, where available, to provide warning for the potential of safe working angles to be exceeded or the loss of traction.
- ix) Clearly identify minimum clearance distances for overhead cables and establish controls to prevent plant or equipment coming into contact with these cables.
- x) If personnel are required to enter the potential impact zone of operating plant, vehicles and equipment without a physical barrier, positive eye contact, signals or radio contact must be made with the operator to cease operation and lower implements such as dipper arms, buckets and blades to the ground before entry.

- xi) Establish and maintain pedestrian exclusion zones around operating plant and equipment where there is a risk of workers being struck. Clearly identify specific exclusion zones for stationary but operating plant or equipment (e.g. an excavator with its bucket in use) for each type of plant or equipment and implement an appropriate exclusion zone, preferably a physical barrier.
- xii) When parked all plant and equipment must be fundamentally stable with the engine turned off, handbrake effectively applied, placed in gear and on level ground and secured from unauthorised use. Wheels must be situated in spoon drains, gutters or against wheel stops. Implements and attachments such as dipper arms, buckets and blades must be lowered to the ground. If fundamentally stable parking cannot be achieved appropriately sized wheel chocks must be available.
- xiii) Vehicles (heavy or light) must not be used above the manufacturer defined maximum load limit and loads must be suitably restrained so the load remains stable on the vehicle. Loads must not protrude from the vehicle in a way that could injure people, damage property or obstruct others' paths.
- xiv) Mobile Elevated Work Platforms (MEWP's) should be fitted with secondary anti crush devices to guard against the potential crush risk of the operator between the MEWP & surrounding structure. These anti crush devices may be physical devices fitted to the MEWP or electronic limiting devices that stop movement when impending crush risk is detected. Where these devices are not supplied by the manufacturer of the MEWP, the device must be certified as being compliant by a suitably qualified and experienced person.

4.3.6 Installation, Inspection, Maintenance and Dismantling

Control

Fixed and mobile plant must be installed, erected, adjusted, inspected, maintained and dismantled in safe locations, in accordance with the manufacturer's requirements and by qualified personnel.

Performance Standard

- i) Proposed installation, inspection, maintenance and dismantling of major plant or equipment on a project must be risk assessed to determine if the works can be undertaken off the project. Where this is not possible, all works must prevent workers being struck by components from stored energy, rotation, overturning, toppling or other forces. Controls must include addressing the isolation and lock-out of stored energy, stabilisation, and temporary or permanent structural support of the plant or equipment (or components). Where there is a risk of workers being struck, establish and maintain physical exclusion zones around plant that is being installed, modified or dismantled.
- ii) Where fixed and mobile plant is provided to Keyton, suppliers must provide a complete set of the manufacturer's operating and maintenance instructions. Inspection and maintenance records must be kept with the plant and conform to the requirements of the standards applicable to the region of operation and as per the manufacturer's requirements.
- iii) All plant must be installed, inspected, maintained and dismantled by qualified personnel in accordance with the manufacturer's instructions.

4.3.7 Vehicle and Plant Recovery and Rescue

Control

Effective measures must be in place for the recovery of vehicles and plant immobilised or bogged in mud, sand or other type of similar traction resistant ground conditions.

Performance Standard

- i) Before an attempt is made to recover a bogged vehicle or plant either through freeing up or digging out the obstructions and/or via the aid of recovery boards and planks to facilitate grip and traction, an assessment of risk must be carried out.
- ii) Towing of bogged vehicles and plant can only be undertaken when engineering attachment points and/or other methods are identified and verified.
- iii) The suitability of recovery equipment such as cables, winches and hooks used to tow vehicles and plant must be fit for purpose and verified by an engineer.
- iv) Only approved rated recovery equipment can be used. Snatch straps and other equipment such as chains, webbing slings, load resistant slings and rope must not be used for the recovery of vehicles and plant.

Risk Event Mitigating Controls and Performance Standards

4.3.8 High Visibility Clothing

Control

All people working on or adjacent to traffic routes and vehicles operating on Keyton operations must have sufficient high visibility clothing and reflective visible markings.

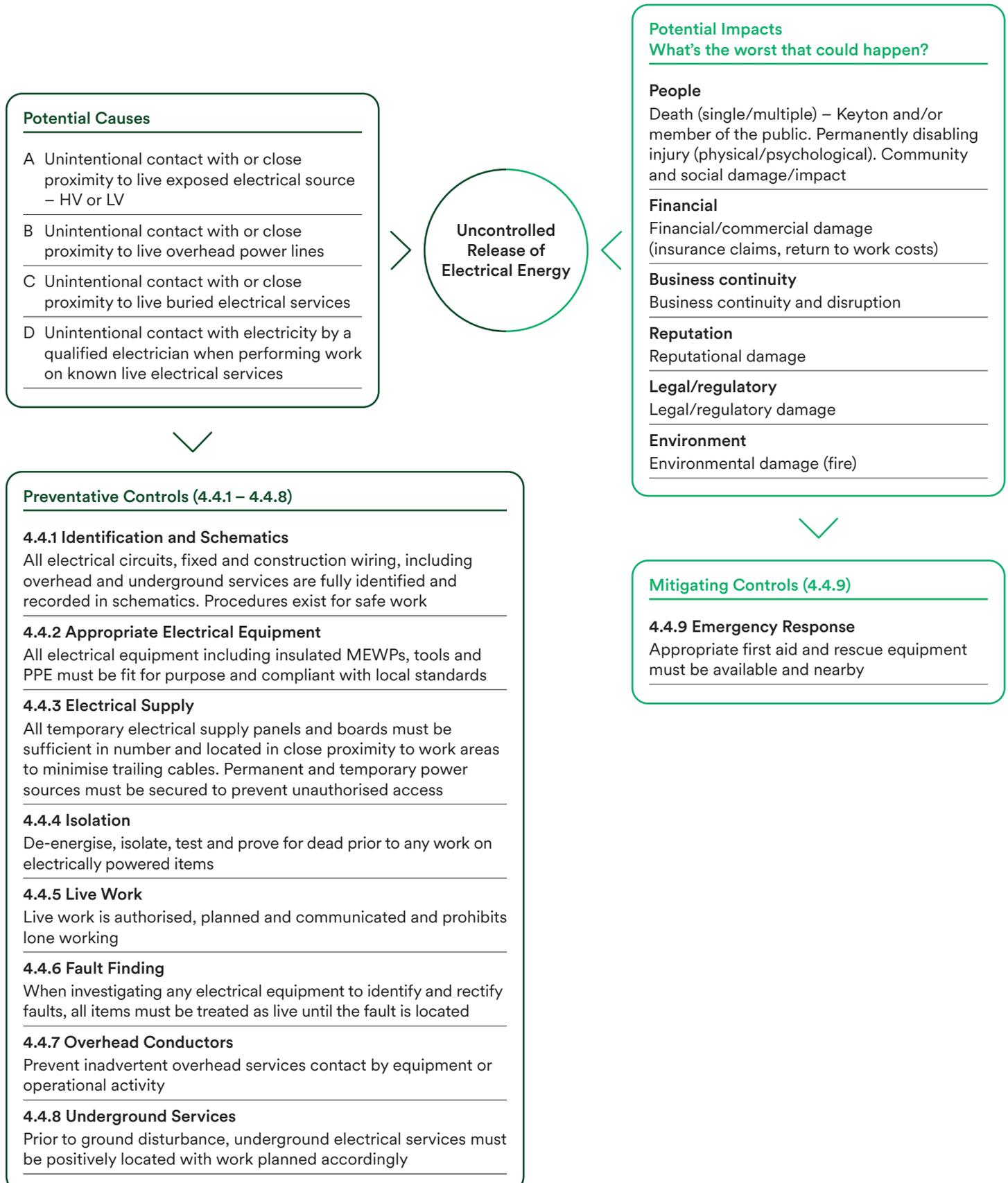
Performance Standard

- i) All people working adjacent to traffic routes or engaged in traffic management activities must wear high visibility clothing that meets applicable regulatory or industry standards.
- ii) All reflective markings on vehicles or plant on Keyton operations must be in good condition and comply with regulatory or industry standards.
- iii) When working at night, provide suitable high visibility clothing (e.g. effective retroreflective stripes).

4.4 UNCONTROLLED RELEASE OF ELECTRICAL ENERGY

Description

These critical controls and performance standards apply to high voltage (HV) and low voltage (LV) electrical work where there is the risk of a fatality or serious injury from a person being electrocuted or burned by the uncontrolled release of electrical energy. They do not apply to work such as unplugging sockets and installing dry cell batteries.



Risk Event Preventative Controls and Performance Standards

4.4.1 Identification and Schematics

Control

All electrical circuits, permanent and construction wiring, including overhead and underground services are fully identified and recorded in schematics and/or plans. Procedures exist for safe work.

Performance Standard

- i) Identify all electrical circuits and include in schematics and/or plans, irrespective of whether the power supply arrangements are permanent or temporary.
- ii) Following installation or removal of any service, provide comprehensive records (e.g. photographs, test results, updated Single Line Diagrams and/or plans endorsed by persons with appropriate competency requirements).
- iii) All underground and concealed electrical services (in floors, wall, columns, etc.) must be properly recorded through as-built drawings (including dimensions) for future reference in the event that excavation, coring or demolition work is required. Verification of the live electrical service must be conducted by review of updated drawings and/or detection/scanning works by a qualified person prior to excavation, coring or demolition works.

4.4.2 Appropriate Electrical Equipment

Control

All electrical equipment including insulated MEWPs, tools and PPE must be fit for purpose and compliant with local standards.

Performance Standard

- i) Determine that nationally recognised standards of manufacture and installation of electrical equipment are identified with the assistance of qualified electrical professionals.
- ii) Check all electrical equipment supplied to Keyton operations includes documentation confirming it meets the manufacturing standard identified in the procurement list.
- iii) Provide insulating mats for risers and plant rooms that address any regulatory or applicable national or international codes or standards.
- iv) Provide assurance post installation that any electrical systems circuits are installed as designed.
- v) All electrical tools and equipment (except battery operated tools) in the operation must be regularly inspected, tested, tagged and marked safe for use by a qualified electrical professional.

4.4.3 Electrical Supply

Control

All temporary electrical supply panels and boards must be sufficient in number and located in close proximity to work areas to minimise trailing cables. Permanent and temporary power sources must be secured to prevent unauthorised access.

Performance Standard

- i) Electrical risks associated with the temporary or permanent supply of electricity to electrical equipment through a socket outlet, including mobile generator sources, or where appliances, luminaires and other electrical equipment are supplied from a final sub-circuit of a permanent electrical installation, must be protected against by a tested earth leakage circuit breaker (ELCB), residual current device (RCD) or ground fault circuit interrupter (GFCI).

- ii) Determine that all electrical supply boards, cables, cords, plugs and sockets are safe by design for use, appropriate for where it is to be used and located to avoid physical damage by vehicles or water (e.g. by elevation or mechanical protection).
- iii) Implement a comprehensive inspection, testing and preventative maintenance regime covering all temporary electrical supplies, including supply panels, circuits, cables, cords, plugs and sockets. Include a process to record and remedy any identified deficiencies and align with any manufacturers' guidelines.

4.4.4 Isolation

Control

De-energise, isolate, test and prove for dead prior to any work on electrically powered items.

Performance Standard

- i) Use a qualified electrical worker to undertake any work on electrically powered items.
- ii) De-energise circuits and isolate using lock out tag out (LOTO) systems with personal locks prior to any work.
- iii) Power sources such as uninterruptable power supplies (UPS), batteries, capacitors, solar power and generators must be identified. Once identified they must be de-energised and securely isolated at the energy source before works commence.
- iv) Develop a group isolation procedure with support equipment when multiple isolations involve multiple people.
- v) Prior to any work commencing electrical power must be tested with a known working and calibrated meter and proven as dead.

4.4.5 Live Work

Control

Live work is authorised, planned and communicated and prohibits lone working.

Performance Standard

- i) All operations to determine if work on live conductors is required before any investment or contract approvals.
- ii) Work on live electrical systems is only permissible in circumstances where deemed necessary by an electrical technician for testing, fault finding and/or commissioning work, or where the electrical supply cannot be interrupted (e.g. hospital life support systems and critical utilities).
- iii) Live work on critical utilities such as distribution and/or transmission networks can only be undertaken as directed by the utility provider, or their approved live line contractor. Any directive to undertake such activities must be supported by documented safe systems of work and in line with legislated practices.
- iv) Earthing and short-circuiting systems must meet applicable national and/or international codes or regulations.
- v) Task specific PPE must be in use and meets applicable national and/or international codes or regulations.
- vi) Assess the risk of electrical fires and implement appropriate precautions (e.g. fire watch, appropriate extinguishers and fire blankets).
- vii) A dedicated and appropriately qualified frontline leader must be present and managing any live works relating to testing, fault finding and/or commissioning.

4.4.6 Fault Finding

Control

When investigating any electrical equipment to identify and rectify faults, all items must be treated as live until the fault is located.

Performance Standard

- i) Prior to any fault-finding work commencing, all elements of the circuit must be de-energised, isolated and tested for dead.
- ii) Locating and rectification of faults must only be conducted whilst the circuit is isolated. These works must include the use of insulating tools, gloves and insulating mats.
- iii) Re-energise to determine if the fault has been fixed following any test for dead.
- iv) If the fault continues, fault finding live work procedures must be followed including the use of insulating tools and gloves, insulating mats and a qualified electrical spotter trained in cardiopulmonary resuscitation (CPR).

4.4.7 Overhead Conductors

Control

Prevent inadvertent overhead services contact by equipment or operational activity.

Performance Standard

- i) Use one of the following control options to prevent a fatality:
 - Redirect power distribution (e.g. underground)
 - Power off and isolated, with power proven as dead
 - Power off part time
 - Power on in conjunction with controlled movement or operations
- ii) Minimum clearance distances for overhead cables must be clearly identified with items such as visual warning, barriers, flagging or other controls in place to prevent plant coming into contact with these cables.
- iii) For vehicles passing under energised conductors, the power on option requires a crossing point that includes advance warning signs with signed height clearance, non-conductive goal posts and a clearly visible height line set to a safe clearance distance.

4.4.8 Underground Services

Control

Prior to ground disturbance, underground electrical services must be positively located with work planned accordingly.

Performance Standard

- i) A register must be in place for buried electrical services on Keyton controlled operations. The register must include a plot drawing of the route of the electrical service with grid references, description of the depth and type of service, the voltage and any auxiliary protection.
- ii) Prior to the disturbance of ground where underground network assets such as electrical or gas may be present, Keyton operations must provide valid diagrams and plans obtained from the relevant authority. Existing drawings and/or a Cable Avoidance Tool (CAT) scanner, ground penetrating radar or any other suitable tool must be used to locate and mark underground services before work commences.

- iii) Where any uncertainty exists regarding the location of underground services, hand digging and/or vacuum excavation must be used to identify and expose the services.
- iv) Where Keyton installs or oversees buried electrical services work for its own assets or projects, compile an as-built record of the service locations including:
 - Photographic reference of the asset before back filling to show cable type, depth and route.
 - In trench signage, both tape and boards at least 250mm (9.8 inches) above the service.
 - Datum signs indicating service at building ingress and every 50m (164 feet) over open ground.
 - Service markers on ground level showing service types and all changes in direction.
 - For removed services, photographic reference of the empty trench and positive permanent disconnection from supply. All relevant plans must be updated to reflect any changes/removals of services.

Risk Event Mitigating Controls and Performance Standards

4.4.9 Emergency Response

Control

Appropriate first aid and rescue equipment must be available and nearby.

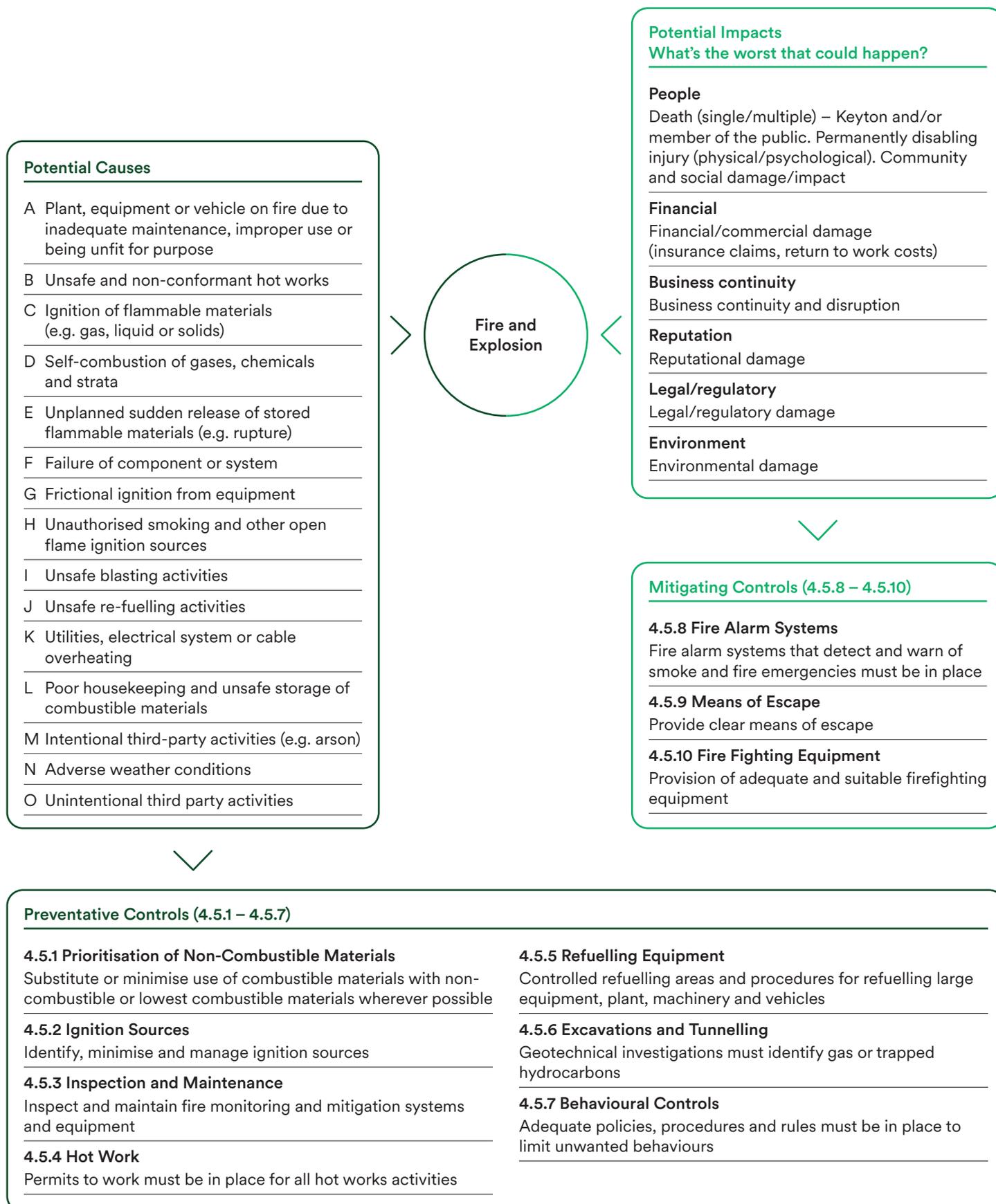
Performance Standard

- i) For work activities where risk of electrocution exists (e.g. live work), provide non-conductive rescue equipment to allow separation of a person safely from an electrical supply, resuscitation and treatment of burns. Such equipment with trained rescue personnel or first aiders must be readily accessible when undertaking work.
- ii) Train all workers involved in the work and site first aiders where appropriate to use the rescue equipment.
- iii) HV and live work permits must include the provision of rescue equipment.

4.5 FIRE AND EXPLOSION

Description

These critical controls and performance standards apply to operations where a fire may result in the fatality of one or more people. They apply to fire systems, both technical and administrative, buildings under construction, managed operating assets, offices and underground works and are inclusive of hot works in any setting.



Risk Event Preventative Controls and Performance Standards

4.5.1 Prioritisation of Non-Combustible Materials

Control

Substitute or minimise use of combustible materials with non-combustible or lowest combustible materials wherever possible.

Performance Standard

- i) Where a business unit requires a particular product for construction, the product treatment and management practices must demonstrate that combustibility properties meet all local building regulations and material selection standards.
- ii) Operations must comply with local building regulations and material selection standards for design and procurement applied by the business unit.
- iii) The potential for fire at each stage of construction and asset operations, including fire from an adjoining property, must be assessed given any changes to material requirements and storage.
- iv) Storage of combustible or flammable materials must be minimised at all times. Selection of storage locations should consider potential impacts from fire risks and must comply with local legislation, standards and/or codes. Storage locations and requirements for all combustible material, dangerous goods and hazardous substances must be identified and marked on site plans and at the storage location.
- v) Where there is a requirement to use explosives on site, a blast management plan or similar must be in place outlining the storage, handling, methods of use, licencing, training and emergency response requirements for the use of these.

4.5.2 Ignition Sources

Control

Identify, minimise and manage ignition sources.

