SOUTHBANK PRECINCT LOCAL FLOODPLAIN DEVELOPMENT PLAN 2026

SOUTHBANK PRECINCT – CITY OF MELBOURNE

1.0 PURPOSE

1.1 Application

This Southbank Precinct Local Floodplain Development Plan (LFDP) applies only within the City of Melbourne's municipal planning scheme on land affected by the Land Subject to Inundation Overlay schedule 4 (LSIO4) and Special Building Overlay schedule 4 (SBO4), specifically and exclusively within the Southbank Precinct. Figure 1 shows the land covered by the LSIO4 and SBO4 where the LFDP applies.

The LFDP establishes criteria for 'buildings and works' applications and provides a performance-based approach to the assessment of planning applications for all land within the Southbank Precinct subject to LSIO4 or SBO4.

An application for a planning permit to develop land affected by the LSIO4 or SBO4 (Clause 44.04 and Clause 44.05) of the Melbourne Planning Scheme must be consistent with the requirements of this LFDP.

1.2 Context

Southbank is exposed to flooding from two primary sources: the Yarra River and the surrounding local stormwater catchments. Climate change is a key driver of future flood risk in the precinct. Anticipated sea level rise within Port Phillip Bay, together with projected increases in rainfall intensity and the frequency of extreme weather events, is expected to exacerbate both riverine and local drainage flooding over time.

The most significant flood risk arises from the Yarra River, where flooding typically results from a combination of elevated storm-tide levels within Port Phillip Bay and increased river flows generated by widespread catchment runoff. As sea levels rise, higher tailwater conditions will reduce the river's capacity to discharge flows efficiently, increasing flood extents, depths, and durations. Concurrently, more intense rainfall across the broader catchment is likely to generate larger peak flows, compounding this risk.

Local stormwater flooding also occurs within Southbank due to its dense urban environment, limited infiltration capacity, and high reliance on the underground drainage network. These events are typically short-duration and fast-developing, triggered by high-intensity rainfall. While they can occur more frequently than riverine flooding and are generally shallow with rapid recession, projected increases in short-duration rainfall intensity under climate change are likely to increase their frequency and severity, placing additional pressure on the drainage network.

This section provides an overview of the two flood mechanisms influencing Southbank, acknowledges the growing influence of climate change on future flood behaviour, and sets the context for the application of the LFDP.

<u>Current and Future Riverine Flooding</u>

Historical flooding in the Yarra River system has been recorded since the 19th century, with significant events driven by large regional rainfall and elevated river levels. While there are relatively few direct local flood observations of riverine flooding in the precinct, the area has been identified as flood prone for quite some time.

Contemporary modelling from the *Lower Yarra River Flood Mapping* (GHD 2020), provides the best available representation of riverine flooding in the precinct. This has further been expanded on recently with a series of modelling scenarios to understand the planning horizon intervention points. Flood modelling shows that when the river rises to levels high enough to overtop the Southbank Promenade, flood flows spill into the Southbank Precinct, accumulating in a large low area in the landscape centred around Clarke St between City Road and Haig Lane, and fills to high depths.

The Lower Yarra River Flood Mapping was updated to include increased rainfall intensity (18.5%) representing the design climate-change scenario at the time, updated tidal boundary conditions and design event runs for 1%, 2%, 5%, 10% and 20% AEP events. It is noted that the design standards for design rainfall and climate change have been updated, and it is likely that design flood levels for the precinct may change in the future as new flood mapping is developed.

The NFPL for the Southbank Precinct is the 2100 1% AEP flood level with 800mm of sea level rise and 18.5% increase in rainfall, plus freeboard. This reflects the long-term strategic flood risk under climate change and reduces flood damage to built infrastructure.

In parts of Southbank the downstream boundary condition (Port Phillip Bay water levels) increasingly governs peak flood levels. In tidally affected areas, storm surges and sea level rise can exceed flood peaks from the Yarra River. The highest controlling mechanism governs a site-specific NFPL.

The size of the upstream catchment means that flood warning lead time for the lower Yarra River is sufficiently long to develop flood warning messaging. Typically, flood velocities are relatively low with the water level rising and the inundation area incrementally expanding as flood waters fill the low topography within Southbank.

