



CBD COMMUNITY REFERENCE GROUP

MEETING 10

Friday 08 June 2018

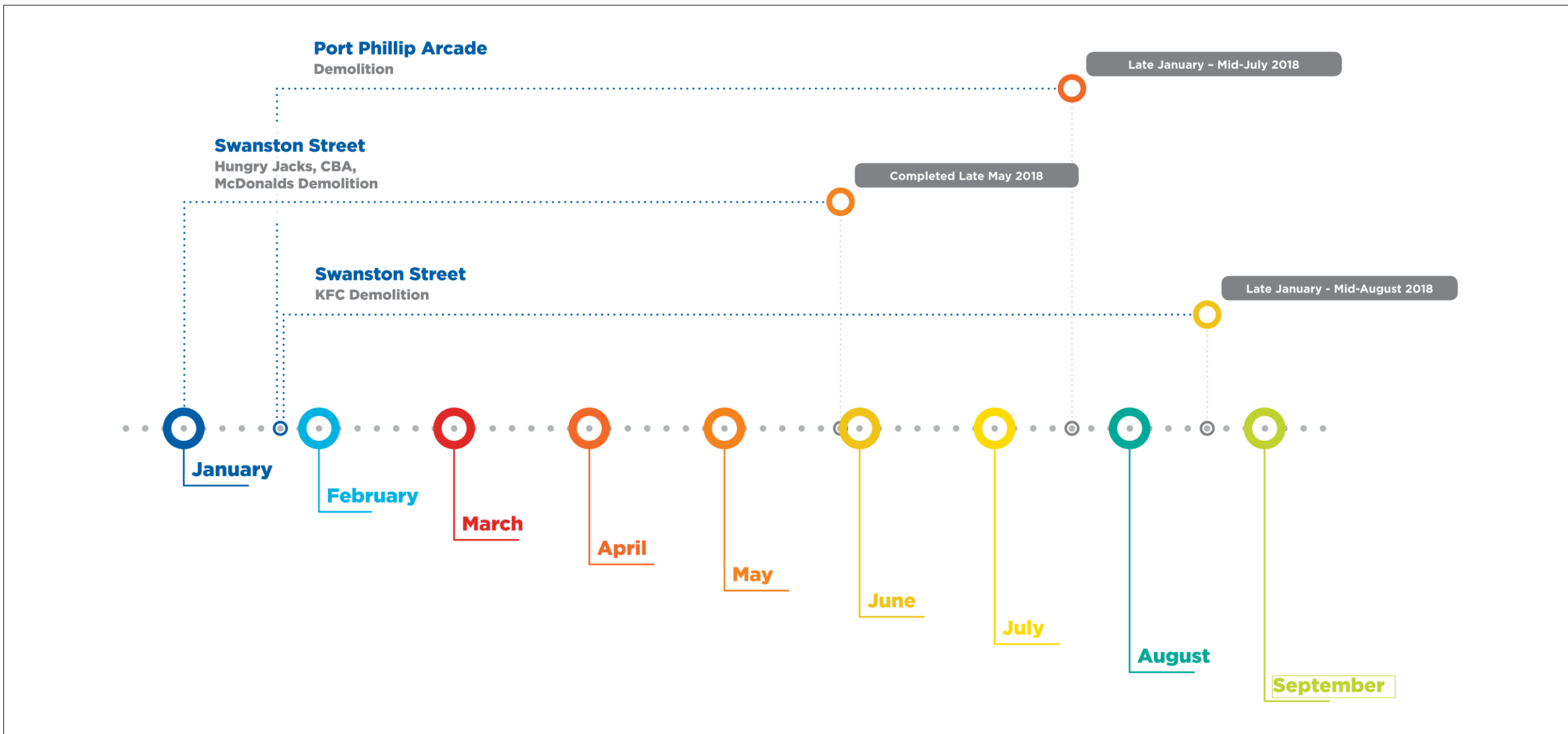


JOHN HOLLAND EARLY WORKS PROGRAM UPDATE



METRO TUNNEL EARLY WORKS TOWN HALL STATION UPDATE

TOWN HALL STATION TIMELINE – EARLY WORKS



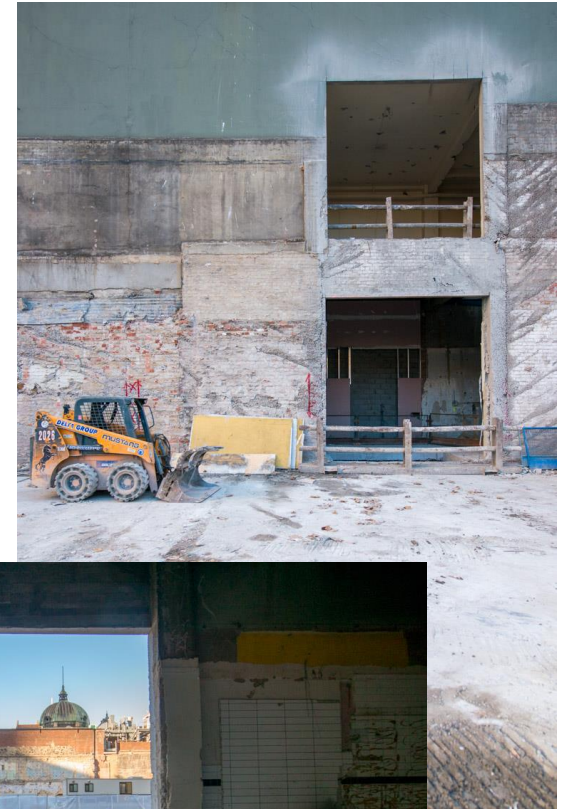
KFC DEMOLITION & NICHOLAS BUILDING WORKS

KFC Demolition

- Develop separation methodology between KFC and Nicholas Buildings - **end June**
- Building demolition – **mid-August**

Nicholas Building works

- Fit out works of Souvenir shop for handover – **mid-June**
- Internal amenities relocation (sewer works, emergency stairwell) – **late June**
- Basement wall construction – **mid-June**