Performance Standard

- i) Design and operational reviews must assess the potential for plant and equipment to be a fire ignition source (e.g. from high heat in normal mode, overheating in fault condition, arcing, substandard electrical plugs, static, overloading or faults, or spontaneous combustion from floor stain-soaked rags) so that ignition sources can be eliminated or minimalised.
- ii) Provide lightning protection during each stage of construction and asset operations where the risk of a strike is deemed high due to prevalence of electrical storms or data made available via meteorological agencies.
- iii) Any portable fuelled space heaters used for the curing of material (e.g. concrete) must be fit for purpose with any heating operations monitored to determine that equipment is functioning properly, a safe atmosphere (e.g. carbon monoxide, natural gas) is maintained, and that clearance from any combustible material is provided.

4.5.3 Inspection and Maintenance

Control

Inspect and maintain fire monitoring and mitigation systems and equipment.

Performance Standard

- i) Identify all fixed and portable systems and equipment that monitors fire initiation and mitigates fire propagation (e.g. Active Fire Systems).
- ii) Implement a testing and maintenance regime that meets statutory guidelines, manufacturer's guidelines and any applicable codes or legislative requirements.

4.5.4 Hot Work

Control

Permits to work must be in place for all hot works activities.

Performance Standard

- i) A Hot Works Permit is required for all work operations that produce sparks, super-heated by-products (e.g. metals), or open flames. These hot work operations include, but are not limited to welding, torch cutting, grinding, and brazing.
- ii) A Hot Work Permit is to be applicable for no more than one shift, with the authorising person(s) to check site conditions and specified risk controls.
- iii) During hot works, the fire watch person as identified on a hot works permit must have oversight and remain at the location of hot works at all times and until all ignition or heat sources are eliminated.
- iv) Permits are only to be issued to individuals who are fluent in the language the permit is written in or who have been inducted in the permit requirements by an interpreter.

4.5.5 Refuelling Equipment

Control

Controlled refuelling areas and procedures for refuelling large equipment, plant, machinery and vehicles.

Performance Standard

- i) Off-site refuelling is preferred. However, where on-site re-fuelling facilities provide the only practicable alternative, the following applies:
 - Minimise the quantity of fuel stored and the number of re-fuelling facilities.
 - A spill kit(s) must be provided and maintained in all workplaces with contents consistent with the type, nature and scale of the potential spills that could occur, and key personnel must be trained in spill response.
 - Storage of fuel or other vessels containing hydrocarbons must be in a bunded area with an impervious floor that contains as a minimum 110% loss of the largest container in the bunded area in the event of a spill.
 - An accountable frontline leader for the area must always be in place and accompanied by those trained in response requirements (e.g. spill and fire response), protected by physical barriers.
 - Emergency fuel flow shut off capability must be in place for bulk fuel supplies.
- ii) Refuelling of items that are operating (i.e. engine still running) at the time of refuelling is not permitted.

4.5.6 Excavations and Tunnelling

Control

Geotechnical investigations must identify gas or trapped hydrocarbons.

Performance Standard

- i) Identify geo-technical or subsurface hazards caused by flammable substances before designing, procuring or commencing any excavation or tunnel. This includes physically checking the operational site.
- ii) For tunnelling and excavations where flammable gases or hydrocarbons exist, the International Electrotechnical Commission (IEC) 60079 series of explosive atmosphere standards must be applied.
- iii) Where other gas or hydrocarbon hazards are identified that cannot be fully mitigated using IEC60079, additional controls must be clearly identified.

4.5.7 Behavioural Controls

Control

Adequate policies, procedures and rules must be in place to limit unwanted behaviours.

Performance Standard

- i) Document and communicate a site protocol addressing required behaviours of any person entering the operation or construction site as it relates to fire prevention and emergency response addressing:
 - Prohibition of smoking unless designated areas are prescribed that do not pose a fire or explosion risk.
 - Fire prevention protocols (e.g. hot works, combustible materials and storage).
 - Preservation of fire sensors and alarms, firefighting equipment and emergency routes.
 - Accountabilities and emergency response protocols during a fire response.
- ii) A separate procedure is required for handling of explosives use for rock blasting.

Risk Event Mitigating Controls and Performance Standards

4.5.8 Fire Alarm Systems

Control

Fire alarm systems that detect and warn of smoke and fire emergencies must be in place.

Performance Standard

- i) Effective means for early detection and warning of the presence of fire must be in place that are appropriate for the level of risk. This may range from fully automated wireless or wired systems to the use of manual bells, horns or sirens with people assigned to fire watch duties. All offices and welfare areas must have fire alarm systems installed. Alarms must deliver effective warning (audible and visual) in all areas where people may be present.
- ii) All fire alarm systems must be checked and tested, including when they are moved, in line with manufacturer guidelines and applicable codes or regulations to confirm they are functional, and the results recorded.

4.5.9 Means of Escape

Control

Provide clear means of escape.

Performance Standard

- i) Effective means of escape must be provided and maintained. A means of escape must be provided that does not require the use of passenger lifts and escalators and which is suitable for the number and specific needs of all people likely to use it.
- ii) For construction operations, two means of escape by foot (excluding hoists or lifts) must be maintained for general construction floors. The means of escape from low density residential dwellings under construction with a small floor size and enclosed areas such as jump forms, risers, lift shafts must be risk assessed to determine the appropriate means of escape. Where two means of escape cannot be achieved, (e.g. roof access), approval must be sought from the Regional Head of Health and Safety.
- iii) Emergency escape routes must be easily identifiable, of adequate width, kept free from obstruction and not used for storage and have emergency lighting including directional signs and exit points marked using pictograms and lights.
- iv) Operations under construction or temporary structures must plan emergency routes that offer the highest fire level protection possible.

4.5.10 Fire Fighting Equipment

Control

Provision of adequate and suitable firefighting equipment.

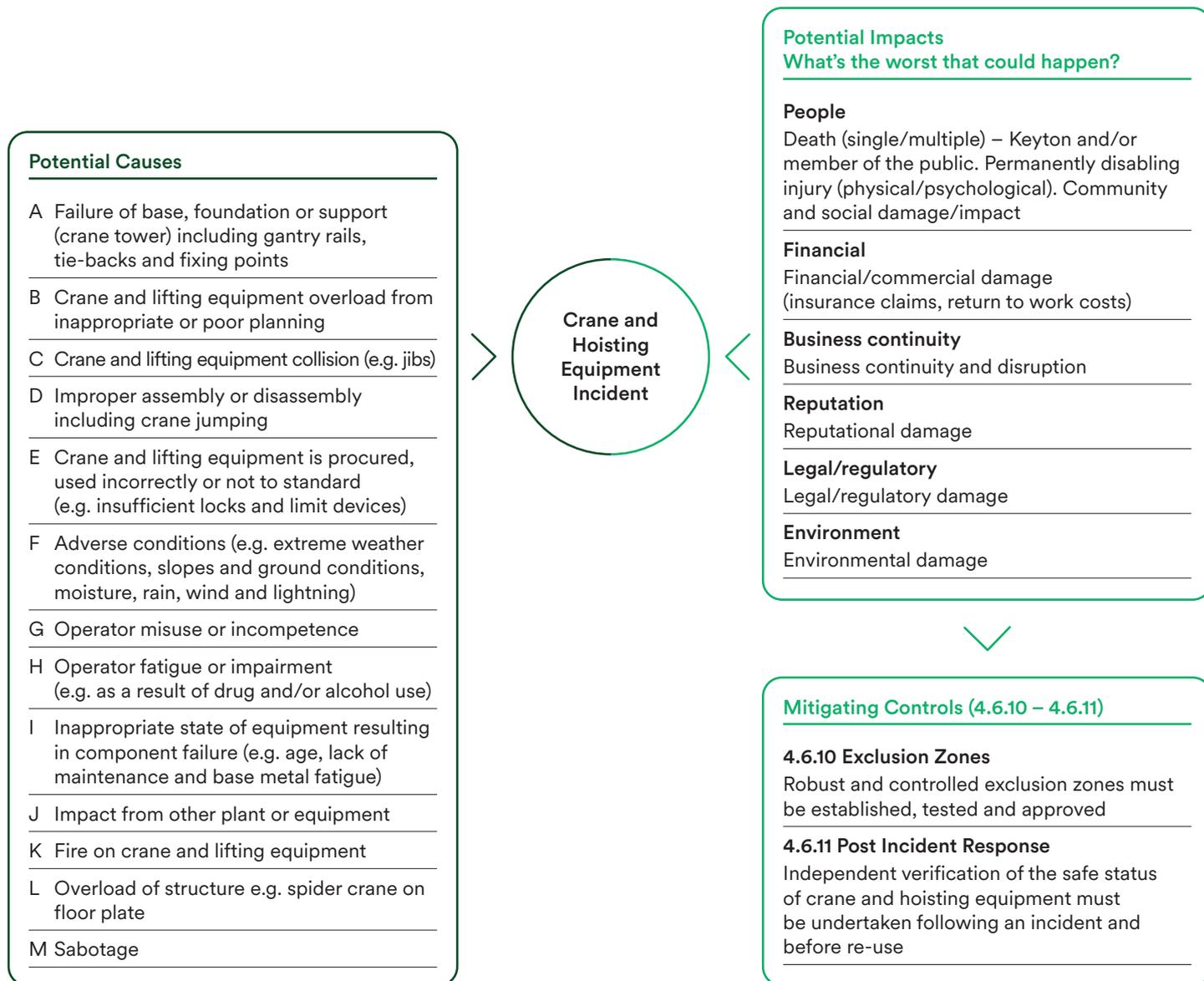
Performance Standard

- i) Sufficient firefighting equipment (e.g. fire extinguishers, hose reels, fire blankets and risers) must be provided that is appropriate for the site and works and which complies with any applicable codes or regulations.
- ii) All firefighting equipment must be correctly located, readily accessible, unobstructed, clearly signed and have clear instructions on its correct use.
- iii) In all structures where risers/standpipes are required, or where standpipes exist in any structures being altered, the standpipes must be brought up or installed in on all levels/floors as soon as possible and as a minimum in accordance with applicable laws and be maintained as construction progresses.
- iv) At a minimum, a standpipe riser hose outlet must be available for use within 12m/40ft of the construction floor being formed in a concrete building or highest decked floor in a steel building under construction. The standpipe system shall be under constant pressure and tested to assure structural integrity and required functionality with an alarm fitted advising of any drop in pressure and must include an air pressure relief valve at the top of the riser to release any trapped air.
- v) All standpipe and sprinkler systems must be installed and maintained in accordance with local requirements.
- vi) Connections for the Fire Authority must satisfy the local requirements. In exceptional circumstances where it is impracticable to provide coverage from risers and hose reels, effective means for extinguishing fires must be provided that address the risk and satisfy regulatory requirements (e.g. drench drums, fire pails and additional fire extinguishers).
- vii) All firefighting equipment must be checked and serviced regularly, including testing of pump sets of wet risers and firefighting lift controls by a technically qualified person in accordance with manufacturer guidelines or any applicable codes or regulations and the results recorded. A regular visual check must be carried out on all firefighting equipment to confirm they have not been damaged, discharged or removed.
- viii) Adequate access must be maintained and kept free from any obstructions at all times for emergency services vehicles.

4.6 CRANE AND HOISTING EQUIPMENT INCIDENT

Description

These critical controls and performance standards apply to all activities where loads are raised by tower and mobile cranes, barge cranes, recovery cranes, derrick/stiff-legged cranes, mast climbers, goods and passenger hoists, spider type small cranes, gantry cranes, hoisting with excavators, gin poles (telecommunication tower erection), forklifts and telehandler type material lifting equipment where a failure of the equipment or operation could result in a fatality or other injuries. They do not apply to lower weight hoisting activities such as concrete placing booms and pallet trucks.



Risk Event Preventative Controls and Performance Standards

4.6.1 Cranes and Hoisting Equipment in Use

Control

Only use lifting and hoisting equipment that addresses all applicable legislation, standards, usage and operating requirements.

Performance Standard

- i) Cranes and any of the crane components (e.g. ties, tower sections and yokes) on all operations must not exceed 20 years of age since manufacture at any point during the project to limit the risk of structural failure from base metal fatigue.
- ii) Diesel tower cranes are not to be used on any Keyton operations and electric tower cranes must be in use. (In exceptional circumstances where diesel tower cranes are required, sign off is required from the Region CEO.)
- iii) All crane & hoists structural components are to be Original Equipment Manufacturer (OEM) excluding building ties, yokes or collars which must be designed to suit the specific crane or hoist by a qualified engineer.
- iv) All crane and hoisting equipment in operational service must be fitted with limit switches and alarms that initiate at no greater than 90% of the original manufacturer's rated lift capacity and cease operation at 100% of the manufacturer's rated lift capacity. Note: This is not a further reduction on any regulated de-limiting applicable on cranes in some jurisdictions and only refers to the original manufacturer's lift capacity rating.
- v) Tower cranes must be fitted with automated anti-collision devices when operating in close proximity to other tower cranes and a secondary independent brake must be fitted on hoist and luffing winches. Visual warning devices or an alert process must be implemented should the automated anti-collision devices be disabled or switched off for any approved duration (e.g. arising from a maintenance or crane climbing operation).
- vi) The crane boom/jib safe operating envelope must be identified for each item of crane hoisting equipment on a crane radius plan/range diagram.
- vii) All crane rotating hoisting equipment must be adequately guarded by physical barriers to prevent the potential for entanglement.
- viii) Computerised monitoring systems must be fitted on all cranes. Real time data must be made available where the crane monitoring system has that capability (e.g. wind speed, overloading, start and end of lift, the weight of the load, angle of the boom, safe working load, radius of the lift).
- ix) Crane towers must be fitted with lighting for safe access to the full height of the tower during early morning or evening hours. For tower cranes that are tied into a structure, an intermediate access ramp must be provided.
- x) Where a work box/work basket is proposed for use to elevate people using a crane, a risk assessment must be undertaken to review safer alternatives. Where the use of a work box/work basket is determined as the only suitable means of access, the activity must be controlled by a permit to work. Any tower crane that uses a work box/work basket to elevate people must be fitted with a secondary independent brake (on all winches) and must be inspected by a qualified person prior to use.

- xi) Where a mobile crane is proposed for use to elevate people using a work box / work basket an alternative secondary independent braking mechanism must be available in the event of the failure of the primary winch (e.g. emergency mechanical brake activated in the event of a hydraulic failure in the primary winch). Where a mobile crane is not fitted with an alternative secondary independent braking mechanism, the approval for use of a work box/work basket must be obtained from the Region Head of Health & Safety.
- xii) All tower cranes and mobile cranes undertaking lifting operations out of the sightlines of the crane operator (e.g. 'blind picks/lifts') must be assessed for suitability to attach a hook camera as a supporting aid to enhance crane lifting safety and avoid total reliance on the directions provided by signallers.
- xiii) Where excavators, telehandlers, forklifts or gin poles (e.g. used in telecommunications) are proposed for hoisting (with a suspended load), a risk assessment must be undertaken to verify that other alternative types of lifting equipment (e.g. cranes) cannot be used to perform the activity. Any approved plan to use these types of plant must provide the following:
 - Confirmation anti burst/drop valves are fitted to lifting hydraulic cylinders.
 - Manufacturer or OEM approved / rated attachment point.
 - Safe working load of the plant is identified on the lifting arm(s).
 - Loads lifted by appropriate lifting equipment.
 - Buckets and other attachments are positively attached.
 - An operation manual provided by the manufacturer for the hoisting of loads.
 - Load capacity charts relevant to the specific hoisting attachment.
 - Safety devices and limit switches in working condition.
 - Identification of the lifting coordinator for the planning and oversight of the lifting activity.

4.6.2 Lift Plans

Control

All crane and hoisting equipment must be in accordance with items identified in any lift plans.

Performance Standard

- i) A lift plan, approved by a qualified engineer, must be developed for any lift that requires a crane to operate at greater than 90% of the original manufacturer's rated capacity. Note: This is not a further reduction on any regulated de-limiting applicable on cranes in some jurisdictions and only refers to the original manufacturer's lift capacity rating. Lift plans must capture crane load capacity specific to crane configuration, load dimensions and weight and rigging details.
- ii) Where there is a requirement for special lift, an independent qualified engineer (identified as an 'Appointed Person' in some jurisdictions) is required to review the lift plan and, where required, supervise the execution of a lift. This third party review must cover the planning, lifting methodology and requires detailed schematics, communication plans and assessment of ground or other applicable conditions. This includes the following lift types:

- Any lifts that require the crane to operate between 90% and 100% of the original manufacturer's rated capacity.
 - Any abnormal loads that due to their centre of gravity, unusual shape or density may be adversely affected by wind during a lift.
 - Any lifting operation that requires the load to slew or travel over public or private properties or infrastructure that requires closure or evacuation of these areas.
 - Any load that requires more than one crane (e.g. dual or tandem lifts).
 - Multiple lifting of steel members during steel erection.
 - Any crane that operates on a floating vessel or barge.
 - Any lift requiring the use of a work box to carry a person(s) (excluding the routine use of a work box for crane maintenance, inspection or other activities as part of a tower crane or hoists installation, alteration or dismantling and the use of a workbox in an emergency).
- iii) No operational lifting is to be permitted that is above 100% of the original manufacturer's crane and hoisting equipment lifting capacity.

4.6.3 Installation, Inspection, Maintenance and Dismantling

Control

Cranes and other hoisting equipment must be installed, erected, adjusted, climbed or lowered, inspected, maintained and dismantled in accordance with the manufacturer's requirements.

Performance Standard

- i) The installation commissioning, climbing or lowering or other significant structural alterations of any crane or other hoisting equipment requiring assembly must be reviewed and approved by a third-party independent inspector prior to the first operational lift. This does not include minor modifications post installation or assembly (e.g. counterweight placement on mobile cranes).
- ii) A third-party inspection program must be implemented for selected lifting and hoisting equipment (for example, tower cranes, derrick cranes, large mobile cranes and hoists) and included in the supply agreement. Where crane or other hoisting equipment is provided to Keyton, suppliers must provide a complete set of the manufacturer's operating and maintenance instructions. Inspection and maintenance records must be kept with the equipment and conform to the requirements of the standards applicable to the region of operation and as per the manufacturer's requirements. All cranes and hoisting equipment must be installed, erected, adjusted, climbed, inspected, maintained and dismantled by a qualified person and in accordance with the manufacturer's instructions.
- iii) Any panelling or modification for access or for weather protection to the crane or hoisting equipment (e.g. personnel and material hoists) shall be designed for internal fixing application only. The panelling modifications must be engineered by a qualified person. The modifications must be installed and verified by the manufacturer or its representative.
- iv) Where a twin hoist operates on a single tower, both hoists must be taken out of service while the hoist is being climbed or serviced.
- v) All installations, climbing, adjusting (climbing up/down) and recovery of cranes or hoists (including service and maintenance) must take place in daylight hours only.

- vi) Any item attached to a tower crane (e.g. signs, banners, lights, or anti-climb screens) must be considered at the early stages of the crane base engineering, and with prior approval from the original equipment manufacturer. Magnetic fixing of any item attached to a tower crane (e.g. movement sensors/lights) is not permitted.

4.6.4 Oversight

Control

All crane and hoisting equipment must be maintained and operated in accordance with the manufacturer's operating instructions.

Performance Standard

- i) A hoisting or crane lifting coordinator must oversee and manage the use of all crane and hoisting equipment including passenger/material hoists at the operation. The hoisting or crane lifting coordinator can be a Keyton employee or supplier's employee or a member of the crane crew appointed by Keyton. More than one coordinator may be required at a large site.
- ii) All operations with tower cranes or multiple cranes in use are required to provide a crane management plan that outlines all crane operations on a project including crane locations, operating radius, exclusion zones, loading zones, overhead protection, crane climbs and the appointment of a hoisting or crane lifting coordinator to oversee inspection and maintenance to the requirements of the standards applicable to the region of operation.
- iii) All hoisting or crane lifting coordinators must have formal training in lifting and rigging applicable to their region of operation and a minimum of two years' experience as a hoisting or crane lifting coordinator. A verification of competency must be obtained prior to commencement.
- iv) The manufacturer's operating instructions must be readily available to the operator (i.e. in operator's cabin or electronically accessible from the cab) for all crane and hoisting equipment.

4.6.5 Tower Crane Access and Security

Control

Security precautions must guard against unauthorised access to tower cranes.

Performance Standard

- i) Access systems for all procured tower cranes must have offset caged ladders with intermediate landings designed to prevent the fall from height by a person whilst climbing or descending a tower crane.
- ii) Tower cranes and crane access towers or ramps must have security measures to guard against unauthorised access from ground level or other elevations, including anti-climb (i.e. no hand or foot holds such as plywood or fine mesh panelling) and hoarding to a minimum height of 3m/10ft at the base.
- iii) A self-closing access door or gate must be in place with a combination lock or other security locks for secure access. The door or gate access lock is to be operable from the inside without a key to enable safe egress in an emergency and have minimal gaps to the access frame surround to prevent levering and compromising the locking mechanism at the base or other intermediate access locations.
- iv) Movement detectors must be fitted to the crane tower with operable intruder strobe lights and back to base monitoring, camera and text message alert including a backup battery in the event of a power failure.

- v) Anti-climb mesh to a minimum height of 3m/10ft in the vertical plane and to the full width of the tower opening in the horizontal plane must be installed on commissioning to guard against unauthorised access.
- vi) Any basement or floor levels where a tower crane penetration exists must include full floor to soffit protection.

