INTRODUCING THE GMRs

Lendlease 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 Lendlease strategy and remains effective and fit for purpose for the sectors and markets in which we operate.

The 2015 Global Minimum Requirements (GMRs) provide a focus on front-end planning, risk and innovation across the operational lifecycle and creates a simpler and more effective framework for managing EH&S at Lendlease.

The five key stages of governance, investment, design and planning, establishment and delivery replace the previous EH&S Management System and Construction and Asset GMRs and provide a specific focus on low likelihood, high impact events that have the potential to lead to catastrophic and fatal outcomes.

The GMRs move away from prescribing controls for every hazard, activity and circumstance and instead shift the emphasis towards empowering people to take a risk-based approach to managing GMR risk events and implementing controls that relate to the 20 GMR risk events that are relevant to their work. In all cases, we encourage everyone to go beyond the minimum and innovate to implement even higher standards where possible.

Our aim is to create places that care and which are free of incident and injury – the safety, health and wellbeing of everyone is our priority.

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

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

GMR 0 GOVERNANCE (PAGE 4)
GMR 0 outlines the requirements of Group, regions and business units in the areas of governance, assurance, reporting and performance management.

GMR 1 INVESTMENT (PAGE 9)
GMR 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 health and safety outcomes in delivery.

GMR 2 DESIGN AND PLANNING (PAGE 14)
GMR 2 outlines the mandatory design controls aimed at eliminating fatal risks through effective planning, design and procurement, set against the 20 GMR risk events.

GMR 3 ESTABLISHMENT (PAGE 22)
GMR 3 focuses on establishing locations and places that care, including minimum requirements for welfare and accommodation facilities, appropriate working hours and more broadly how personal injury risks and high likelihood, low impact events will be managed by the operations team.

GMR 4 DELIVERY (PAGE 29)
GMR 4 addresses the mandatory controls and performance standards aimed at eliminating fatal risks across the 20 GMR risk events that could result in single or multiple fatalities.
There are a range of terms used throughout the GMRs requiring clarification. Further information on implementing the GMRs and a glossary of key terms can be found on the GMRs Resources section of the EH&S microsite accessible via Pulse intranet.

**GMR 0 GOVERNANCE**
- 0.1 Management governance
- 0.2 Assurance
- 0.3 Reporting
- 0.4 Performance management

**GMR 1 INVESTMENT**
- 1.1 Risk reviews – new work and investment opportunities
- 1.2 Independent project reviews

**GMR 2 DESIGN AND PLANNING**
- 2.1 Design and procurement control
- 2.2 Design standards
- 2.3 Review processes
- 2.4 Procurement

**GMR 3 ESTABLISHMENT**
- 3.1 Establishing places that care
- 3.2 Establishing locations
- 3.3 Establishing governance

**GMR 4 DELIVERY**
- 4.0 Management of GMR risk events

**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 and 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
PREAMBLE

GMR 0 addresses the requirements of Lendlease for establishing the governance structures, assurance approach and performance management protocols required to more effectively govern EH&S across the organisation.

GMR 0 outlines the responsibilities for Group, regions and business units to establish EH&S governance to set up all Lendlease operations for the successful implementation of GMRs 1-4 at an operational level.

GMR 0 also provides a framework for achieving the requirements of OHSAS18001 and ISO14001.

0.1 MANAGEMENT GOVERNANCE

Lendlease will ensure the availability of resources (both management resources and EH&S resources) to establish, implement and maintain the GMRs 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) Ensure a Lendlease Board Committee is in place to govern EH&S performance across Lendlease with the committee convening on a quarterly basis.

ii) Ensure EH&S leadership teams are established across Group, regions and all business units to cascade key EH&S messages and management initiatives and for key EH&S risk and compliance issues to be elevated. Hold meetings at least quarterly. The agenda, participants and the effectiveness of EH&S leadership team meetings must be reviewed annually.

iii) Leadership teams must have in place a process for conducting leadership site visits to review relevant EH&S risks and issues with the operations management and workers and must record evidence of the visits and outcomes in the EH&S reporting system.

0.1.2 EH&S TEAMS

**CONTROLS**

i) Ensure Group, regions and business units have an EH&S team to provide adequate resources for the implementation of all assurance requirements and for technical support.

ii) Ensure Group develops a Lendlease Group EH&S strategic plan each financial year that is aligned with the objectives and targets set by the Lendlease Group EH&S leadership team and integrated with the Lendlease Group business planning process and overall strategic direction. Group will manage the delivery of Group wide EH&S projects and initiatives and review progress against the Group, region and business unit EH&S strategic plans at least quarterly.

0.1.3 EH&S ROLES AND RESPONSIBILITIES

**CONTROLS**

i) Regions and business units are required to provide a framework that defines and assigns EH&S roles and responsibilities to ensure that applicable controls described within the GMRs are implemented and monitored across Group, region, business units and each operation.

ii) Roles and responsibilities must be documented, discussed and agreed with line managers.

0.1.4 EH&S REGULATORY REQUIREMENTS

**CONTROLS**

i) Group EH&S will ensure statutory reporting requirements attributable to Lendlease Group EH&S are identified, managed and communicated.

ii) Regions and business units are required to identify all applicable local, national and international EH&S legislation and recognised codes, standards and external requirements to be complied with by operations. Where there is a difference between Lendlease standards and those required by legislation, codes, standards and other external requirements, the higher standard will apply.
0.2 ASSURANCE

Lendlease will identify specific controls to manage particular 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 Lendlease Group EH&S Policy, signed by the Lendlease Group Chief Executive Officer (CEO), which outlines the commitment to apply standards, processes and controls to meet the requirements of ISO14001 and OHSAS18001. Regions and business units can 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.

ii) EH&S policies must be developed in consultation with the regions and business units and communicated to all workers.

iii) Group EH&S will develop and issue policy statements on key EH&S issues as they arise to ensure a consistent approach across all Lendlease operations (e.g. drugs and alcohol). Where no Group policy statement exists, regions and business units can develop policy statements in accordance with the policy governance framework and applicable standards or legislative requirements.

0.2.2 RISK ASSESSMENT CONTROLS

i) Group EH&S will ensure that EH&S specific criteria are incorporated into the Group risk management framework to identify, evaluate, act upon, review and monitor risks. This includes documenting, implementing and monitoring controls to manage EH&S risks.

ii) Group EH&S will provide input to Group Risk on any EH&S related requirements of crisis management and business continuity planning. Each region and business unit will ensure that the EH&S requirements of these are in place, reviewed and tested at an agreed frequency according to the Group risk management framework.

0.2.3 MINIMUM STANDARDS CONTROLS

i) Group EH&S will develop, maintain and distribute EH&S GMRs applicable across all Lendlease operations.

ii) Group EH&S will provide controls and performance standards for the GMR risk events applicable across Lendlease (see GMR 4). For all GMRs and performance standards, regions and business units must ensure there is consistency in applying agreed controls to eliminate the potential for GMR risk events to occur.

iii) Regions and business units may provide guidance on how GMR performance standards and controls will be implemented by providing information on how activities will be managed. Any such guidance or detail will seek to include visual representation and examples to aid in determining how applicable controls will be implemented to prevent GMR risk events from occurring.

iv) Group EH&S will provide guidance on GMR application across differing operations, including the protocols required for operations unable to meet elements of the GMRs due to historic or contractual circumstances. Business units are responsible for supporting the development of any mitigation plans and other methods of monitoring progress against the plan. Regions are responsible for approving all mitigation strategies and providing a record of any mitigation plans to Group EH&S for endorsement.

0.2.4 COMPETENCY AND DEVELOPMENT CONTROLS

i) Group EH&S will develop EH&S training material (e.g. EH&S Passport) applicable to different employees or other groups to assist in understanding GMR application.

ii) Regions and business units will implement a delivery strategy for all Group EH&S training needs identified and maintain individual records of completion.

iii) Regions and business units will identify mandatory EH&S training needs applicable to operational teams to meet regulatory requirements or the requirements of EH&S specific issues for those operations working within a particular operating sector(s) or encountering particular risks.

iv) Regions, business units and related operations will review the competency of their people in EH&S applicable to their work activities. This includes any verification of competency applicable to Lendlease workers to conduct their work duties.

0.2.5 OPERATIONS REVIEWS CONTROLS

i) Regions and business units will determine the frequency, protocols and content of any operation EH&S risk compliance reviews or audits. This must be based on operational risk and any regulatory or systems assurance requirements.

ii) Business units must ensure all operations are independently assessed for EH&S performance and GMR compliance at agreed intervals. This must be performed by a member of a region or business unit EH&S management team or other person deemed competent (and independent of the operation) by the business unit. Any actions arising due to non-conformities must be closed out within the agreed timeframes and based on the level of risk associated with the non-conformity.

iii) Group EH&S will maintain oversight of the internal auditing process and ensure each region and business unit is reviewed for compliance against the requirements of GMRs 0 and 1.

iv) Results of audits and reviews, including actions, evidence of completion and effectiveness of actions will be recorded in the EH&S reporting system.

0.2.6 DOCUMENT, DATA AND RECORDS CONTROL CONTROLS

i) Regions and business units must define and implement document identification and data control protocols, including document retention and naming conventions applicable to their operation and the provision of information and communications technology (ICT) systems for document and record management.
0.3 REPORTING
Lendlease 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 Lendlease on a quarterly basis for review by the Lendlease 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 Lendlease Board and/or within the Annual Report. Group EH&S will also coordinate the Lendlease response to any EH&S information as a result of any external investor or analyst request or reputational reporting requirements.

0.3.2 OPERATIONS REPORTING

CONTROLS
i) Group EH&S will provide an ICT solution for all operations to report on EH&S and provide guidance material on the use of the EH&S reporting system and EH&S reporting requirements for all Lendlease operations.

ii) Regions and business units will ensure that all operations report all actual and potential incidents of injury, illness, property damage, plant damage or harm to the environment and EH&S observations. Hours worked and the number of employees and sub-contractors on site must also be recorded in the EH&S reporting system on a monthly basis. EH&S risk management and reporting will be consistent with Lendlease risk management principles.

iii) Regions and business units will monitor all operations to ensure incident reporting protocols are followed and EH&S reporting requirements are implemented for consistent measures of operational EH&S performance and compliance.

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 and workflows to classify, report and notify senior management of critical incidents.

iii) Business units will ensure all statutory reporting in the event of a notifiable incident is conducted in compliance with statutory requirements and that appropriate people interact with any government or industry authorities.

iv) Group EH&S will define protocols for investigation of critical incidents.

v) Regions and business units will develop and apply protocols for any investigations under legal privilege.

vi) 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 Lendlease operations.

0.4 PERFORMANCE MANAGEMENT
Lendlease 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 who have performed in a manner that champions and advances EH&S at Lendlease (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 by establishing recognition and reward programs).

ii) Where EH&S performance has resulted in adverse incident and compliance outcomes, investigations must identify any instances where negligence, sabotage or inadequate EH&S management or leadership practices may have contributed to the outcomes identified. Any resulting consequence management action is to be conducted in alignment with existing human resources performance management protocols and be relevant to applicable roles and responsibilities, position descriptions and the application of organisational requirements and values (e.g. Code of Conduct).

0.4.2 CHANGE MANAGEMENT

CONTROLS
i) Group EH&S will implement a formal process to ensure that any change to Group policy, procedures or operating standards as a result of EH&S alerts, design change, GMR controls and performance standards updates, lessons learned, organisational change, personnel change, new markets and alteration of standard procedures are managed, consulted on and communicated to all relevant operations in a timely manner and that any required response (e.g. receipt of notification, mitigation plans, training and verification of implementation) is obtained and documented.

ii) Regions and business units will provide notification of change to operations in a timely manner to ensure consistency in the identification, notification and actions required to implement and manage the change. This includes design change at the operational level. They must also review any risks associated with these changes to operational controls, contractual arrangements, regulatory requirements and design standards.
0.4.3 CONTINUAL IMPROVEMENT

CONTROLS

i) Group EH&S will facilitate the collation and sharing of lessons learned and leading practice between regions.

ii) Group EH&S in consultation with regions and business units will continually review the suitability, adequacy and effectiveness of the GMRs and prioritise action and resolution through the strategic planning process.

iii) Regions and business units will address changes applicable as a result of alterations to legislation or industry standards, product recalls, industry alerts or changes to organisational structures or arrangements.
PREAMBLE

Lendlease has identified a range of underlying organisational factors that have contributed to increasing the EH&S risk profile of Lendlease operations. Many of these factors were not identified and managed at the investment stage, thus significantly contributing to adverse EH&S and performance outcomes.

GMR 1 addresses the need for leadership across all levels of the organisation to effectively consider EH&S risks for operational teams in the investment, establishment, planning, design, delivery and management phases of the operational lifecycle to ensure teams are set up for success from the beginning.

1.1 RISK REVIEWS – NEW WORK AND INVESTMENT OPPORTUNITIES

Identifying and managing EH&S risk on Lendlease operations must commence in the initial phases of assessing new work and investment opportunities and well in advance of any commitment to commence work or establish a site presence.

1.1.1 RISK CATEGORIES

CONTROLS

i) Assess all new work and investment opportunities against the 15 investment risk categories known to contribute to less than optimal EH&S performance due to their impact on how activities are managed. An assessment of risk against these must be documented and revisited throughout the operational lifecycle as a means of identifying potential challenges to EH&S performance.
### RISK CATEGORY

<table>
<thead>
<tr>
<th>RISK CATEGORY</th>
<th>LOWER RISK</th>
<th>HIGHER RISK</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. DESIGN AND CONSTRUCTABILITY (GMR 2)</td>
<td>Lendlease has the ability to control or influence design, construction methodology, operations and maintenance outcomes and meet the design requirements of GMR 2.</td>
<td>Lendlease does not have control or influence of design, construction methodology, operations and maintenance outcomes and is unable to meet the design requirements of GMR 2.</td>
</tr>
<tr>
<td>2. DESIGN STATUS (GMR 2)</td>
<td>Design will be completed and agreed in advance of procurement and delivery of each relevant component.</td>
<td>Design is incomplete and will not be finalised and agreed in advance of delivery of each relevant component.</td>
</tr>
<tr>
<td>3. ENVIRONMENT AND COMMUNITY FACTORS</td>
<td>Latent environment conditions (e.g. contamination, occupational health risks, environment/planning approval requirements or any political, community or industrial relations issues) do not present any challenges to the proposed operation.</td>
<td>Latent environment conditions (e.g. contamination, occupational health risks, environment/planning approval requirements or political, community or industrial relations issues) present significant challenges to the proposed operation.</td>
</tr>
<tr>
<td>4. CONTRACT TYPES</td>
<td>Contractual arrangements are clear, support stakeholder roles and responsibilities and facilitate effective GMR implementation.</td>
<td>Contractual arrangements do not clearly define roles and responsibilities in relation to EH&amp;S, including GMR implementation and management.</td>
</tr>
<tr>
<td>5. COMPLEXITY</td>
<td>Local business unit has previously completed a project of similar type, scale and complexity in delivery and operation.</td>
<td>Local business unit has no experience with a project of this type and complexity in delivery and operation.</td>
</tr>
<tr>
<td>6. LENDLEASE TEAM</td>
<td>Lendlease key team members are experienced in delivery of a project of this type, scale or complexity.</td>
<td>Lendlease key team members have no experience in delivery of a project of this type, scale or complexity.</td>
</tr>
<tr>
<td>7. SUPPLY CHAIN STRATEGY</td>
<td>All supply chain partners are known to Lendlease and have experience in consistently performing to the GMRs.</td>
<td>Some key supply chain partners are unknown to Lendlease or have little or no evidence or history of consistently meeting the GMRs.</td>
</tr>
<tr>
<td>8. WORK PROGRAM</td>
<td>Project schedule has float available in the event of moderately unforeseen events to meet the delivery date(s).</td>
<td>Project schedule has no flexibility and any lost time will result in a change in delivery approach to meet the delivery date(s).</td>
</tr>
<tr>
<td>9. HOURS OF WORK (GMR 3)</td>
<td>Employee health and wellbeing programs are planned. Employees will be required to work less than six days per week, less than 60 hours per week and in shifts of less than 12 hours per day.</td>
<td>Programs for health and wellbeing are partly considered. Employees are required on the site in excess of six days per week, in excess of 60 hours per week or in shifts in excess of 12 hours per day.</td>
</tr>
<tr>
<td>10. BUDGET AND COSTS</td>
<td>Project budget and cash flow allows for additional EH&amp;S expenditure if required in the event of unforeseen equipment or resource issues.</td>
<td>Project budget and cash flow will not allow for additional EH&amp;S expenditure in the event of unforeseen equipment or resource issues.</td>
</tr>
<tr>
<td>11. LOCATION (GMR 3)</td>
<td>Project location is within one hour of a Lendlease head office or major CBD location facilitating effective oversight.</td>
<td>Project is located remotely (half a day travel or more door-to-door) from a Lendlease head office or major CBD location potentially impacting oversight.</td>
</tr>
<tr>
<td>12. EH&amp;S RISKS, EQUIPMENT AND METHODS (GMR 4)</td>
<td>Best in class GMR compliant equipment is available locally for addressing GMR 4 controls (e.g. scaffolds, concrete frame, cranes, mobile elevating working platforms (MEWPs), plant and equipment). GMR risk events are acknowledged and controls can be easily adopted.</td>
<td>Best in class GMR compliant equipment is not commonly available locally for addressing GMR 4 controls. GMR risk events exist and controls cannot be easily adopted.</td>
</tr>
<tr>
<td>13. SUPPLY CHAIN COORDINATION</td>
<td>The supply chain will be adequately resourced (activities where one or more GMR risk events have been identified must adopt a frontline leader to worker ratio of not less than 1:8). Lendlease has resources to induct, supervise and control site logistics directly.</td>
<td>The supply chain resourcing for supervision of high risk activities is undefined or inadequate. Lendlease will not have sufficient resources or oversight to induct, supervise and control site logistics directly.</td>
</tr>
<tr>
<td>14. WELFARE (GMR 3)</td>
<td>Welfare facilities will be best in class and will be a direct driver of the care, health and wellbeing agendas to create the best places to work.</td>
<td>Welfare facilities will not include running water and/or flush toilets, shelter from weather, first aid rooms, eating areas and inhibit creating the best places to work.</td>
</tr>
<tr>
<td>15. LESSONS LEARNED</td>
<td>Support and knowledge sharing is available from similar projects and will be applied to ensure repeats of any earlier EH&amp;S performance challenges are identified and mitigated.</td>
<td>Support and knowledge sharing is not available from similar projects and will not be considered in converting or establishing the new work or investment opportunity.</td>
</tr>
</tbody>
</table>
1.1.2 PROCESS ALIGNMENT

CONTROLS

i) Ensure all teams working on investment opportunities assess the impacts of the 15 risk categories in Table 1 at multiple times during the investment decision making process and continue to monitor these during the delivery phase. This decision making process is captured in both Compass and PCP or equivalent. Table 2 summarises and aligns these processes and further highlights the phases whereby the risk categories in Table 1 must be assessed.