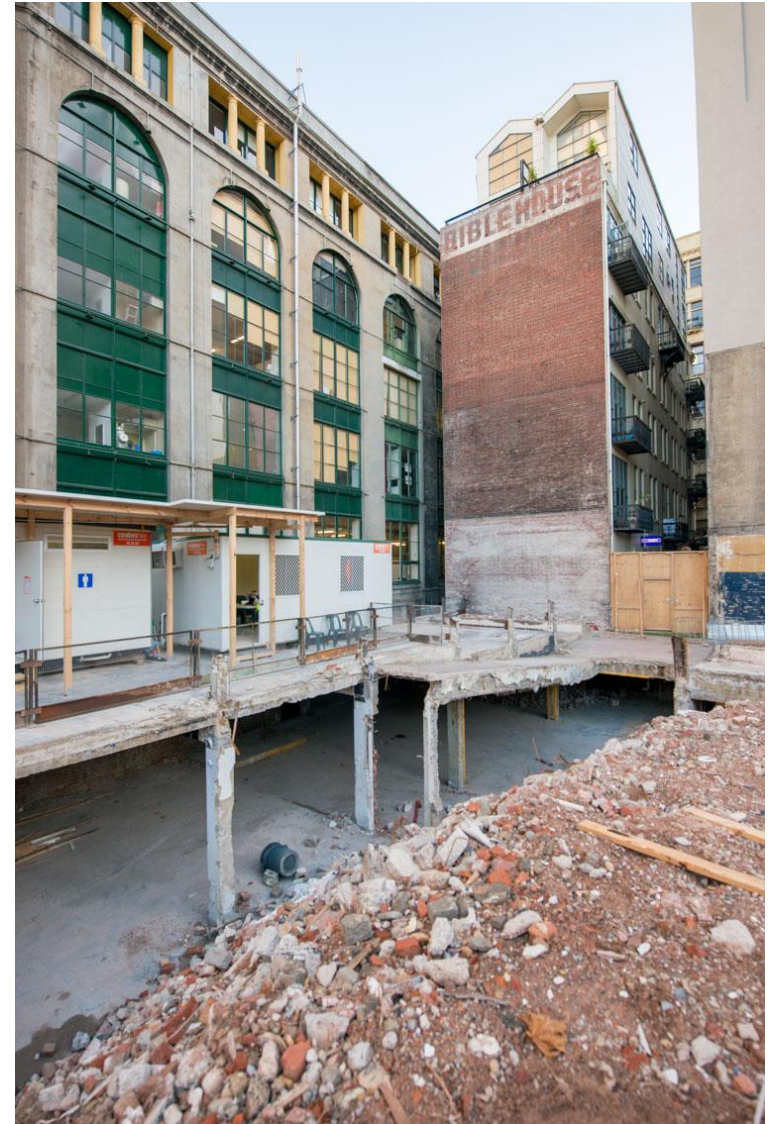


PORT PHILLIP ARCADE DEMOLITION



PORT PHILLIP ARCADE DEMOLITION

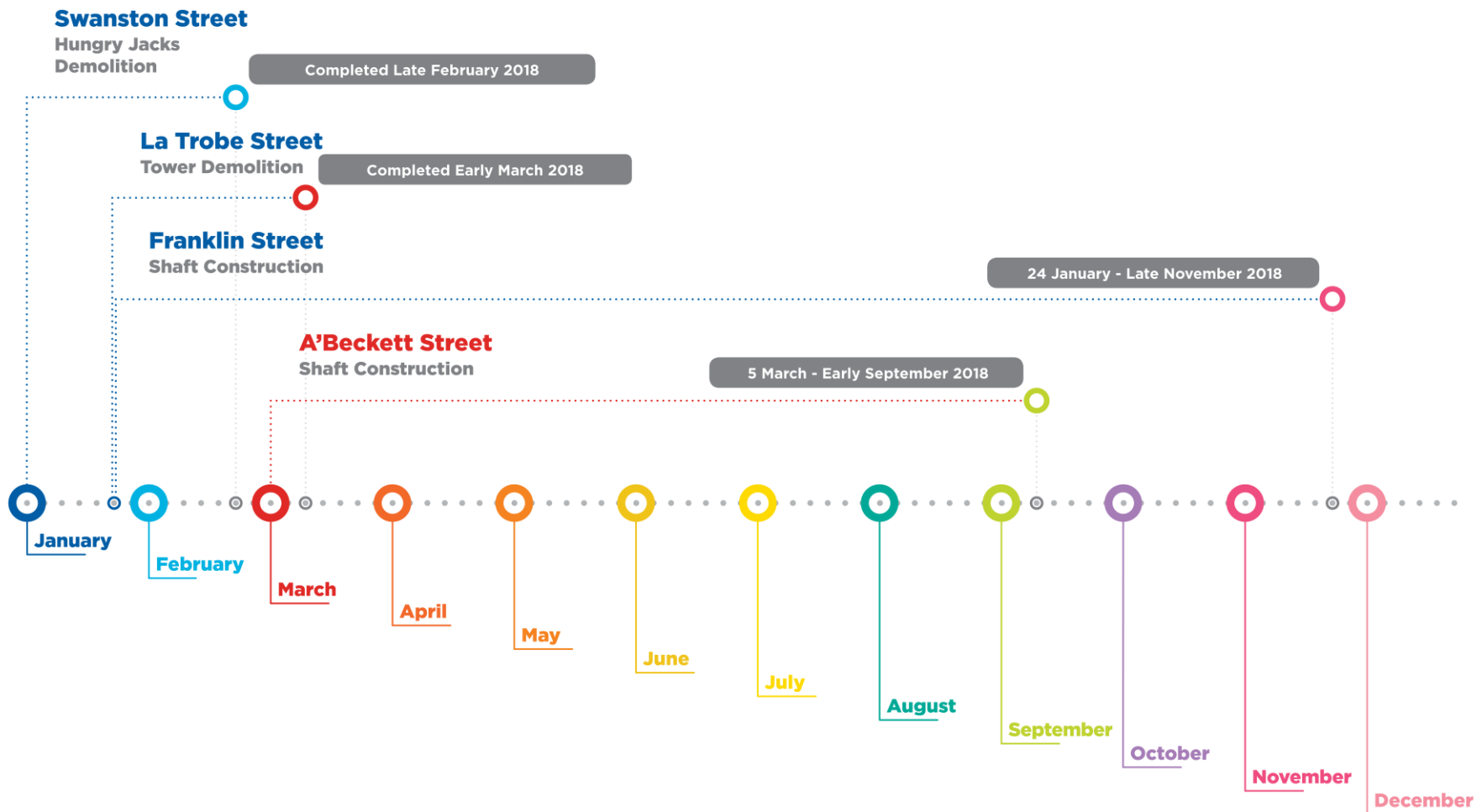
- Revision of methodology for demolition of