4.6.6 Ground Conditions

Control

All cranes must be established and set up on approved ground conditions or structures.

Performance Standard

- i) Tower cranes, derrick cranes and hoists require an engineer to design the base and to complete any interim checks during installation, provide approval for the crane/hoists to be installed and provide written confirmation that the base is fit for purpose. The crane/hoist installation design must then be reviewed and certified by a third party independent engineer.
- ii) Adequacy of ground condition's bearing capacity for lifting operations involving any mobile cranes and other hoisting equipment must be verified and confirmed by a qualified person. Where necessary, the California bearing ratio (CBR) or equivalent testing certified by a geotechnical engineer, must be completed and the results communicated and confirmed by the supplier before the lift.
- iii) If a severe weather or other event occurs (e.g. significant rainfall within 48 hours of the mobile crane lift, ground subsidence, earthquake or flood) the adequacy of the ground conditions must be re-assessed and verified by a qualified person, and the CBR or equivalent test repeated if necessary, with results communicated and the lift delayed until this is complete.
- iv) Changes to the configuration of any crane or hoist from manufacturer's recommendation requires an engineering review that includes a reassessment of risk, with a re-evaluation of the safe working load. The review includes all stakeholders, including the manufacturer.

4.6.7 Fatigue Management

Control

A fatigue management program must be in place for crane/hoist operators, riggers/signallers, hoist and crane installers, and plant maintenance personnel.

Performance Standard

- i) For all crane and hoisting equipment, suppliers or employers must outline how the potential for fatigue will be managed regarding the operator of the equipment and all fatigue management plans must be outline how all local regulations will be addressed. In normal operating circumstances the operator's working hours must not exceed 60 hours per week and rest periods between shifts must not be less than 12 hours per day.
- ii) Details must be provided in relation to the operating hours per day and rest breaks consistent with not exceeding a 10-hour day (exclusive of breaks). Fatigue recognition technology should be employed where available.
- iii) Where a shift exceeds the parameters outlined above, fatigue management controls can include shift rotation, split shifts, late starts and additional time off. A record must be kept for all operators and rigger / signalman to confirm individuals fatigue management requirements and protocols are in place.

4.6.8 Preventing Plant Collisions

Control

Install hard barriers (tower crane), exclusion zones (mobile crane) or other barriers to prevent plant collisions.

Performance Standard

- i) Provide engineered barrier protection for cranes or hoists that are risk assessed as having the potential to be struck by mobile plant or vehicles. The energy involved in any potential collision with that barrier must be absorbed or deflected, with traffic controls to be deployed where the potential impact cannot be reasonably deflected or absorbed.
- ii) Effective measures (e.g. zoning, spotters or a combination of these and other controls) must be implemented to prevent cranes coming into contact with overhead power lines or underground services, other cranes or structures.
- iii) Automated anti-collision systems must be installed on tower cranes and gantry cranes when multiple cranes are in use and their lifting radius interface or overlap with other cranes, or when encroachment over a protected area such as a rail corridor or public interface must be prevented.
- iv) For Keyton operations where an adjacent construction project is not managed or controlled by Keyton, any crane(s) that could encroach the operating radius of a crane(s) on the Keyton operation should result in arrangements between the project teams to agree and implement preventative controls (e.g. zoning or other controls) to prevent the potential for crane to crane collision.
- v) A third-party independent engineer must review and approve the out of service storage requirements for all large mobile cranes (greater than 200 tonnes), derrick cranes and tower cranes. These out of service requirements must comply with the guidelines of the manufacturer and must be available at the site to prepare for a weather-related event.

4.6.9 Handling Objects

Control

Uncontrolled movement of objects must not occur.

Performance Standard

- i) All loads to be slung, hoisted, lifted, transported, stored or unloaded must have no uncontrolled movement or loss of the load. This can involve engineered containment for small objects.
- ii) Slinging methods must manage any expected dynamic load forces (e.g. wind or sudden crane halt).
- iii) Lifting bags designed as 'single use bags' can only be lifted from a truck tray and placed into an engineered container, onto a pallet for forklift handling or, placed onto the ground for unloading.
- iv) All hoisting or lifting must be completed with the slung object's centre of gravity lower than the sling attachment points where practicable.
- v) All loads suspended by hoisting or lifting equipment must be landed onto an adequate load bearing surface and be stable (i.e. cannot roll or fall) before unslinging the hoisting or lifting gear.
- vi) Objects transported through any Keyton operation must be adequately restrained to the manufacturer's recommendations and local regulations to prevent uncontrolled movement.

- vii) Deliveries where the load has the potential to fall or roll when unshackled must be inspected by a person with competency in material handling and movement related to lifting activities (i.e. rigger or equivalent) and restrained before removal (e.g. chocked or slung with hoisting or lifting gear).
- viii) All lifting gear and tackle (e.g. chains, wire ropes, slings and rubbish removal containers) must be inspected before use and must be structurally sound, fit for purpose, engineered for lifting with certified lifting points and the rated capacity or safe working load clearly displayed. All lifting gear and tackle must comply with all national regulations, standards and codes.
- ix) Where engineered containment is used internal objects must be secured against movement in transit to prevent uncontrolled movement when the containment is opened.
- x) All engineered containment must be clearly marked to show that it is a secondary means and to demonstrate what object it is designed to be used with.
- xi) Dual or multiple independent loads or separately linked slung loads where the loads are distributed along different lengths of the wire rope (i.e. one load is more than 500mm above another load) are not permitted except where legislation allows for two items of bundled rebar or where two steel frame elements are to be lifted and installed in sequential order. In this case, the method utilised for the structural steel must be considered as a 'Special Lift' (as per KMR 4.6.2) and the steel elements members must have engineered lift points that afford a positive connection. The rigging procedure and engineered lift points must be subject to a review by a subject matter expert during the methodology review as per KMR 2.3.3.
- xii) Gravity latches are prohibited on the hook of all crane types. Positive locking (self-locking) safety latches are required for all tower crane hooks.

Risk Event Mitigating Controls and Performance Standards

4.6.10 Exclusion Zones

Control

Robust and controlled exclusion zones must be established, tested and approved.

Performance Standard

- i) The requirement for exclusion/no person zones for lifting or hoisting operations must be identified and included in the crane management plan.
- ii) The exclusion zone for all cranes and hoisting equipment must consider the location of personnel, members of the public, and neighbouring structures and infrastructure in determining the preferred radius to be applied.
- iii) Personnel must not work or walk under suspended loads.
- iv) For tower crane erection or jumping activities, all people (including members of the public) must be clear of works through the application of exclusion/no person zones that includes the area below the jib along its length and the direction in which it is positioned.

4.6.11 Post Incident Response

Control

Independent verification of the safe status of crane and hoisting equipment must be undertaken following an incident and before re-use.

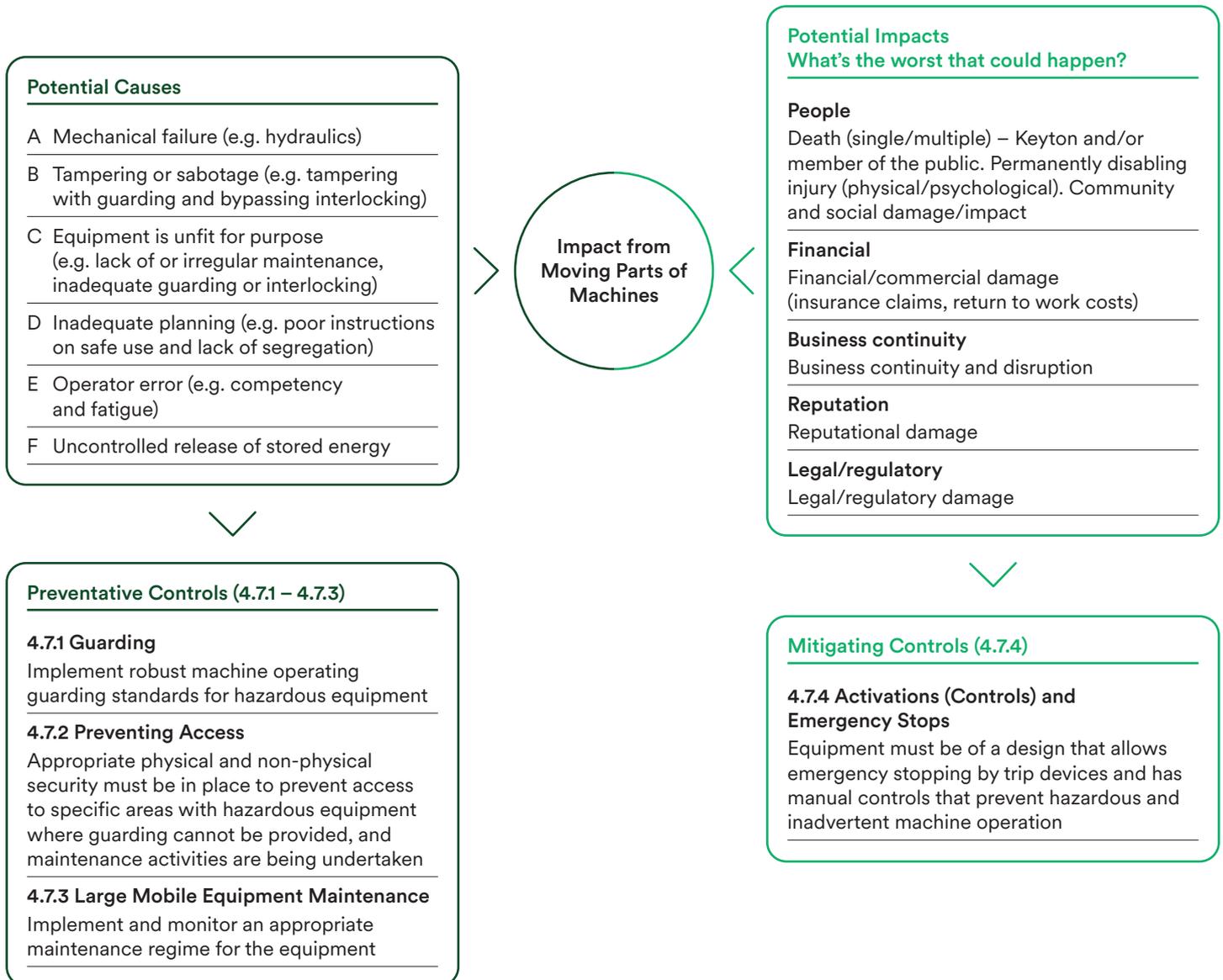
Performance Standard

- i) Crane or other hoisting equipment must be removed from service, re-inspected and re-tested by a suitably qualified person before any other lift is completed when it:
 - Strikes a structure, other piece of hoisting equipment while in use.
 - Is struck by mobile equipment.
 - Any failure of a load bearing part whilst in use.
 - Is identified as operating without completing maintenance and inspections to the manufacturer's requirements or applicable standards to the region of operation.
 - Struck by lightning or after a considerable natural event such as a major storm, seismic event, etc.

4.7 IMPACT FROM MOVING PARTS OF MACHINES

Description

These critical controls and performance standards apply to hazardous equipment (i.e. mobile, fixed, large or portable) in Keyton operations where people could be fatally injured if they come into contact with moving parts of that machine (e.g. moving tracks and large conveyors). This applies for exposure to equipment during operation, maintenance and troubleshooting e.g. escalator and lift motors.



Risk Event Preventative Controls and Performance Standards

4.7.1 Guarding

Control

Implement robust machine operating guarding standards for hazardous equipment.

Performance Standard

- i) All moving parts of hazardous equipment must be fitted with suitable guards. Guards are to be retained by fasteners that adequately secure the guarding and prevents accidental dislodgement.
- ii) Support maintenance and troubleshooting must be inclusive of a documented safe system of work, including isolation systems involving personal isolation locks with routine inspections carried out to identify if guarding is fitted and functional and in good working order.
- iii) Check that guarding fully protects any moving parts and can withstand applied forces without dislodgement.
- iv) Identify and assess the risk of fault-finding, cleaning and maintenance tasks that bring people in proximity to exposed energised machine components.

4.7.2 Preventing Access

Control

Appropriate physical and non-physical security must be in place to prevent access to specific areas with hazardous equipment where guarding cannot be provided, and operations and maintenance activities are being undertaken.

Performance Standard

- i) Identify energy sources with the potential for fatal outcomes that are unable to be guarded prior to commencing the operation. Identify, implement, communicate and verify alternate controls (e.g. interlocked physical barriers and light curtains).
- ii) Check exclusion zones use suitable physical distance, barrier types, and stability to prevent inadvertent, accidental, unintended and casual interaction with the moving parts.
- iii) Lock access to equipment with moving parts and energy sources representing a fatality risk when usage for that day or shift ceases. This includes preventing access to mobile plant.
- iv) Operational personnel with responsibility for access administration (e.g. security) must have a list of authorised key users. Check equipment is locked and has the capacity to prevent equipment use if found unlocked.

4.7.3 Large Mobile Equipment Maintenance

Control

Implement and monitor an appropriate maintenance regime for the equipment.

Performance Standard

- i) All equipment must be registered using unique identifiers.
- ii) Maintenance must be in accordance with manufacturer's recommendations or at shorter intervals if required, with maintenance manuals provided prior to the equipment arriving on site and the inspection records remaining with the machine.
- iii) If earthmoving equipment is being operated with quick hitch devices there must be a safe system of work adopted. It is essential that physical mechanical locking pins are used to prevent uncontrolled release.

Risk Event Mitigating Controls and Performance Standards

4.7.4 Activations (Controls) and Emergency Stops

Control

Equipment must be of a design that allows emergency stopping by trip devices and has manual controls that prevent hazardous and inadvertent machine operation.

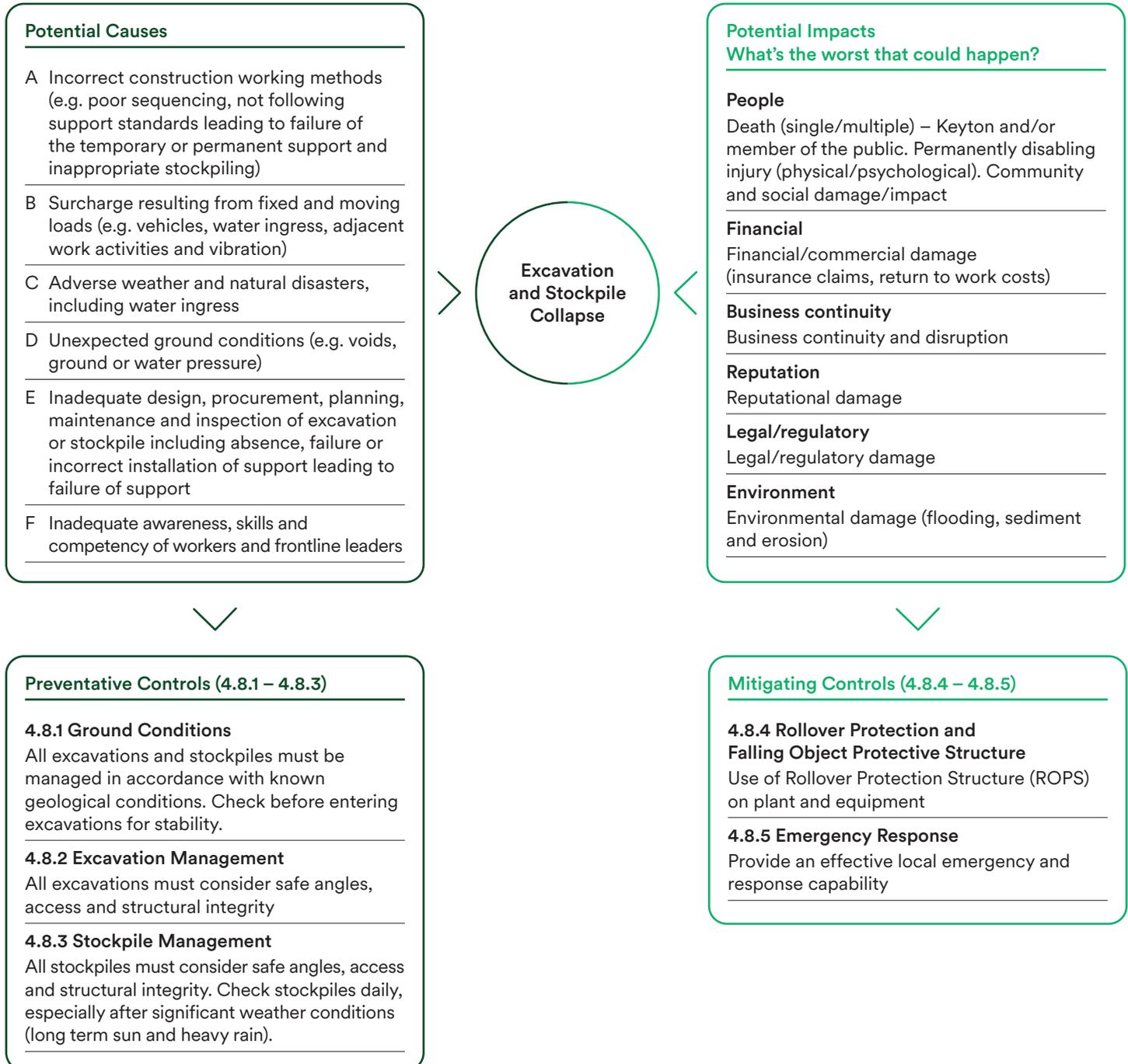
Performance Standard

- i) Review equipment brought to site to determine if it is equipped with a suitable number, type and location of trip devices or emergency stops.
- ii) Manual controls must be:
 - Clearly visible, identifiable, marked and positioned in a suitable location.
 - Their movement is consistent with their effect on machine operation.
 - In the appropriate language.
- iii) Establish an audible warning signal of sufficient duration and intensity for start-up where it is not possible to see all danger zones from the operator's console.
- iv) Check the design of machine controls to prevent inadvertent or unexpected start-up.
- v) Routinely test emergency stop or trip devices.

4.8 EXCAVATION AND STOCKPILE COLLAPSE

Description

These critical controls and performance standards must apply to all ground/soil disturbance activities that can create accidental collapse of an excavation or stockpile resulting in a fatality on a Keyton operation.



Risk Event Preventative Controls and Performance Standards

4.8.1 Ground Conditions

Control

All excavations and stockpiles must be managed in accordance with known geological conditions. Check before entering excavations for stability.

Performance Standard

- i) Identify ground and underlying conditions and hazards and provide geotechnical engineered solutions for excavations >1.5m/4.9 ft in depth.
- ii) Assess the area for any underground services and identify as per KMRs 4.4.8 underground services and 4.15.5 underground services (non-electrical).
- iii) Agree a comprehensive plan prior to beginning physical works. The plan must cover construction methodology, support mechanisms, sequencing, use of plant and equipment to provide stability of excavations and stockpiles.

4.8.2 Excavation Management

Control

All excavations must consider safe angles, access and structural integrity.

Performance Standard

- i) All excavations greater than 1.5 metres (4.9 feet) must be benched, shored, battered back or sloped to a safe angle as determined by a geotechnical engineer in the excavation design process. An angle with a ratio of 1 vertical to 2 horizontal repose must not be exceeded unless designed and certified by a geotechnical engineer. Where benching or battering is not possible, trenches and excavations must be mechanically shored to prevent collapse.
- ii) Adjacent structures, roads and sidewalks must be supported or protected where necessary to prevent collapse. Structural monitoring of adjacent properties/structures by a third-party must be conducted and reports provided for the duration of the activity (e.g. excavation, underpinning, blasting, dewatering).
- iii) Materials and equipment must be placed at a safe distance from the edge of excavations.
- iv) Adequate signage, physical barriers and lighting must be provided to prevent falls into excavations, especially for equipment working on those excavations and vehicles or equipment from adjacent thoroughfares. Safe access (e.g. temporary stairs) must be installed to provide access into excavations where appropriate.
- v) Water ingress into excavations must be controlled to provide stability and, where water is present, in deep excavations an appropriate dewatering program must be in place.
- vi) Daily and/or pre-shift inspections of all excavations must be undertaken and documented by a person with appropriate competency requirements, including after every rainfall or other adverse weather condition that is likely to impact the stability of excavations.

- vii) Workers within an excavation zone must not be within reach of the operating radius of the excavation equipment and an exclusion zone must be established. Equipment must be stopped if survey or other verification work is required within the equipment operating zones or if workers are controlling a load with a tag line or positioning items within the excavation. The surrounding construction loads imposed adjacent to mass excavations must be identified and engineered as part of the shoring design for the excavation. All construction loads for the life cycle of the performance of the shoring must be confirmed in the engineering documents.

4.8.3 Stockpile Management

Control

All stockpiles must consider safe angles, access and structural integrity. Check stockpiles daily, especially after significant weather conditions (long term sun and heavy rain).