<table>
<thead>
<tr>
<th>GENERIC TITLE</th>
<th>PCP GATE</th>
<th>COMPASS GATE</th>
<th>RISK ASSESSMENT PHASE</th>
</tr>
</thead>
<tbody>
<tr>
<td>ORIGINATION</td>
<td>1. Go/No Go</td>
<td>1. Acquisition Notification A Paper</td>
<td>Phase 1: To determine if the investment fits the strategy. Apply the investment risk categories in Table 1 to determine go/no go status</td>
</tr>
<tr>
<td>CONVERSION</td>
<td>2. Negotiated Business Offer</td>
<td>2. Investment Proposal B Paper</td>
<td>Phase 2: Re-apply the investment risk categories in Table 1 to determine if the opportunity can be safely delivered to the GMRs</td>
</tr>
<tr>
<td></td>
<td>3. Conversion Authorisation</td>
<td>3. Development Brief</td>
<td></td>
</tr>
<tr>
<td>FINAL APPROVAL</td>
<td>4. Negotiated Business Offer – Order of Cost</td>
<td>4. Planning Application</td>
<td>Phase 3: Final review of the investment risk categories in Table 1 and an independent assessment of operational commitments to confirm safe operations</td>
</tr>
<tr>
<td></td>
<td>7. Authority to Sign Contract</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>8. Construction Authorisation</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

ii) Assess the risk for all risk categories outlined in Table 1 using the Lendlease risk matrix. Ensure any risk category initially assessed as significant or greater has a management strategy established to ensure the residual risk is lowered to a targeted rating of moderate or below. Report and track the identified risk via the EH&S reporting system.

iii) Review investment risk assessments and approve in accordance with the Lendlease limits of authority (LOA) at the following gates (also summarised in Table 2):
- Go/No Go or Acquisition Notification Paper/Investment Proposal Paper signoff (Phase One)
- Development Brief (Phase Two)
- Negotiated Business Offer – Budget Price or Project Launch signoff (Phase Three)

iv) Following the successful completion of the three phases and prior to commencement of operational activities the operation must be approved for commencement by the appropriate manager in accordance with the LOA. This approval can only be achieved by the project team presenting its ongoing proposal for achieving compliance with GMRs 1, 2, 3 and 4.
1.2 INDEPENDENT PROJECT REVIEWS

To ensure transparency and to provide additional rigour and learning some Lendlease operations may be required to undertake an independent project review (IPR) to assess the capacity for ongoing compliance with GMRs 1, 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:

• The operation has a total value exceeding $AUD500m.
• The operation is exposed to GMRS 4.1 – 4.10 inclusive.
• The type of operation is unique in terms of market, sector, scale, constructability, operability, location and geography and has not been undertaken previously by Lendlease.
• The type of operation, whilst having been completed before, is of significant complexity in design, construction, operation and maintenance or risk profile (e.g. with 50% or more of the risk categories in Table 1 being identified as significant or greater).
• Lendlease is entering a new region or country.
• The Group/regional CEO or business unit Managing Director (MD) determines the IPR is required at their discretion.

ii) The decision to trigger the IPR process can be made at any time during the operation. However, it must first be resolved at the Regional Investment Committee (RIC) or Global Investment Committee (GIC) (Phase Three).

iii) An IPR, if required, must be undertaken:

• Prior to the Negotiated Business Offer – Budget Price or Project Launch signoff (Phase Three)
• At 25% of program/cost completion (whichever is achieved first)
• At 50% of program/cost completion (whichever is achieved first)
• At 75% of program/cost completion (whichever is achieved first)

iv) IPRs must be conducted by third parties approved by the Group Head of EH&S. Regional CEOs or MDs are to coordinate IPRs in consultation with Group EH&S to ensure consistency in the review process. IPR schedules, scopes and outcomes are to be tabled and discussed at Quarterly Business Reviews (QBRs). On completion, IPRs must be reviewed and endorsed with sign off by the regional CEO or business unit MD with any action plans entered and monitored in the Lendlease online EH&S reporting system.
DESIGN AND PLANNING
PREAMBLE

The design and planning stage provides a unique opportunity to identify and eliminate fatal risk in the construction, manufacturing, fabrication, installation, end use, operation, management, maintenance and demolition phases of Lendlease operations. Fabrication, plant and equipment maintenance and manufacturing workshops related to Lendlease operations are also included.

Application of design standards provide an opportunity to eliminate EH&S risk through design to prevent exposure to a range of GMR risk events downstream of the design and planning stages. The elimination of EH&S risk in design is particularly relevant to temporary and permanent structures, as well as EH&S risk created by interaction between people and vehicles, electricity, fire or equipment components.

It is acknowledged that in some construction and asset management environments, the elimination of EH&S risk through design and planning is not always possible. Where EH&S risk identified in the design and planning stages cannot be eliminated the risks must be minimised with the application of control measures consistent with the hierarchy of risk control. EH&S risks that have not been eliminated and remain open must be transferred to the applicable Lendlease operations for management resolution.

Operations where Lendlease does not fully control design and procurement are required to complete a risk assessment to determine the mitigation actions required where the inherited circumstances represent a significant risk of preventing the GMR risk events in GMR 4 from occurring.

The stages of design and planning review are outlined on the following pages.
STEP 1
Assess the ability for Lendlease to control and influence design, manufacturing, fabrication and installation methods and procurement requirements

Each operation must assess the capacity of Lendlease to control and influence some or all of the following parameters:
- Design of temporary and permanent structures/infrastructure/services installations/fabrication/process systems/fit-out/end use, maintenance and demolition
- Procurement of machinery/equipment/contractors/trades/service providers
- Specification and procurement of products, materials and substances that are non-hazardous
- In house fabrication of jigs or tooling to assist in the manufacturing or installation processes

STEP 2
Application of Lendlease design standards

Where Lendlease has design, manufacturing, fabrication, installation and procurement control the design and procurement approach on the operation must be assessed against the Lendlease design standards.

Where Lendlease does not control design, manufacturing, fabrication, installation and procurement

STEP 2
Risk assessment against Lendlease design standards

Where Lendlease does not have design, manufacturing, fabrication, installation and procurement control the operation must be subject to a risk assessment and gap analysis to determine the mitigation actions required where the inherited circumstances represent a significant risk of preventing the GMR risk events in GMR 4 from occurring.

LENDLEASE DESIGN STANDARDS
Outlines the Lendlease design controls relating to the prevention of the 20 GMR risk events outlined in GMR 4:

1. Fall of person
2. Fall of material/object
3. Vehicle and plant incident (work sites)
4. Uncontrolled release of electrical energy
5. Fire and explosion
6. Crane and hoisting equipment incident
7. Impact from moving parts of machines
8. Excavation and stockpile collapse
9. Failure of structures (temporary or permanent)
10. Occupational health exposure
11. Public health exposure
12. Mental health and fatigue
13. Degradation or pollution of the environment
14. Vehicle and plant incident (public areas)
15. Uncontrolled release of stored energy (non-electrical)
16. Tunnel collapse
17. Failure of fixtures or fittings
18. Drowning
19. Confined space incident
20. Essential service failure

STEP 3
Process reviews

Incorporate and detail records from design reviews, EH&S in design review processes, process safety reviews, value engineering and methodology reviews for construction, end use, operation, maintenance and demolition.

STEP 4
Procurement

Ensure equipment and contractor/service provider procurement addresses the Lendlease requirements and identify and eliminate risk.
2.1 DESIGN AND PROCUREMENT CONTROL

All Lendlease operations must be assessed to determine the extent of design and procurement control available to Lendlease.

2.1.1 ASSESSING DESIGN AND PROCUREMENT CONTROL

CONTROL

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

PERFORMANCE STANDARD

i) Each operation must assess the capacity of Lendlease to control or influence the following elements:
   - Design of permanent structures and fixed infrastructure
   - Design of temporary structures and access systems (including construction methodology)
   - Design of public realm, utilities and highways
   - Design of services installations (e.g. electrical, fire suppression, HVAC and other utilities)
   - Design of manufacturing, fabrication or process systems
   - Design of jigs, tooling or machines to assist in fabrication or installation
   - 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, operations and maintenance
   - Specification and procurement of products, materials and substances that are non-hazardous

2.2 DESIGN STANDARDS

On any Lendlease operation where design is planned for fabrication, manufacturing, erection, construction, commissioning, demolition, disassembly, decommissioning, operation or maintenance the design must seek to eliminate or otherwise minimise the potential for any of the GMR risk events outlined in GMR 4 from occurring.

2.2.1 DESIGN STANDARDS

CONTROL

Lendlease design standards provide design requirements in critical areas of EH&S risk. As a minimum design must ensure that all relevant codes and standards are met. Where a Lendlease design standard sets higher design criteria than the relevant code or standard, the Lendlease design standard must be applied.

PERFORMANCE STANDARD

i) Design must consider Lendlease design standards against the GMR risk events outlined below:
   - Fall of person
   - Fall of material/object
   - Vehicle and plant incident (work sites)
   - Uncontrolled release of electrical energy
   - Fire and explosion
   - Crane and hoisting equipment incident
   - Impact from moving parts of machines
   - Excavation and stockpile collapse
   - Failure of structures (temporary or permanent)
   - Occupational health exposure
   - Public health exposure
   - Mental health and fatigue
   - Degradation or pollution of the environment
   - Vehicle and plant incident (public areas)
   - Uncontrolled release of stored energy (non-electrical)
   - Tunnel collapse
   - Failure of fixtures or fittings
   - Drowning
   - Confined space incident
   - Essential service failure

ii) Lendlease design standards may be added to or changed over time to address changing, new or specific EH&S risks.

2.3 REVIEW PROCESSES

All Lendlease operations must control or influence optimal EH&S design outcomes to seek to eliminate or otherwise minimise the risk of any GMR risk event outlined in GMR 4 from occurring.

2.3.1 DESIGN AND DEVELOPMENT BRIEFS

CONTROL

All Lendlease operations where design or development briefs are being established, including process designs for manufacturing, fabrication or installation, are required to identify the GMR requirements and prioritise EH&S outcomes.

PERFORMANCE STANDARD

i) Development briefs must prioritise EH&S outcomes as key project requirements.

ii) Design briefs must identify requirements to address Lendlease design standards and EH&S requirements for construction, manufacturing, installation, end use and operations, maintenance and demolition.

iii) Any design and construct (D&C) work that Lendlease defers to a third party contractor to complete must only use proprietary systems for the creation of temporary and permanent structures. The third party must also ensure all structural loads, fixtures and fittings meet the requirements outlined in GMR 4.
2.3.2 EH&S IN DESIGN REVIEWS

CONTROL

All operations able to control or influence design must undertake design reviews which incorporate a review of key design elements and related risks and opportunities. Design reviews must be progressive through the evolution of preliminary and detailed design activity and must consider, as a minimum, constructability, maintainability, end use and operability, demolition and future proofing.

PERFORMANCE STANDARD

i) Where Lendlease can control or influence design, design reviews must be carried out and include key stakeholders such as the lead architect/designer, the project/design manager, the construction manager, a representative from the developer/client and EH&S subject matter experts to highlight and eliminate EH&S risks. The Lendlease EH&S in design review (sometimes incorporated into a risk and opportunity at design (ROAD) process or equivalent) must be undertaken to positively influence how a building or structure is built, how products are manufactured, how items are operated and maintained or how a building structure will be demolished. All risks identified in design must be eliminated through design change or minimised where elimination cannot be achieved. The process of design change to close out risks must be recorded and communicated in an appropriate format. Significant risks identified in design which have not been eliminated must be transferred with the final design and scope of works to the operation’s risk register for resolution.

ii) All design review protocols must ensure exposure to the GMR risk events are eliminated through design or where elimination is not possible, mitigated through the application of GMR standards, regulatory and code requirements, Lendlease design alerts (e.g. Certainty in Design and Delivery Alerts and Guidelines) or Lendlease design standards.

iii) Rigorous protocols for design change management must be in place for all operations where construction or manufacturing occurs to ensure these or any related activities are not subject to change mid-activity, therefore presenting a risk of re-work, defective work, out of sequence work or activity across conflicting work fronts.

iv) Conduct a risk review at the operational set-up stage of projects to identify all stored energy systems where loss on containment could lead to catastrophic outcomes. Take all necessary actions to reduce the consequences of uncontrolled releases of stored energy. Note: See GMR 4.15 for further information.

v) Risk mitigation and risk reduction in the design stage must examine the preferred approach (i.e. lower EH&S risk approach) and document justifications for any technical, financial, schedule or risk based reasons for not pursuing the lower risk approach consistent with the hierarchy of risk control. Examples of constructability, maintainability and operability are listed in Table 3:

<table>
<thead>
<tr>
<th>LOWER EH&amp;S RISK</th>
<th>HIGHER EH&amp;S RISK</th>
</tr>
</thead>
<tbody>
<tr>
<td>Simple/lightweight external components</td>
<td>Complex/heavy external components</td>
</tr>
<tr>
<td>Assembly of elements on the ground</td>
<td>Assembly of elements at height</td>
</tr>
<tr>
<td>Precast concrete installation</td>
<td>Cast in-situ concrete</td>
</tr>
<tr>
<td>Manufacturer designed equipment</td>
<td>Using equipment modified after manufacture</td>
</tr>
<tr>
<td>Fabrication, cutting and modular assembly off-site</td>
<td>On site fabrication and cutting</td>
</tr>
<tr>
<td>Elements with designed in lifting points</td>
<td>Elements that require external slinging</td>
</tr>
<tr>
<td>Building elements with a low number of components</td>
<td>Building elements with a high number of components</td>
</tr>
<tr>
<td>Specification of non-combustible materials</td>
<td>Specification of combustible materials</td>
</tr>
<tr>
<td>Designs that include standard sizes of materials</td>
<td>Designs where all sizes are bespoke</td>
</tr>
<tr>
<td>Designs with passive cleaning</td>
<td>Designs requiring active cleaning</td>
</tr>
<tr>
<td>Designed in access for maintenance areas</td>
<td>Designs requiring mobile maintenance access equipment</td>
</tr>
<tr>
<td>Specification of products and substances that are not classified as hazardous and their application</td>
<td>Specification of products and substances classified as hazardous and their application</td>
</tr>
</tbody>
</table>

vi) The design reviews must clearly identify and record:

- The enterprise wide impacts as defined by the Lendlease risk matrix.
- The geographical boundary to which the review applies.
- The activities to be reviewed (e.g. maintenance, temporary works, construction and maintenance).
- The people responsible to complete the activities related to the design change(s) identified.
- The project phase to be reviewed (e.g. construction, manufacturing, commissioning, operation and maintenance).
- Attendee stakeholders and the qualifications of the review team.

TABLE 3: EXAMPLES OF LOW AND HIGH EH&S RISK IN DESIGN
2.3.3 METHODOLOGY REVIEWS
(CONSTRUCTION, ENGINEERING, MANUFACTURING)

**CONTROL**

All engineering and construction operations must review the delivery approach, techniques and methodologies to optimise EH&S outcomes in construction, engineering or manufacturing delivery.