Local Stormwater Flooding

Flooding from local stormwater runoff and the underground drainage network is primarily driven by high-intensity rainfall over a dense urban catchment with limited infiltration capacity. However, the performance of the drainage system is also materially influenced by downstream tailwater conditions in the Yarra River and Port Phillip Bay. Projected sea level rise will progressively elevate these tailwater levels, reducing hydraulic gradients within the network, constraining outfall capacity, and increasing the likelihood, depth and duration of stormwater inundation.

Under current conditions, shallow but widespread inundation can occur across streets, laneways and building interfaces during intense rainfall events. These stormwater events are relatively frequent within Southbank and develop rapidly following heavy local rainfall. Rising tailwater levels associated with sea level rise are expected to impact drainage performance and increase localised flood risk over time.

1.3 Objectives

The objectives of the LFDP are:

- To enable ongoing development and renewal in the Southbank Precinct, while longer-term structural and regional flood mitigation infrastructure is being planned, investigated or delivered by government agencies.
- To establish a two-tiered development assessment framework for safe access (using the 1% AEP 2040 planning horizon) and building resilience (designed to the Nominal Flood Protection Level – 2100 horizon).
- To ensure all developments demonstrate safe pedestrian access and egress under the 1% AEP flood event with a 2040 planning horizon using a risk-based assessment framework which reflects Southbank's slow rate of flood rise, predictable flooding behaviour and flood warning times.
- To apply the three mapped access and safety categories; Site Safety Access Category 1, Site Safety Access Category 2, and Site Safety Access Category 3, as categorised in the Site Safety Access Category Map in Figure 2 provided in Section 10.0
- To guide the level of access assessment, design response and emergency planning required for development, while recognising that innovative access solutions can support resilient outcomes.

1.4 Glossary / Definitions

This glossary is provided to support the consistent interpretation of terminology used specifically within the LFDP. The definitions apply only for the purposes of assessing development under this LFDP and are

intended to clarify how terms are to be interpreted when preparing and assessing planning applications within the LFDP area. Where necessary, definitions reflect the flood risk within the Southbank Precinct, safe access requirements and development assessment approach established by this LFDP and should be read in conjunction with its objectives, requirements and mapping.

Term / Abbreviation	Definition
AEP (Annual Exceedance Probability)	The probability of a flood of a given size or larger occurring in any single year.
1% AEP	A flood event with a 1% likelihood of occurring in any year (also known as the 100-year ARI event).
AHD (Australian Height Datum)	The national vertical datum for measuring elevations relative to mean sea level.
Flood Risk Management Plan (FRMP)	A document outlining flood risks, safe access solutions, mitigation measures and emergency arrangements for a development.
Flood Risk Report (FRR)	A technical report assessing flood levels, access safety, hydraulic impacts and compliance with LFDP requirements.
Flood-Vulnerable Land Use/s	Land uses where occupants are more vulnerable to flood impacts due to the nature of the activity, the presence of people who may require assistance, or the need for continuous operation. In the Victorian planning context, Flood-vulnerable uses include education centres, childcare centres, hostels, medical centres and hospitals (health services), aged care facilities, and places of assembly where large groups or vulnerable occupants may be present.
NFPL (Nominal Flood Protection Level)	The applicable 2100 1% AEP flood level, plus a freeboard; the required flood protection standard for buildings.
Overland Flow Path	The route taken by surface runoff when stormwater exceeds pipe capacity or when drainage is restricted by high river levels.
Site Safety Access Category 1	Access where flood depth is ≤0.5 m and conditions allow safe evacuation and emergency response in the 1% AEP event with a 2040 planning horizon.
Site Safety Access Category 2	A portion of the road access is inundated ≥0.5 m in the 1% AEP flood event with a 2040 planning horizon. In these areas, the access safety criteria requirements may be achievable.
Site Safety Access Category 3	The entire road access is inundated ≥0.5 m in the 1% AEP flood event with a 2040 planning horizon. In these areas, a development cannot rely on ground-level access alone and must provide an alternative design solution to manage access.