Performance Standard

- i) Maximum stockpile height must be determined by an engineer and not exceeded.
- ii) All people must be excluded from the active loading or dumping area.
- iii) Loading and dumping area ground stability must be approved by an engineer prior to commencement.
- iv) Equipment operators are not to leave the cabin while loading or dumping is in progress.
- v) For a linear stockpile excavation must proceed along the working face and for a conical stockpile it must proceed around the toe. The working face must never be undercut or left with a hollow in it.
- vi) Barriers and berms must not be moved or altered, and the crest must only be approached by a loader or bulldozer at a right angle (90 degrees) to keep the weight of the equipment away from the edge. Prevent access from an unauthorised vehicle or person that could damage critical infrastructure or where the unauthorised person could be fatally injured due to the hazards within the operational area. Install physical barriers if required.
- vii) All stockpiles to have sediment and erosion control devices implemented and maintained. Stockpiles must be inspected following change events that could compromise stability (rain, storm).

Risk Event Mitigating Controls and Performance Standards

4.8.4 Rollover Protection and Falling Object Protective Structure

Control

Use of Rollover Protection Structure (ROPS) on plant and equipment.

Performance Standard

- i) Fit ROPS to all earthmoving equipment working beside or in the vicinity of excavations ensuring the cabin and canopy meet ISO 3471:2008 and excavator ROPS to ISO12117.2:2008 and applicable local authority requirements.
- ii) A seat belt must be fitted to all occupant positions and worn by the occupant while the plant or equipment is in operation.
- iii) Decoupling technology for dog and trailers and cabin stability technology is to be implemented.

4.8.5 Emergency Response

Control

Provide effective local emergency and response capability.

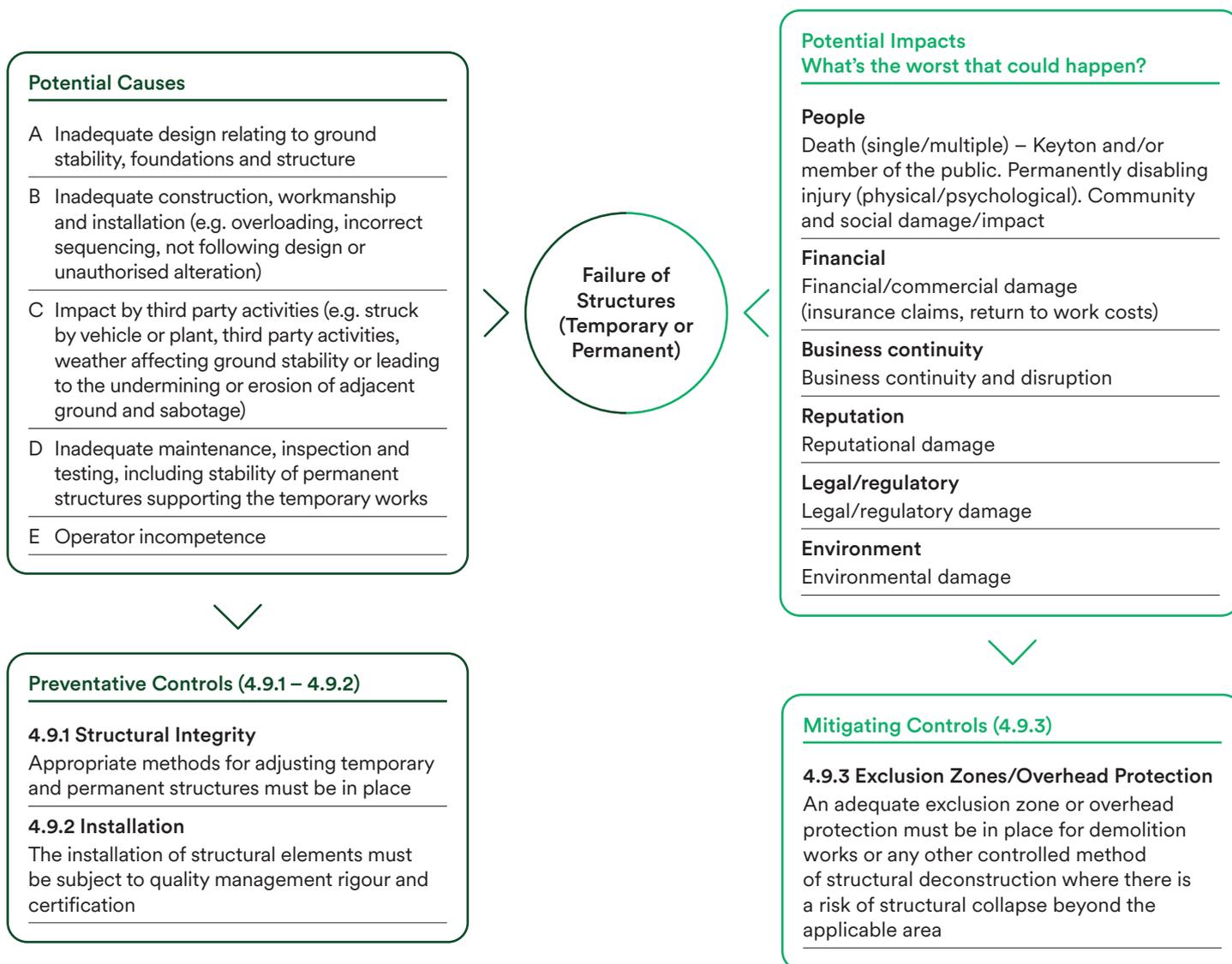
Performance Standard

- i) The emergency response plan must be developed prior to work commencing and be resourced, implemented, verified and reviewed quarterly.
- ii) The plan must address specific failure scenarios (e.g. recovery of an injured person from a deep excavation), recovery equipment and training requirements.
- iii) Local Emergency response team/resources must be identified and contact information available (e.g. technical rescue, utilities emergency numbers).

4.9 FAILURE OF STRUCTURES (TEMPORARY OR PERMANENT)

Description

These critical controls and performance standards apply to a structural failure on any temporary (e.g. hoarding, access gates, scaffold, formwork, temporary works or access platforms) or permanent structure (e.g. completed structure, precast concrete, structural steel or demolition works) that could cause a fatality.



Risk Event Preventative Controls and Performance Standards

4.9.1 Structural Integrity

Control

Appropriate methods for adjusting temporary and permanent structures must be in place.

Performance Standard

- i) Designers, suppliers and installers of both temporary and permanent structures are to provide site specific engineering solutions that provide the highest degree of certainty relating to structural integrity and have it independently verified by a qualified and registered structural engineer.
- ii) Implement methodologies, systems, technology or equipment that provides early warning of an impending structural failure (e.g. movement detectors, survey points or other system/equipment to monitor structural movement).
- iii) Proprietary or engineered systems certified by a qualified and registered structural engineer must always be used for the erection of temporary or permanent structures. All elements must be installed without variance to any agreed methodology and engineering tolerances and must be based on manufacturer's specifications and recommendations. The temporary structure fixing details and loading on the permanent structure must be clearly specified on the temporary structure design documentation.
- iv) Temporary and permanent multi-storey structures must take into consideration all climatic possibilities, ground conditions and geology including earthquake risk in the design and methodology.
- v) A Demolition management plan approved by an appropriately qualified engineer must be developed to determine that each element of the overall methodology does not inadvertently place workers or members of public at risk from uncontrolled collapse.

4.9.2 Installation

Control

The installation of structural elements must be subject to quality management rigour and certification.

Performance Standard

- i) All temporary works must be designed by a qualified and registered engineer according to the intended use. As per the methodology review process outlined in KMR 2.3.3, the design of the temporary works must be independently reviewed by a qualified and registered engineer (but not by any person working on the original design). Once installed, erected or after a change to the design the temporary works must be verified by a qualified and registered engineer to determine that the design intent is met for all temporary works where there is a risk of a fatal event occurring.
- ii) All proprietary systems must be used or assembled/dismantled in accordance with the manufacturer's recommendations and the designed purpose. The mixing of components from different proprietary systems is not permitted unless the system is approved by a qualified and registered structural engineer.
- iii) Any calculations and drawings must clearly communicate requirements to those checking, constructing and using temporary works, including safe loading limits.

- iv) Design load calculations must consider the maximum applicable loads that will be experienced on each floor during the construction phase (e.g. from material storage, lifting operations and waste). Where construction loads may exceed the design load for the permanent structure in use, the structure must be propped to cater for any additional loading.
- v) All scaffolds must be stable and secure to prevent movement and collapse. Scaffolding must be plumb, have adequate cross-bracing, and sound footings. Freestanding scaffolds shall be laterally braced as designed. Before use, scaffolds must be inspected by a qualified scaffolder and be tagged to show the inspection status.
- vi) All temporary works platforms and associated access must be planned and documented by a person with appropriate technical competencies to determine that the equipment is appropriate for the specific use and is erected, altered or dismantled by persons with the appropriate competencies following safe methods of work.
- vii) All demolition work involving structural removal must be documented through a demolition plan and subject to approval from a structural engineer where any structural elements are proposed to be removed or temporary storage of demolition debris. This includes the review of the methodology and demolition sequence. The methodology must minimise the number of workers permitted in the demolition area.
- viii) All temporary works must be protected to prevent impact from vehicles and plant.
- ix) Under no circumstances must any temporary works structure be modified without going through the same process as outlined in this performance standard.
- x) Temporary works designs, and calculations must include details on the safe sequence and methodology of erection and dismantling methodology to mitigate risks of failure during all stages.

Risk Event Mitigating Controls and Performance Standards

4.9.3 Exclusion Zones/Overhead Protection

Control

An adequate exclusion zone or overhead protection must be in place for construction demolition works or any other controlled method of structural deconstruction where there is a risk of structural collapse beyond the applicable area.

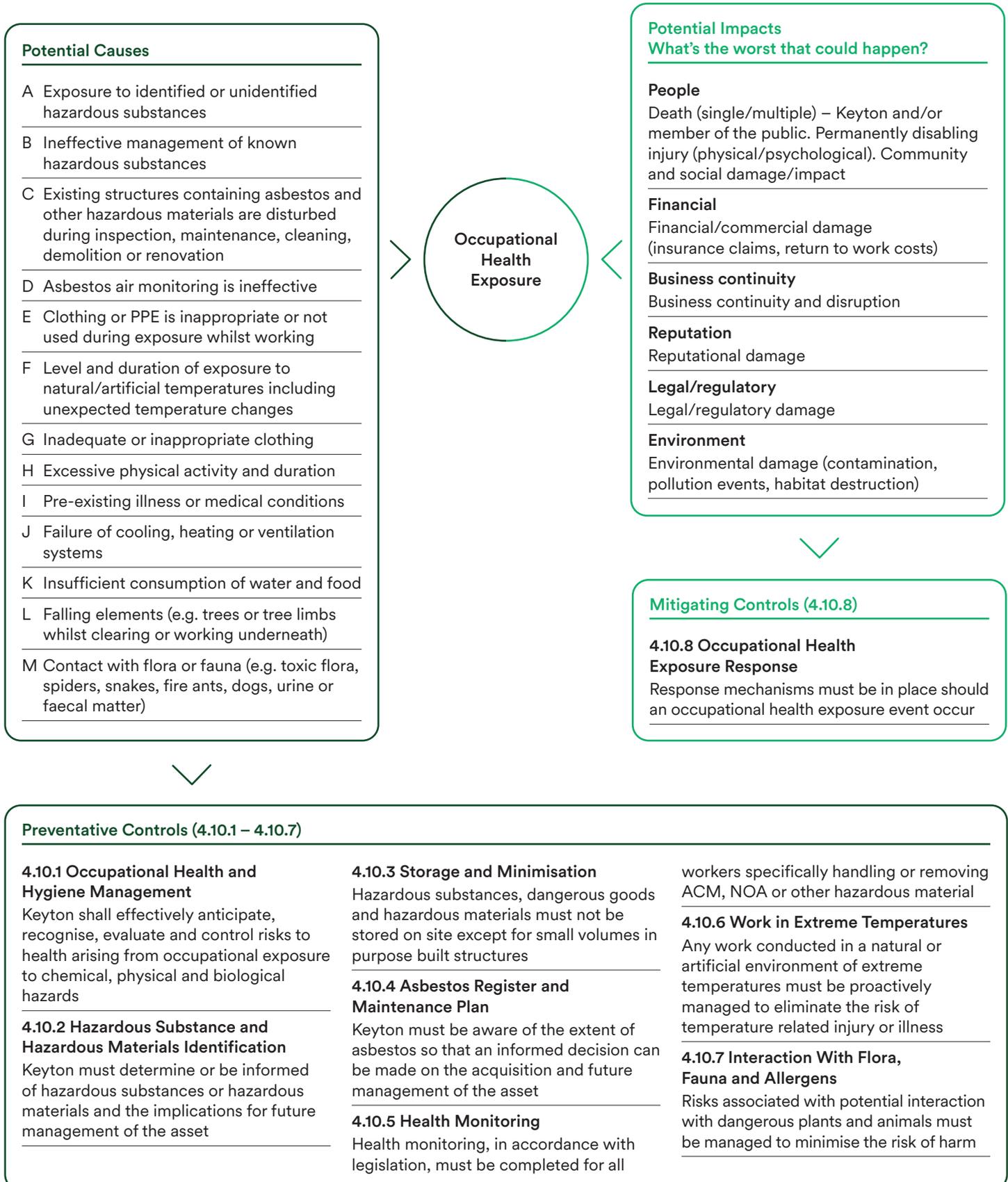
Performance Standard

- i) Exclusion zones for construction or demolition works must be of adequate size, taking into account the risks including potential arc of fall, deflections and bounce distances, are delineated by physical barriers and have clear signage prohibiting unauthorised entry where there is a likely risk of harm. The integrity of any exclusion zones must be regularly checked.
- ii) Planning for both construction and asset works must identify any scenarios where overhead protection is to be installed, particularly where people below cannot be completely excluded. Overhead protection must be engineered by design and put in place before the activity begins. Any overhead protection cannot allow for failure due to the impact from an object it is designed to intercept.

4.10 OCCUPATIONAL HEALTH EXPOSURE

Description

These critical controls and performance standards apply to any Keyton operation where there is a risk of occupational exposure to hazardous substances, asbestos, diesel particulates, respirable dusts such as silica, noise, vibration, extreme temperatures, flora, fauna or allergens that could realistically result in the death of one or more people.



Risk Event Preventative Controls and Performance Standards

4.10.1 Occupational Health and Hygiene Management

Control

Keyton shall effectively anticipate, recognise, evaluate and control risks to health arising from occupational exposure to chemical, physical and biological hazards.

Performance Standard

- i) Projects in delivery shall maintain an Occupational Health and Hygiene Plan, which describes training related to occupational exposure hazards, implementation and verification of control measures, exposure and health monitoring, and reporting of monitoring results for the following hazards:
 - Airborne contaminants including, but not limited to respirable crystalline silica, dusts and aerosols, fibres, hazardous chemicals, diesel and petrol engine exhaust emissions, and welding fumes
 - Noise
 - Vibration
 - Thermal stress
 - Solar radiation
 - Hazardous manual tasks and sedentary work
 - Biological hazards
 - Fatigue and Fitness for work
- ii) Occupational health exposure prevention controls must be implemented in accordance with the hierarchy of risk control and evaluated by monitoring or other suitable processes to determine that risks are effectively managed.
- iii) Exposure to airborne contaminants shall be measured and compared against applicable legislative requirements to establish the efficacy of implemented control measures and to inform the continuous improvement process.
- iv) Where respiratory protective equipment (RPE) is used as part of an exposure control strategy a respiratory protection program must be implemented in accordance with regional standards and shall include fit testing and the requirement for being clean shaven when using tight fitting RPE.
- v) Projects shall implement a hearing protection program in accordance with regional standards and legislative requirements, which includes measurement and assessment of noise emission and exposure, noise control management, hearing protective devices and audiometric assessment.
- vi) Biological exposure monitoring shall be undertaken where there is a risk of exposure to lead, polycyclic aromatic hydrocarbons (PAHs), or other chemicals where there is a risk of exposure through ingestion and/or absorption through the skin and mucous membranes.
- vii) Where ventilation systems are used to manage airborne contaminants, they must be designed and their installation as per design verified by a Ventilation Engineer. There must be a protocol in place to monitor and maintain the ventilation system performance in accordance with the design and controlling the hazard.

viii) Works associated with thermal extremes shall be risk assessed and must consider:

- Presence of hot or cold surfaces
- Exposure period
- Confined space
- Task complexity
- Physical activity during the work
- Availability of respite and hydration
- Clothing worn and impacts of PPE and RPE
- Air movement
- Acclimatisation
- Training and instruction of thermal strain risk
- Physical fitness and impacts of prescription medication

4.10.2 Hazardous Substance and Hazardous Materials Identification

Control

Keyton must be aware of any known hazardous chemicals, hazardous substances or hazardous products/materials and the implications for future management of the asset.

Performance Standard

- i) When acquiring an asset, or prior to commencement of construction activities, identify retained hazardous substances and hazardous materials on site and the need for their use in managing the asset or construction operation.
- ii) Identify in pre-construction reviews any hazardous chemicals (products, materials or substances) proposed for construction or final use. Only accept hazardous chemicals where no effective less hazardous alternative can be demonstrated.
- iii) Recycled granular (aggregate) material sourced from demolition or other building waste streams is not to be used as the likelihood of asbestos fragments or other unexpected finds is high.
- iv) The following products, substances and materials are hazardous, and their use, handling or storage is not permitted in new designs. Any of these products, materials or substances must be treated as high risk if encountered:
 - Asbestos or asbestos containing materials (ACM)
 - Lead, or materials containing lead that may be ingested, inhaled or absorbed
 - Paints or treatments that contain arsenic, lead, copper or chromium
 - Equipment or components containing Chlorofluorocarbons (CFCs), Hydro chlorofluorocarbons (HCFCs) or Halons
 - Pesticides or herbicides containing organophosphate or organochlorins
 - Pentachlorophenol or timber treated with Pentachlorophenol
 - Polychlorinated Biphenyls (PCBs) and Polychlorinated Terphenyls (PCTs)
 - Synthetic mineral fibres
 - Lindane (gamma-HCH)
 - Tributyltin (TBT)

- Antimony
 - Arsenic
 - Benzene
 - Beryllium
 - Cadmium
 - Carbon disulphide
 - Chromate
 - Chromium
 - Cobalt
 - Free silica
 - Tetrachloroethane
 - PFAS (poly-fluoroalkyl substances)
 - Low bio solubility man-made mineral fibres (MMMMF) or man-made vitreous fibres (MMVF) and refractory ceramic fibres (RCF)
 - Other hazardous materials, substances and chemicals banned or restricted by law
- v) All works involving materials that contain respirable dusts hazardous to human health, e.g. crystalline silica, must implement control measures to eliminate or minimise the generation of dust. Uncontrolled dry cutting, drilling, grinding or abrading of masonry, products or stone resulting in exposure to airborne contaminants hazardous to human health is prohibited. Where water suppression cannot be used (e.g. due to an electrical hazard) local exhaust ventilation with HEPA filtration must be used to manage dust (with air quality monitoring in place).
- vi) Compressed air and sweeping must not be used for removing respirable dust, e.g. crystalline silica, only wet methods or vacuums shall be used.
- vii) Where the operation identifies that exposure to mineral silicates is possible, requirements for ensuring that dust is controlled and breathing equipment is provided must be in place.

4.10.3 Storage and Minimisation

Control

Hazardous chemicals, products, materials, substances and dangerous goods must not be stored on operations except for small volumes sufficient for immediate use and must be stored in purpose built structures segregated from incompatible materials.

Performance Standard

- i) Hazardous chemicals, products, materials, substances and dangerous still required to be on site following design, procurement and methodology reviews must only be supplied in minimal amounts. Suppliers must verify that there is no suitable less hazardous alternative, what the minimum amount to be supplied is and provide the full Safety Data Sheet (SDS).

- ii) Hazardous chemicals, products, materials, substances and dangerous goods (e.g. fuels, oils, chemicals, solvents, pesticides and fertilisers) must not be stored on the Operation except for small volumes stored within a well ventilated, purpose built structure with roof cover and be segregated from incompatible materials. The store must have a concrete sealed or equivalent impervious floor with bunding, isolated and/or contained drainage (e.g. triple interceptors), signage and security fencing. Position hazardous chemicals, products, materials, substances and dangerous goods storage at locations away from high traffic areas, pedestrian zones and environmentally sensitive areas such as waterways or natural habitats.
- iii) All operations with hazardous chemicals, products, materials, substances and dangerous goods storage must have appropriate spill kit materials, hazard specific PPE, emergency response equipment, including firefighting equipment, an SDS/MSDS readily available for each along with adequately trained safety and first aid personnel.
- iv) New 'in ground' bulk fuel storage tanks are not to be installed on Keyton owned sites. Existing redundant underground storage tanks and above ground storage tanks must be decommissioned and removed by an appropriately licensed contractor in accordance with regulatory requirements.
- v) Identify, secure and maintain existing underground or above ground fuel tanks still in use on the site in accordance with regulatory requirements.

4.10.4 Asbestos Register and Maintenance Plan

Control

Keyton must be aware of the location, nature and extent of asbestos so that an informed decision can be made on the acquisition and future management of the asset.