**PERFORMANCE STANDARD**

i) All construction and manufacturing operations, regardless of the extent of design control applicable, must undertake a methodology review(s) (either separate to or part of a design review process) to determine the most risk effective manner to undertake construction, engineering or manufacturing works relating to the design.

ii) The review(s) must take into consideration the requirements, controls and performance standards in GMR 4.

iii) The review(s) must also consider the approach and methodology of a range of construction activities where a particular approach may affect the level of inherent risk. As a minimum, the following activities must be assessed in any construction, engineering or manufacturing methodology review with decisions and justifications recorded on the methodology utilised:

- Metal frame erection
- Formwork erection
- Cladding and facade work
- Manufacturing or fabrication requiring welds
- Any purpose built equipment or jigs for use in manufacture or fabrication
- Access to and work on roofs
- Work within penetrations, risers, shafts and voids (including lift/elevator/duct riser installations)
- Structural alterations that require temporary support to prevent collapse
- Erection, use and dismantling of scaffolds (e.g. facade or mobile)
- Any activity requiring the use of a safety harness as the primary means of fall protection
- Installation, maintenance and commissioning of machinery or plant process equipment
- Creation, access and maintenance of bridges and related structures including the placement of spans and pre/post tensioning
- Tower crane erection, climbing and dismantling
- Any lifting operation requiring load slinging, crane management or lifting over work areas, thoroughfares or public areas
- The inter relationship between construction elements and the sequencing of works (e.g. the use of formwork hoists and the relationship with non-typical slab construction and the prevention of falling materials)
- The demolition of load bearing and multi-storey structures
- Utilities, phased completion and elements required early for commissioning

iv) Methodology reviews must occur prior to the procurement of equipment and suppliers to ensure risks are addressed prior to procurement.

v) Activity must not commence until all required regulatory approvals, permits or conditions of consent are in place to conduct the work as designed.

vi) A change control process must be in place to ensure any changes in methodology proposed during the construction or manufacturing phase are reviewed 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 methods, equipment and techniques to be used to provide optimal EH&S outcomes for the operations and maintenance delivery team.

**PERFORMANCE STANDARD**

i) For operations conducting maintenance or the management 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.

ii) Operations and maintenance methodology assessments must address the requirements outlined in GMR 4.

iii) As a minimum and where applicable, the approach to the following activities must be detailed with decisions recorded on the design methodology to be utilised and its justification:

- Use of suspended access equipment (e.g. bosun chairs, cradles, gondolas and swing stages)
- Use of MEWPs (e.g. scissor lifts and cherry pickers)
- Installation, use and dismantling of powered vertical access equipment (e.g. mast climbers, hoists and BMUs)
- Access to and work on roofs
- Work within penetrations, risers, shafts and voids, including lift or elevator installation and maintenance
- Working on a telecommunications tower, power pole or other similar installation
- Any activity requiring the use of a safety harness as the primary means of fall protection
- Industrial rope access and the engagement of an appropriately qualified rope access technician
- Installation, maintenance and commissioning of machinery or plant process equipment
- Working in, over or adjacent to a road or railway
- Working on or near pressurised gas distribution mains and consumer piping
- Working on or adjacent to energised live overhead or underground services (e.g. electrical, hydraulic and pneumatic)
- Entry into and work within confined spaces
- Work in an area where there are artificial extreme temperatures
- Any work in the vicinity of members of the public
- Working in and around water
2.3.5 VALUE ENGINEERING

CONTROL

All operations conducting value engineering exercises must ensure decisions do not jeopardise health, safety and wellbeing outcomes.

PERFORMANCE STANDARD

i) Any exercise to re-evaluate methodology, resourcing, schedule or procurement under the remit of value engineering must ensure considerations are made for the implications in delivery for any changes to how activities are to be undertaken. The controls outlined in GMR 4 must be implemented.

ii) Decisions with the potential to adversely impact working conditions, ability to supervise work or reduce resources, operating cost, work programs or schedules must ensure the risk to those required to deliver the work has been assessed and risks mitigated.

iii) All operations conducting value engineering exercises must ensure records are maintained of all decisions made, including a record of the person(s) that approves the decisions.

2.3.6 MANUFACTURING AND FABRICATION EQUIPMENT

CONTROL

All operations conducting manufacturing, fabrication, installation or the fabrication of any jigs, tooling and machines to assist in these activities, whether permanent or temporary, must ensure that all product elements are designed, built and tested in accordance with the following.

PERFORMANCE STANDARD

i) All elements such as jigs, tools, machines, plant or automated equipment must be proprietary. Where non-proprietary systems are to be created, a qualified and registered engineer in the related discipline must sign off on the effectiveness of the solution.

ii) During fabrication, manufacturing and installation activities the controls outlined in GMR 4 must be implemented.

iii) A robust inspection and testing regime to appropriate standards must be implemented for every element fabricated or manufactured by Lendlease operations.

iv) Records of all inspections and testing undertaken are to be maintained.

2.4 PROCUREMENT

All Lendlease operations must ensure review and assessment protocols are in place for procuring processes, products and services.

2.4.1 PRODUCT AND EQUIPMENT SELECTION

CONTROL

All Lendlease operations must consider equipment in line with the controls for the Lendlease GMR risk events outlined in GMR 4.

PERFORMANCE STANDARD

i) Suppliers of products and equipment must be evaluated to ensure that they have the ability to provide the specified products or equipment consistently and in accordance with the requirements outlined in the GMRs, including all statutory and regulatory requirements pertaining to the products or equipment.

ii) All products or equipment procured must incorporate the requirements outlined in GMR 4.

iii) Proprietary or engineered systems certified by a qualified and registered structural engineer are to be procured where required to create permanent or temporary structures and access systems.

iv) Upon receipt the products and equipment must be inspected to verify that it meets the documented requirements and has been provided with all specified documentation such as identification and traceability, test certificates, service records and plant risk assessments.

v) All products and substances procured that are classified as hazardous must be substituted for a non-hazardous product or substance. Where 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.

vi) A documented record must be maintained outlining the justification for the selected product or equipment for all items procured relating to life safety systems (e.g. fire rated materials and fire warning and suppression), powered vertical access (e.g. elevators, hoists, escalators and travellators) and lifting equipment (e.g. cranes) where the impacts of failure present a risk of fatality to members of the public.

vii) The supply of products, materials or equipment must include the requirement for material and test certificate validation for compliance with local authority requirements and standards and be included in purchase orders and contracts.

2.4.2 SUPPLY CHAIN SELECTION

CONTROL

All contractors and service providers engaged to work on Lendlease operations must fully support the implementation of the GMRs and demonstrate an ability to operate to the GMRs.

PERFORMANCE STANDARD

i) All contractors and service providers formally engaged to provide development, construction, manufacturing, management or maintenance services must go through a pre-qualification process. This must include an assessment of their ability to meet the relevant GMRs and legislative requirements, including adequate insurance cover.

ii) The EH&S responsibilities of key contractors and service providers and the significant risks associated with their work must be clearly defined for each engagement. The relevant GMRs and any other relevant EH&S requirements must be provided to them to adequately plan and price the work. The quality and accuracy of the contractor or service provider documentation must be a key factor in selection.
iii) Contractors and service providers must employ adequate numbers of competent frontline leaders, provide proof of competency for key workers, particularly those carrying out high risk activities or undertaking work where proof of competency is required by law, and collaborate with Lendlease in pursuing compliance with the GMRs.

iv) Where it is assessed that a contractor or service provider may not be able to meet the GMRs or legal requirements in full 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 persons with the appropriate LOA before any contract can be awarded.

v) All new contractor and service provider contractual documentation must contain clauses clearly outlining the applicable EH&S standards and GMRs, the Lendlease powers to enforce compliance or obligation for Lendlease to stop dangerous and non-compliant work activities and highlight the ability for Lendlease to employ third parties to rectify non compliances and contra-charge the relevant party.

vi) Where the client instructs Lendlease to provide direct EH&S oversight for third party works, the GMRs must be applied as the EH&S standards for any third party contractors or service provider activities.

vii) Where design is outsourced to third parties the requirements of GMR 2 must be satisfied.
PREAMBLE

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

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

For any Lendlease operation a documented EH&S management plan must be developed and implemented and as a minimum outline how all EH&S risks, including those identified by the GMRs will be managed. In addition, the EH&S management plan must outline the management of access/egress, workplace hazards and risks, boundary control, emergency and evacuation planning, housekeeping, welfare and EH&S learning programs in support of the aspiration to establish places that care.

GMR 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

Lendlease operations must provide best in class 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. Lendlease operations must also establish controls on working hours and best in class employee engagement programs and initiatives.

3.1.1 WORKING CONDITIONS

CONTROL

All Lendlease operations must ensure that working conditions do not adversely affect people’s health, safety and wellbeing or their ability to conduct their work and that those conducting high risk activities are fit for the inherent requirements of their work.

PERFORMANCE STANDARD

i) Rules for hours of work must be established on each Lendlease operation to ensure people’s health, safety and wellbeing is not adversely affected from excessive working hours (e.g. rostering, wellbeing leave and shift work).

ii) All workers must be fit for work. Consider assessing fatigue, implementing health surveillance and health checks, duration of shifts and adequate rest between shifts, drug and alcohol related impairment or any pre-declared medical condition or injury or illness.

iii) Protocols must be established for the management of adverse climatic conditions (e.g. heat, cold, snow, rain, storms and wind). Consider which activities should cease when threshold protocols are exceeded. Ensure early warning weather systems are established where particular climatic conditions represent a significant risk (e.g. high winds and use of a crane, lightning, earthquakes and floods).

3.1.2 WELFARE FACILITIES

CONTROL

To create the best places to work and places that care all Lendlease operations must provide amenities and welfare facilities that are best in class.

PERFORMANCE STANDARD

i) Assess welfare requirements and provide best in class facilities prior to works starting. Ensure the facilities reflect the hazards present, number of users and their differing needs.

ii) Provide sufficient toilet facilities within easy access of working areas. All toilets must be connected into the mains or similar, rather than chemical toilet facilities, 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. Ensure these facilities include water for washing and clean, cool water for drinking.

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 asbestos or lead removal or after work in extreme temperatures).

vii) Where Lendlease provides site based office accommodation, the office facilities must ensure adequate ventilation, heating/cooling or air conditioning where conditions demand, daily cleaning and that office furniture meets the ergonomic requirements prescribed by relevant codes of practice.

viii) Assess employee off-site living accommodation on Lendlease controlled operations and provide best in class facilities prior to work starting. This applies to all accommodation, whether it is owned by Lendlease or utilised by its employees.

ix) For each operation identify and regularly implement specific welfare initiatives that demonstrate care for frontline workers.

3.1.3 TRAINING AND COMPETENCE

CONTROL

All workers with EH&S roles and responsibilities related to legal or GMR requirements must be suitably qualified and verified as competent relevant to their role.

PERFORMANCE STANDARD

i) Familiarise all Lendlease workers with the Lendlease EH&S vision and complete any EH&S training applicable to their role (e.g. Lendlease EH&S Passport) as well as awareness and training opportunities that address the organisation’s health and wellbeing framework.

ii) Where a Lendlease employee or contractor has a position or responsibility that requires statutory training or accreditation (e.g. statutory EH&S coordinator or operator of plant and equipment) ensure the employee or contractor undertakes the relevant industry or statutory training and only fulfils the task or responsibility when certified to do so.

iii) It is the duty of all contractors, consultants and service provider workers with EH&S roles and responsibilities related to legal or GMR requirements to ensure all key personnel are aware of their EH&S responsibilities and are suitably trained to address any competency requirements or technical qualifications relevant to their role.

iv) Provide proof of competency (certificates, licences, training records or knowledge testing) where required by any employees of Lendlease, contractors or service providers conducting specialist work related to high risk activities.

v) Conduct EH&S briefings, toolbox talks or other consultative initiatives at appropriate intervals on topics relevant to the activities occurring at or around the operation.

vi) All frontline leaders must be competent for the role in which they are appointed, as determined by each Lendlease operating business unit, and must be able to assign work in a manner that increases the likelihood it will be performed without incident, recognises and reinforces compliance with the GMRs and related safe work practices and constructively corrects unsafe work. Frontline leaders overseeing high risk activities must participate in the Lendlease Frontline Leaders Program.
3.1.4 EH&S COMMUNICATIONS AND CONSULTATION

CONTROL
EH&S communications and consultation protocols must be established with identified stakeholders on each operation for high risk activities, worker feedback opportunities and change management protocols.

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. Identify areas where entry is forbidden or special precautions apply.

ii) The management team of each operation must establish arrangements for promoting worker feedback on hazard reporting and improving EH&S standards, work practices or performance.

iii) Undertake consultation and communications with key internal and external stakeholders through signage, public meetings or forums, newsletters, emails or prior to significant changes in operations or activities.

iv) EH&S alerts and any applicable lessons learned issued to the operation by Lendlease management are communicated with recommendations applied where applicable. Clearly communicate the requirements of EH&S alerts to all relevant organisations and work crews with standard operating procedures adjusted if required.

3.1.5 ENGAGEMENT, REWARD AND RECOGNITION

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

PERFORMANCE STANDARD
i) Identify and implement operational wide engagement programs and initiatives to ensure the best workplaces are created.

ii) Define the appropriate reward and recognition program and a just culture model that deals with consequence management.

iii) Define how the operation will establish a place that cares. This includes leadership behaviours and addressing peoples’ health, wellbeing and work life balance.

3.2 ESTABLISHING LOCATIONS

CONTROL
All Lendlease operations required to segregate the work activity from the public must ensure adequate barriers are in place, emergency planning protocols are established and briefings are included as part of any site inductions.

3.2.1 SITE LAYOUT

CONTROL
All operations must ensure the site layout considers the movement of people and vehicles, including mobile plant and equipment.

PERFORMANCE STANDARD
i) Ensure all operations consider traffic interface risk with public roads and that suitable signage is in place to visually delineate entry and exit points, delivery areas, pedestrian crossing points, parking areas and site speed limits.

ii) Outdoor lighting must be provided for all locations where workers or members of the public require access outside daylight hours.

iii) Suitable indoor lighting must be provided for all task and access requirements. Temporary lighting must not represent a trip or fire hazard.

iv) For operations with large or regular delivery requirements, implement a delivery booking system and dedicated areas for deliveries and material storage and lay down. Create truck holding areas where there is a risk of queuing inside and out of an operation.

v) Establish protocols to determine when common plant located on the operation such as cranes, hoists, elevating work platforms, elevators and fork lifts is to be used to handle deliveries and materials versus the exclusive use of individual plant and equipment owned by contractors.

3.2.2 SITE ACCESS

CONTROL
All operations where high risk activities and construction operations 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 high risk activities and construction operations 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. For those sites active for more than one day this barrier must be a perimeter fence. Entrances and exits must be managed to prevent unauthorised access, be clearly signed and display site rules. All hoardings, fencing and signage must be of solid construction, adequately load bearing, regularly inspected by a competent person and maintained to prevent risks to the public and workers.

ii) 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 ensuring that the public cannot readily access or interface with high risk activities or site hazards.

iii) Erect suitable physical barriers (e.g. temporary fencing such as ATF or Heras) for locations active for less than one day or when short term activity (less than one day) needs to take place beyond the site boundary and where there is a risk presented to the public.
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) Ensure security protocols are in place that reflect the operation type, geographic location and risks applicable to the protection or exclusion requirements for workers and the public. Where Lendlease has control over an asset office or construction location, access must be controlled to ensure there is no unauthorised access to secure areas (e.g. plant rooms, confined spaces or roof areas).
ii) Areas closed to the public must be clearly defined and measures to prevent unauthorised entry to these areas implemented.
iii) Any unoccupied areas on an operation (e.g. undeveloped land 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 activity is significant appropriate levels of physical surveillance by security guards and closed circuit television (CCTV) must be in place.
v) Where people are required to work in locations where the risk of harm is elevated due to criminal activity, travelling or working alone or after hours work support must be in place to provide individuals with awareness of the risks, mitigation plans and protocols for communication and assistance.

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) Ensure all main access ways, emergency routes and passage ways are 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) 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 inspection cycles, 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.
iv) All hazardous substances, combustibles, flammables and other dangerous goods and materials must be safely stored and warning signs displayed.
v) Electrical items presenting a risk of fire or electrocution (e.g. halogen light tripods and heaters under desks) are to be placed correctly or fixed into position.
vi) Provide a sufficient number of suitable waste receptacles including for hazardous and recyclable materials. Implement processes for the regular collection of waste and recycled materials.

3.2.5 PERSONAL PROTECTIVE EQUIPMENT

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 the application of safety helmets, safety boots, eye protection, gloves, 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 85 dB(A), sunscreen, wide-brimmed hats, long pants and long sleeved shirts with a collar for sun/ultra violet radiation protection).

3.2.6 EMERGENCY PLANNING AND EVACUATION PROCEDURES

CONTROL
All Lendlease operations must have an established emergency response plan based on the requirements of an emergency response procedure that is documented, communicated to all relevant people and routinely tested for effectiveness.