2.0 POTENTIAL FUTURE PRECINCT WIDE FLOOD MITIGATION

The LFDP has been developed to guide decision-making for access to a 1% AEP flood event under a 2040 planning horizon, while longer-term flood mitigation strategies are investigated and delivered. It provides a framework to enable appropriate development in flood-affected areas in the short-term without compromising safety, resilience, or future adaptability while precinct-wide mitigation infrastructure is planned and delivered. This approach allows for innovative access solutions such as elevated walkways or interbuilding connections.

Southbank's unique flood characteristics, including a slow rate of water rise and a flood warning system, may offer additional opportunities to manage risk, though these must be carefully evaluated on a case-by-case basis.

The importance of a coordinated, precinct-scale approach to public-realm flood mitigation is acknowledged as a means of complementing site-based design responses and supporting long-term flood resilience outcomes. However, this acknowledgement is provided for strategic guidance purposes only and does not constitute a commitment to the funding, delivery or timing of any such measures, noting that the planning horizons and review cycles of an LFDP do not necessarily align with infrastructure investigation, approval or delivery programs. For the avoidance of doubt, this LFDP is not to be interpreted as enabling or justifying reliance on future flood mitigation infrastructure that is not yet confirmed or committed when assessing individual development applications. Each development proposal must demonstrate, on its own merits, that it achieves an acceptable level of flood risk, safety and functionality and is fully compliant with all applicable flood-related planning controls as set out in this LFDP, without assuming the future provision of external mitigation works.

In this context, the following sections outline examples of potential precinct-scale public-realm flood mitigation measures that may be investigated over time to support broader flood resilience objectives to Southbank, subject to separate feasibility, approval and funding processes.

(i) Yarra River Levees or Barriers

Potential low-profile levees, landscaped bunds or integrated flood barriers along sections of the Yarra River could reduce direct flooding and moderate high tailwater levels that currently restrict drainage performance. Any structures would need to be sensitively integrated with the riverfront, protecting public realm quality and respecting land use, heritage and visual character.

(ii) Improvements to Tidally Influenced Drainage Outlets

Upgrading drainage outlets that discharge into the Yarra River can reduce the frequency and duration of drainage surcharge during high tides or storm surges. Measures may include tide gates, backflow prevention, enlarged outlets or pump-assisted discharge systems. These upgrades directly support more reliable ground-level access by reducing nuisance ponding and overflow conditions.

(iii) Integrated Water Management Initiatives

Distributed water-sensitive urban design treatments, such as green roofs, rain gardens, permeable paving, tree pits and rainwater harvesting, can help reduce peak stormwater runoff entering the precinct's drainage system. In a highly impervious area like Southbank, even incremental contributions across individual sites can collectively reduce runoff intensity and improve flood performance during frequent storm events.

(iv) Elevated Pedestrian Networks

Elevated or protected pedestrian connections, including highline-style walkways, skybridges, raised laneways, or podium-level circulation routes, can provide reliable, flood-safe movement during major flood events. These networks are particularly valuable in areas where ground-level routes do not meet safe access criteria. It is imperative that any solution which involve elevated pedestrian networks demonstrate that the network ultimately leads to safe ground.

(v) Incremental Delivery Through Private Development

Many resilience measures can be progressively delivered through private redevelopment. Examples include building-integrated elevated pathways, on-site detention, flood barriers, or Water Sensitive Urban Design (WSUD) elements. This incremental model allows new developments to contribute to improved precinct resilience over time, aligned with redevelopment and continued urban renewal of the Southbank Precinct.

(vi) Integration with Public Realm and Access Planning

Flood mitigation infrastructure should be coordinated with public realm upgrades, street redesigns, and pedestrian and cycling improvements. Combined planning ensures that functional flood mitigation outcomes, such as improved drainage or safe access, are merged with place-making, amenity and mobility benefits, enhancing the precinct as it evolves.

(vii) Feasibility, Funding and Long-Term Management

Any major mitigation infrastructure requires assessment of technical feasibility, environmental impacts, costs, governance and maintenance responsibilities. Determining viable funding models, asset ownership, operational roles and long-term serviceability is essential so that infrastructure performs reliably and aligns with precinct-wide planning goals. These considerations will guide which measures are pursued and how they are staged over time.