Performance Standard

- i) A hazardous materials survey must be carried out for all assets prior to acquisition.
- ii) An asbestos register and asbestos management plan for asbestos containing material (ACM) must be readily available to all inspection and maintenance people, tenants or other groups, is in place before commencement of works at the operation and is reviewed and updated annually.
- iii) Where NOA/ACM is present, all workers must receive awareness training that addresses the type, quantity and location of NOA/ACM and its health effects, safe working practices including PPE and the combined effects of smoking and asbestos.
- iv) Where NOA/ACM is present and a risk of exposure to respirable fibres is possible, air monitoring must be in place, including personal monitors for workers that may be exposed.
- v) Appropriate licences for the location and regulatory requirements must be held for personnel involved in repair, maintenance and removal where needed.
- vi) All people working on ACM must be explicitly authorised, either by Keyton or a supplier. The design of processes for working with ACM must include methods to prevent the creation of airborne fibres.
- vii) Where a product is identified that may contain ACM, precautions to prevent disturbance must be in place until a registered hygienist or independent testing authority confirms the absence of asbestos or recommends an appropriate management strategy.

- viii) Suppliers proposed to work on or remove naturally occurring asbestos (NOA) or ACM must demonstrate experience relating to the volume of NOA/ACM to be removed, location sensitivity (i.e. proximity to people), type of NOA/ACM to be removed and the size of the site where the scale of one or more of these determinants creates the need for particular asbestos management or asbestos removal experience.
- ix) A clearance certificate from a registered hygienist or independent testing authority whenever ACM and NOA is being removed.

4.10.5 Health Monitoring

Control

Health monitoring must be completed for all workers conducting works associated with asbestos or where there is a significant risk of injury or illness from exposure to silica, styrene, toluene, xylene, noise, or any other hazardous chemical required by law.

Performance Standard

- i) Health monitoring for asbestos must be undertaken before starting work with asbestos and biannually while the work continues.
- ii) Health monitoring for all hazardous chemicals other than asbestos must be undertaken before starting work, at suitable intervals as determined by the medical practitioner and at the cessation of the work.
- iii) Where workers are required to frequently use a hearing protective device as part of a control for noise that exceeds the exposure standard, audiometry testing must be undertaken in accordance with the local legislative requirements (or biannually if there are no local legislative requirements applied).
- iv) Uncontrolled exposure of an airborne contaminant that exceeds an established occupational workplace exposure standard/limit that exceeds the protection factor of the RPE used must be reported as an incident, and involves a review of controls, behaviours and follow up monitoring.

4.10.6 Work in Extreme Temperatures

Control

Any work conducted in a natural or artificial environment of extreme temperatures must be proactively managed to eliminate the risk of temperature related injury or illness.

Performance Standard

- i) For areas or equipment where extreme temperatures are planned (e.g. freezers or boiler rooms) adequate security and controlled access must be in place.
- ii) Establish and implement a maintenance, inspection and testing program for heating, ventilation and cooling equipment.
- iii) For work in extreme temperatures consider remote or robotic working, equipment and materials that could artificially alter the surrounding temperature, minimising exposure to extreme temperatures (e.g. rest breaks), job rotation, undertaking work at cooler or warmer times, emergency contact and alarm systems, heat or cold risk assessments, monitoring of environmental conditions and weather and providing adequate clothing that protects from the elements.

4.10.7 Interaction With Flora, Fauna and Allergens

Control

Risks associated with potential interaction with dangerous plants and animals must be managed to minimise the risk of harm.

Performance Standard

- i) Before acquiring an asset or business, or agreeing a contract for construction, areas must be reviewed where people could be exposed to dangerous plants and animals. The review must include both desktop and physical inspections on site.
- ii) Where practicable, remove any dangerous plants and animals before commencing the work such as clearing poisonous plants before demolition.
- iii) Where dangerous plants or animals have been identified and cannot be removed (e.g. known poisonous snake habitats) consider relocation of fauna where possible, exclusion of some work areas including blocking off (e.g. long grass areas where snakes may be present) correct selection and use of PPE such as overalls and general education to reduce risk of exposure.

Risk Event Mitigating Controls and Performance Standards

4.10.8 Occupational Health Exposure Response

Control

Response mechanisms must be in place should an occupational health exposure event occur.

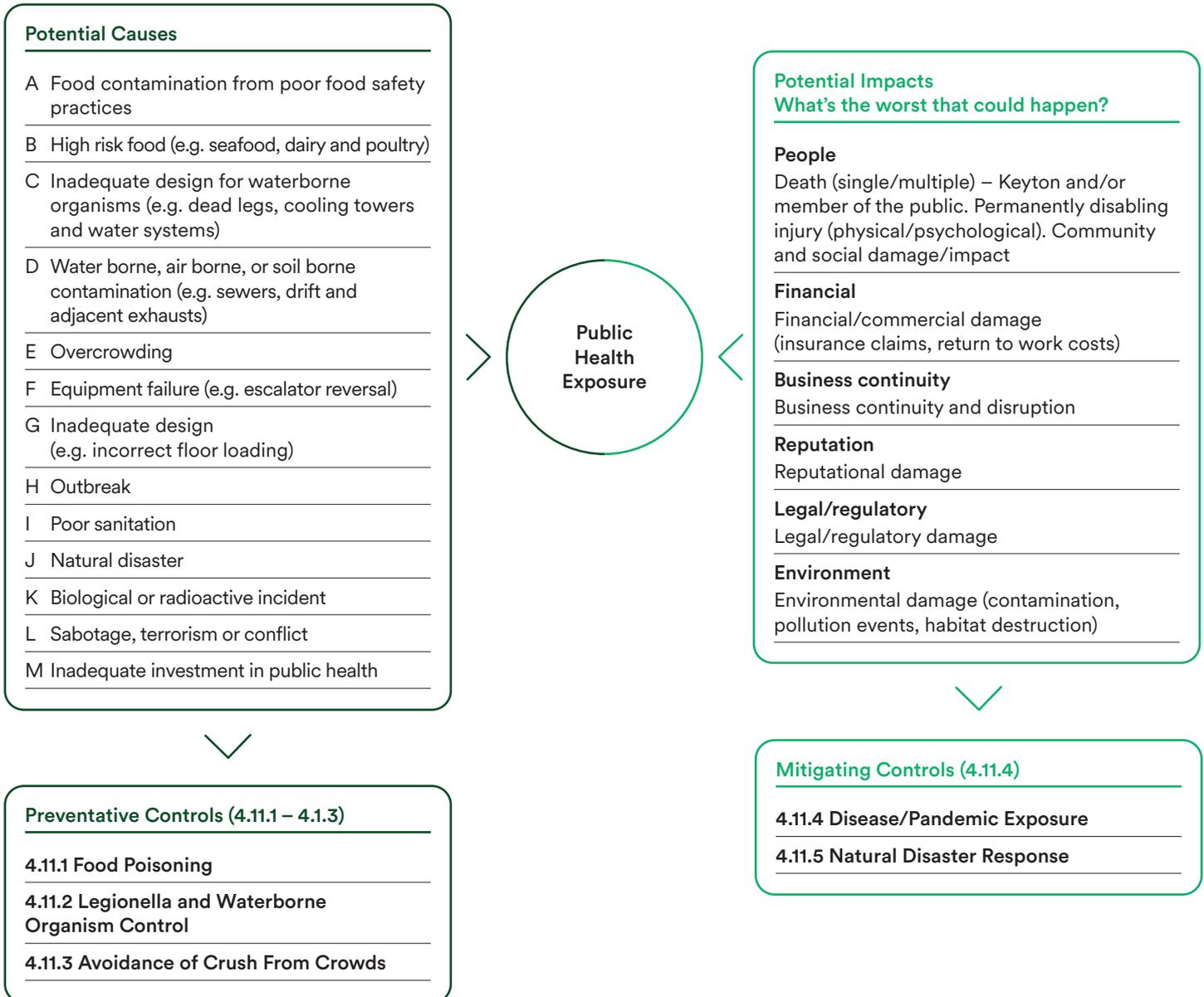
Performance Standard

- i) Emergency response and first aid requirements must be in place with trained first aiders available.
- ii) Appropriate facilities must be in place for washing and decontamination where such risks apply.
- iii) Contingency plans must be in place should an occupational health exposure event occur.

4.11 PUBLIC HEALTH EXPOSURE

Description

These critical controls apply to any Keyton operation where there is potential to adversely impact worker and public health through fatal exposure to; a foodborne illness resulting from contamination caused by bacteria, viruses, parasites or chemical substances; contamination with Legionella bacteria (e.g. cooling towers, evaporative condensers, hot and cold water systems and fountains) overcrowding as a result of a large number of people gathering in a specified area or for a specified event or exposure to a disease outbreak.



Risk Event Preventative Controls and Performance Standards

4.11.1 Food Poisoning

- i) Where higher standards of hygiene are required such as in food preparation areas, medical care and treatment areas effective infection control cleaning regimes must be implemented with clear responsibilities assigned, training provided, accurate records kept, and regular audits undertaken. Basic catering such as workplace BBQs must maintain general hygiene standards and food safety precautions such as adequate refrigeration of high-risk foods, use of gloves and other general hygiene precautions.
- ii) Procure food and food provision services from suppliers who have recognised local or international food safety standards certification (e.g. from the local authority, HACCP or ISO 22000). This includes chain of custody food safety provisions where operations provide high risk food and drink as part of employee or customer entertainment in external venues.
- iii) Commercial operations supplying food prepared and stored by Keyton, and the staff handling the food, must directly hold a current third-party certified food safety/hygiene certification.

4.11.2 Legionella and Waterborne Organism Control

- i) Where city, state or national regulations or standards apply, the relevant statutory risk assessment must be carried out at the frequency determined by the regulation or code or standard. This also applies to areas where Keyton is the tenant.
- ii) Water supply systems must minimise the health risks from waterborne organisms in water systems (e.g. by avoiding any unused portion of piping such as dead legs where there is potential for the formation of biofilm).
- iii) Wet cooling towers must be located away from publicly accessible areas and be assessed with consideration of the surrounding areas to avoid vulnerable groups (e.g. playgrounds, aged care facilities and hospitals).
- iv) All water systems must be maintained, upgraded and monitored to prevent the growth and spread of waterborne organisms such as Legionella through regular dosing, inspection, cleaning, disinfection and temperature control. A water quality testing regime consistent with local legislative requirements must be implemented with appropriate records maintained.
- v) All monitoring and maintenance must be planned and conducted by a person with appropriate technical competencies familiar with Legionella and other waterborne organisms. Effective protective clothing or equipment must be used, and the correct plant maintenance safety procedures must be observed. Adverse test results must be recorded as an incident in the EH&S reporting system, acted on immediately and re-tested until safe tolerances are achieved.
- vi) Where a third party has been designated as the authorised entity and nominated to carry out testing/maintenance on behalf of Keyton, the responsible Keyton employee/manager must have completed Legionella awareness training, maintain compliance oversight of the system on a regular basis and report on abnormal plate (bacteria) count.

4.11.3 Avoidance of Crush From Crowds

- i) All buildings must have enough space for the anticipated number of people.

- ii) Minimise pinch points and bottlenecks for the movement of people and demonstrate as suitable for the building or event.
- iii) All operations allowing public access must have effective means of safely keeping people outside the building and securing access.
- iv) Identify doors and equipment that are needed to manage crowds. Proactively check for correct function and that they are on a planned preventative maintenance schedule.
- v) Train security staff in emergency response for crowd management, de-escalation of aggressive or violent visitors and the first aid treatment of crush and overheating injuries.
- vi) Operations leaders must subscribe to available alert systems for local public events that may have an impact on the operation such as road closures, terrorist incidents, large public events, planned protests, riots or other.

Risk Event Mitigating Controls and Performance Standards

4.11.4 Disease/Pandemic Exposure

- i) Subscribe to available international alert systems (e.g. International SOS) to monitor any outbreak of a potentially fatal pathogen.
- ii) Where the origin of a potentially fatal pathogen has been declared in the same country as any operation, create a specific local management plan to minimise the risk of exposure to all workers including at risk workers such as those who are immunity deficient or pregnant.
- iii) Provide general awareness information about the signs and symptoms of local seasonal pathogens and outbreaks of other public health issues such as potentially fatal pathogens from overseas that could impact operations and those required to travel.
- iv) Communicate specific steps to be taken should people suffer from symptoms of potentially fatal pathogens and provide workers with education to recognise signs and symptoms in others.

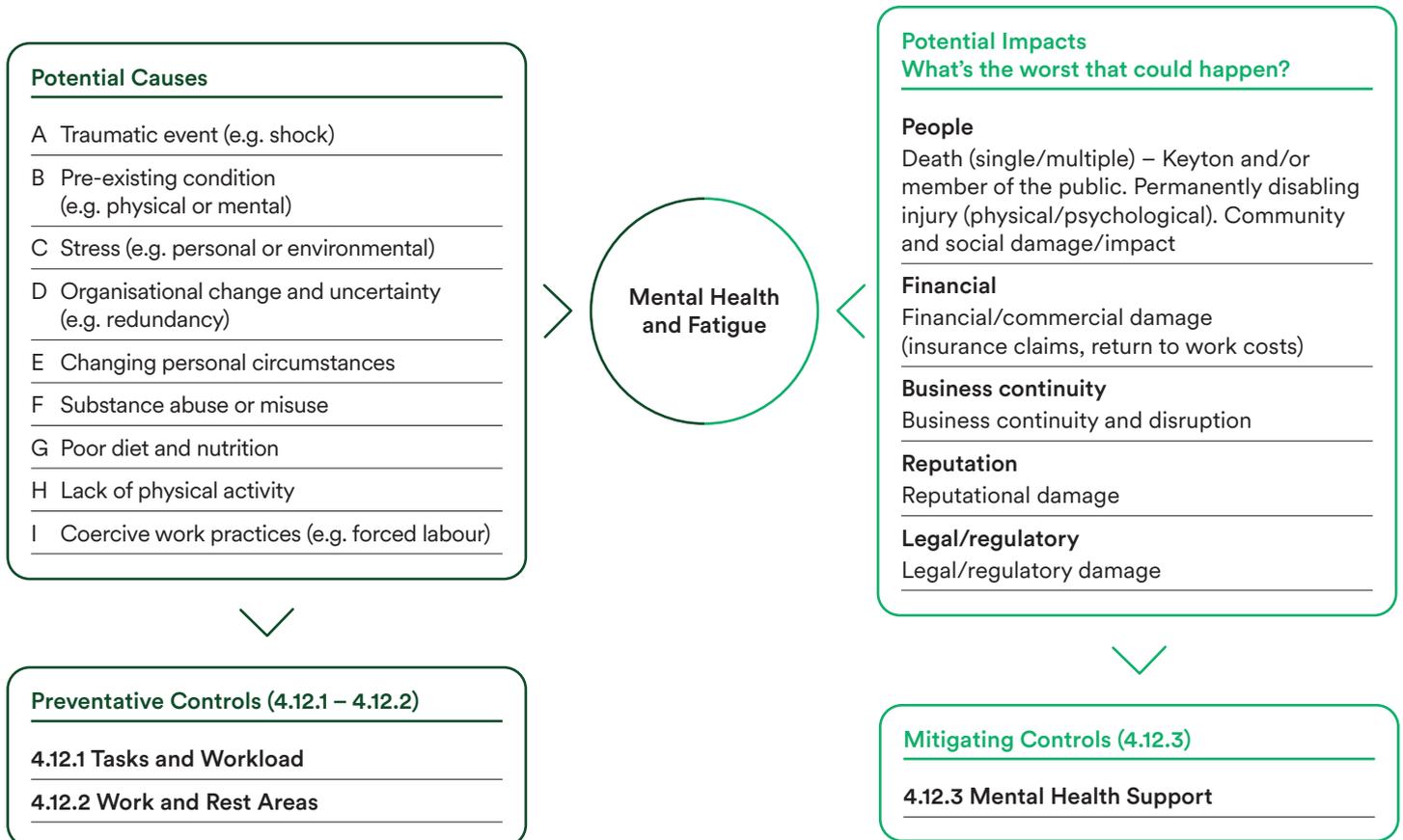
4.11.5 Natural Disaster Response

- i) Subscribe to available alert systems such as fire, cyclone, hurricane, earthquake, flooding and tsunami alerts for the applicable local area.
- ii) Emergency preparedness and response plans for the operation must cover all possible scenarios applicable to the local area.
- iii) Plans for how to contact all personnel to confirm their safety are to be in place in case of a natural disaster.
- iv) Emergency muster areas must consider the type and duration of a natural disaster affecting the project and the number of personnel that may need to shelter there.

4.12 MENTAL HEALTH AND FATIGUE

Description

These critical controls apply to any Keyton operation where people may experience undue physical or mental pressures that result in an adverse impact on their ability to undertake their daily activities. For example, as a result of ongoing working hours more than six days per week, over 60 hours per week or shifts of more than 12 hours per day or continuous night shift work.



Risk Event Preventative Controls and Performance Standards

4.12.1 Tasks and Workload

- i) Establish the numbers of personnel, both Keyton and suppliers, required for the safe and effective management of all activities within the operation so that the required workload does not exceed 60 hours per week for an individual worker. All overtime must be voluntary and appropriate safeguards must be in place to protect the physical and mental health and wellbeing of workers at all times. This limit includes office based and frontline personnel. Further consideration must be given to any additional time spent working while commuting or driving between workplaces or sites. For remote projects on a fly in/fly out (FIFO) roster, the maximum work hours are not to exceed an average of 60 hours per week assessed over the whole roster cycle.
- ii) Identify fatigue risks that could lead to errors and could cause fatal injury of any person/s. Specify clear limits on weekly and daily working hours for such tasks and what rest breaks are required. Where fatigue risks are identified provide fatigue related programs (e.g. sleep, nutrition, wellbeing and resilience programs) aligned with the Keyton health and wellbeing framework.
- iii) Actively monitor actual hours spent working. Implement strategies to reduce excessive working hours.
- iv) Specify and procure fatigue detection equipment where available for any vehicle, mobile plant and equipment.

4.12.2 Work and Rest Areas

- i) Provide suitable working areas to minimise fatigue, including but not limited to the provision of sufficient light, ventilation and air and ergonomically suitable furniture for work tasks.
- ii) Provide suitable rest areas to minimise fatigue, including but not limited to placement away from the work task in a quiet, heated or cooled (as appropriate) area clearly marked as a breakout/rest area with sufficient seating and rest areas for peak numbers of workers.

Risk Event Mitigating Controls and Performance Standards

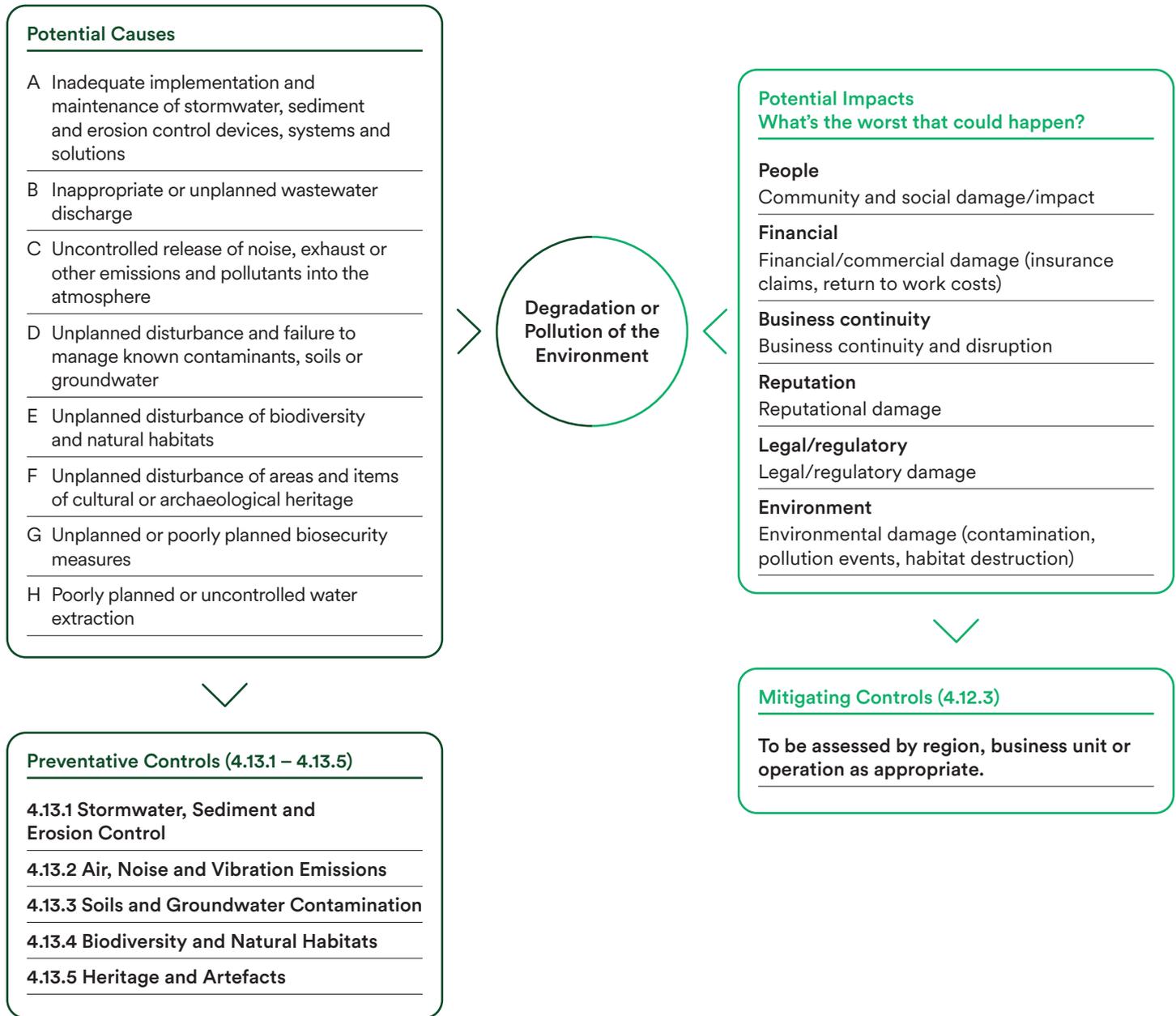
4.12.3 Mental Health Support

- i) Provide an Employee Assistance Program (EAP), independent counselling and support for employees feeling stressed or suffering from other mental health issues.
- ii) Under the Keyton Health and Wellbeing Framework or equivalent, provide mental health induction or general awareness (e.g. mental health campaigns) of mental health to employees, contractors and suppliers working for Keyton as appropriate to their role and duration of employment.
- iii) Trained Mental Health First Aiders (MHFA) or equivalent employees should be available on every Keyton operation during normal working hours. The names of any trained MHFA officers or equivalent must be displayed in a prominent location. Processes must be in place to monitor and assist the MHFA should they be impacted by the information they receive during the service/guidance they provide to others.
- iv) Where the risk exists, consider modern slavery awareness campaigns and education, to reduce possible impacts on mental health, including information on access to Ethics Point (refer to Supplier Code of Conduct and Modern Slavery Guide).