PERFORMANCE STANDARD
i) Emergency management planning must:
   - Link with business unit business continuity planning and crisis management protocols and include details of people with key responsibilities, include potential and actual incident response protocols and contact details for liaison with relevant people within Lendlease, emergency services, external authorities and third parties such as clients.
   - Appoint and formally train sufficient wardens in emergency response procedures, including the need to check areas are clear of people in an evacuation and basic firefighting techniques where appropriate.
   - Ensure that members of the emergency response team are appointed and formally trained in emergency response.
   - Ensure a risk assessment is undertaken by a competent person to determine the requirements for incident response equipment such as the number and content of first aid kits, number of fire extinguishers and their location and other equipment such as defibrillators, oxy viva, stretchers or other.
   - Ensure that all emergency response drills include a planned scenario based on potential or actual incident events identified in planning and are conducted 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.
ii) Review emergency response management, emergency plans, emergency evacuation equipment and other emergency planning processes at least annually or more frequently for higher risk workplaces such as construction operations.
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 and service providers before commencing work.
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, 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. visitor identification, information cards identifying risks and emergency response and site layout). If any high risk activities are taking place visitors must be escorted at all times.

3.3 ESTABLISHING GOVERNANCE

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

3.3.1 EH&S MANAGEMENT PLAN

CONTROL
All Lendlease 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 the unique operational risks from GMRs 1 and 2 which need to be managed, address all requirements listed within GMR 3 and include plans or other methods to address all monitoring requirements from any applicable GMR risk events outlined in GMR 4.
   • Comply with all applicable legal and regulatory requirements in preparing and maintaining an operating EH&S management plan.
   • Be regularly reviewed, updated to include significant changes to risks or risk controls and continually monitored to ensure that the requirements of the GMRs are carried out to the highest standard.
ii) For established low risk workplaces such as offices, the plan must be reviewed and updated at least annually and for high risk workplaces such as construction operations the plan must be reviewed and updated more regularly.

3.3.2 OPERATIONAL EH&S RESPONSIBILITIES

CONTROL
All Lendlease operations must ensure EH&S roles and responsibilities are 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 GMR controls, to appropriate people whether it is from within the Lendlease team, a stakeholder or a supply chain organisation, with these responsibilities clearly communicated and documented.
ii) The most senior Lendlease leader on each operation is responsible for ensuring that all EH&S responsibilities attributed to Lendlease including responsibilities for the sign off of work relating to high risk activities are met. Any responsibilities delegated by the team leader to other employees are to be clearly documented in individual roles and responsibilities.

3.3.3 OPERATIONAL EH&S GOVERNANCE

CONTROL
All Lendlease operations must establish an EH&S leadership team or equivalent to provide governance and oversight for EH&S performance management.

PERFORMANCE STANDARD
i) The EH&S leadership team must:
   • Meet at least quarterly, be chaired by the most senior Lendlease 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.
   • Monitor compliance with the GMRs and regulatory requirements and examine information from any EH&S events, incidents, trends or observations recorded.
   • Review incidents and investigations to ensure appropriate action, follow up and close out.
   • Monitor the status of the key operational risks identified in GMRs 1 and 4.
   • 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.
   • Monitor and review the operational programs intended to create the best workplace.
   • Document outcomes related to the above and communicate these to the workforce where appropriate.
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 events classified as critical must be recorded within 48 hours of the date of the event. All other event types must be recorded within 24 hours, including actual and potential incidents of injury, illness, property damage, plant damage, harm to the environment and EH&S observations. Record events using the Lendlease online EH&S reporting system and ensure statutory reporting requirements are achieved.

ii) As a minimum, investigate any incidents classified as critical within the Lendlease online EH&S reporting system with active participation from the local business unit management to assist in identifying the causes of the incident and, where relevant, generating any EH&S alerts or lessons learned.

iii) As part of identifying, managing and reporting on risk, each operation must report on EH&S risk and compliance as directed by their business unit.

iv) Ensure all Lendlease operations receive independent EH&S assessments to review compliance with the requirements of all GMRs that are applicable on the operation. The independent assessment is to be undertaken at intervals set by the business unit and correspond with actual or upcoming changes in risk profile and actual EH&S performance outcomes. The independent EH&S assessment must be undertaken by a Lendlease or third party employee or competent contractor not based full-time on the operation to ensure independence from the operations team.
PREAMBLE

GMR 4 addresses the potential for fatal risk outcomes amongst the day-to-day activities, hazards and risks that occur across Lendlease operations.

Whilst many risks to people are present on a daily basis, 20 risk events have been identified that present the most significant risk to people (i.e. the risk of a single or multiple fatalities). These GMR 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 GMR 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 have preventative and mitigating controls listed for application, the top 10 GMR risk events at Lendlease, which have been identified through analysis of internal incident data, also have performance standards which prescribe how the controls are to be met.

For events 11-20, no performance standards are prescribed. 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.

GMR 4 is comprised of the following:

PROTOCOLS

4.0 Management of GMR risk events

GMR 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

GMR 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 GMR RISK EVENTS

For all Lendlease operations where any of the 20 GMR risk events apply, activities must be managed by implementing the controls and performance standards prescribed against each risk event. The controls outlined in the GMRs 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.
- **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 PPE to limit exposure to the harmful effects of the hazard.

All operations must address the following six steps in administering the requirements of GMR 4:

**STEP 1: IDENTIFY APPLICABLE GMR RISK EVENTS**

Each operation needs to identify those activities or hazards where there is a likelihood of exposure to any one of the 20 GMR risk events. Once these activities are identified, they must be planned and managed in accordance with the critical controls prescribed against each GMR risk event.

**STEP 2: ENSURE ENGINEERING CONTROLS (OR ABOVE) ARE 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 activities. In addition to the one preventative engineering control, at least one mitigating control must also be in place. If it is not possible to implement the controls outlined in GMR 4 the operation must demonstrate to the most senior off-site manager that they have a work methodology that addresses and manages the risk.

**STEP 3: DOCUMENT THE ACTIVITY METHODOLOGY**

For each activity there must be appropriate administration controls 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 GMR risk event.

**STEP 4: BRIEF THE WORKERS INVOLVED**

Through a task briefing process (e.g. pre-start or safe start) all workers that will undertake or supervise the task must be consulted and made aware of the contents of the documentation and how the critical controls and performance standards must be applied. Communication must also extend to include people other than those directly involved in the activity (e.g. members of the public) that could be potentially impacted by the activity.

**STEP 5: ENSURE SUFFICIENT COMPETENT FRONTLINE LEADERS**

Activities where one or more GMR 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 it is required for the role being undertaken.

**STEP 6: ACTIVITY MANAGEMENT**

Adequate verification and monitoring processes must be in place to ensure 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, at regular intervals throughout the course of the day/shift and when a change to the agreed method of work or work scope is introduced. Following any such change steps 1-5 are to be repeated.
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.

POTENTIAL CAUSES

A. Fall from an unprotected or compromised edge at height
B. Weather conditions leading to fall of person from an edge
C. Failure of structure (temporary or permanent)
D. Failure of non-trafficable surfaces
E. Fall from plant, equipment or vehicle
F. Failure of anchor support
G. Fall from access equipment
H. Failure of access equipment
I. Fall into an unprotected or compromised excavation, pit, void or opening

POTENTIAL IMPACTS

PEOPLE: Death (single/multiple) – Lendlease and/or member of the public. Permanently disabling injury (physical/psychological), Community and social damage/impact
FINANCIAL: Financial/commercial damage (insurance claims, return to work costs)
BUSINESS CONTINUITY: Business continuity and disruption
REPUTATION: Reputational damage
LEGAL/REGULATORY: Legal/regulatory damage

PREVENTATIVE CONTROLS (4.1.1- 4.1.5)

4.1.1 FALL PREVENTION BARRIERS: Provide robust physical barriers to protect people falling from height
4.1.2 HEIGHT ACCESS EQUIPMENT: Height access equipment must be operated and maintained in accordance with the manufacturer’s instructions
4.1.3 TEMPORARY ACCESS PLATFORMS: 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
4.1.4 MANAGEMENT OF PENETRATIONS, RISERS AND SHAFTS: Effective measures must be in place to prevent the fall of people or materials down penetrations, risers and shafts
4.1.5 USE OF A SAFETY HARNESS: Any safety harness in use must be an approved type with fit for purpose anchor points

MITIGATING CONTROLS (4.1.6 - 4.1.7)

4.1.6 SECONDARY FALL PROTECTION: Secondary fall protection measures must be in place where the fall of person risk exists
4.1.7 RESCUE PROCEDURES: Rescue procedures must be in place for the recovery of any fall of person and arrest/suspension in a harness or in netting
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 effectively 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, guard rails or cable and netting systems 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 barriers of sufficient height and strength to prevent people from falling (e.g. permanent climb resistant balustrades, guard rails or void screens) taking into account all relevant parameters such as the nature of the operation, 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 by people working in MEWPs with booms unless when working over water where the risk of the work platform submerging beneath the water exists creating the risk of a person being unable to exit from the platform in an emergency. Note: GMR 4.18 drowning addresses related events.

iv) Permanent BMUs such as mechanised cradle systems must provide safe access for cleaning and maintenance. They must be fixed to the operation’s structure, have the safe working load clearly marked and have sufficient, clearly designated safety harness anchor points designed to withstand the forces caused by a fall of any person(s) located anywhere on the platform.

v) All mast climbers, swing stage scaffolds and BMUs must be installed, maintained and inspected by an engineer or competent person(s), following the manufacturer’s specifications as a minimum. Details of the design, maintenance, inspections and manufacturer’s specifications must be provided.

vi) All people using mast climbers, swing stage scaffolds, suspended access equipment and BMUs must use a suitable safety harness and lanyard at all times. Emergency retrieval rescue procedures must be established for work involving a safety harness and lanyards and static lines must be installed and attached to one of or a combination of the following elements:
   - A vertical line independent of the portable vertical access equipment and specifically engineered for the purpose of withstanding the forces likely to be experienced in a fall situation.
   - An engineered anchor point or horizontal static line fabricated and certified by the manufacturer or independent engineer for that purpose and capable of withstanding the forces likely to be experienced in a fall situation.
   - A transportable temporary independent anchor point engineered for that purpose such as a sling choked or looped around a suitable load bearing structure, an anchor strap looped around a suitable load bearing structure or an eyebolt fixed with a trigger catch mechanism for fixing through holes. In all cases these elements must be capable of withstanding the forces likely to be experienced in a fall arrest situation.

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) Modify equipment or structures where worker access is required and the risk of the fall of a person exists, to 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 a full permanent solution. Where this is not practicable, temporary staircases of adequate width with suitable handrails must be provided.

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.

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) Ensure effective measures are in place for the safe erection and use of all scaffolds, temporary works and working platforms.

ii) Ensure all scaffolds are fit for use, all structural members are 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. Climbing up the outside of a scaffold is prohibited.

iii) 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.

iv) Install guard rails, mid-rails and toe boards on all open sides of platforms representing a fall risk.
v) 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).

vi) 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.

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. Ensure shaft opening protection remains 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) Ensure all floor openings and pit covers are 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) Ensure all covers to floor openings and pits are adequately 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 employ effective safety measures to prevent the potential fall of a person or fall of material. Replace the control measures immediately after the work and regularly inspect these measures.

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). Climbable material or equipment must not be placed within one metre (3.3 feet) of the balustrade or fencing, unless the balustrade or fencing is extended in height to account for the material or equipment in close proximity.

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) If work at height is required and it is not practicable to install physical barriers (e.g. roof access or where work needs to occur outside the physical barrier) 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/arrow. All of these components must be fit for purpose, properly inspected, tagged and maintained in line with the manufacturer’s guidelines or related standards and be used only by a competent person.

iii) Where access to concrete or metal frame erection works cannot be avoided, a safety harness with a compatible twin-tailed or γ-shaped lanyard and energy absorber to provide appropriate fall arrest must be used. Workers must be attached to the structure through an appropriate anchor or tie-off point(s), beam gliders or man locks at bolt points and must never remove both tails of the lanyard at any one time from the structure.

iv) Where a safety harness is configured to either fall arrest or fall restraint the related free fall distance and potential pendulum effect must be allowed for.

RISK EVENT MITIGATING CONTROLS AND PERFORMANCE STANDARDS

4.1.6 SECONDARY FALL PROTECTION

CONTROL

Secondary fall protection 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 three metres [9.8 feet] 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) In all cases workers must deploy the use of a safety harness to provide secondary fall restraint if necessary.

4.1.7 RESCUE PROCEDURES

CONTROL

Rescue procedures must be in place 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 within 15 minutes to minimise the risk of death from 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 demolition, deconstruction, abatement or structural alteration works where the potential for material or objects to fall has been identified. Note: GMRs 4.6 crane and hoisting equipment incident and 4.17 failure of fixtures or fittings address related events.

### POTENTIAL CAUSES

A. Worker drops an object  
B. Object is knocked from an elevated work area and falls  
C. Non-fixed object falls during high wind event  
D. Unplanned or uncontrolled fall of material  
E. Fall of an object due to improper design, installation, maintenance or use  
F. Demolition causes an uncontrolled fall of material

### POTENTIAL IMPACTS

**PEOPLE:** Death (single/multiple) – Lendlease and/or member of the public. Permanently disabling injury (physical/psychological), Community and social damage/impact  
**FINANCIAL:** Financial/commercial damage (insurance claims, return to work costs)  
**BUSINESS CONTINUITY:** Business continuity and disruption  
**REPUTATION:** Reputational damage  
**LEGAL/REGULATORY:** Legal/regulatory damage

### PREVENTATIVE CONTROLS (4.2.1 – 4.2.4)

1. **4.2.1 ENCLOSURE OF WORK AREAS:** Elevated work areas must be enclosed with robust containment material to prevent a fall of material impacting people below  
2. **4.2.2 TOOL AND EQUIPMENT TETHERS/LANYARDS:** 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.  
3. **4.2.3 WIND EXPOSURE:** All objects that are not fixed and could be blown or uplifted from an elevated location must be relocated to an unexposed area or secured appropriately  
4. **4.2.4 STRUCTURAL ALTERATIONS:** Adjustments to structures must assess the fall of material risk

### MITIGATING CONTROLS (4.2.5-4.2.6)

1. **4.2.5 EXCLUSION ZONES:** An adequate exclusion zone must be in place whenever overhead work has the potential for tools, materials, objects or equipment to fall  
2. **4.2.6 SECONDARY PROTECTION OR CATCH MEASURES:** Overhead protection must be installed where the risk of falling object exists and wherever a public interface on site exists
RISK EVENT PREVENTATIVE CONTROLS AND PERFORMANCE STANDARDS

4.2.1 ENCLOSURE OF WORK AREAS

CONTROL
Elevated work areas 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. Fasten and display warning signage to any cover 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. 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 where there is a risk of people below being impacted. 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 EXPOSURE

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

PERFORMANCE STANDARD
i) 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. Ensure early weather warning systems are in place for operations where there is the risk of windblown falls of materials.

ii) All objects that could be blown from elevated positions must be firmly fixed, secured or relocated to a less exposed area.

iii) Ensure protocols exist 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.

4.2.4 STRUCTURAL ALTERATIONS

CONTROL
Adjustments to structures must assess the fall of material risk.

PERFORMANCE STANDARD
i) All structural rectification work or change must have a building and services survey completed by a qualified and registered structural engineer.

ii) Document a review of any proposed changes to the planned activity or sequence during structural alterations and how associated elements 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 position, height from next floor level and mass 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) Ensure overhead protection or catch systems avoid failure due to impact with the object it is designed to 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 or engineering 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 Lendlease assets (e.g. retail, residential or commercial) or the use of Lendlease light vehicles on public roads.

POTENTIAL CAUSES

A. Operator error (e.g. competency, impairment or fatigue) or use in an unsafe manner (e.g. high speeds and distractions such as spotters)
B. Mechanical failure (e.g. tyres and brakes)
C. Inadequate planning and methodology (e.g. lack of segregation, public transport interfaces, plant/personnel, loss of control, miscommunication and traffic control including entry/exit to sites)
D. Sub-standard road, environmental and weather conditions (e.g. turning points, fog, unclear pedestrian/vehicle interface/management, restricted views, blind spots, poor lighting or visibility, poor road markings and obstacles)
E. Vehicle or equipment is unfit for purpose (e.g. through lack of maintenance, poor procurement, structural fatigue and exceeding the design life)
F. Third party event (e.g. member of public error or misuse, visitor error, animal error, unplanned medical event, co-worker error, sabotage, theft and contact with other equipment)
G. Improper assembly or disassembly

POTENTIAL IMPACTS

PEOPLE: Death (single/multiple) – Lendlease and/or member of the public. Permanently disabling injury (physical/psychological). Community and social damage/impact
FINANCIAL: Financial/commercial damage (insurance claims, return to work costs)
BUSINESS CONTINUITY: Business continuity and disruption
REPUTATION: Reputational damage
LEGAL/REGULATORY: Legal/regulatory damage
ENVIRONMENT: Environmental damage (e.g. spilt fuels)

MITIGATING CONTROLS (4.3.8)

4.3.8 HIGH VISIBILITY CLOTHING: All people working on or adjacent to traffic routes and vehicles operating on Lendlease operations must have sufficient high visibility clothing and reflective visible markings

PREVENTATIVE CONTROLS (4.3.1- 4.3.7)

4.3.1 TRAFFIC MANAGEMENT: Vehicle routes on construction and haul roads must be managed to ensure risks to vehicles and people are effectively managed
4.3.2 PEDESTRIAN AND VEHICLE SEGREGATION: All locations must assess the risks presented by the movement of pedestrians, materials and vehicles around or next to the site or workplace 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: Lendlease 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 bobcats, 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 competent and 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 be managed to ensure risks to vehicles and people are effectively managed.