(viii) Emergency Management and Public Safety

Emergency management in the Southbank Precinct is guided by the principles and arrangements outlined in the State Emergency Management Plan (SEMP). Flood-related emergency response is coordinated primarily through the Municipal Emergency Management framework as outlined in the City of Melbourne Municipal Emergency Management Plan and its sub-plan(s) with key roles played by the City of Melbourne, Victoria State Emergency Service (VICSES), and other emergency agencies.

While flood warnings and emergency information may inform development proposals, there should be no assumption that emergency services will be able to provide individual assistance during flood events. Development must therefore demonstrate self-sufficiency in managing flood risk, particularly in relation to safe access and egress.

This LFDP supports emergency management by promoting development outcomes that reduce reliance on emergency services, enhance community resilience, and align with broader emergency management planning across the precinct.

3.0 FLOOD INFORMATION SUMMARY

LSIO4 and SBO4 Context

- LSIO4 identifies land affected by the 1% AEP riverine flood event incorporating an 18.5% increase in rainfall intensity due to climate change by the year 2100.
- SBO4 identifies land affected by the 1% AEP storm event overland flow or surcharge from the local drainage network incorporating an 18.5% increase in rainfall intensity due to climate change by the year 2100.

The LFDP provides local decision guidelines and performance expectations for assessing development within these overlays by:

- Translating additional planning horizon flood modelling into development controls.
- Establishing safe access requirements under 2040 planning horizon 1% AEP conditions.
- Establishing built-form and floor level requirements referenced to the NFPL.
- Providing a Site Safety Access Category map to support consistent and transparent assessment.

- Providing a risk-based framework suitable for dense urban renewal areas.

4.0 DEVELOPMENT ASSESSMENT FRAMEWORK

This LFDP adopts a two-tiered approach that uses the 1% Annual Exceedance Probability (AEP) flood event with a 2040 planning horizon to assess safe pedestrian access and egress and the 2100 1% AEP flood level (plus appropriate freeboard) to define the Nominal Flood Protection Level (NFPL) for buildings.

For the purposes of assessing access and egress, the LFDP adopts a 2040 planning horizon to provide a consistent basis for decision-making and reflects the anticipated timing of broader floodplain management improvements. This timeframe is indicative and will be reviewed periodically in line with the evolving floodplain management context and future strategic planning considerations.

Safe access criteria based on 2040 conditions align with emergency management principles by ensuring life safety under the flood conditions that emergency responders, warning systems and local evacuation procedures are currently equipped to manage. Built-form elements must be resilient to future climate conditions, including sea-level rise, to avoid embedding long-term vulnerability into new development.

This approach reflects the adaptive planning of the LFDP, enabling development to proceed while wider flood mitigation infrastructure is being planned, funded, and/or delivered. By linking short-term operational safety with long-term adaptation planning, the LFDP provides an adaptive management pathway, ensuring new development is compatible with both current emergency management capability and future mitigation works.

The two-tiered approach is appropriate where Melbourne Water is satisfied that flood risk can be managed over time through a credible adaptive planning pathway, including the application of planning controls to manage risk under interim (2040) conditions, and a clear implementation pathway for mitigation measures to address long-term (2100) flood conditions by 2040.

Under the provisions of this LFDP, safe access is considered to be achieved where at least one viable pedestrian route is available for the extent of that evacuation route. The depth threshold for safe pedestrian access is up to 500mm other than for Vulnerable Uses where the threshold for safe access is up to a depth of 300mm.

All vehicle parking areas and their access points must be protected to the NFPL which is the applicable year 2100 - 1% AEP, plus an appropriate freeboard.

5.0 SITE SAFETY ACCESS CATEGORY MAP

To support consistent and transparent assessment, all land within Southbank is classified into three categories based on the access and safety criteria requirements applied in this LFDP. The extent of the flooding categories has been determined based on the flood depths extracted from the *Lower Yarra River Flood Mapping* and is shown in Figure 2 in Section 10.0.

The categories are based on flood depths along road access routes based on the 1% AEP flood event in a 2040 planning horizon:

(a) Site Safety Access Category 1, where none of the road access is inundated above 500 mm in the 1% AEP flood event in a 2040 planning horizon.