4.13 DEGRADATION OR POLLUTION OF THE ENVIRONMENT

Description

These critical controls apply to any Keyton operation where, without effective measures in place, activities being undertaken could lead to significant pollution and environmental degradation outcomes.



Risk Event Preventative Controls and Performance Standards

4.13.1 Stormwater, Sediment and Erosion Control

- i) Where land is cleared, excavated, disturbed or filled, the operation must have sediment and erosion control devices and associated monitoring equipment implemented and maintained in an operable condition until the area is stabilised.
- ii) Manage stormwater erosion and sedimentation by designing, installing, reviewing and maintaining controls that eliminate or minimise land degradation, soil loss and the risk of downstream pollution.
- iii) Implement adequate controls in all operations to prevent stormwater containing sediments and any pollutants from entering any watercourses, water bodies, bays or other marine environments and stormwater systems through uncontrolled discharges.
- iv) Control the discharge of stormwater from an operation and address the requirements of all applicable approvals, licences and guidelines for water quality, so they are understood and adhered to. Maintain all water quality testing and discharge records.
- v) Control the abstraction of all water in line with current local applicable licences. Maintain records of water quality and volumes abstracted.
- vi) Where local regulatory requirements exist, all trade effluent discharges must satisfy applicable licences. Records must be maintained of quality and volume of discharge.

4.13.2 Air, Noise and Vibration Emissions

- i) Determine preventative controls for all activities involving excavation, rock hammering/sawing/cutting, disturbance of soils or vegetation and then implement physical controls such as covering of stockpiles or water spraying to eliminate or minimise the generation of dust and to eliminate or minimise dust being introduced to the atmosphere. Continual monitoring systems must be installed if required as part of any conditions of consent from regulatory authorities or if required by law.
- ii) Assess and implement preventative and mitigation measures to reduce potential impact on or to occupants, visitors, surrounding activities, owners, infrastructure, and neighbours to minimise adverse impacts on sensitive structures, environments and habitats (including clear provisions for the times of the day activities can be undertaken). This includes all indirect emissions from products and services from our supply chain partners.
- iii) All industrial process facilities or site-based plant and equipment must be serviced regularly in accordance with local legal, manufacturer guidelines so that noise, exhaust or other emissions generated are within the specified standards to prevent harm to people and the environment.
- iv) Consider the use of electric powered plant or equipment powered by renewable energy where possible.
- v) All relevant approvals and certifications must be held by personnel engaged in the maintenance/de-gas of fluorinated gas systems.

4.13.3 Soils and Groundwater Contamination

- i) Identify, signpost and segregate from site activities any known contaminated soils or groundwater on the site likely to cause risk to health, safety or the environment. Erect physical barriers to prevent unauthorised entry, exposure and cross contamination and cover with suitable materials to prevent stockpile erosion.
- ii) Cease any site activities that involve soil or groundwater disturbance where the contamination levels of the soil and groundwater are either unknown or where evidence of possible contamination is presented, until a technically qualified person is able to determine the contamination status or risk.
- iii) Plan and conduct all excavation, (including piling), movement, treatment, processing or remediation of contaminated soils, materials or groundwater in accordance with the requirements of high-risk activities.
- iv) All site remediation activities are to be conducted in accordance with regulatory requirements including provision for any decontamination and wash/disposal facilities. All contaminated waste must be delivered to an approved licensed facility and documentary evidence is maintained by the operations.

4.13.4 Biodiversity and Natural Habitats

- i) Where required by law, all ecological surveys must be completed prior to works commencing.
- ii) Areas designated by regulatory authorities as protected habitats, including water bodies and designated habitats or wildlife corridors within the area of any operations, must be identified, signposted and protected from operational activity, including uncontrolled pedestrian access, and all local biosecurity requirements satisfied.
- iii) All operations within or immediately adjacent to areas of protected habitat must be planned and conducted in accordance with the requirements for high risk activities and include a risk assessment and description of any actions required to protect flora and fauna consistent with the findings of any ecological site assessment and regulatory requirements.
- iv) All landscaping and site grounds must be appropriately managed to prevent uncontrolled discharges and land degradation including avoiding the spread of weeds or invasive species. Where invasive species exist, physical removal or isolation is the preferred option, rather than the use of non-toxic herbicides. Toxic herbicides must be avoided.
- v) Prevent the introduction and spread of weeds, and invasive plants and fauna by selecting appropriate landscape species, cleaning of plant and equipment in controlled areas, preventing land degradation and uncontrolled stormwater discharges. Where weed or invasive species are identified, physically remove or isolate the vegetation rather than using herbicides.
- vi) Where invasive species require removal by law, the removal, transport and disposal must be undertaken by contractors holding all required licencing and/or certification and/or proof of competency. Any waste or disposal facility must hold the required licencing to accept the material.

4.13.5 Heritage and Artefacts

- i) All items of heritage, cultural or archaeological significance must be included on construction plans, signposted and protected to prevent unauthorised entry in accordance with regulatory requirements. Plan and conduct all activities potentially impacting known areas in accordance with the requirements of high risk activities.
- ii) Any excavations, intrusive works or other operations that have the potential to impact areas of known heritage, cultural or archaeological significance must be performed in accordance with a heritage assessment and any regulatory requirements. This may include a dilapidation survey, supervision of works and vibration monitoring.
- iii) Cease any activities that involve the discovery of items that may be of cultural or archaeological significance until a person qualified in this field of work is able to determine the status of any potential artefact(s).

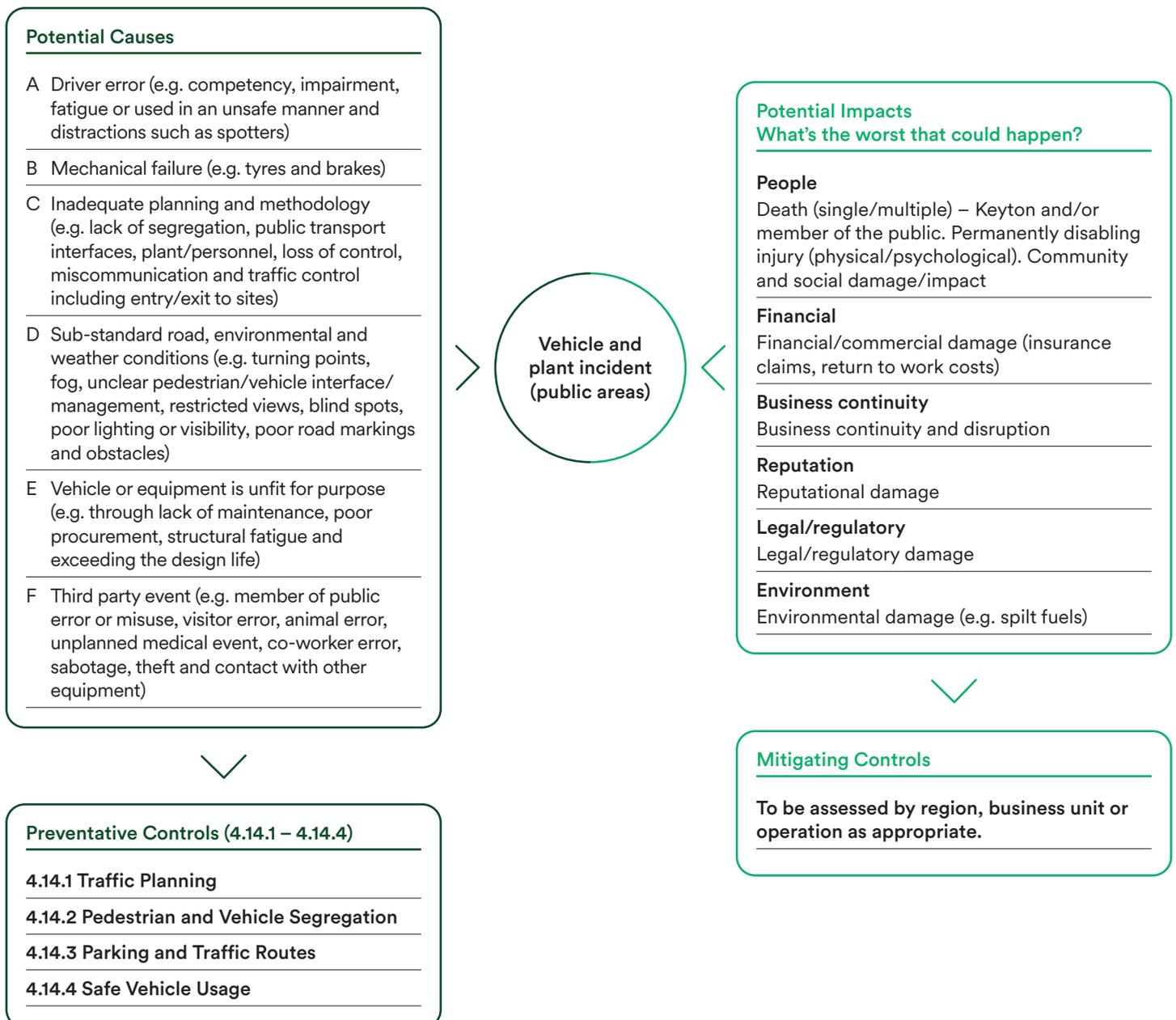
Risk Event Mitigating Controls and Performance Standards

To be assessed by region, business unit or operation as appropriate.

4.14 VEHICLE AND PLANT INCIDENT (PUBLIC AREAS)

Description

These critical controls apply to the movement of both public and Keyton vehicles on any Keyton controlled operating asset (e.g. retail, residential, commercial parking and public vehicle access areas). They also include the use of any Keyton tool of trade vehicles on public roads where a fatality could occur. They do not cover construction site vehicle traffic or Keyton heavy equipment. They also do not include personal small vehicles such as bicycles, customer low speed car park manoeuvres or single drop delivery drivers. Where the operation has exposure to risks of vehicle and plant incidents on the work sites (including temporary sites on roadsides) as well as public interface, refer also to the requirements of KMR 4.3).



Risk Event Preventative Controls and Performance Standards

4.14.1 Traffic Planning

- i) All applicable traffic management plans or regulatory required traffic management protocols must be current and define the controls to minimise the risk of vehicles striking another vehicle, structure or pedestrian.
- ii) Controls to manage any interface with public roads must provide effective signs and traffic control aids addressing prohibited vehicles, access points, routes for different vehicles types and reversing requirements.
- iii) Operations must establish methodologies for the safe installation before work and removal of the traffic controls when work finishes.
- iv) Planning for offloading methodology and material movement must be done prior to arrival on site and coordinated with the site logistics plan.

4.14.2 Pedestrian and Vehicle Segregation

- i) All locations must assess the risks presented by the movement of pedestrians and vehicles around or next to the site and implement appropriate controls to eliminate or minimise these risks.
- ii) Route sightlines must be unobstructed and adequately lit to provide good visibility. Blind spots and corners must be avoided, or where they do exist, have mirrors or other controls installed.
- iii) Signage and road markings must be compliant to the relevant authority standards and must provide clear instructions to pedestrian and vehicle route users and be located in positions which allow users to see them and have time to respond.
- iv) Loading and unloading areas for commercial vehicles (e.g. delivery trucks) must be clearly defined for loading or unloading. Risk control measures (i.e. exclusion zones) must be implemented and managed.
- v) Speed limits must be determined to reduce the risks associated with pedestrian movements, the local environment and authority standards. Speed calming measures such as raised crossings, humps on approach to crossings and rumble strips must be implemented in areas where pedestrians and vehicles could interface.
- vi) In locations where vehicles and pedestrians are in close proximity (e.g. security entrance points or where doors open directly onto vehicle routes) engineering controls must be provided to keep pedestrians and vehicles apart (e.g. by fitting physical barriers or providing separate routes).
- vii) Where shared zones for traffic and pedestrians are in place, speed limits must be reduced to less than 10km per hour (6 mph) and signage and traffic calming devices must be in place where building entry and exit points lead onto any area where vehicles can operate.
- viii) Adequate lighting must be in place for any specified loading and unloading areas or for trafficable areas in close proximity to members of the public.

4.14.3 Parking and Traffic Routes

- i) Traffic routes and parking arrangements must be in place to avoid vehicle-to-vehicle and vehicle-to-pedestrian conflicts.
- ii) Provide clear signage in car parks to indicate location information, speed limits, operating hours and conditions and any other hazards and precautions.
- iii) Provide clearly defined pedestrian routes within car parks to facilitate safe access and egress.
- iv) Locate height bars and signage to car park entrances to warn drivers of height limits. Provide safe exit routes for oversized vehicles.
- v) Use controls to manage reversing for trucks and delivery vehicles where through flow or one-way systems cannot be achieved. Where reversing needs to occur, use suitable controls in response to the level of risk encountered including pedestrian exclusion zones, mirrors, reversing camera's or traffic signallers. Traffic signallers must only be used as a last resort.

4.14.4 Safe Vehicle Usage

- i) Vehicles used as a tool of trade by Keyton personnel must be operated in a safe manner at all times.
- ii) Based on assessment of use, light vehicles on operations should be of a high visibility colour (e.g. white) and have reflective taping, flashing lights, a first aid kit, a fire extinguisher, a spill kit and survival or emergency equipment suitable for the operating environment.
- iii) Vehicles proposed for hire or purchase must have a minimum five-star Australasian New Car Assessment Program (ANCAP) rating or equivalent national standard.
- iv) Vehicles provided by Keyton as a tool of trade shall be fitted with in vehicle management systems, reversing cameras and parking brake warning systems.
- v) Seatbelts must be used at all times by all occupants and drivers of vehicles.
- vi) Vehicle journeys of two hours or more continual driving must be planned so as to provide adequate rest breaks are in place and that there is provision to manage fatigue.
- vii) Mobile devices (e.g. phones, tablets etc), whether hands free or not, must only be used by the driver of a tool of trade vehicle whilst the vehicle is stationary and in a parked safe location (unless local laws prevents this). The exception to this is for emergency and incident response vehicles, using hands free communications in a response situation, where alternative communication methods are not available.
- viii) All drivers must be appropriately licensed for the vehicle being operated and be fit for work (i.e. not impaired by medication, drugs or alcohol).
- ix) When parked all vehicles must be fundamentally stable with the engine turned off, handbrake effectively applied, placed in gear and on level ground. Wheels should be situated in spoon drains, gutters or against wheel stops. If fundamentally stable parking cannot be achieved appropriately sized wheel chocks must be available and implemented.
- x) All Keyton vehicles must have inspection and maintenance protocols in place for all safety related items such as wheels and tyres, steering, suspension and braking systems, seats and seat belts, lamps, indicators, mirrors and reflectors, windscreen and windows including windscreen wipers and washers, the vehicle structure itself and any other safety related item on the vehicle body, chassis or engine including instrumentation.

- xi) Pre-start inspections must be completed to determine if the lighting and braking systems are in proper working order.
- xii) Vehicles must not be used above the manufacturer defined maximum load limit.
- xiii) Wheel nut indicators must be fitted to all heavy vehicle wheels (i.e. heavy goods vehicles, busses, tractor trailers), where not precluded by design.

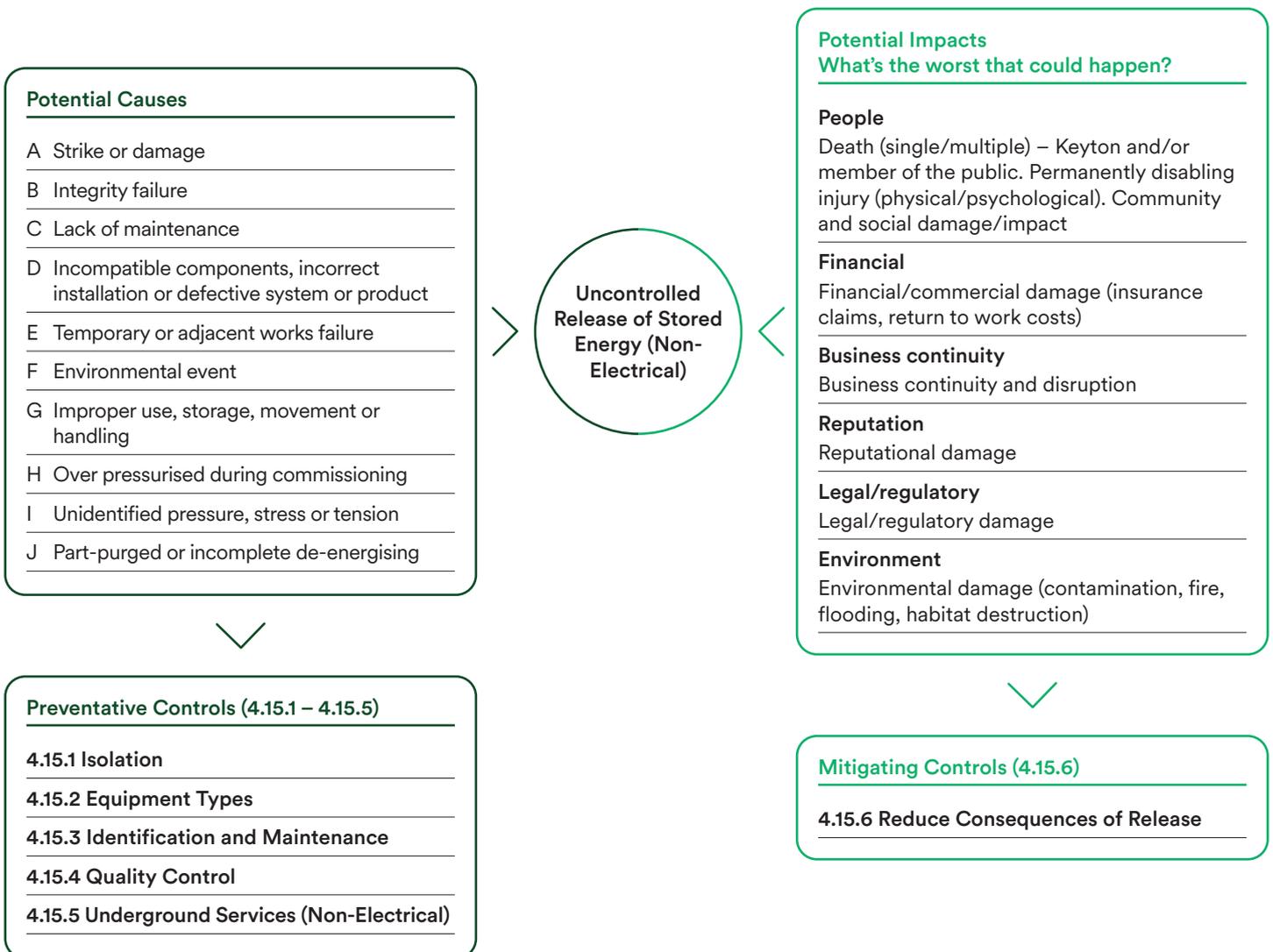
Risk Event Mitigating Controls and Performance Standards

To be assessed by region, business unit or operation as appropriate.

4.15 UNCONTROLLED RELEASE OF STORED ENERGY (NON-ELECTRICAL)

Description

These critical controls apply to any Keyton operation containing plant, machinery, equipment or infrastructure that provides or generates energy and which, if released, could result in a permanently disabling injury, single fatality or multiple fatalities or environmental harm. This includes pipework located where leakage could cause catastrophic collapse of a structure (e.g. ceiling), storage where failure could cause inundation of an area (e.g. a public area), asphyxiation or pollution. Energy includes water, fuels, heat, gases, steam, fluids under pressure (e.g. hydraulic oil), stored energy (static, kinetic and potential), structural tension and radiation). It is not intended to apply to supportive elements such as crane hydraulics.