PERFORMANCE STANDARD

i) Ensure any traffic management plans are current and define the engineering controls to prevent vehicles striking another vehicle, structure or pedestrian.

ii) 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.

iii) 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.

iv) Traffic management plans must address the interface with public roads and provide effective controls addressing prohibited vehicles, access points, routes for different vehicles or plant, reversing requirements, signs and traffic control aids, technology application and site traffic maintenance.

4.3.2 PEDESTRIAN AND VEHICLE SEGREGATION

CONTROL

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

PERFORMANCE STANDARD

i) Pedestrians are to be separated from vehicles and plant at all times by appropriate barriers.

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 ensure that there are barriers between workers and other heavy equipment.

iv) Route sightlines must be unobstructed and adequately lit to ensure good visibility. Blind spots and corners must be avoided, or where they do exist, have mirrors installed.

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 traffic signallers must be eliminated wherever practicable, particularly around heavy equipment operations. Where traffic signallers are required such as for pedestrian access areas or to manage public road interface, only trained and competent 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 spotter, safe locations, hard barrier controls and adequate line of sight and radio contact.

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 like road construction or maintenance projects, 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 fundamentally stable car parking must be provided.
4.3.4 USE OF LIGHT VEHICLES ON SITE

CONTROL

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

PERFORMANCE STANDARD

i) Vehicles used as a tool of trade by Lendlease 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 minimum five star Australasian New Car Assessment Program (ANCAP) rating or equivalent standard.

iv) Vehicles provided by Lendlease 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.

vi) Vehicle journeys of two hours or more continual driving must be planned to ensure adequate rest breaks are in place and that there is provision to manage fatigue.

vii) Mobile phones, 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. 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 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 Lendlease 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 ensure 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 vehicle wheels.

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 bobcats, excavators, backhoes, graders, scrapers, bulldozers, dump trucks, rollers and compactors.

PERFORMANCE STANDARD

i) 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 including an alternative path of disembarkation from the cabin in case of emergency, reversing alarms, wheel chocks, a horn, a handbrake alarm and effective windscreen wipers.

ii) 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.

iii) Ensure all mobile plant and equipment has 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).

iv) Replace or re-certify protection gear after a rollover, tip over or falling object damage and before further use.

v) Prohibit the use of mobile phones when the plant or equipment is in use.

vi) 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 to provide warning for the potential of safe working angles to be exceeded or the loss of traction.

vii) Clearly identify minimum clearance distances for overhead cables and establish controls to prevent plant or equipment coming into contact with these cables.

viii) 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.

ix) 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.

x) 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. 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 and implemented for wheeled plant.
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 manufacturers requirements and by competent and qualified personnel.

PERFORMANCE STANDARD
i) Fixed and mobile plant must be installed and dismantled off-site. Where this is not possible, it must be conducted in a safe location on-site. 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 Lendlease, 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. All plant must be installed, inspected, maintained and dismantled by competent and 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) In the first instance attempt to drive out the 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.

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 independent engineer.

iv) Snatch straps and chains such as 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 Lendlease operations must have sufficient high visibility clothing and reflective visible markings.

PERFORMANCE STANDARD
i) Ensure all people working adjacent to traffic routes or engaged in traffic management activities wear high visibility clothing that meets applicable regulatory or industry standards.
## 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 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.

### POTENTIAL CAUSES

| A. Unintentional contact with or close proximity to live exposed electrical source – HV or LV |
| B. Unintentional contact with or close proximity to live overhead power lines |
| C. Unintentional contact with or close proximity to live buried electrical services |
| D. Unintentional contact with electricity by a qualified electrician when performing work on known live electrical services |

### POTENTIAL IMPACTS

- **PEOPLE:** Death (single/multiple) – Lendlease and/or member of the public. Permanently disabling injury (physical/psychological). Community and social damage/impact
- **FINANCIAL:** Financial/commercial damage (insurance claims, return to work costs)
- **BUSINESS CONTINUITY:** Business continuity and disruption
- **REPUTATION:** Reputational damage
- **LEGAL/REGULATORY:** Legal/regulatory damage
- **ENVIRONMENT:** Environmental damage (e.g. fire)

### PREVENTATIVE CONTROLS (4.4.1-4.4.8)

- **4.4.1 IDENTIFICATION AND SCHEMATICS:** All electrical circuits including overhead and underground services are fully identified and recorded in schematics. Procedures exist for safe work
- **4.4.2 APPROPRIATE ELECTRICAL EQUIPMENT:** All electrical equipment including insulated MEWPs, tools and PPE must be fit for purpose and compliant with local standards
- **4.4.3 ELECTRICAL SUPPLY:** 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
- **4.4.4 ISOLATION:** De-energise, isolate and test for dead prior to any work on electrically powered items
- **4.4.5 LIVE WORK:** Live work is authorised, planned and communicated and prohibits lone working
- **4.4.6 FAULT FINDING:** When investigating any electrical equipment to identify and rectify faults, all items must be treated as live until the fault is located
- **4.4.7 OVERHEAD CONDUCTORS:** Prevent inadvertent overhead services contact by equipment or operational activity
- **4.4.8 UNDERGROUND SERVICES:** Prior to ground disturbance, underground electrical services must be positively located with work planned accordingly

### MITIGATING CONTROLS (4.4.9)

- **4.4.9 EMERGENCY RESPONSE:** Appropriate first aid and rescue equipment must be available and nearby
RISK EVENT PREVENTATIVE CONTROLS AND PERFORMANCE STANDARDS

4.4.1 IDENTIFICATION AND SCHEMATICS

CONTROL
All electrical circuits including overhead and underground services are fully identified and recorded in schematics. Procedures exist for safe work.

PERFORMANCE STANDARD
i) Identify all electrical circuits and include schematics in a register(s) irrespective of whether the supply power arrangements are permanent or temporary.

Following installation or removal of any service, ensure comprehensive records and photographs are received from a delegated person such as a utility provider with schematics updated following changes.

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) Ensure nationally recognised standards of manufacture and installation of electrical equipment are identified with the assistance of qualified electrical professionals.

Check all electrical equipment supplied to Lendlease operations includes documentation confirming it meets the manufacturing standard identified in the procurement list.

iii) Ensure insulating mats are in place for risers and plant rooms that address any regulatory or applicable national or international codes or standards.

iv) Ensure confirmation is completed post installation of any electrical systems verifying that all circuits are installed as designed.

v) All electrical tools and equipment in the operation, including offices, must be regularly inspected, tested, tagged and marked safe for use.

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 an earth leakage circuit breaker (ELCB), residual current device (RCD) or ground fault circuit interrupter (GFCI).

ii) Ensure 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 and test for dead prior to any work on electrically powered items.

PERFORMANCE STANDARD
i) Use a qualified electrical technician or electrical engineer to undertake any electrical work.

ii) De-energise circuits and isolate using 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) Ensure all operations establish if work on live conductors is required before any investment or contract approvals.

ii) Make sure work on live electrical systems is not undertaken, except where deemed absolutely necessary by a competent person 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) Only undertake live work on critical utilities such as distribution and/or transmission networks as directed by the utility provider. Ensure any directive to undertake such activities is supported by documented safe systems of work and in line with legislated practices.

iv) Ensure earthing and short circuiting systems meet applicable national and/or international codes or regulations.

v) Ensure task specific PPE is issued, in place 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) Ensure a dedicated and appropriately qualified frontline leader is 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) Whilst isolated, locate and rectify the fault if found.

iii) Re-energise to determine if the fault has been fixed.

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 cardio pulmonary 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 all the time 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 controls in place to prevent plant coming into contact with these cables.

iii) For vehicles passing under energised conductors, ensure 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) Ensure a register is in place for buried electrical services on Lendlease 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, Lendlease operations must ensure that diagrams and plans are obtained from the relevant authority and are available and valid. Existing drawings and/or a Cable Avoidance Tool (CAT) scanner and any other suitable tool must be used to locate and mark underground services before work commences. Where any uncertainty exists regarding the location of underground services, hand digging and/or vacuum excavation must be used to identify the services.

iii) Where Lendlease 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.

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) Provide non-conductive rescue equipment to allow separation of a person safely from an electrical supply, resuscitation and treatment of burns.

ii) Locate rescue equipment within all plant rooms, discrete risers (construction and non-construction) and in all applicable service vehicles. They must be accessible when undertaking work.

iii) Train all workers involved in the work and site first aiders where appropriate to use the rescue equipment.

iv) 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.

**POTENTIAL CAUSES**

A. Plant, equipment or vehicle on fire due to inadequate maintenance, improper use or being unfit for purpose
B. Unsafe and non-conformant hot works
C. Ignition of flammable materials (e.g. gas, liquid or solids)
D. Self-combustion of gases, chemicals and strata
E. Unplanned sudden release of stored flammable materials (e.g. rupture)
F. Failure of component or system
G. Frictional ignition from equipment
H. Unauthorised smoking and other open flame ignition sources
I. Unsafe blasting activities
J. Unsafe re-fuelling activities
K. Utilities, electrical system or cable overheating
L. Poor housekeeping and unsafe storage of combustible materials
M. Intentional third party activities (e.g. arson)
N. Adverse weather conditions
O. Unintentional third party activities

**POTENTIAL IMPACTS**

PEOPLE: Death (single/multiple) – Lendlease and/or member of the public. Permanently disabling injury (physical/psychological). Community and social damage/impact

FINANCIAL: Financial/commercial damage (insurance claims, return to work costs)

BUSINESS CONTINUITY: Business continuity and disruption

REPUTATION: Reputational damage

LEGAL/REGULATORY: Legal/regulatory damage

ENVIRONMENT: Environmental damage

**MITIGATING CONTROLS (4.5.8-4.5.10)**

4.5.8 FIRE ALARM SYSTEMS: Fire alarm systems that detect and warn of smoke and fire emergencies must be in place

4.5.9 MEANS OF ESCAPE: Provide clear means of escape

4.5.10 FIRE FIGHTING EQUIPMENT: Provision of adequate and suitable firefighting equipment

**PREVENTATIVE CONTROLS (4.5.1-4.5.7)**

4.5.1 PRIORITISATION OF NON-COMBUSTIBLE MATERIALS: Substitute or minimise use of combustible materials with non-combustible or lowest combustible materials wherever possible

4.5.2 IGNITION SOURCES: Identify, minimise and manage ignition sources

4.5.3 INSPECTION AND MAINTENANCE: Inspect and maintain fire monitoring and mitigation systems and equipment

4.5.4 HOT WORK: Permits to work must be in place for all hot works activities

4.5.5 REFUELLING EQUIPMENT: Controlled refuelling areas and procedures for refuelling large equipment, plant, machinery and vehicles

4.5.6 EXCAVATIONS AND TUNNELLING: Geotechnical investigations must identify gas or trapped hydrocarbons

4.5.7 BEHAVIOURAL CONTROLS: Adequate policies, procedures and rules must be in place to limit unwanted behaviours
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 such as cross laminated timber (CLT), the product treatment and management practices must demonstrate that combustibility properties meet all local building regulations and material selection standards.

ii) Ensure operations comply with local building regulations and material selection standards for design and procurement applied by the business unit.

iii) Ensure the potential for fire at each stage of construction and asset operations, including fire from an adjoining property, is assessed given any changes to material requirements and storage.

iv) Ensure storage locations and requirements for all combustible material, dangerous goods and hazardous substances are identified and marked on site plans and at the storage location.

4.5.2 IGNITION SOURCES

CONTROL
Identify, minimise and manage ignition sources.

PERFORMANCE STANDARD
i) Ensure design and operational reviews 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 or sparking).

ii) Provide lightning protection where the risk of a strike is deemed high due to prevalence of electrical storms or data made available via meteorological agencies.

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. fire suppression).

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 Work Permit is required for all work where there is an elevated heat source or where sparks produced have the ignition energy to ignite any combustible material.

ii) A Hot Work Permit is to be applicable for no more than one day, with the authorising person(s) to check site conditions and specified risk controls.

iii) During hot works, the worker to whom the permit is issued must remain at the location of hot works at all times and until all ignition or heat sources are eliminated.

iv) Ensure the permit is issued only to individuals who are fluent in the language the permit is written in or who have been inducted in the permit requirements by a suitable 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 refuelling 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 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 be in place at all times and accompanied by those trained in response requirements (e.g. spill and fire response), protected by physical barriers.
   - Ensure emergency fuel flow shut off capability for bulk fuel supplies.

ii) Operations must implement suitable controls for the refuelling of small equipment and tools such as brush cutters, generators and demolition saws so as to prevent the occurrence of fire from hot manifolds or other engine components during refuelling.

iii) No refuelling of items that are energised is 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 ensure the International Electrotechnical Commission (IEC) 60079 series of explosive atmosphere standards are applied.
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.

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 ensure 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) At least two alternative means of escape must be provided for operations that are open to the public and must be provided for all operations. For low density residential dwellings where there is only one means of escape from upper levels, the provision of temporary emergency means of escape from elevated rooms or levels must be considered (e.g. provision of emergency ladders).

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) Emergency routes on operations under construction or temporary structures must offer a minimum of one hour fire resistance and have fire doors fitted to them.

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) Risers must progress with the construction or demolition of multi-storey buildings, be no more than two floors below the construction floor, be under constant pressure and be regularly tested to ensure adequate water flow rate/pressure for the length and diameter of the riser and hose attached. An alarm advising of when there is a drop in the water flow/pressure of the system must also be fitted.

iv) 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).

v) All firefighting equipment must be checked and serviced regularly, including testing of pump sets of wet risers and firefighting lift controls by a competent person in accordance with manufacturer guidelines or any applicable codes or regulations and the results recorded. A weekly visual check must be carried out on all firefighting equipment to ensure they have not been damaged, discharged or gone missing.

vi) Adequate access must be maintained 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, mast climbers, goods and passenger hoists, spider cranes and gantry cranes where a failure of the equipment or operation could result in a fatality. They do not apply to lower weight hoisting activities such as hoisting with excavators, concrete placing booms, pallet trucks, forklifts or the use of gin wheels.

POTENTIAL CAUSES

A. Failure of base, foundation or support (crane tower) including gantry rails, tie-backs and fixing points
B. Crane and lifting equipment overload from inappropriate or poor planning
C. Crane and lifting equipment collision (e.g. jibs)
D. Improper assembly or disassembly including crane jumping
E. Crane and lifting equipment is procured, used incorrectly or not to standard (e.g. insufficient locks and limit devices)
F. Adverse conditions (e.g. extreme weather conditions, slopes and ground conditions, moisture, rain, wind and lightning)
G. Operator misuse or incompetence
H. Operator fatigue or impairment (e.g. as a result of drug and/or alcohol use)
I. Inappropriate state of equipment resulting in component failure (e.g. age, lack of maintenance and base metal fatigue)
J. Impact from other plant or equipment
K. Fire on crane and lifting equipment
L. Sabotage

POTENTIAL IMPACTS

PEOPLE: Death (single/multiple) – Lendlease and/or member of the public. Permanently disabling injury (physical/psychological), Community and social damage/impact
FINANCIAL: Financial/commercial damage (insurance claims, return to work costs)
BUSINESS CONTINUITY: Business continuity and disruption
REPUTATION: Reputational damage
LEGAL/REGULATORY: Legal/regulatory damage
ENVIRONMENT: Environmental damage

PREVENTATIVE CONTROLS (4.6.1 – 4.6.9)

4.6.1 CRANES AND HOISTING EQUIPMENT IN USE: Only use lifting and hoisting equipment that addresses all applicable usage and operating requirements
4.6.2 LIFT PLANS: All crane and hoisting equipment must be in accordance with any lift plans
4.6.3 INSTALLATION, INSPECTION, MAINTENANCE AND DISMANTLING: Cranes and other hoisting equipment must be installed, erected, adjusted, climbed, inspected, maintained and dismantled in accordance with the manufacturer’s requirements
4.6.4 OVERSIGHT: All crane and hoisting equipment must be maintained and operated in accordance with the manufacturer’s operating instructions
4.6.5 TOWER CRANE ACCESS AND SECURITY: Security precautions must guard against unauthorised access to tower cranes
4.6.6 GROUND CONDITIONS: All cranes must be established and set up on approved ground conditions
4.6.7 FATIGUE MANAGEMENT: A fatigue management program must be in place for crane/hoist operators
4.6.8 PREVENTING PLANT COLLISIONS: Install hard barriers (tower crane), exclusion zones (mobile crane) or other barriers to prevent plant collisions
4.6.9 HANDLING OBJECTS: Uncontrolled movement of objects must not occur

MITIGATING CONTROLS (4.6.10-4.6.11)

4.6.10 EXCLUSION ZONES: Robust and controlled exclusion zones must be established, tested and approved
4.6.11 POST INCIDENT RESPONSE: Independent verification of the safe status of crane and hoisting equipment must be undertaken following an incident and before re-use
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 usage and operating requirements.