(b) Site Safety Access Category 2, where a portion of the road access is inundated above 500 mm in the 1% AEP flood event in a 2040 planning horizon. In these areas, the access safety criteria requirements may be achievable.

(c) Site Safety Access Category 3, where the entire road access is inundated above 500 mm in the 1% AEP flood event in a 2040 planning horizon. In these areas, a development cannot rely on ground-level access alone and must provide an alternative design solution to manage access.

Note – the above categories are indicative and not intended to be interpreted as highly granular or definitive at the parcel level. The categories are used to determine the level of design response necessary.

Note In some high risk scenarios, the responsible authority, at the request of the relevant floodplain management authority, will require the landowner to agree to update a Flood Risk Management Plan from time to time to allow for updates in flood data by way of an agreement under Section 173 of the Planning and Environment Act 1987.

Note - If the floodplain management authority does not require a Flood Risk Management Plan to be registered on title via s.173, a condition will not be imposed by the responsible authority.

Planning Application and Development Criteria

This section provides guidance on the Site Safety Access Category applied to a site for the purposes of a planning application and the corresponding development criteria.

Indicative Site Safety Access Categories are shown on the Site Safety Access Category Map in Figure 2. These mapped categories provide a high-level guide only and are subject to confirmation at the permit application stage, based on detailed site survey, access route assessment, and flood depth modelling.

Table 1 below summarises the Site Safety Access Categories, the associated flood conditions, the corresponding development expectations, and the level of assessment required. The access category applicable to a site determines the level of analysis and the type of access solution that may be required to demonstrate safe pedestrian access and egress.

Table 1 - Site Safety Access Categories

Site Safety Access Category	**Flood Condition**	**Development Criteria**	**Assessment Pathway**
Site Safety Category 1	*None of the road access is inundated above 500 mm in the 1% AEP flood event with a 2040 planning horizon.*	Standard safe access demonstration. Existing road-based access is generally adequate without engineered intervention.	Standard Flood Risk Report (FRR).
Site Safety Category 2	*A portion of the road access is inundated above 500 mm in the 1% AEP flood event with a 2040 planning horizon. In these areas, the access safety criteria requirements may be achievable.*	Demonstrate at least one safe pedestrian access route, either by utilising existing conditions or with minor improvements or managed solutions to achieve the same outcome. Examples include (raising of the local footpath, use of internal corridors or podium links)	Enhanced FRR, addressing mitigation and route identification.
Site Safety Category 3	*The entire road access is inundated above 500 mm in the 1% AEP flood event with a 2040 planning horizon. In these areas, a development cannot rely on ground-level access alone and must provide an alternative design solution to manage access.*	Provide an engineered or innovative pedestrian access solution (elevated walkway, internal protected route, podium link, or equivalent) supported by emergency planning.	Full FRR and Flood Risk Management Plan (FRMP), demonstrating engineered access.

6.0 DEVELOPMENT REQUIREMENTS

6.1 Design Requirements

The following Design Requirements apply to an application for a permit to subdivide land or to construct a building or to construct or carry out works under Clause 44.04 LSIO4 and Clause 44.05 SBO4:

- Development (including subdivision) must demonstrate safe pedestrian access and egress in the 2040 planning horizon, 1% AEP flood event;

- Buildings must be designed to the NFPL which is the applicable 2100 1% AEP flood event (plus an appropriate freeboard); and
- The proposed use and development must demonstrate it is acceptable in the context of the overall flood risk at the site and safe access path as defined via a Flood Risk Report and Flood Risk Management Plan as detailed in Section 6.1 and Section 6.2.

6.2 Safe Access Requirements

The following Safe Access Requirements apply to an application for a permit to subdivide land or to construct a building or to construct or carry out works under Clause 44.04 LSIO4 and Clause 44.05 SBO4:

- All development must demonstrate safe pedestrian access and egress in the 2040 planning horizon climate 1% AEP flood. Safe access is assessed based on Table 1.