PPA Flinders St frontage – **current**
- Remaining structure to be demolished – **mid-July**





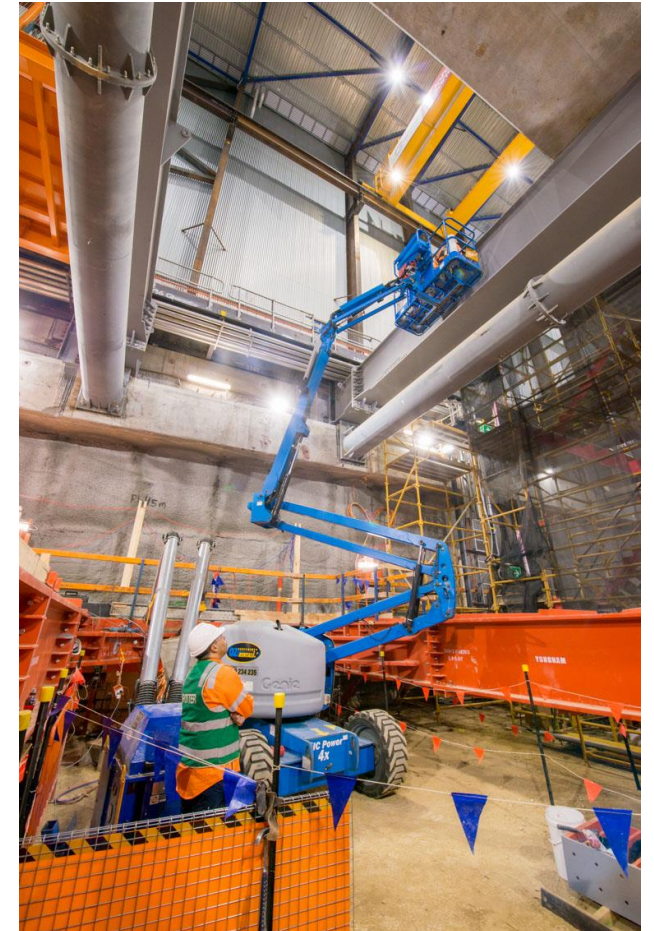
METRO TUNNEL EARLY WORKS STATE LIBRARY STATION UPDATE