Risk Event Preventative Controls and Performance Standards

4.15.1 Isolation

- i) Before undertaking work on systems that contain stored energy, or in close proximity to a system that may be affected by the works, the energy must be released (e.g. draining fluids from pipes and releasing tension in belt systems).
- ii) To prevent inadvertent or unintentional movement of mechanical systems a hazard and risk analysis must be performed to identify sources of hazardous energy and isolation and de-energisation locations. Appropriately experienced and qualified persons must be involved in the risk analysis. Lock out systems such as, but not limited to keyed padlocks, belt clamps or the use of chains to secure items against movement must be implemented.
- iii) Isolation of hydraulic and gas systems is required using a physical keyed lock out isolation system and a danger tag/out of service tag with personal locks on all valves. Consider the installation of additional strategically placed valves if multiple isolations are likely during an activity.

4.15.2 Equipment Types

- i) Use the smallest available unit that can complete the task when procuring portable or temporary systems (e.g. portable compressors).
- ii) Systems must be assessed to be able to withstand specific local environmental conditions and hazards.
- iii) Select technology that provides the highest level of structural and mechanical integrity for containment of stored energy.
- iv) Common stored energy systems used on Keyton operations (e.g. piling operations, high pressure water pumping/circulation systems, concrete pumps, charged fire risers) must be inspected and maintained to the manufacturer's instructions and removed from service if immediately if any defects are detected (e.g. leaks, metal fatigue, deformation, weld failures) or if the system in use has been altered (e.g. compressed air added to water pumping systems).

4.15.3 Identification and Maintenance

- i) Before acquiring an asset, identify all stored energy systems and demonstrate their current condition and safety status. Where no records are available or where they are incomplete project lead for the transaction should perform testing to ascertain the reliability of the system during the Due Diligence period. If the system is proven to be unreliable and warrants replacement, recommendation shall be highlighted so that plan developed, and cost considered for the transaction.
- ii) Develop a maintenance and mechanical integrity program for all stored energy systems suitable for install, use and testing of the system in line with local legislation and/or manufacturers recommendations, or more frequently, as assessed, when installed or used in conditions which may result in any deterioration. This includes portable storage systems under the control of the operation.
- iii) Perform maintenance of portable stored energy systems in a safe location away from the workforce.

- iv) Undertake a review of all stored energy systems to identify and implement controls required to reduce the likelihood of uncontrolled release. Consider all third party external risks or events that could impact the stored energy system. Written procedures must be in place for the operation and maintenance of stored energy systems, including arrangements for undertaking work in the vicinity of these systems, (e.g. radio frequency emitting devices).
- v) Procedures must include methods for safe energy discharge, isolation and demonstration that energy has been removed before invasive maintenance takes place.
- vi) A process or system must be in place to prevent foreign products or excess air entering into a pressurised system that could cause imbalance to normal capacity when in operation (e.g. preventing air entering into a concrete pump hopper system when levels of concrete get too low). Similarly, supplied products utilised within a pressurised system should be of a consistent mix or viscosity and be within the limits specified requirements (e.g. concrete or shotcrete mixes when being pumped).

4.15.4 Quality Control

- i) Implement a commissioning and pressure testing process approved by a suitably qualified 3rd party engineer (as per the requirements of KMR 2.3.3). The documented process should include but not be limited to, the method of pressure testing, fault finding, make up pieces and the risks associated with releases of stored energy during the commissioning process. Implement quality control and quality assurance for the procurement and installation of any stored energy system as a means of meeting design requirements.
- ii) Implement quality control of the design and engineering of stored energy systems to warrant that the design is fit for purpose.
- iii) All stored energy systems must be designed by a qualified and registered engineer according to its intended use. If the system is part of an acute high risk activity as per KMR 2.3.3 then an independent engineer must review the design and/or methodology. Once installed, erected or after a change to the design the stored energy system must be verified by a qualified and registered engineer to certify that the design intent is met.
- iv) Any pneumatic (e.g. air) testing during commissioning of pipework above 50kPa/7 psi requires a detailed methodology approved by a suitably qualified services engineer.
- v) No person shall be in the defined line of fire of pressurised plant/equipment during initial set up, maintenance, repairs or re-pressurisation of the system (e.g. concrete pumps). Consideration for additional controls (i.e. whip checks) to be installed on all pressurised lines where risk of uncontrolled release of energy exists. No person shall operate or undertake activities on a pressurised system of plant or equipment without appropriate training and competency.

4.15.5 Underground Services (Non-Electrical)

- i) A register must be in place for all buried services across all Keyton controlled operations (e.g. gas). The register must include a plot drawing of the route of the service with grid references or other recognised location references, description of the depth and type of service and any auxiliary protection.

- ii) Existing drawings and suitable location tools must be used to locate and mark underground services before works commence. Where any uncertainty exists regarding the location of underground services hand digging such as pot holing must be implemented to positively identify and expose the services.
- iii) Prior to the disturbance of ground where underground network assets such as gas, water or sewerage or communications may be present, Keyton operations must identify that current diagrams and plans are available, obtained from the relevant authority and are valid. Existing drawings and a Cable Avoidance Tool (CAT) scanner and any other suitable tools or processes including hand digging or vacuum excavation, must be used to locate and mark underground services before ground disturbance work by machine commences.
- iv) The locations of underground services less than 3m/10ft of the designed excavation requires hand digging and/or vacuum excavation to identify the services.

Risk Event Mitigating Controls and Performance Standards

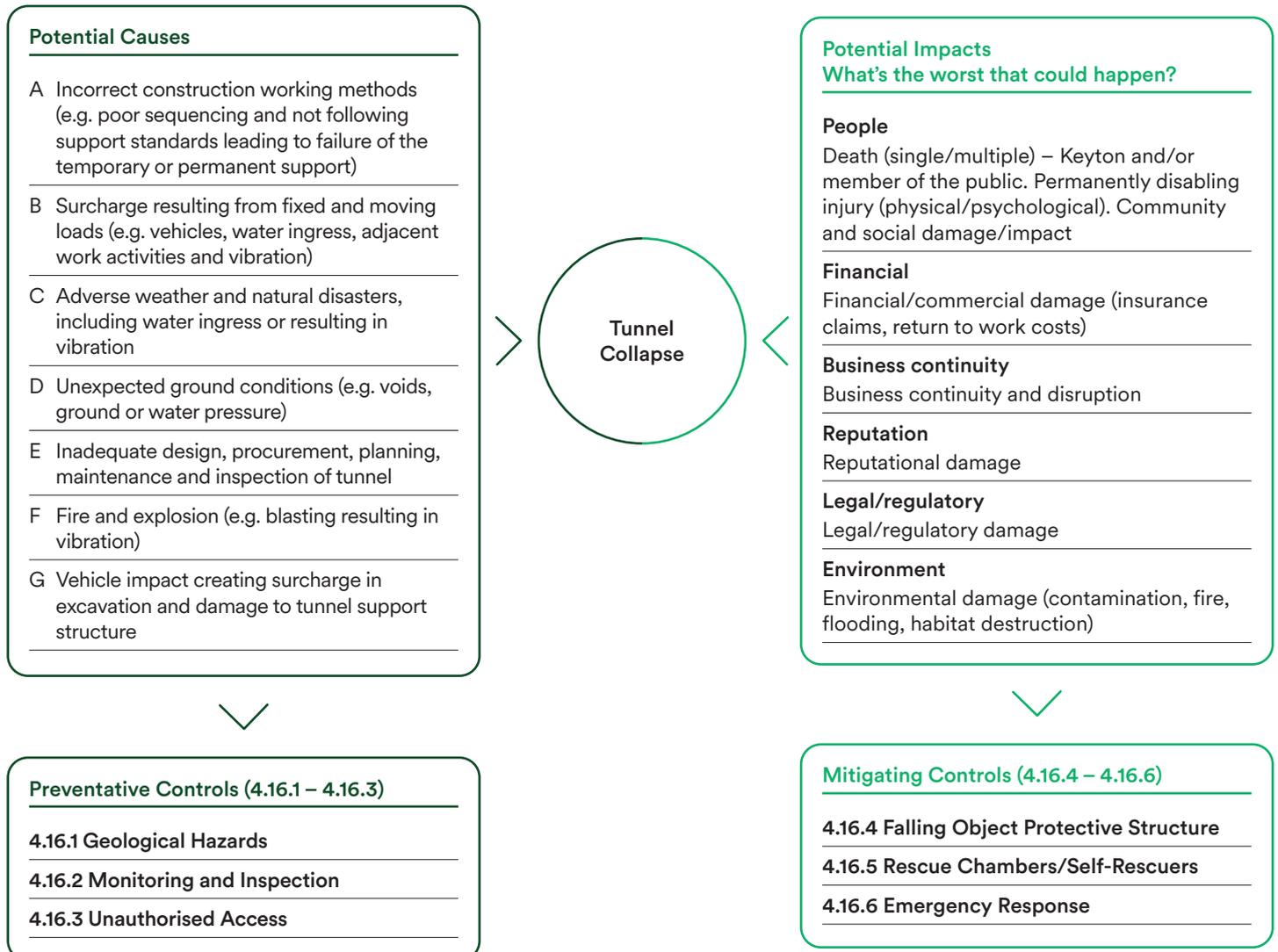
4.15.6 Reduce Consequences of Release

- i) Take all necessary actions to reduce the consequences of an uncontrolled release of stored energy (e.g. relocating the hazard, installing barriers or secondary containment).

4.16 TUNNEL COLLAPSE

Description

These critical controls apply where any Keyton operation could result in the unplanned collapse of a tunnel resulting in an injury or fatality. Tunnels will be designed in accordance with KMR 2.



Risk Event Preventative Controls and Performance Standards

4.16.1 Geological Hazards

- i) Identify geological hazards and provide geotechnical engineered solutions comparable with the risk.
- ii) Contractors, service providers or JV partners must identify the plant and equipment intended for use.
- iii) During procurement contractors, service providers or JV partners must demonstrate how their plan minimises the exposure of people to potential collapse events.

4.16.2 Monitoring and Inspection

- i) Ground support plans must address geotechnical issues, describe and illustrate methods of ground support, clarify roles and responsibilities and address inspection regimes.
- ii) Engineered monitoring and warning systems must be in place for tunnels where failure of the sides or roof could lead to the entrapment of people.
- iii) Engineered monitoring and warning systems are supported by trained personnel to make relevant geotechnical observations of impending failure.
- iv) Tunnels must be regularly inspected against the design and as-built plans to verify all controls are in place and that working conditions are appropriate. This includes air quality and temperature monitoring as well as the implementation of all task and emergency lighting.

4.16.3 Unauthorised Access

- i) All work involving tunnels must identify the people, vehicles, plant or equipment authorised to access the tunnel. Risk assessments must address unauthorised access.
- ii) Prevent access wherever an unauthorised vehicle or person could damage critical infrastructure or where the unauthorised person could be fatally injured due to the hazards within the operational area. Install physical barriers at operational perimeters and within discrete areas of the operation if required.

Risk Event Mitigating Controls and Performance Standards

4.16.4 Falling Object Protective Structure

- ii) Install Falling Object Protective Structure (FOPS) to all mobile plant and equipment working in tunnels, meeting ISO 3449:2005 Level 1 or 2 or equivalent.

4.16.5 Rescue Chambers/Self-Rescuers

- i) The emergency response plan for tunnelling includes self-rescuers and rescue chambers.
- ii) Prepare emergency response plans with the assistance of specific expertise. Plans must address the rescue equipment required, location plans of equipment in the tunnel, rescue chamber capacity including power, water, oxygen and food requirements, training, inspection and maintenance regimes.

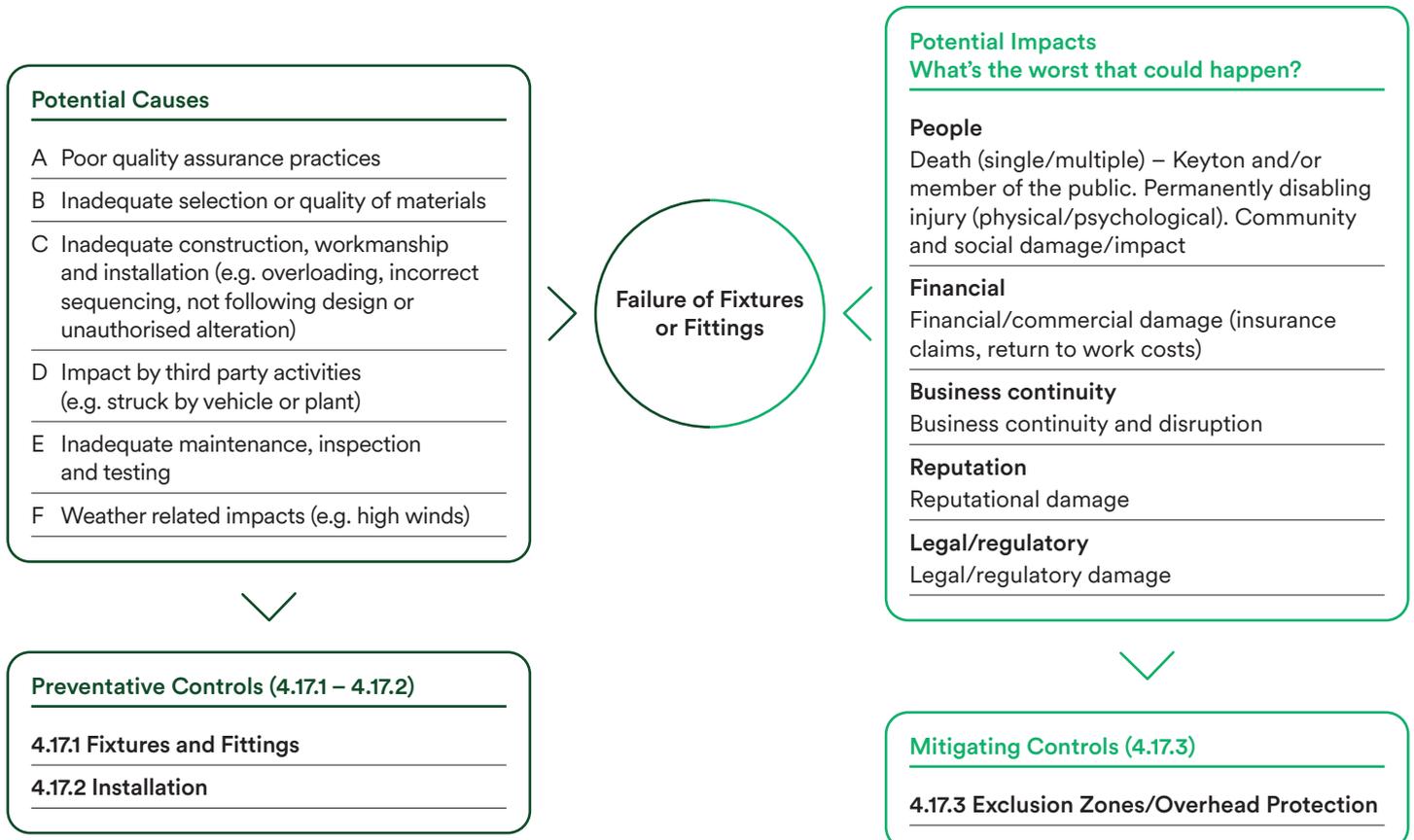
4.16.6 Emergency Response

- i) The emergency response plan must be developed prior to work commencing and be resourced, implemented, verified and reviewed quarterly.
- ii) The plan must address failure scenarios such as specific recovery equipment (e.g. type and location) and training requirements.
- iii) Inductions must address the knowledge and skills of exposed workers to the emergency scenario.
- iv) Emergency response plans are to be regularly practiced and evaluated.

4.17 FAILURE OF FIXTURES OR FITTINGS

Description

These critical controls apply where a failure of any item fixed to an external wall or facade (e.g. signs, lights and architectural features), internal walls (e.g. screens, signs and brackets) or ceilings (e.g. glass or other ceiling panels and mounted projectors) or floors (e.g. warehouse racks and shelving) could fall and result in an injury or a fatal outcome.



Risk Event Preventative Controls and Performance Standards

4.17.1 Fixtures and Fittings

- i) Where a tested and certified system is not provided the supplier must provide appropriate engineering due diligence to prove the suitability of the fixing system used. This should include manufacturers literature, designed load calculations and test data proving capability of the fixings proposed.
- ii) If a building element could fall from any fixed position at height, the fixing methodology must be adequately designed, selected and reviewed by a qualified engineer. The design should nominate manufacturing and installation fixture hold points. Where available, a tested proprietary system certified for its intended use should be selected as a preferred design option. Any overhead structurally bonded materials (e.g. glued or taped) must also have a residual mechanical restraint that is engineered and approved by an independent engineer to prevent fall of material.

4.17.2 Installation

- i) Install all elements without variance against agreed methodology and engineering tolerances. Provide full and complete records of the fixing or fixing system that covers the specification, installation and testing of installed items.
- ii) Quality Management processes (e.g. Inspection and Test Plans and Inspection records) must be implemented to determine that structural components including fittings and fixtures are installed using the documented methodology and components, are adequately tensioned or fixed, are defect free and include the allocated number and type of specified fasteners. Records of inspection and testing must be provided to the Keyton Operation and be available for audit or other assurance processes.
- iii) Confirm and complete inspection and testing plans where work or re-work requires approved activities to be conducted out of sequence from the original plan. This includes previously installed elements associated with or adjacent to the work area and ensuring that structural integrity has not been compromised.
- iv) Properties of the substrate being fixed to are to be considered and factored into all fixing designs. (e.g. concrete wall, composite block, gypsum wall, timber hoarding)

Risk Event Mitigating Controls and Performance Standards

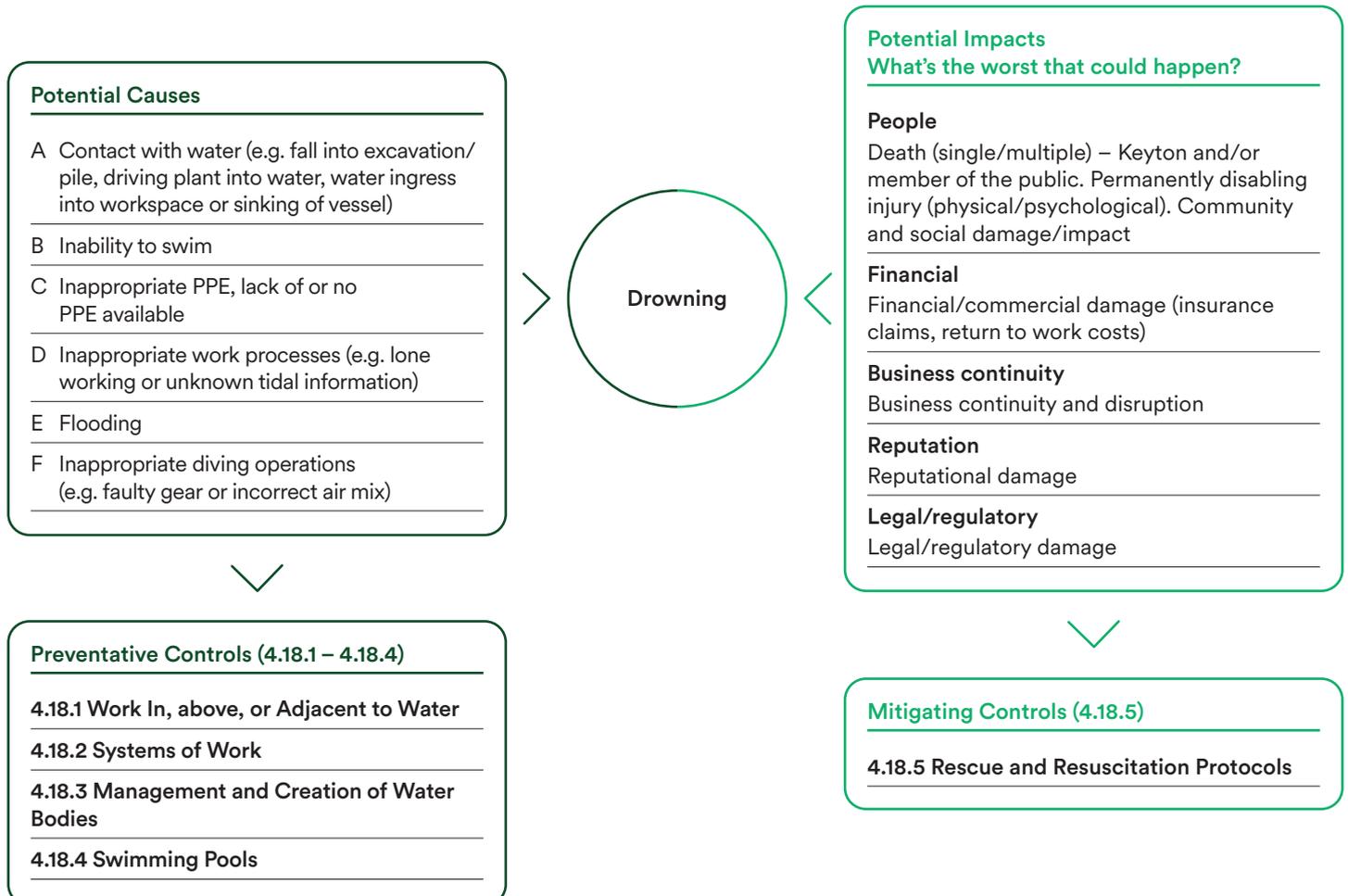
4.17.3 Exclusion Zones/Overhead Protection

- i) Exclusion zones must be of adequate size taking into account the risks including potential arc of fall, deflections and bounce distances, are delineated by physical barriers and have clear warning signage prohibiting unauthorised entry where there is a likely risk of harm. The integrity of any exclusion zones must be regularly checked.
- ii) Planning for both construction and asset works identifies any scenarios where overhead protection must be installed, particularly where people below cannot be completely excluded. Overhead protection must be in place before the activity begins.