PERFORMANCE STANDARD

i) Cranes and any of the crane’s 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) All crane and hoisting equipment must be manufactured, inspected and tested to the requirements of the standards applicable to the region of operation. Tower cranes must be assessed against any international standards that are applicable (e.g. EN 14439) or local standards where requirements are higher.

iii) All crane and hoisting equipment in operational service must be fitted with limit switches and alarms that initiate at 95% 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.

iv) Tower cranes must be fitted with limit switches and alarms when operating in close proximity to other tower cranes and a secondary independent brake must be fitted on all winches.

v) The crane boom/jib safe operating envelope must be identified for each item of crane hoisting equipment on a range diagram.

vi) All crane rotating hoisting equipment must be adequately guarded by physical barriers to prevent the potential for entanglement.

vii) Monitoring data must be made available in real time for any tower crane or hoisting equipment fitted with computer monitoring.

viii) Crane towers must be fitted with lighting for safe access to the full height of the tower during early morning or evening hours.

ix) The maximum height required to be climbed by a tower crane operator must not be more than sixteen frames high, past which an intermediate ramp access must be provided.

x) Where a workbox is proposed for use to elevate people using a crane, a risk assessment must be undertaken to review safer alternatives and where determined as the only suitable means of access, its use shall be controlled by a permit to work.

xi) Any crane that uses a workbox to elevate people must be fitted with a secondary independent brake to all winches.

4.6.2 LIFT PLANS

CONTROL

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

PERFORMANCE STANDARD

i) A lift plan, approved by a qualified engineer, must be developed for all crane lifts greater than 20 tonnes and also for any lift that requires a crane to operate at greater than 95% 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.

ii) It must be noted that special lifts that require a third party independent engineer to review the lift plan and where required supervise the execution of a lift to confirm the adequacy of the lifting methodology 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 95% 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).

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, inspected, maintained and dismantled in accordance with the manufacturer’s requirements.

PERFORMANCE STANDARD

i) The installation and commissioning of a tower crane or other hoisting equipment requiring assembly must be reviewed and approved by a third party independent engineer prior to the first operational lift.

ii) A third party inspection regime must be implemented for selected lifting and hoisting equipment and included in the supply agreement. Where crane or other hoisting equipment is provided to Lendlease, 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 in accordance with the manufacturer’s instructions.

iii) All tower cranes that store more than 300 litres of diesel near the cab of the crane must ensure any diesel fuel supply lines and hydraulic oil supply lines are fire rated and that the crane is equipped with first response fire suppression capability, which can include an adequate fire suppression system and/or fire extinguishers in the cabin and on the machine deck.
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 modifications must be installed and verified by the manufacturer or its representative.

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 at the operation. The hoisting or crane lifting coordinator can be a supplier’s employee or a member of the crane crew. More than one coordinator may be required at a large site.

ii) All operations with tower cranes in use are required to provide a crane management plan that outlines all tower 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 rigging applicable to their region of operation and a minimum of two years’ experience as a hoisting or crane lifting coordinator if they are to work without a frontline leader.

iv) Where required, supervision of an inexperienced hoisting or crane lifting coordinator must be provided by another hoisting or crane lifting coordinator with more than four years’ experience and formal training in rigging or equivalent formal training relevant to the region of operation.

v) The manufacturer’s operating instructions must be readily available to the operator of 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 ladders 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 three metres (9.8 feet) 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 three metres (9.8 feet) in the horizontal and vertical plane above tie or access points must be used.

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.

PERFORMANCE STANDARD

i) Tower cranes require a competent engineer to design the crane base and to complete any interim checks during installation, provide approval for the crane to be installed and provide written confirmation that the base is fit for purpose. The crane base must then be reviewed and certified by a third party independent engineer.

ii) For planned mobile crane lifts, special lifts or crane lifts which require a lift plan to be approved by a qualified engineer as defined in 4.6.2, or where the crane lift supervisor is not satisfied with the adequacy of the ground condition’s bearing capacity, 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) The crane lift plan must define the dimensions and type of outrigger mats to be installed where applicable and the structural properties of the mats verified.

iv) If a severe weather event occurs (e.g. significant rainfall within 48 hours of the mobile crane lift) the adequacy of the ground conditions must be re-assessed and the CBR or equivalent test repeated if necessary, with results communicated and the lift delayed until this is complete.

4.6.7 FATIGUE MANAGEMENT

CONTROL

A fatigue management program must be in place for crane/hoist operators.

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 ensure all local regulations are adhered to. 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) and include the length and frequency of breaks, hydration, management of travel time to and from home, shift and rest pattern requirements and the application of fatigue recognition technology where
available or installed.

iii) Where a shift exceeds the parameters outlined above, fatigue management controls can include shift rotation, split shifts, late starts and additional time off.

iv) A record must be kept for each operator to confirm individual 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.

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 radii interface or overlap with other cranes, or when encroachment over a protected area such as a rail corridor must be prevented.

iv) A competent third party independent engineer must review and approve the out of service storage requirements for all luffing tower cranes and large mobile cranes greater than 200 tonnes. 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 redundant slinging or secondary containment for small objects.

ii) Slinging methods must manage any expected dynamic load forces (e.g. wind or sudden crane halt).

iii) All hoisting or lifting must be completed with the slung object’s centre of gravity lower than the sling attachment points where practicable.

iv) 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.

v) Objects transported through site must be adequately restrained to prevent uncontrolled movement.

vi) Deliveries where the load has the potential to fall or roll when unshackled must be inspected by a competent person (i.e. rigger or equivalent) and restrained before removal (e.g. chocked or slung with hoisting or lifting gear).

vii) 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, designed for lifting with certified lifting points and the rated capacity or safe working load clearly displayed.

viii) Where secondary containment is used internal objects must be secured against movement in transit to prevent uncontrolled movement when the containment is opened.

ix) All secondary slinging or 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.

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 zones for lifting or hoisting operations must be identified and included in the crane management plan.

ii) Wherever possible for mobile crane and tower crane operations the exclusion zone must be of a radius equal to the maximum crane height and clear of all personnel not involved in the hoisting operation.

iii) Personnel must not walk under suspended loads.

iv) Wherever possible for tower crane erection or jumping activities, all people including the public must be clear of works through the application of exclusion zones that as a minimum includes the area below the jib along its length and the direction in which it is positioned, the area below the works around the footprint of the base of the tower of the crane or the area through which the crane tower protrudes.

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 before any other lift is completed when it:

• Strikes a structure, other piece of hoisting equipment or plant while in use.
• Is struck by mobile plant.
• Has any load bearing part fail while in use.
• Is identified as operating without completing maintenance and inspections to the manufacturer’s requirements or applicable standards to the region of operation.
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 Lendlease 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.

**POTENTIAL CAUSES**

A. Mechanical failure (e.g. hydraulics)
B. Tampering or sabotage (e.g. tampering with guarding and bypassing interlocking)
C. Equipment is unfit for purpose (e.g. lack of or irregular maintenance, inadequate guarding or interlocking)
D. Inadequate planning (e.g. poor instructions on safe use and lack of segregation)
E. Operator error (e.g. competency and fatigue)

**POTENTIAL IMPACTS**

**PEOPLE:** Death (single/multiple) – Lendlease and/or member of the public. Permanently disabling injury (physical/psychological), Community and social damage/impact

**FINANCIAL:** Financial/commercial damage (insurance claims, return to work costs)

**BUSINESS CONTINUITY:** Business continuity and disruption

**REPUTATION:** Reputational damage

**LEGAL/REGULATORY:** Legal/regulatory damage

**ENVIRONMENT:** Environmental damage

**PREVENTATIVE CONTROLS (4.7.1 – 4.7.3)**

4.7.1 GUARDING: Implement robust machine operating guarding standards for hazardous equipment

4.7.2 PREVENTING ACCESS: Appropriate physical and non-physical security must be in place to prevent access to specific areas with hazardous equipment where guarding cannot be provided

4.7.3 LARGE MOBILE EQUIPMENT MAINTENANCE: Implement and monitor an appropriate maintenance regime for the equipment

**MITIGATING CONTROLS (4.7.4)**

4.7.4 ACTIVATIONS (CONTROLS) AND EMERGENCY STOPS: Equipment must be of a design that allows emergency stopping by trip devices and has manual controls that prevent hazardous and inadvertent machine operation
RISK EVENT PREVENTATIVE CONTROLS AND PERFORMANCE STANDARDS

4.7.1 GUARDING

CONTROL
Implement robust machine operating guarding standards for hazardous equipment.

PERFORMANCE STANDARD
i) Ensure guarded moving parts are retained by fasteners that adequately secure the guarding that requires the use of a tool to install and remove.
ii) Support maintenance and troubleshooting with a documented isolation system involving personal isolation locks.
iii) Check the guard fully protects the moving part and can withstand applied forces without dislodgement.
iv) Identify and assess the risk of troubleshooting, cleaning and maintenance tasks that bring people in proximity to exposed energised machine components.
v) Establish the presence and functionality of guards with regular inspections involving the machine operator.

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.

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.
ii) Check exclusion zones use suitable physical distance, barrier type and stability to prevent 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.
iv) Ensure operational personnel with responsibility for access administration (e.g. security) 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) Ensure all equipment is registered using unique identifiers.
ii) Check maintenance is in accordance with manufacturer’s recommendations or at shorter intervals if required and that maintenance manuals are provided prior to equipment arriving on site where under a supplier contract.
iii) Ensure inspection records remain with the machine.
iv) Check third party and manufacturer’s use requirements and risk assessments are kept in the machine.
v) If earthmoving equipment is being operated with quick hitch devices there must be a safe system of work adopted. It is essential that 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) Ensure manual controls are:
   • Clearly visible, identifiable and marked.
   • 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 prevents 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 apply where unplanned collapse of an excavation or stockpile could result in a fatality on a Lendlease operation.

POTENTIAL CAUSES

A. Incorrect construction working methods (e.g. poor sequencing, not following support standards leading to failure of the temporary or permanent support and inappropriate stockpiling)

B. Surcharge resulting from fixed and moving loads (e.g. vehicles, water ingress, adjacent work activities and vibration)

C. Adverse weather and natural disasters, including water ingress

D. Unexpected ground conditions (e.g. voids, ground or water pressure)

E. Inadequate design, procurement, planning, maintenance and inspection of excavation or stockpile including absence, failure or incorrect installation of support leading to failure of support

F. Inadequate awareness, skills and competency of workers and frontline leaders

EXCAVATION AND STOCKPILE COLLAPSE

POTENTIAL IMPACTS

PEOPLE: Death (single/multiple) – Lendlease and/or member of the public. Permanently disabling injury (physical/psychological). Community and social damage/impact

FINANCIAL: Financial/commercial damage (insurance claims, return to work costs)

BUSINESS CONTINUITY: Business continuity and disruption

REPUTATION: Reputational damage

LEGAL/REGULATORY: Legal/regulatory damage

ENVIRONMENT: Environmental damage (flooding, sediment and erosion)

PREVENTATIVE CONTROLS (4.8.1-4.8.3)

4.8.1 GROUND CONDITIONS: All excavations and stockpiles must be managed in accordance with known geological conditions

4.8.2 EXCAVATION MANAGEMENT: All excavations must consider safe angles, access and structural integrity

4.8.3 STOCKPILE MANAGEMENT: All stockpiles must consider safe angles, access and structural integrity

MITIGATING CONTROLS (4.8.4-4.8.5)

4.8.4 ROLLOVER PROTECTION AND FALLING OBJECT PROTECTIVE STRUCTURE: Use of Rollover Protection Structure (ROPS) on plant and equipment

4.8.5 EMERGENCY RESPONSE: Ensure there is an effective local emergency and response capability
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.

PERFORMANCE STANDARD

i) Identify ground and underlying conditions and hazards and ensure geotechnical engineered solutions are comparable with the risk.

ii) Assess the area for any underground services and identify as per GMRs 4.4.8 underground services and 4.15.4 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 ensure stability of excavations and stockpiles.

4.8.2 EXCAVATION MANAGEMENT

CONTROL

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

PERFORMANCE STANDARD

i) Excavations greater than 1.5 metres (4.9 feet) must be benched, shored, battered back or sloped to a safe angle as determined by the qualified engineer in the excavation design process. An angle of repose of 45 degrees must not be exceeded unless designed and certified by a geotechnical engineer.

ii) Where benching or battering is not possible, trenches and excavations must be mechanically shored to prevent collapse.

iii) Adjacent structures, roads and sidewalks must be supported or protected where necessary to prevent collapse.

iv) Materials and equipment must be placed at a safe distance from the edge of excavations.

v) Adequate signage, physical barriers and lighting must be provided to prevent falls into excavations, especially for plant working on those excavations and vehicles or plant from adjacent thoroughfares. Temporary stairs must be installed to provide safe access into excavations where appropriate.

vi) Water ingress into excavations must be controlled to ensure stability and where water is present in deep excavations an appropriate dewatering program must be in place.

vii) Daily inspections of all excavations must be undertaken.

4.8.3 STOCKPILE MANAGEMENT

CONTROL

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

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) 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.

vii) 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.

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.

ii) Fit seat belts to all occupant positions.

iii) Decoupling technology for dog and trailers and cabin stability technology is to be implemented.

4.8.5 EMERGENCY RESPONSE

CONTROL

Ensure there is an 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 failure scenarios such as specific recovery equipment (e.g. type and location) and training requirements.
4.9 FAILURE OF STRUCTURES (TEMPORARY OR PERMANENT)

DESCRIPTION: These critical controls and performance standards apply where a structural failure occurs on any temporary (e.g. scaffold, formwork or temporary works/access platform) or permanent structure (e.g. completed structure or demolition works) that could cause a fatality.

**POTENTIAL CAUSES**

A. Inadequate design relating to ground stability, foundations and structure
B. Inadequate construction, workmanship and installation (e.g. overloading, incorrect sequencing, not following design or unauthorised alteration)
C. Impact by third party activities (e.g. struck by vehicle or plant, third party activities, weather affecting ground stability or leading to the undermining or erosion of adjacent ground and sabotage)
D. Inadequate maintenance, inspection and testing, including stability of permanent structures supporting the temporary works
E. Operator incompetence

**POTENTIAL IMPACTS**

PEOPLE: Death (single/multiple) – Lendlease and/or member of the public. Permanently disabling injury (physical/psychological). Community and social damage/impact
FINANCIAL: Financial/commercial damage (insurance claims, return to work costs)
BUSINESS CONTINUITY: Business continuity and disruption
REPUTATION: Reputational damage
LEGAL/REGULATORY: Legal/regulatory damage
ENVIRONMENT: Environmental damage

**PREVENTATIVE CONTROLS (4.9.1 – 4.9.2)**

4.9.1 STRUCTURAL INTEGRITY: Appropriate methods for adjusting temporary and permanent structures must be in place
4.9.2 INSTALLATION: The installation of structural elements must be subject to quality management rigour and certification

**MITIGATING CONTROLS (4.9.3)**

4.9.3 EXCLUSION ZONES/OVERHEAD PROTECTION: An adequate exclusion zone or overhead protection must be in place for demolition works or any other controlled method of structural deconstruction where there is a risk of structural collapse beyond the applicable area
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) Ensure suppliers and installers of both temporary and permanent structures consider 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) Pursue and implement methodologies, systems, technology or equipment that can provide early warning of any impending structural failure.

iii) Proprietary or engineered systems certified by a qualified and registered structural engineer must be used at all times and all elements must be installed without variance to any agreed methodology and engineering tolerances.

iv) Temporary and permanent multi-storey structures must take into consideration all climatic possibilities, ground conditions and geology including earthquake risk.

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, competent and registered engineer according to its intended use and be reviewed by a qualified, competent and independently registered engineer. Once installed, erected or after a change to the design the temporary works must be verified by a qualified, competent and independently registered engineer to ensure the design intent is met.

ii) All proprietary systems must be in accordance with the manufacturer’s recommendations. 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 and constructing temporary works, including safe loading limits.

iv) All floors under construction must ensure the maximum applicable loads that will be experienced on each floor during the construction phase (e.g., from material storage, lifting operations and waste) is considered when calculations for loading thresholds are applied.

v) All scaffolds must be stable and secure to prevent movement and collapse. Scaffolds must be plumb, have adequate cross-bracing, sound footings and be tied into structure where height or base ratio is greater than 2:1. 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 competent person to ensure equipment is appropriate for the specific use and is erected, altered or dismantled by competent people following safe methods of work.

vii) All demolition work involving structural removal must be subject to approval from a structural engineer where any structural elements are proposed to be removed.