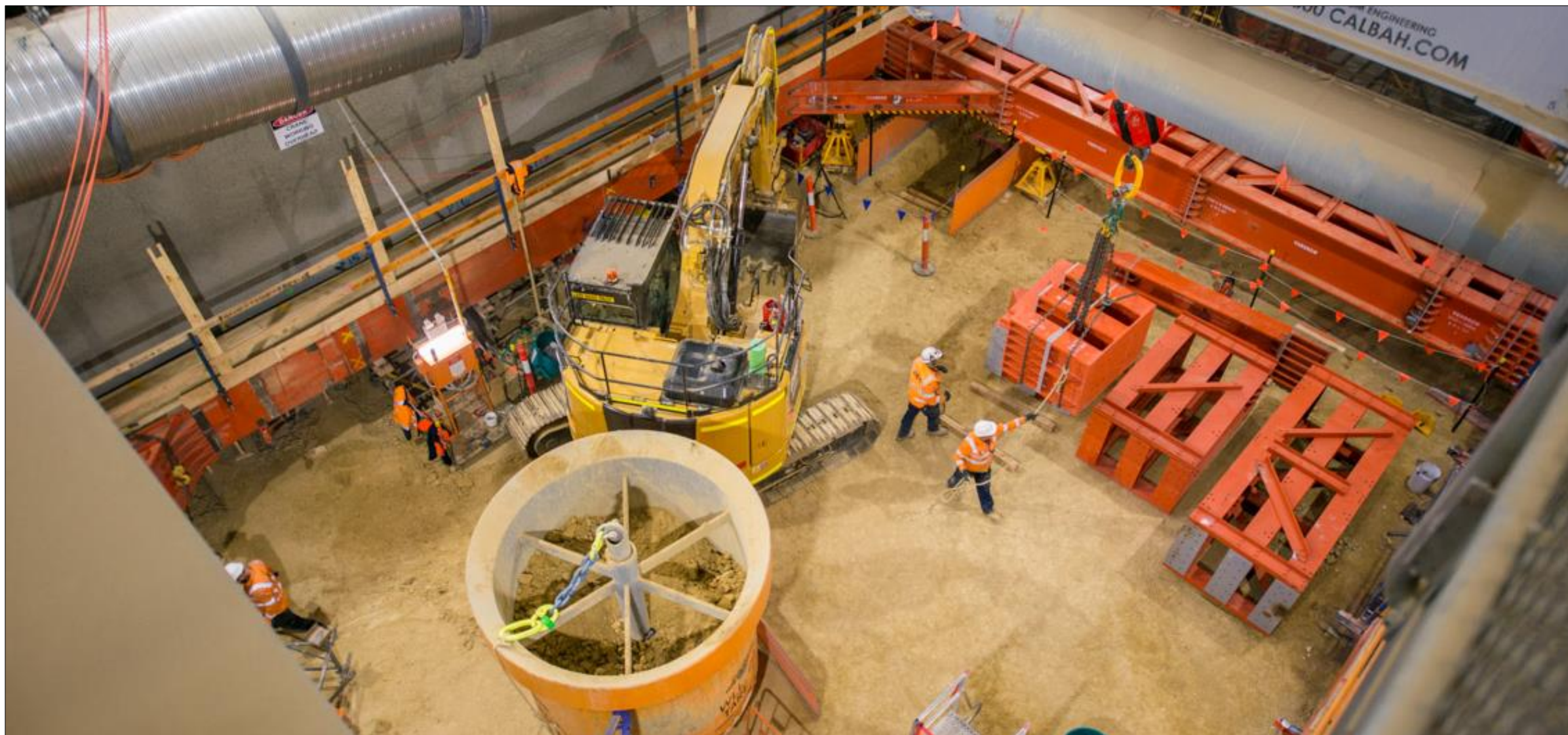
STATE LIBRARY STATION TIMELINE – EARLY WORKS



FRANKLIN STREET & A'BECKETT STREET SHAFT UPDATE

- 24 hour works are now underway at both shaft sites within the acoustic sheds
- Deliveries of props, beams and materials 24 hours a day being prioritised to occur in early evenings from remote locations
- Doors to be closed for all night works