Table 2 Thresholds for safe access requirements

Category	Depth Max (m)
Pedestrian	0.5
Pedestrian – if associated with a Flood-Vulnerable Land Use	0.3

Note - The LFDP recognises Southbank's advanced warning lead times, predictable riverine flood behaviour, and fully developed urban environment, permitting a context-specific, risk-based interpretation of access safety. The presence of innovative buildings and access solutions such as elevated walkways, building connections to higher ground, connected podiums, will be considered in the assessment to achieve the safe access requirements.

The following criteria applies to all land within the LSIO4 and SBO4:

- Pedestrian access and egress to the building must be safe in a 1% AEP event based on a 2040 planning horizon and must satisfy:
    - New or replacement Accommodation buildings must have at least one safe pedestrian access/egress path demonstrated to and from the building to an appropriate location outside of the flood extent to the satisfaction of Melbourne Water. The access/egress path must not be subject to inundation greater than 500 mm in a 1% AEP with a 2040 planning horizon at any point.
    - New or replacement Flood Vulnerable Uses must have at least one safe pedestrian access/egress path demonstrated to and from the building to an appropriate location outside of the flood extent to the satisfaction of Melbourne Water. The access/egress route must not be subject to inundation greater than 300 mm in a 1% AEP with a 2040 planning horizon at any point.
    - New or replacement buildings (not including flood vulnerable uses) must have at least one safe pedestrian access/egress route to and from the building to an appropriate location outside of the flood extent to the satisfaction of Melbourne Water that is not subject to inundation greater than 500 mm in a 1% AEP with a 2040 planning horizon at any point.

Note – Accommodation is defined in Table 73.03 of the Melbourne Planning Scheme VC265

- The design response must demonstrate that pedestrian movement within the building and/or site is encouraged toward the safe pedestrian access/egress route and actively discourages or prevents pedestrian movement toward any unsafe egress points.
    - Proponents may propose engineered or innovative solutions such as:
        - Elevated pedestrian bridges
        - Internal protected evacuation corridors.

        - Offsite stair links to podiums/higher levels of neighbouring buildings.
- Access to buildings which includes openings that are susceptible to floodwater ingress (e.g. basement ramps, loading docks, lobbies, service rooms) must prioritise passive flood protection measures. These may include:
    - Elevated thresholds or raised entry points.
    - Graded ramps or bunds; and/or
    - Permanent flood-resistant construction materials and detailing.

6.3 Building Resilience Requirements (NFPL Standard)

The following Building Resilience Requirements apply to an application for a permit to subdivide land or to construct a building or to construct or carry out works under Clause 44.04 LSIO4 and Clause 44.05 SBO4:

- The finished floor level of any new or replacement building, is to be above the NFPL.
- Where appropriate flood risk management outcomes have been demonstrated, requirements may be varied for specific building elements such as lobbies, transition areas or service spaces, to the satisfaction of Melbourne Water.
- Basements should be avoided in flood-affected areas. Where a basement is unavoidable, proposals must include detailed measures to restrict floodwater entry and manage access and safety, including flood barriers, drainage controls, and emergency procedures.
- Where a building cannot feasibly achieve the full freeboard requirements, and this is demonstrated to Melbourne Water's satisfaction, flood barriers may be considered to provide the balance of supplementary (freeboard) protection. Flood barriers must be located above the applicable 2100 1% AEP flood level. Flood barriers must also be non-mechanical and the applicant must demonstrate that all other options have been explored and that the building can actually accommodate a flood barrier.
- Building design must ensure:
    - Use of flood-resilient design and construction materials for floor levels below the NFPL; and
    - Protection of critical infrastructure (switchboards, comms, HVAC, etc.) above NFPL.

7.0 SUBDIVISION

A subdivision must comply with the requirements of Sections 6 and 7 of the LFDP. This does not apply to:

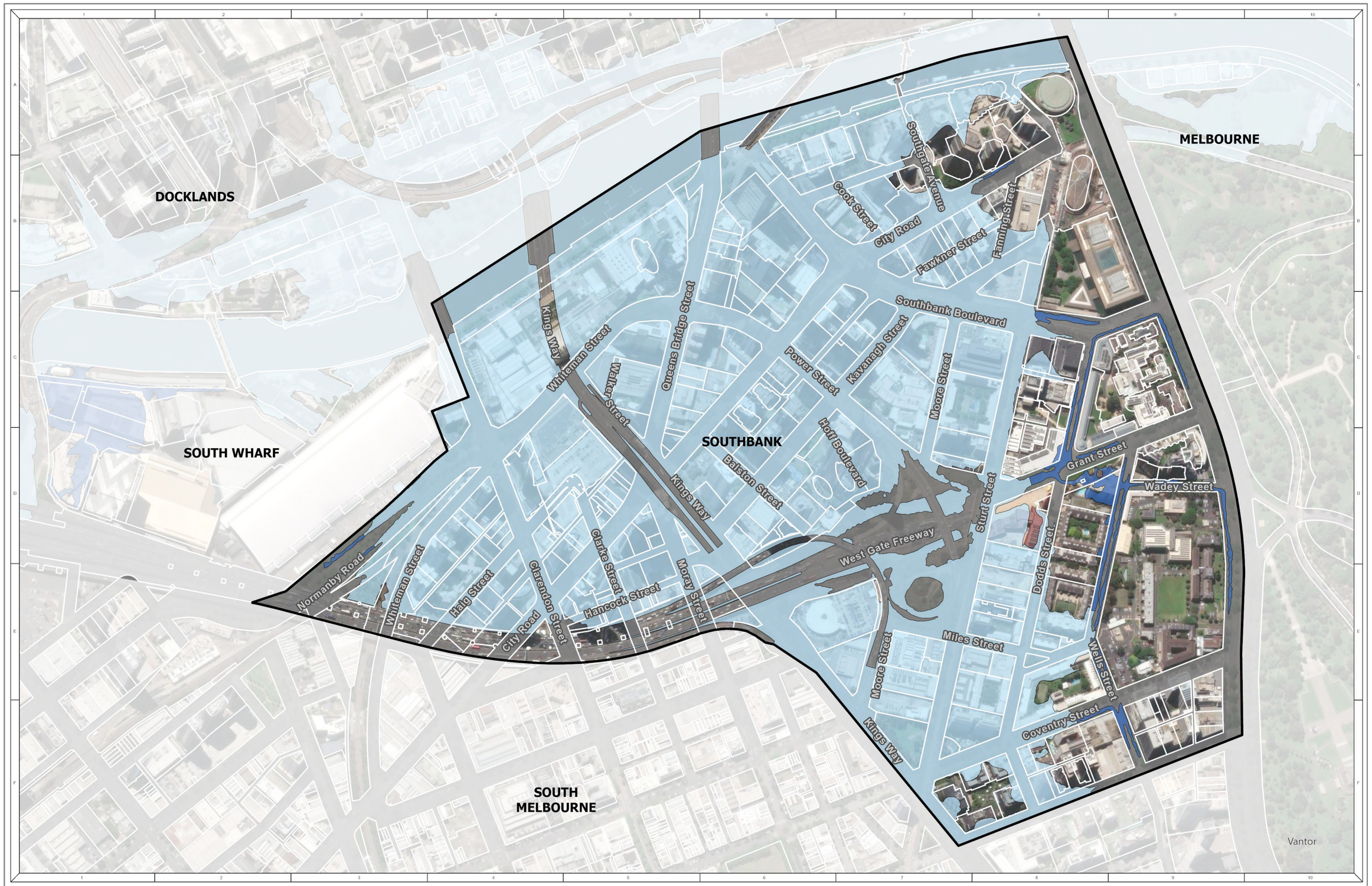
- a re-subdivision of existing lots if the number of lots is not increased; or
- subdivision of land which contains an existing building.

9.0 REFERENCE DOCUMENTS

- Technical Report 06: *Lower Yarra River Flood Mapping* (GHD, September 2020)
- *Technical Report 03: Southbank Stormwater Infrastructure Assessment: Final Report* (BMT WBM, August 2015)

10.0 MAPS

Figure 1 – Southbank Precinct & Overlays



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Southbank Precinct
SBO
LSIO
Road Corridor

0 125 250 500 Meters

1:6,000 at A3

Water 4good
Melbourne Water

Current Planning Overlays

Southbank Precinct

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Figure 2 - Site Safety Access Category Map