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.

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 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) Ensure exclusion zones are 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) Ensure planning for both construction and asset works identify 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. 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 Lendlease operation where there is a risk of occupational exposure to hazardous substances, asbestos or silica, extreme temperatures, flora, fauna or allergens that could realistically result in the death of one or more people.

#### POTENTIAL CAUSES

<table>
<thead>
<tr>
<th>A.</th>
<th>Exposure to identified or unidentified hazardous substances</th>
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</thead>
<tbody>
<tr>
<td>B.</td>
<td>Ineffective management of known hazardous substances</td>
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<tr>
<td>C.</td>
<td>Existing structures containing asbestos and other hazardous materials are disturbed during inspection, maintenance, cleaning, demolition or renovation</td>
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<tr>
<td>D.</td>
<td>Asbestos air monitoring is ineffective</td>
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<tr>
<td>E.</td>
<td>Clothing or PPE is inappropriate or not used during exposure whilst working</td>
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<tr>
<td>F.</td>
<td>Level and duration of exposure to natural/artificial temperatures including unexpected temperature changes</td>
</tr>
<tr>
<td>G.</td>
<td>Inadequate or inappropriate clothing</td>
</tr>
<tr>
<td>H.</td>
<td>Excessive physical activity and duration</td>
</tr>
<tr>
<td>I.</td>
<td>Pre-existing illness or medical conditions</td>
</tr>
<tr>
<td>J.</td>
<td>Failure of cooling, heating or ventilation systems</td>
</tr>
<tr>
<td>K.</td>
<td>Insufficient consumption of water and food</td>
</tr>
<tr>
<td>L.</td>
<td>Falling elements (e.g. trees or tree limbs whilst clearing or working underneath)</td>
</tr>
<tr>
<td>M.</td>
<td>Contact with flora or fauna (e.g. toxic flora, spiders, snakes, fire ants, dogs, urine or faecal matter)</td>
</tr>
</tbody>
</table>

#### POTENTIAL IMPACTS

| PEOPLE: | Death (single/multiple) – Lendlease and/or member of the public. Permanently disabling injury (physical/psychological), Community and social damage/impact |
| FINANCIAL: | Financial/commercial damage (insurance claims, return to work costs) |
| BUSINESS CONTINUITY: | Business continuity and disruption |
| REPUTATION: | Reputational damage |
| LEGAL/REGULATORY: | Legal/regulatory damage |
| ENVIRONMENT: | Environmental damage (contamination, pollution events, habitat destruction) |

#### MITIGATING CONTROLS (4.10.7)

**4.10.7 OCCUPATIONAL HEALTH EXPOSURE RESPONSE:** Response mechanisms must be in place should an occupational health exposure event occur.

#### PREVENTATIVE CONTROLS (4.10.1-4.10.6)

**4.10.1 HAZARDOUS SUBSTANCE AND HAZARDOUS MATERIALS IDENTIFICATION:** Ensure Lendlease is knowledgeable of any known hazardous substances or hazardous materials and the implications for future management of the asset

**4.10.2 STORAGE AND MINIMISATION:** Hazardous substances, dangerous goods and hazardous materials must not be stored on site except for small volumes in purpose built structures

**4.10.3 ASBESTOS REGISTER AND MAINTENANCE PLAN:** Ensure Lendlease is aware of the extent of asbestos so that an informed decision can be made on the acquisition and future management of the asset

**4.10.4 HEALTH MONITORING:** Health monitoring must be completed for all workers specifically handling or removing ACM, NOA or other hazardous material

**4.10.5 WORK IN EXTREME TEMPERATURES:** 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

**4.10.6 INTERACTION WITH FLORA, FAUNA AND ALLERGENS:** Risks associated with potential interaction with dangerous plants and animals must be managed to minimise the risk of harm
RISK EVENT PREVENTATIVE CONTROLS AND PERFORMANCE STANDARDS

4.10.1 HAZARDOUS SUBSTANCE AND HAZARDOUS MATERIALS IDENTIFICATION

CONTROL

Ensure Lendlease is knowledgeable of any known hazardous substances or hazardous materials and the implications for future management of the asset.

PERFORMANCE STANDARD

i) When acquiring an asset, identify retained hazardous substances and hazardous materials on site and the need for their use in managing the asset.

ii) Identify in pre-construction reviews any hazardous substances proposed for construction or final use. Only accept hazardous substances where no effective less hazardous alternative can be demonstrated.

iii) The following substances and materials are hazardous and their use, handling or storage is not permitted in new designs. Any of these substances must be treated as high risk if encountered:

- Asbestos or asbestos containing products
- 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
- Other hazardous materials, substances and chemicals banned or restricted by law

4.10.2 STORAGE AND MINIMISATION

CONTROL

Hazardous substances, dangerous goods and hazardous materials must not be stored on site except for small volumes in purpose built structures.

PERFORMANCE STANDARD

i) Only minimum amounts of hazardous substances, dangerous goods and hazardous materials are to be used. Suppliers must state why it is needed, what the minimum amount is and provide the full Safety Data Sheet (SDS).

ii) Ensure hazardous substances, dangerous goods and hazardous materials (e.g. fuels, oils, chemicals, solvents, pesticides and fertilisers) are not stored on-site except for small volumes stored within a well-ventilated, purpose built structure with roof cover. The store must have a concrete sealed or equivalent impervious floor with bunding, isolated drainage, signage and security fencing. Position hazardous substances and dangerous goods storage locations away from high traffic areas, pedestrian zones and environmentally sensitive areas such as waterways or natural habitats.

iii) Ensure all operations with hazardous substances and dangerous goods storage have appropriate spill kit materials and firefighting equipment and Safety Data Sheets (SDS) readily available along with adequately trained safety and first aid professionals.

iv) Ensure operations with hazardous materials such as asbestos or lead clearly identify and label such materials and isolate and safely secure (e.g. encapsulate) any areas where hazardous materials have been damaged until a licensed contractor can remove the materials and reinstate a non-hazardous alternative.

v) No new underground bulk fuel storage tanks are to be installed on Lendlease 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.

vi) Identify, secure and maintain existing underground or above ground fuel tanks still in use on the site in accordance with regulatory requirements.
4.10.3 ASBESTOS REGISTER AND MAINTENANCE PLAN

CONTROL
Ensure Lendlease is aware of the extent of asbestos so that an informed decision can be made on the acquisition and future management of the asset.

PERFORMANCE STANDARD
i) Ensure that a hazardous materials survey is carried out for all assets prior to acquisition.
ii) Ensure an asbestos register and asbestos management plan for asbestos containing material (ACM) is 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) Ensure all workers where ACM is present receive awareness training that addresses the type, quantity and location of ACM and its health effects, safe working practices including PPE and the combined effects of smoking and asbestos.
iv) Ensure appropriate licences for the location and regulatory requirements are held for repairers, maintainers and removalists where needed.
v) Ensure all people working on ACM are explicitly authorised, either by Lendlease or a supplier. The design of processes for working with ACM must include methods to prevent the creation of airborne fibres.
vi) Where a product is identified that may contain ACM, precautions must be taken until a registered hygienist or independent testing authority confirms no ACM is present or that the ACM can be encapsulated.
vii) Ensure suppliers proposed to work on or remove naturally occurring asbestos (NOA) or ACM 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 removal experience.
viii) Perform air monitoring whenever ACM and NOA is being removed or handled.

4.10.4 HEALTH MONITORING

CONTROL
Health monitoring must be completed for all workers specifically handling or removing ACM, NOA or other hazardous material.

PERFORMANCE STANDARD
i) Record each worker’s history of estimated and known exposure to ACM or other hazardous material as part of medical examinations.
ii) Ensure all workers coming into the operations to handle or remove ACM, NOA or other hazardous material such as lead have up to date medical examinations.
iii) Ensure all workers who work regularly and on an ongoing basis with ACM, NOA or other hazardous material have a biannual medical examination involving a lung function test.

4.10.5 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) ensure adequate security and controlled access is 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 management plans, monitoring of environmental conditions and weather and providing adequate clothing that protects from the elements.

4.10.6 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. Ensure the review is both desktop and physically undertaken 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 awareness training to reduce risk of exposure.

RISK EVENT MITIGATING CONTROLS AND PERFORMANCE STANDARDS

4.10.7 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 Lendlease operation where there is potential to adversely impact 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.

POTENTIAL CAUSES

A. Food contamination from poor food safety practices
B. High risk food (e.g. seafood, dairy and poultry)
C. Inadequate design for waterborne organisms (e.g. dead legs, cooling towers and water systems)
D. Water borne, air borne or soil borne contamination (e.g. sewers, drift and adjacent exhausts)
E. Overcrowding
F. Equipment failure (e.g. escalator reversal)
G. Inadequate design (e.g. incorrect floor loading)
H. Outbreak
I. Poor sanitation
J. Natural disaster
K. Biological or radioactive incident
L. Sabotage, terrorism or conflict
M. Inadequate investment in public health

POTENTIAL IMPACTS

PEOPLE: Death (single/multiple) – Lendlease and/or member of the public. Permanently disabling injury (physical/psychological). Community and social damage/impact
FINANCIAL: Financial/commercial damage (insurance claims, return to work costs)
BUSINESS CONTINUITY: Business continuity and disruption
REPUTATION: Reputational damage
LEGAL/REGULATORY: Legal/regulatory damage
ENVIRONMENT: Environmental damage (contamination, pollution events, habitat destruction)

MITIGATING CONTROLS (4.11.4)

4.11.4 DISEASE/PANDEMIC EXPOSURE
RISK EVENT PREVENTATIVE CONTROLS

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) Ensure commercial operations supplying food prepared and stored by Lendlease directly hold a current third party certified food safety certification.

4.11.2 LEGIONELLA AND WATERBORNE ORGANISM CONTROL

i) 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).

ii) 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).

iii) 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 best practice must be implemented with appropriate records maintained.

iv) All monitoring and maintenance must be planned and conducted by a competent person 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.

4.11.3 AVOIDANCE OF CRUSH FROM CROWDS

i) Ensure all buildings 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) Ensure all operations allowing public access 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.

RISK EVENT MITIGATING CONTROLS

4.11.4 DISEASE/PANDEMIC EXPOSURE

i) Subscribe to available international alert systems such as International SOS to monitor any outbreak of a potentially fatal pathogen.

ii) Where an outbreak 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 both local seasonal pathogens and outbreaks of other public health issues in areas of 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.

vi) Complete regular scenario planning for large crowd numbers and adjust procedures to meet these needs.
4.12 MENTAL HEALTH AND FATIGUE

DESCRIPTION: These critical controls apply to any Lendlease operation where people may experience undue physical or mental pressures, particularly 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.

POTENTIAL CAUSES

A. Traumatic event (e.g. shock)
B. Pre-existing condition (e.g. physical or mental)
C. Stress (e.g. personal or environmental)
D. Organisational change and uncertainty (e.g. redundancy)
E. Changing personal circumstances
F. Substance abuse or misuse
G. Poor diet and nutrition
H. Lack of physical activity

POTENTIAL IMPACTS

PEOPLE: Death (single/multiple) – Lendlease and/or member of the public. Permanently disabling injury (physical/psychological), Community and social damage/impact
FINANCIAL: Financial/commercial damage (insurance claims, return to work costs)
BUSINESS CONTINUITY: Business continuity and disruption
REPUTATION: Reputational damage
LEGAL/REGULATORY: Legal/regulatory damage

PREVENTATIVE CONTROLS (4.12.1- 4.12.2)

4.12.1 TASKS AND WORKLOAD
4.12.2 WORK AND REST AREAS

MITIGATING CONTROLS (4.12.3)

4.12.3 MENTAL HEALTH SUPPORT
RISK EVENT PREVENTATIVE CONTROLS

4.12.1 TASKS AND WORKLOAD

i) Establish the numbers of personnel, both Lendlease 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. All overtime must be strictly 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 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 key tasks where worker fatigue could lead to mistakes that could cause the fatal injury of any person such as a crane or plant operator, driver or other safety critical role. Specify clear limits on weekly and daily working hours for these tasks and what rest breaks are required.

iii) Proactively monitor actual hours spent working.

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 area clearly marked as a break out/rest area with sufficient seating and rest areas for peak numbers of workers.

RISK EVENT MITIGATING CONTROLS

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) Provide general awareness of mental health issues to employees and suppliers working for Lendlease as appropriate to their role and duration of employment.

iii) Establish Mental Health First Aiders or equivalent employees trained to identify the likely signs of poor mental health in colleagues and suppliers and who are able to intervene and direct individuals showing signs of mental health issues to available support services.
4.13 DEGRADATION OR POLLUTION OF THE ENVIRONMENT

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

POTENTIAL CAUSES

A. Inadequate implementation and maintenance of stormwater, sediment and erosion control devices, systems and solutions
B. Inappropriate or unplanned wastewater discharge
C. Uncontrolled release of noise, exhaust or other emissions and pollutants into the atmosphere
D. Unplanned disturbance and failure to manage known contaminants, soils or groundwater
E. Unplanned disturbance of biodiversity and natural habitats
F. Unplanned disturbance of areas and items of cultural or archaeological heritage

POTENTIAL IMPACTS

PEOPLE: Community and social damage/impact
FINANCIAL: Financial/commercial damage (insurance claims, return to work costs)
BUSINESS CONTINUITY: Business continuity and disruption
REPUTATION: Reputational damage
LEGAL/REGULATORY: Legal/regulatory damage
ENVIRONMENTAL DAMAGE: Environmental damage (contamination, pollution events, habitat destruction)

PREVENTATIVE CONTROLS (4.13.1-4.13.5)

4.13.1 STORMWATER, SEDIMENT AND EROSION CONTROL
4.13.2 AIR, NOISE AND VIBRATION EMISSIONS
4.13.3 SOILS AND GROUNDWATER CONTAMINATION
4.13.4 BIODIVERSITY AND NATURAL HABITATS
4.13.5 HERITAGE AND ARTEFACTS

MITIGATING CONTROLS

To be assessed by region, business unit or operation as appropriate.
RISK EVENT PREVENTATIVE CONTROLS

4.13.1 STORMWATER, SEDIMENT AND EROSION CONTROL

i) Ensure that all activities where land is cleared, excavated or disturbed have sediment and erosion control devices implemented and maintained. These devices prevent topsoil loss, land degradation as well as the export of soil, silt or sediment off-site.

ii) Stormwater and sediment control risks must be controlled with solutions appropriately designed and maintained to prevent uncontrolled discharges to air, land or water. Provide on-site treatment of any stormwater runoff where required.

iii) Implement adequate controls on all operations to prevent water pollution and any pollutants from entering adjacent drainage areas such as watercourses, water bodies, bays or other marine environments and stormwater systems through uncontrolled discharges.

iv) Ensure all wastewater discharged from operations such as sediment impacted stormwater or process water but excluding sewage is in accordance with any applicable planning and licence conditions (e.g. controlled discharge points where testing and monitoring is conducted). Maintain all water quality testing and individual discharge records for audit purposes.

4.13.2 AIR, NOISE AND VIBRATION EMISSIONS

i) Determine preventative controls for all activities involving excavation, 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.

ii) Assess and implement mitigation measures for all noise and vibration related impacts on occupants, visitors, surrounding activities and owners where required to ensure operations do not adversely impact them.

iii) Ensure all industrial process facilities or site based plant and equipment are serviced regularly in accordance with manufacturer guidelines so that noise, exhaust or other emissions generated are within the specified standards to prevent harm to people and the environment.

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.

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 competent person is able to determine the contamination status or risk.

iii) Plan and conduct all excavation, movement, treatment, processing or remediation of contaminated soils or groundwater in accordance with the requirements of high risk activities.

iv) Ensure all site remediation activities are conducted in accordance with regulatory requirements including provision for any decontamination and wash/disposal facilities.

4.13.4 BIODIVERSITY AND NATURAL HABITATS

i) 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.

ii) 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.

iii) 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.

4.13.5 HERITAGE AND ARTEFACTS

i) Ensure all items of heritage, cultural or archaeological significance are included on construction plans, signposted and protected in accordance with regulatory requirements.

ii) Ensure any excavations, intrusive works or other operations that have the potential to impact areas of known heritage, cultural or archaeological significance are performed in accordance with a heritage assessment and any regulatory requirements. This may include a dilapidation survey, supervision of works by a competent person and vibration monitoring.

iii) Signpost and segregate any such areas by erecting physical barriers to prevent unauthorised entry. Plan and conduct all activities potentially impacting known areas in accordance with the requirements of high risk activities.

iv) Cease any activities that involve the discovery of items that may be of cultural or archaeological significance until a competent person is able to determine the status of any potential artefact(s).