FRANKLIN STREET WEST SERVICE RELOCATION UPDATE

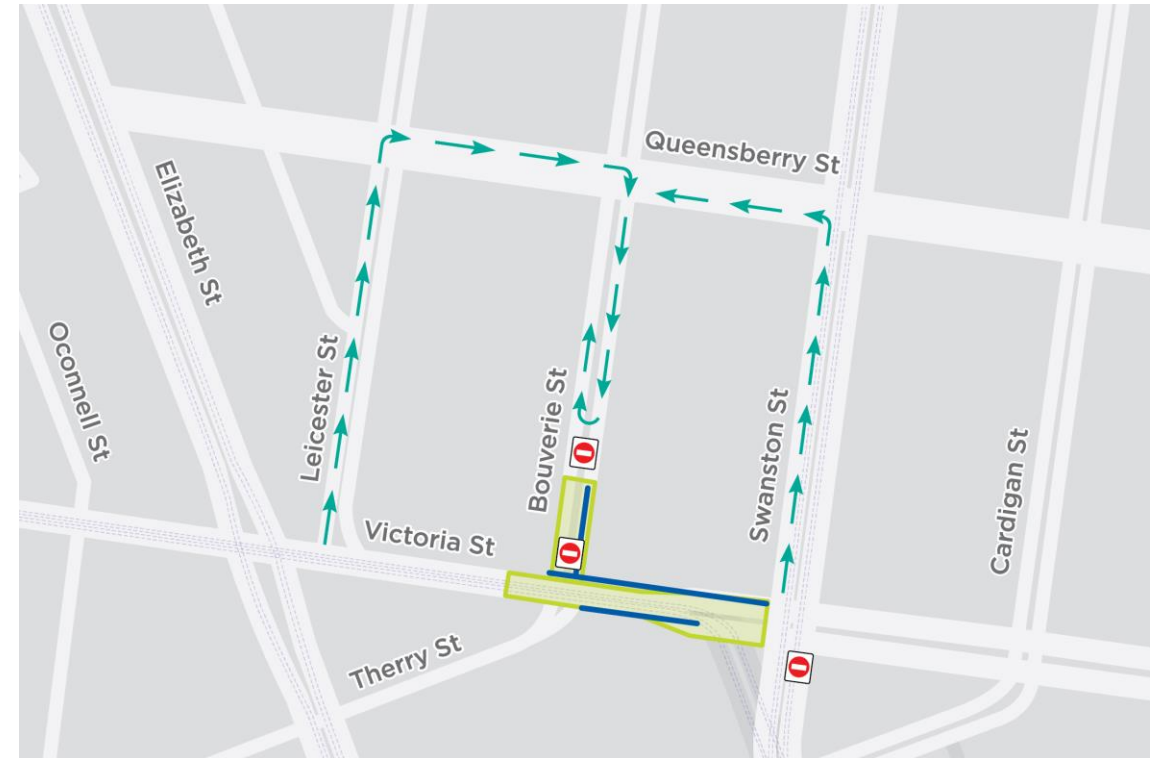
- Franklin Street utility relocation works, between Swanston Street and Stewart Street, are now complete
- Ongoing reinstatement works taking place
- Weekend closures of Franklin Street required for inspection of recently completed drainage works until the end of June



CROSS YARRA PARTNERSHIP UPDATE

GROUNDWATER MONITORING UPDATE

- We have completed drilling the current series of boreholes
- Works to connect the first series of boreholes on the northeast side of Victoria Street are nearing completion with reinstatement works underway.
- Upcoming works to service prove two water mains will be done at night on the west and east side of Victoria Street given the assets location in the road
- Service proving will be used to inform the design to connect the south and north side series of wells ahead of night works to install pit and pipe network in the southbound lane on Victoria St between Swanston and Therry streets





AGENDA

1. Property Condition Surveys Update
2. Metro Tunnel Station Designs Update
3. State Library Station Precinct Update
4. Town Hall Station Precinct Update
5. Underground Construction Methodology
6. Acoustic Enclosure Methodology



PROPERTY CONDITION SURVEY UPDATE



PROPERTY CONDITION SURVEYS

- Property condition surveys will be carried out prior to the first major construction activity in a particular area
- A post construction inspection will also be carried out
- An intermediate inspection may occur if identified as appropriate during initial assessment or/if a damage claim is made.



QUESTIONS?



METRO TUNNEL STATION DESIGN UPDATES



**NORTH MELBOURNE – LAURENS
STREET ENTRANCE**



CONCEPT IMAGE

NORTH MELBOURNE - CONCOURSE



CONCEPT IMAGE

NORTH MELBOURNE - PLATFORM



PARKVILLE - CONCOURSE



CONCEPT IMAGE

**PARKVILLE - GRATTAN STREET
ENTRANCE**



CONCEPT IMAGE

PARKVILLE - PLATFORM



**STATE LIBRARY – LA TROBE STREET
ENTRANCE**



STATE LIBRARY - PLATFORM

**TOWN HALL – CITY SQUARE
ENTRANCE**



A concept image of a modern, multi-level pedestrian walkway. The walkway is enclosed by glass railings with dark metal frames. The ceiling is a complex, geometric structure with large, light-colored panels. The walkway is populated with diverse people, including a woman with a child on her back, a man in a suit, and a woman in a black jacket. The walkway leads to a brightly lit area with colorful flags and a large glass structure. The overall atmosphere is bright and modern.