4.18 DROWNING

Description

These critical controls apply to any Keyton operation situated on or adjacent to water into which someone could fall with the fatal risk of drowning.



Risk Event Preventative Controls and Performance Standards

4.18.1 Work In, Above, Below or Adjacent to Water

- i) Work activities above, below, in or adjacent to water or liquid masses (e.g. diving, work within stormwater and sewer systems, water body maintenance, boating or maritime operations, dredging, bridge and pier construction) are high risk activities and represent a drowning or other associated risk to human life in the marine environment. Worker exposure to water or liquid masses must be assessed and minimised with work practices aligned to all applicable codes and regulatory requirements.
- ii) Proof of competency for divers and all maritime plant and equipment operators must be provided.
- iii) Work activities must be reliant on favourable climatic conditions, (e.g. giving consideration to tides, storms or high flow events). Work within water and sewerage treatment facilities must have flow shut-off protocols and monitoring equipment and protocols. The proposed works must not proceed if safeguards are compromised in any way.
- iv) All excavations, including piling operations, must be inspected after significant rainfall events (i.e. greater than 20mm [0.8 inches] in 24 hours) to safeguard that water ingress does not present a drowning risk. No further work is to proceed until the risk is eliminated and the removal of the excess water is complete.

4.18.2 Systems of Work

- i) Develop and communicate a set of procedures for drowning prevention for all operations on or near water, e.g. lake, harbour, reservoir, river, stream, swimming pool. As a minimum, procedures must cover:
 - Working and prefabricating components away from water wherever possible.
 - Secondary barriers or nets to prevent contact with water or other maritime environments shall be in place if the normal barriers have to be worked upon, below or adjacent to.
 - Purpose designed and suitable gantries for safe transport of workers from vessel to vessel.
 - Fit for purpose methods for the transfer of equipment and materials to and from vessels.
 - Use of a spotter or buddy system when working near or over water or other maritime environments and never allowing lone working near or in water and other maritime environment.
 - All workers wearing fully functioning personal floatation devices when working near or over water. Personal floatation devices must meet local regulations and standards.
 - Determine if all workers are able to swim. For those who are unable to swim, a risk assessment must determine controls that eliminate any potential to fall into the water.
 - Guidelines for crossing roads flooded with moving water and identifying driving protocols where this activity is proposed to be carried out.
 - Diving operations, including tools, equipment, qualifications and decompression arrangements.
 - Monitoring of tides, weather and water conditions.

- ii) Workers conducting Diving Operations, Hyperbaric Tunnel or Chamber Work, must undertake the work to the relevant diving certification standards, hold relevant qualifications with a professional association of the Region of Operation and must as a minimum have:
 - Dive plans and emergency dive rescue plans.
 - Trained divers, diving supervisors (e.g. Dive Master) and stand-by divers with rescue diver or equivalent certification.
 - All divers and hyperbaric workers must be physically fit and have undertaken routine annual medical assessments before diving operations can begin.

4.18.3 Management and Creation of Water Bodies

- i) All natural bodies of water (e.g. wetlands, lakes, watercourses, rivers or creeks) and non-natural bodies of liquid (sewer, water tanks, man-made structures containing fluid or semi-fluid where work is to be performed) must be the subject of a risk assessment to determine if modifications are required to their surroundings to minimise risks to people, especially children or the elderly, or whether it would be more appropriate to preserve the natural surroundings.
- ii) Purpose built structures interfacing with these water bodies such as bridges, walkways and boardwalks must provide protection against the fall of a person into the water. Where fencing or balustrades are installed, they must not be climbable.
- iii) The surroundings of all-purpose built water bodies (e.g. artificial lakes or storm water reservoirs) must be designed or modified to minimise risks to people, especially children or the elderly. This must include controls to prevent public access if necessary.
- iv) Water depths at the edges of artificial water bodies must be minimised by incorporating safety benches. These safety benches must have a water depth of 0.3 to 0.6 metres (one to two feet) and extend at least three metres from the edge of the normal surface level of the water, except where transitions to culverts and other structures occur or where the water body is tidal.
- v) All boardwalks, piers, bridges, jetties and harbour edges higher than one metre (3.3 feet) from the water surface must be risk assessed to determine if handrails should be installed.
- vi) Signage communicating warnings, prohibitions and general EH&S related information must be provided using easily comprehensible words and pictograms. The placement and detail of signs must be based on a risk assessment and signage must be provided to alert people of the water hazard and the need for active supervision.
- vii) All waterbodies adjacent an operation must be assessed for the potential for flooding of that operation and controls implemented to prevent this from occurring.

4.18.4 Swimming Pools

- i) Swimming pools and spas must be surrounded by a non-climbable child-resistant fences of regulated height with self-closing gates and child resistant latches.
- ii) Windows and doors that open onto the swimming pool area must be self-closing and have lockable child resistant safety latches.

- iii) These barriers and their associated locks and latches must always be well maintained and in working order and comply with all applicable local codes, standards and legislative requirements.
- iv) Warning signage and notices which give a supervision warning and the details of resuscitation techniques and emergency contact numbers must be displayed in a prominent position within the immediate vicinity of a swimming pool.
- v) Filtration systems must be fitted with clearly defined and easily accessible emergency stop buttons or switches and their intakes guarded to eliminate the risk of entrapment.

Risk Event Mitigating Controls and Performance Standards

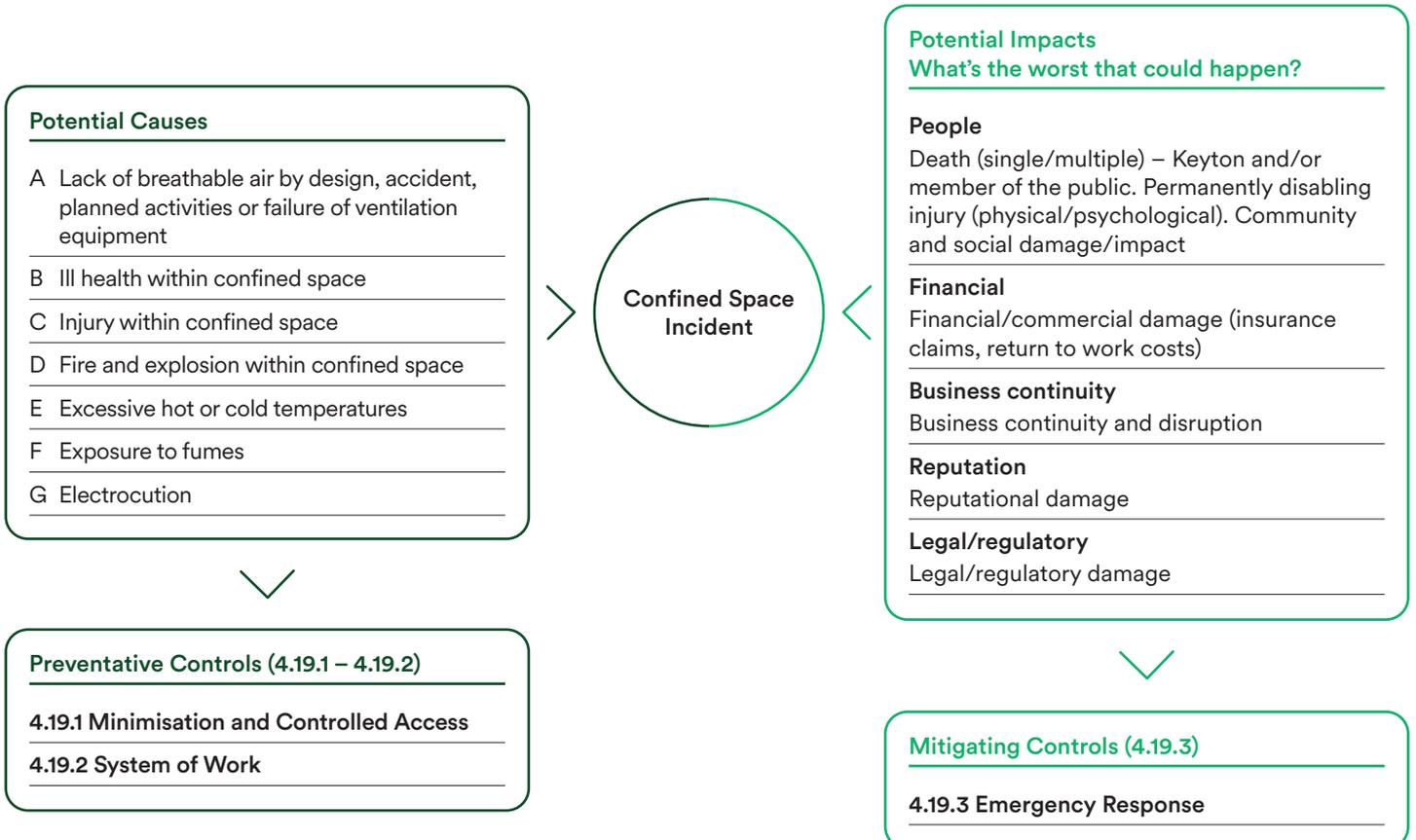
4.18.5 Rescue and Resuscitation Protocols

- i) Design and provide exits with handles, ladders, rails or other elements to allow divers to readily access or egress the marine environment.
- ii) Standby emergency flotation devices must be readily available. At a minimum, ring buoys with a minimum of 27m/90ft of line to be readily available, with the distance between ring buoys not to exceed 60m/200ft.
- iii) Assess the requirement for the presence of professional life saving personnel when large numbers of workers or members of the public are in the water.
- iv) Emergency response contacts and protocols must be made available.
- v) Establish an effective communication system, such as two-way radios, between workers, supervisors, the emergency skiff operator and rescue personnel.
- vi) Conduct drills to train workers and supervisors to prepare for an effective emergency response.

4.19 CONFINED SPACE INCIDENT

Description

These critical controls apply to any Keyton operation which includes any enclosed or partially enclosed space where there is a risk of death or permanently disabling injury from any reasonably foreseeable specified risks (e.g. fire and explosion, increase in body temperature, asphyxiation from gas, fumes, vapour or lack of oxygen, drowning from increase in liquid levels, asphyxiation from free flowing solids). It is important to verify the definition of a confined space in accordance with local legislation and regulations (e.g. sewers, culverts, tunnels, chambers, tanks, vessels, silos and excavations) before work commences.



Risk Event Preventative Controls and Performance Standards

4.19.1 Minimisation and Controlled Access

- i) Identify at the acquisition of any asset any confined spaces or enclosed areas where hazards could cause the death of any person entering that area. Create and maintain the currency of a single register for future management of the asset.
- ii) A person who installs or constructs a plant or structure, must eliminate the need to enter a confined space and eliminate the risk of inadvertent entry so far as is reasonably practicable. If either is not reasonably practicable, then:
 - The need for any person to enter the space and the risk of a person inadvertently entering the space must be minimised so far as is reasonably practicable.
 - The space must be designed with a safe means of entry and exit.
 - Risk to the health and safety of any person who enters the space must be eliminated or minimised so far as is reasonably practicable.
- iii) Control access to all confined spaces, install and maintain physical locks to all confined space access points and display warning signs in prominent locations stipulating no unauthorised entry.
- iv) Any new equipment and appliances requiring access for maintenance must not be installed in a confined space. The requirement to access confined spaces must be eliminated.
- v) Priority must be given to avoid work inside a confined space through the design and use of alternative work methodologies such as the use of remote cameras for inspections. Where work in a confined space cannot be avoided, the operation must put in place a system of work that includes risk assessments, atmospheric monitoring, training, procedures, permits, PPE requirements, rescue and monitoring arrangements and equipment specifications which are recorded via a permit system.
- vi) All potentially hazardous plant and services should be isolated prior to any person entering the confined space to prevent the following:
 - Introduction of hazardous contaminants or conditions through piping, ducts, vents, drains, conveyors, service pipes and fire protection equipment.
 - Activation or energising of machinery in the confined space.
 - Activation of plant or services outside the confined space that could adversely affect the space (for example heating or refrigerating methods).
 - Release of any stored or potential energy in plant.
 - Inadvertent use of electrical equipment.

4.19.2 System of Work

- i) Where any confined space is present there must be a physical barrier to prevent unauthorised access.
- ii) Confined space entry must only be utilised when all other practical and safer alternatives have been exhausted. All work in confined spaces must be conducted by personnel who have current training in confined spaces, including atmospheric monitoring and the use of the safety equipment needed to conduct the required task.

- iii) The confined space procedure and confined space entry permit must be strictly implemented by a trained person with the required competencies and followed to effectively control any planned confined space work. Permits are to be valid for a maximum of one shift and require the following precautions to be checked and confirmed as in place before works commence:
 - Appropriate measures to control entry and exit and which account for each person entering or leaving the space.
 - Atmospheric monitoring and rescue equipment appropriate for the situation and that is in good working order.
 - A person with the required competencies remaining on watch always when any person remains in a confined space to raise the alarm and aid if needed and only if safe to do so.
 - On completion of the works a process is in place ensuring the confined space is closed, secured and the permit is signed off and closed-out by the issuer.
- ii) All works which are planned within the immediate vicinity and/or which have the potential to contaminate the air within the confined space are to be added to the risk assessment of the confined task. (e.g. carbon monoxide emissions from a heavy traffic area beside the confined space).
- iii) The weather for the day and duration needs to be considered during the risk assessment. (i.e. Wind - dust/other contaminants, Rain - water entering effect on emergency response etc).
- iv) The weather and its duration must be considered during the risk assessment. (e.g. flooding of the space from upstream rainfall; and dust/other contaminants from wind).

Risk Event Mitigating Controls and Performance Standards

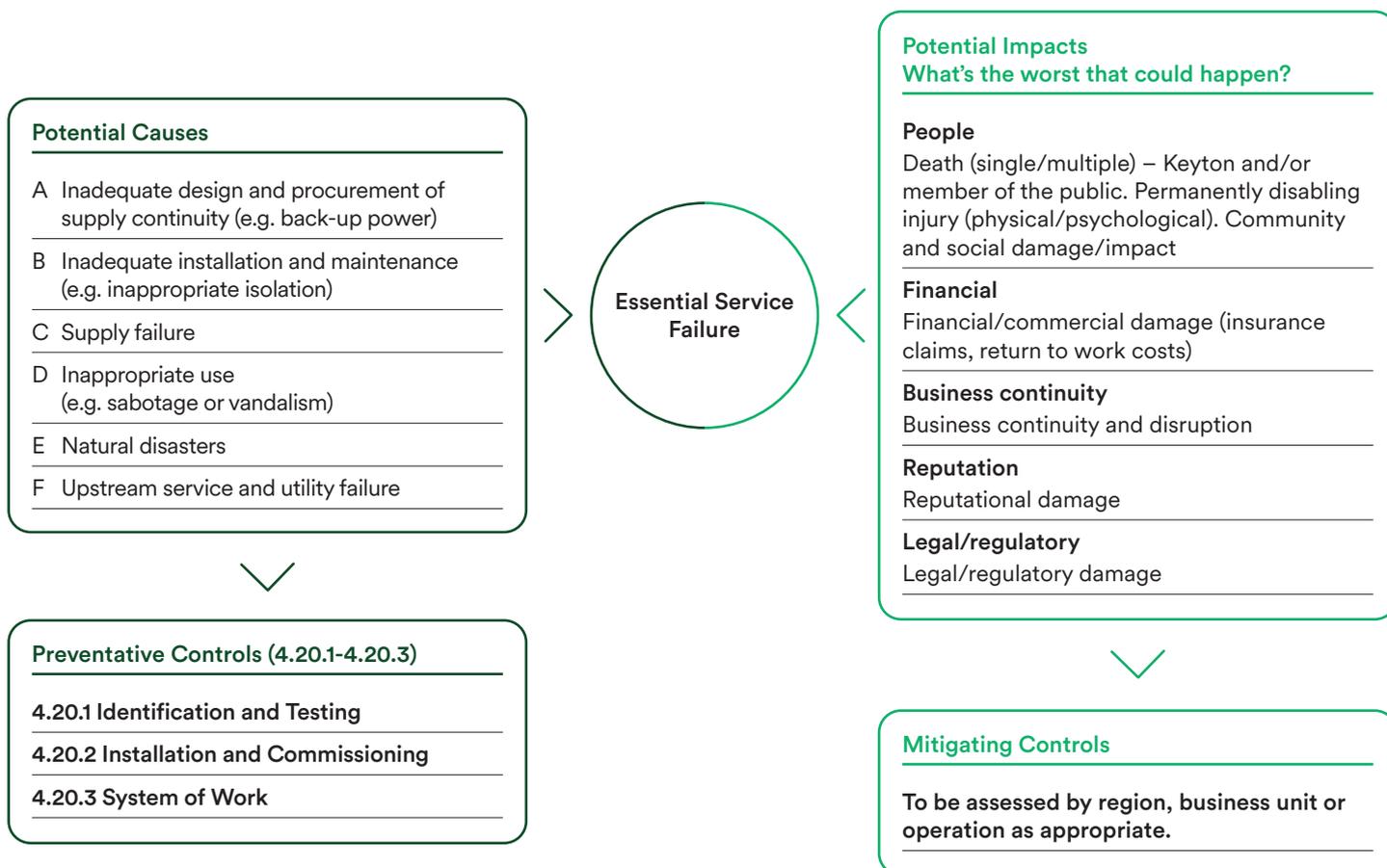
4.19.3 Emergency Response

- i) First aid and rescue procedures must be implemented in an emergency. Workers must routinely practice rescue procedures to confirm they are efficient and effective. First aid and rescue procedures must be initiated from outside the confined space as soon as practicable in an emergency.
- ii) Openings for entry and exit must be sized to allow emergency access, must not be obstructed, and any plant, equipment, personal protective equipment (PPE) provided for first aid or emergency rescue must be maintained in good working order and be nearby and readily accessible to the works.
- iii) When establishing emergency procedures, the following factors must be considered to manage risks associated with confined spaces:
 - Whether the work can be carried out without entering the confined space because of the nature of the confined space any changes in hazards associated with the concentration of oxygen or the concentration of airborne contaminants in the confined space.
 - Any changes in hazards associated with the concentration of oxygen or other airborne contaminants within the confined space.
 - The work to be carried out in the confined space, the range of methods by which the work can be carried out and the proposed method of work.
 - The type of emergency and rescue procedures required.

4.20 ESSENTIAL SERVICE FAILURE

Description

These critical controls apply to both essential services in operating assets and where essential services are required for ongoing construction operations and interruption could lead to fatal outcomes. It is not intended to apply to circumstances where the consequence of interruption to the essential service results in business continuity or reputational disruption only.



Risk Event Preventative Controls and Performance Standards

4.20.1 Identification and Testing

- i) All services that could pose a risk to life in the event of failure (e.g. electricity in hospitals and emergency lighting in offices, fire detection systems in a building, fire suppression systems (dousing) in a hanger or a commercial kitchen) must be assessed and a back-up plan developed. An assessment of the type of facility must be conducted to consider what is an essential life service. Back-up systems (e.g. diesel generators) must be designed and installed for critical/essential services.
- ii) Before acquiring an asset, identify all essential services and back-up systems and verify their current condition and reliability. Where no records are available, or they are incomplete, project lead for the transaction should perform testing to ascertain the reliability of the system during the Due Diligence period. If the system is proven to be unreliable and warrants replacement, recommendations shall be highlighted so that a plan can be developed inclusive of the cost considerations for the transaction.
- iii) Maintenance and testing programs must be in place for all essential services and that the back-up system(s) is suitable, including periodic third-party inspection and examination.

4.20.2 Installation and Commissioning

- i) Procure only from suppliers who can demonstrate a positive EH&S performance record for installation and commissioning of the type of system required.
- ii) The design of essential service systems must be in accordance local legislative requirements. Where required, they must be subjected to 3rd Party reviews.
- iii) Essential service systems are installed as per their design and engineering. There must be a suitable quality plan that includes how staff are to be adequately trained to operate the system in the event alarms/warning system for failure, or in the event of an actual failure.

4.20.3 System of Work

- i) Manage the safety of maintenance and testing of essential services by following the controls specified in alignment with KMR 4.4 uncontrolled release of electrical energy and 4.15 uncontrolled release of stored energy (non-electrical). Such maintenance and testing protocols must be in compliance with local legislative requirements.

Risk Event Mitigating Controls

To be assessed by region, business unit or operation as appropriate.