RISK EVENT MITIGATING CONTROLS

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 Lendlease vehicles on any Lendlease controlled operating asset (e.g. retail, residential, commercial parking and public vehicle access areas). They also include the use of any Lendlease tool of trade vehicles on public roads where a fatality could occur. They do not cover construction site vehicle traffic or Lendlease heavy equipment. They also do not include personal small vehicles such as bicycles, customer low speed car park manoeuvres or single drop delivery drivers.

POTENTIAL CAUSES

A. Driver error (e.g. competency, impairment, fatigue or used in an unsafe manner and distractions such as spotters)

B. Mechanical failure (e.g. tyres and brakes)

C. Inadequate planning and methodology (e.g. lack of segregation, public transport interfaces, plant/personnel, loss of control, miscommunication and traffic control including entry/exit to sites)

D. Sub-standard road, environmental and weather conditions (e.g. turning points, fog, unclear pedestrian/vehicle interface/management, restricted views, blind spots, poor lighting or visibility, poor road markings and obstacles)

E. Vehicle or equipment is unfit for purpose (e.g. through lack of maintenance, poor procurement, structural fatigue and exceeding the design life)

F. Third party event (e.g. member of public error or misuse, visitor error, animal error, unplanned medical event, co-worker error, sabotage, medical event, co-worker error, sabotage, theft and contact with other equipment)

POTENTIAL IMPACTS

- PEOPLE: Death (single/multiple) – Lendlease and/or member of the public. Permanently disabling injury (physical/psychological), Community and social damage/impact
- FINANCIAL: Financial/commercial damage (insurance claims, return to work costs)
- BUSINESS CONTINUITY: Business continuity and disruption
- REPUTATION: Reputational damage
- LEGAL/REGULATORY: Legal/regulatory damage
- ENVIRONMENTAL DAMAGE: Environmental damage (e.g. spilt fuels)

MITIGATING CONTROLS

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


- 4.14.1 TRAFFIC PLANNING
- 4.14.2 PEDESTRIAN AND VEHICLE SEGREGATION
- 4.14.3 PARKING AND TRAFFIC ROUTES
- 4.14.4 SAFE VEHICLE USAGE
4.14.1 TRAFFIC PLANNING

i) Ensure any applicable traffic management plans or regulatory required traffic management protocols are 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.

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 ensure 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 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.

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 (6mph) and signage and traffic calming devices must be in place where building entry and exit points lead onto any area where vehicles can operate.

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 oversize 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 or traffic signallers.

4.14.4 SAFE VEHICLE USAGE

i) Vehicles used as a tool of trade by Lendlease personnel must be operated in a safe manner at all times.

ii) 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 standard.

iv) Vehicles provided by Lendlease 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.

vi) Vehicle journeys of two hours or more continual driving must be planned to ensure adequate rest breaks are in place and that there is provision to manage fatigue.

vii) Mobile phones, 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. 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 Lendlease 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 ensure 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 vehicle wheels.

RISK EVENT MITIGATING CONTROLS

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 Lendlease operation containing plant, machinery or equipment that provides energy and which, if released, could result in a permanently disabling injury, single fatality or multiple fatalities. This includes pipework located where leakage could cause catastrophic collapse of structure (e.g. ceiling), inundation of an area (e.g. the general public) or asphyxiation. 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.

POTENTIAL CAUSES

A. Strike or damage
B. Integrity failure
C. Lack of maintenance
D. Incompatible components, incorrect installation or defective system or product
E. Temporary or adjacent works failure
F. Environmental event
G. Improper use, storage, movement or handling
H. Over pressurised during commissioning
I. Unidentified pressure, stress or tension
J. Part-purged or incomplete de-energising

PREVENTATIVE CONTROLS (4.15.1-4.15.5)

4.15.1 ISOLATION
4.15.2 EQUIPMENT TYPES
4.15.3 IDENTIFICATION AND MAINTENANCE
4.15.4 QUALITY CONTROL
4.15.5 UNDERGROUND SERVICES (NON-ELECTRICAL)

UNCONTROLLED RELEASE OF STORED ENERGY (NON-ELECTRICAL)

POTENTIAL IMPACTS

PEOPLE: Death (single/multiple) – Lendlease and/or member of the public. Permanently disabling injury (physical/psychological). Community and social damage/impact
FINANCIAL: Financial/commercial damage (insurance claims, return to work costs)
BUSINESS CONTINUITY: Business continuity and disruption
REPUTATION: Reputational damage
LEGAL/REGULATORY: Legal/regulatory damage
ENVIRONMENTAL DAMAGE: (contamination, fire, flooding, habitat destruction)

MITIGATING CONTROLS (4.15.6)

4.15.6 REDUCE CONSEQUENCES OF RELEASE
RISK EVENT PREVENTATIVE CONTROLS

4.15.1 ISOLATION

i) Before undertaking work on systems that contain stored energy, 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 lock out system such as the use of 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.

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) Ensure systems are 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.

4.15.3 IDENTIFICATION AND MAINTENANCE

i) When 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, provide them within three months of the transaction.

ii) Develop a maintenance and mechanical integrity program for all stored energy systems suitable for the system, including periodic third party inspection and examination. 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. Ensure written procedures are in place for the operation and maintenance of stored energy systems.

v) Ensure procedures include methods for safe energy discharge, isolation and demonstration that energy has been removed before invasive maintenance takes place.

4.15.4 QUALITY CONTROL

i) Implement quality control and quality assurance for the procurement and installation of any stored energy system to ensure that it meets design requirements.

ii) Implement quality control of the design and engineering of stored energy systems to ensure that the design is fit for purpose.

iii) All stored energy systems must be designed by a qualified, competent and registered engineer according to its intended use and be reviewed by a qualified, competent and independently registered engineer. Once installed, erected or after a change to the design the stored energy system must be verified by a qualified, competent and independently registered engineer to ensure the design intent is met.

4.15.5 UNDERGROUND SERVICES (NON-ELECTRICAL)

i) Ensure a register is in place for all buried services across all Lendlease 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 the services.

iii) Prior to the disturbance of ground where underground network assets such as electrical or gas may be present, Lendlease operations must ensure that current diagrams and plans are available and obtained from the relevant authority.

RISK EVENT MITIGATING CONTROLS

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 Lendlease operation could result in the unplanned collapse of a tunnel resulting in a fatality.

**POTENTIAL CAUSES**

A. Incorrect construction working methods (e.g. poor sequencing and not following support standards leading to failure of the temporary or permanent support)

B. Surcharge resulting from fixed and moving loads (e.g. vehicles, water ingress, adjacent work activities and vibration)

C. Adverse weather and natural disasters, including water ingress or resulting in vibration

D. Unexpected ground conditions (e.g. voids, ground or water pressure)

E. Inadequate design, procurement, planning, maintenance and inspection of tunnel

F. Fire and explosion (e.g. blasting resulting in vibration)

G. Vehicle impact creating surcharge in excavation and damage to tunnel support structure

**POTENTIAL IMPACTS**

PEOPLE: Death (single/multiple) – Lendlease and/or member of the public. Permanently disabling injury (physical/psychological), Community and social damage/impact

FINANCIAL: Financial/commercial damage (insurance claims, return to work costs)

BUSINESS CONTINUITY: Business continuity and disruption

REPUTATION: Reputational damage

LEGAL/REGULATORY: Legal/regulatory damage

ENVIRONMENTAL DAMAGE: (contamination, fire, flooding, habitat destruction)

**PREVENTATIVE CONTROLS (4.16.1-4.16.3)**

4.16.1 GEOLOGICAL HAZARDS

4.16.2 MONITORING AND INSPECTION

4.16.3 UNAUTHORISED ACCESS

**MITIGATING CONTROLS (4.16.4-4.16.6)**

4.16.4 FALLING OBJECT PROTECTIVE STRUCTURE

4.16.5 RESCUE CHAMBERS/SELF-RESCUERS

4.16.6 EMERGENCY RESPONSE
RISK EVENT PREVENTATIVE CONTROLS

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

4.16.2 MONITORING AND INSPECTION
i) Ensure ground support plans address geotechnical issues, describe and illustrate methods of ground support, clarify roles and responsibilities and address inspection regimes.
ii) Ensure engineered monitoring and warning systems are in place for tunnels where failure of the sides or roof could lead to the entrapment of people.
iii) Ensure engineered monitoring and warning systems are supported by training people to make relevant geotechnical observations of impending failure.

4.16.3 UNAUTHORISED ACCESS
i) Ensure all work involving tunnels identifies 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

4.16.4 FALLING OBJECT PROTECTIVE STRUCTURE
i) 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) Ensure 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) could fall and result in a fatal outcome.

POTENTIAL CAUSES

A. Poor quality assurance practices
B. Inadequate selection or quality of materials
C. Inadequate construction, workmanship and installation (e.g. overloading, incorrect sequencing, not following design or unauthorised alteration)
D. Impact by third party activities (e.g. struck by vehicle or plant)
E. Inadequate maintenance, inspection and testing
F. Weather related impacts (e.g. high winds)

POTENTIAL IMPACTS

PEOPLE: Death (single/multiple) – Lendlease and/or member of the public. Permanently disabling injury (physical/psychological). Community and social damage/impact
FINANCIAL: Financial/commercial damage (insurance claims, return to work costs)
BUSINESS CONTINUITY: Business continuity and disruption
REPUTATION: Reputational damage
LEGAL/REGULATORY: Legal/regulatory damage

PREVENTATIVE CONTROLS (4.17.1-4.17.2)

4.17.1 FIXTURES AND FITTINGS
4.17.2 INSTALLATION

MITIGATING CONTROLS (4.17.3)

4.17.3 EXCLUSION ZONES/OVERHEAD PROTECTION
RISK EVENT PREVENTATIVE CONTROLS

4.17.1 FIXTURES AND FITTINGS

i) If a building element could fall from its overhead positioning its fixings must be adequately engineered using, where possible, a tested proprietary system certified for its intended use.

ii) Ensure suppliers and installers of fixtures and fittings consider engineering solutions that provide the highest degree of certainty relating to structural integrity for both temporary and permanent structures in the installation of fixtures and fittings.

4.17.2 INSTALLATION

i) Install all elements without variance against agreed methodology and engineering tolerances.

ii) Quality management processes must be implemented to determine that structural components or fittings and fixtures are installed using the documented components, adequately tensioned or fixed, free of defects, with the allocated number and type of fasteners and complete with a record of inspection and testing.

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.

RISK EVENT MITIGATING CONTROLS

4.17.3 EXCLUSION ZONES/OVERHEAD PROTECTION

i) Ensure exclusion zones are 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) Ensure 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 Lendlease operation situated on or adjacent to water into which someone could fall with the fatal risk of drowning.

**POTENTIAL CAUSES**

A. Contact with water (e.g. fall into excavation/pile, driving plant into water, water ingress into workspace or sinking of vessel)
B. Inability to swim
C. Inappropriate PPE, lack of or no PPE available
D. Inappropriate work processes (e.g. lone working or unknown tidal information)
E. Flooding
F. Inappropriate diving operations (e.g. faulty gear or incorrect air mix)

**POTENTIAL IMPACTS**

PEOPLE: Death (single/multiple) – Lendlease and/or member of the public. Permanently disabling injury (physical/psychological). Community and social damage/impact
FINANCIAL: Financial/commercial damage (insurance claims, return to work costs)
BUSINESS CONTINUITY: Business continuity and disruption
REPUTATION: Reputational damage
LEGAL/REGULATORY: Legal/regulatory damage

**PREVENTATIVE CONTROLS (4.18.1-4.18.4)**

4.18.1 WORK IN, ABOVE, OR ADJACENT TO WATER
4.18.2 SYSTEMS OF WORK
4.18.3 MANAGEMENT AND CREATION OF WATER BODIES
4.18.4 SWIMMING POOLS

**MITIGATING CONTROLS (4.18.5)**

4.18.5 RESCUE AND RESUSCITATION PROTOCOLS
RISK EVENT PREVENTATIVE CONTROLS

4.18.1 WORK IN, ABOVE, OR ADJACENT TO WATER

i) Work activities above, in or adjacent to water (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 risk. Worker exposure to water must be assessed and minimised with work practices aligned to applicable codes and regulatory requirements.

ii) Proof of competency for divers and all maritime plant and equipment operators must be provided.

iii) Work activities reliant on favourable climatic conditions, flow shut-off protocols (within water and sewerage treatment facilities) and monitoring equipment and protocols 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 ensure 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 that have standing water. As a minimum, procedures must cover:
   • Working and prefabricating components away from water wherever possible.
   • Secondary barriers or nets to prevent contact with water if the normal barriers have to be worked beyond.
   • 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 and never allowing lone working near or in water.
   • All workers wearing fully functioning personal floatation devices when working near or over water.
   • Verifying that all workers are able to swim.
   • Guidelines for crossing roads flooded with moving water and identifying driving protocols where this activity is proposed to be carried out.

4.18.3 MANAGEMENT AND CREATION OF WATER BODIES

i) All natural bodies of water (e.g. wetlands, lakes, watercourses, rivers or creeks) 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.

4.18.4 SWIMMING POOLS

i) Swimming pools and spas must be surrounded by a non-climbable child resistant barrier consisting of fencing or child safe windows and doors that open onto the swimming pool area and a self-closing and locking child resistant safety latch. These barriers and their associated locks and latches must be well maintained and in working order at all times and comply with all applicable local codes, standards and legislative requirements.

ii) 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.

iii) 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

4.18.5 RESCUE AND RESUSCITATION PROTOCOLS

i) Design and build in safe exit or life sustaining handles, rails or other access elements to allow people to readily climb out of the water.

ii) Ensure standby emergency flotation devices are readily available.

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) Ensure emergency response contacts and protocols are made available.
4.19 CONFINED SPACE INCIDENT

DESCRIPTION: These critical controls apply to any Lendlease operation which includes any enclosed or partially enclosed space where there is a risk of death or permanently disabling injury from hazardous substances or dangerous conditions (e.g. a lack of oxygen or a contaminated atmosphere). 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.

POTENTIAL CAUSES

A. Lack of breathable air by design, accident, planned activities or failure of ventilation equipment
B. Ill health within confined space
C. Injury within confined space
D. Fire and explosion within confined space
E. Excessive hot or cold temperatures
F. Exposure to fumes

POTENTIAL IMPACTS

PEOPLE: Death (single/multiple) – Lendlease and/or member of the public. Permanently disabling injury (physical/psychological). Community and social damage/impact
FINANCIAL: Financial/commercial damage (insurance claims, return to work costs)
BUSINESS CONTINUITY: Business continuity and disruption
REPUTATION: Reputational damage
LEGAL/REGULATORY: Legal/regulatory damage

PREVENTATIVE CONTROLS (4.19.1-4.19.2)

4.19.1 MINIMISATION AND CONTROLLED ACCESS
4.19.2 SYSTEM OF WORK

MITIGATING CONTROLS

To be assessed by region, business unit or operation as appropriate.
RISK EVENT PREVENTATIVE CONTROLS

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) Control access to all confined spaces, install and maintain physical locks to all confined space access points and display warning signs against unauthorised entry.

iii) 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.

iv) 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.

4.19.2 SYSTEM OF WORK

i) Where any confined space is present it must be protected to prevent unauthorised access.

ii) Persons must only enter a confined space when no safer alternatives are available. All work in confined spaces must only be conducted by personnel who are trained to do so, including atmospheric monitoring, use of safety equipment and rescue procedures.

iii) A permit to work procedure must be implemented to effectively control any work in a confined space. The permit to work must only be issued by a competent person, 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 competent person remaining on watch at all times when any person remains in a confined space to raise the alarm and provide assistance 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.

RISK EVENT MITIGATING CONTROLS

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

POTENTIAL CAUSES

A. Inadequate design and procurement of supply continuity (e.g. back-up power)
B. Inadequate installation and maintenance (e.g. inappropriate isolation)
C. Supply failure
D. Inappropriate use (e.g. sabotage or vandalism)
E. Natural disasters
F. Upstream service and utility failure

POTENTIAL IMPACTS

PEOPLE: Death (single/multiple) – Lendlease and/or member of the public. Permanently disabling injury (physical/psychological). Community and social damage/impact
FINANCIAL: Financial/commercial damage (insurance claims, return to work costs)
BUSINESS CONTINUITY: Business continuity and disruption
REPUTATION: Reputational damage
LEGAL/REGULATORY: Legal/regulatory damage

PREVENTATIVE CONTROLS (4.20.1-4.20.3)

4.20.1 IDENTIFICATION AND TESTING
4.20.2 INSTALLATION AND COMMISSIONING
4.20.3 SYSTEM OF WORK

MITIGATING CONTROLS

To be assessed by region, business unit or operation as appropriate.
RISK EVENT PREVENTATIVE CONTROLS

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) must be assessed and a back-up plan developed.

ii) When 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, ensure these are provided within three months of the transaction by testing back-up systems where needed.

iii) Ensure maintenance and testing programs are 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) Ensure essential service systems are installed as designed and engineered with a suitable accompanying quality plan.

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 GMRs 4.4 uncontrolled release of electrical energy and 4.15 uncontrolled release of stored energy (non-electrical).

RISK EVENT MITIGATING CONTROLS

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