CONCEPT IMAGE

**TOWN HALL – COCKER ALLEY
ENTRANCE**



TOWN HALL - CONCOURSE



**TOWN HALL – FEDERATION SQUARE
ENTRANCE**



TOWN HALL - PLATFORM



**ANZAC STATION – ALBERT ROAD
RESERVE**



**ANZAC STATION – ALBERT PARK
RESERVE**



ANZAC STATION - CONCOURSE



ANZAC STATION - ENTRANCE



ANZAC STATION - PLATFORM



QUESTIONS?









STATE LIBRARY STATION UPDATE

INDICATIVE CONSTRUCTION DATES

Sites	2018				2019				2020				2021			
	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	
La Trobe St	Archaeological investigations	Piling	Piling	Piling	Excavation / Tunnelling	Excavation / Tunnelling	Excavation / Tunnelling	Excavation / Tunnelling	Excavation / Tunnelling	Excavation / Tunnelling	Excavation / Tunnelling	Excavation / Tunnelling	Excavation / Tunnelling	Excavation / Tunnelling	Excavation / Tunnelling	
Little La Trobe St		Demo	Demo	Archaeological investigations	Piling											
A'Beckett	EWMC	EWMC	Excavation / Tunnelling	Excavation / Tunnelling	Excavation / Tunnelling	Excavation / Tunnelling	Excavation / Tunnelling	Excavation / Tunnelling	Excavation / Tunnelling	Excavation / Tunnelling	Excavation / Tunnelling	Excavation / Tunnelling	Excavation / Tunnelling	Excavation / Tunnelling	Excavation / Tunnelling	
Franklin St East	EWMC	EWMC	Excavation / Tunnelling	Excavation / Tunnelling	Excavation / Tunnelling	Excavation / Tunnelling	Excavation / Tunnelling	Excavation / Tunnelling	Excavation / Tunnelling	Excavation / Tunnelling	Excavation / Tunnelling	Excavation / Tunnelling	Excavation / Tunnelling	Excavation / Tunnelling	Excavation / Tunnelling	
Franklin St West			Piling	Piling	Excavation / Tunnelling	Excavation / Tunnelling	Excavation / Tunnelling	Excavation / Tunnelling	Excavation / Tunnelling	Excavation / Tunnelling	Excavation / Tunnelling	Excavation / Tunnelling	Excavation / Tunnelling	Excavation / Tunnelling	Excavation / Tunnelling	

Indicative Program

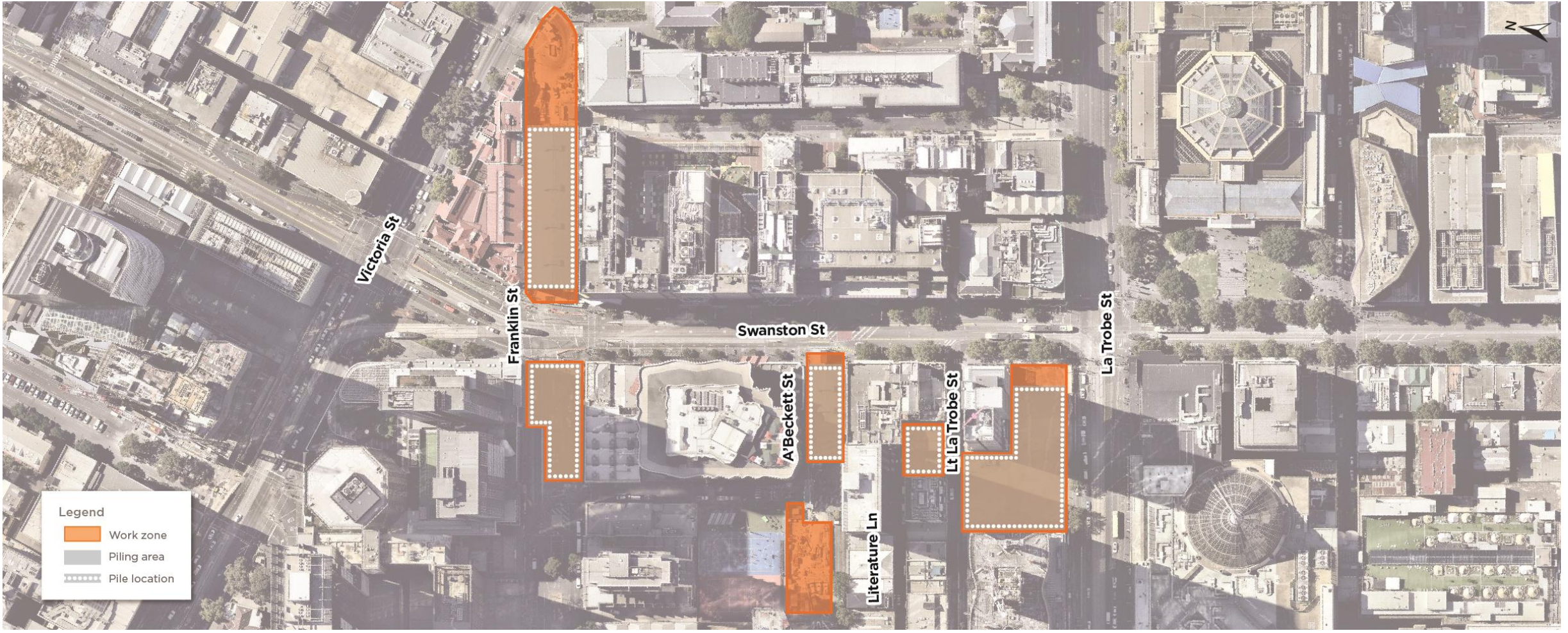
	<i>Demo</i>
	<i>Piling</i>
	<i>Excavation / Tunnelling</i>
	<i>EWMC</i>
	<i>Archaeological investigations</i>
	<i>Acoustic Shed Build & Deck Installation</i>



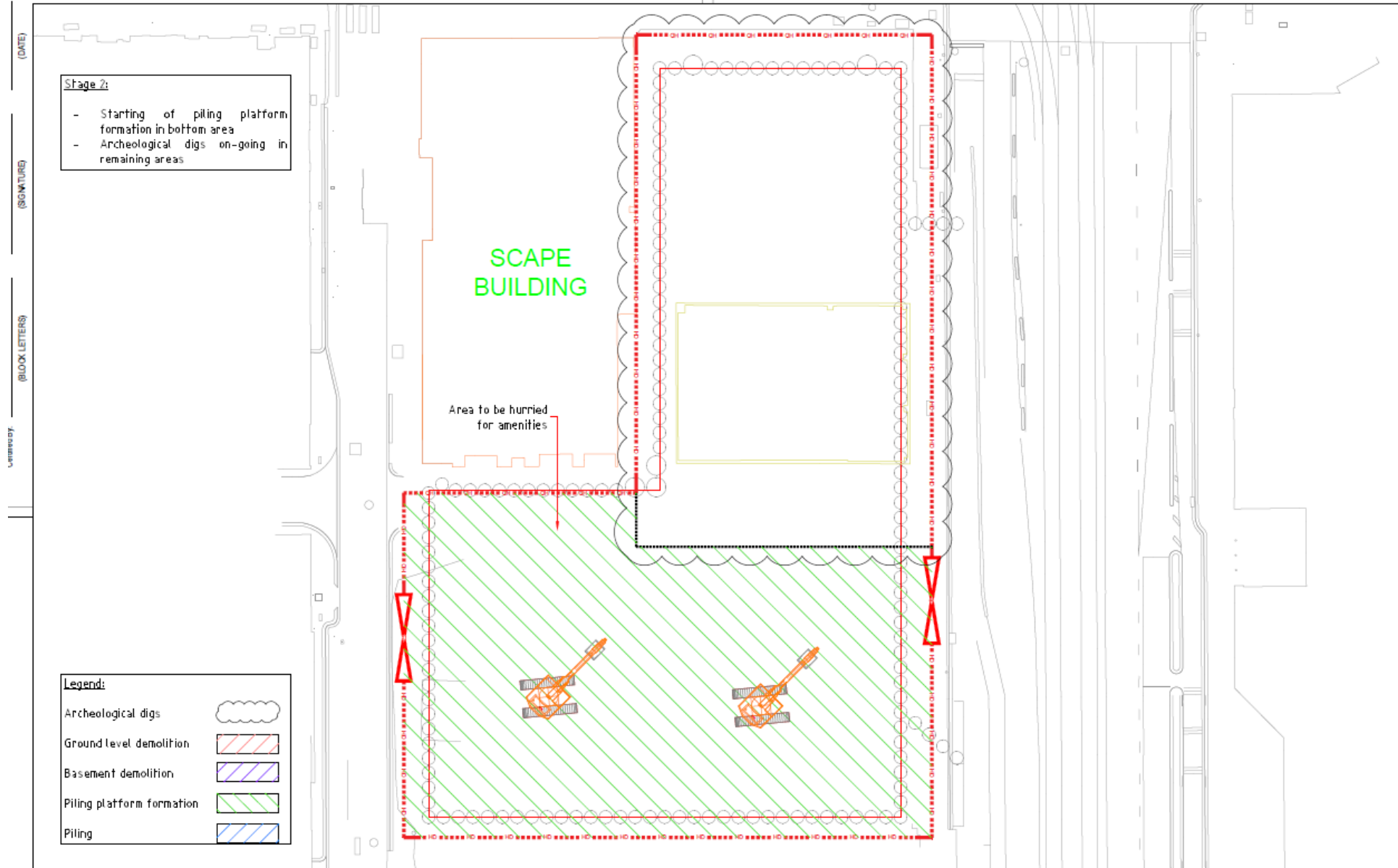
STATE LIBRARY UPDATE

- Little La Trobe Street works
 - Service investigations (Tuesday 12 June)
 - Service relocations (late July start)
 - Demolition of 12-16 (Stax; Building 38) and 18-20 (Doki Doki) Little La Trobe Street in 2 stages (mid-July start)
- La Trobe Street site: next 3-6 months
 - Slab demolition (3-4 weeks)
 - Archaeological dig (4 weeks)
 - Piling (late July – January)
 - Cribbing installation

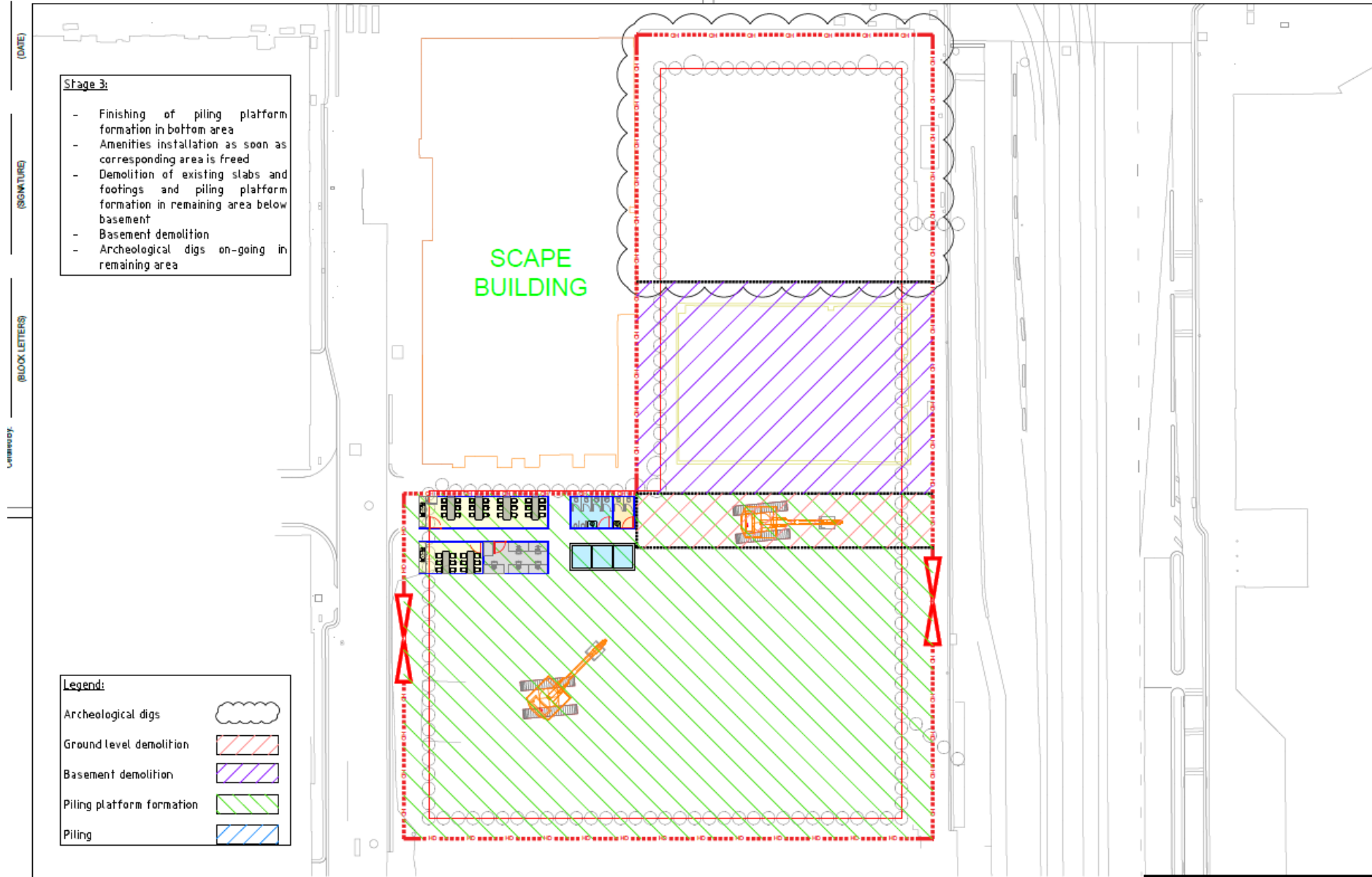
LA TROBE STREET PILING



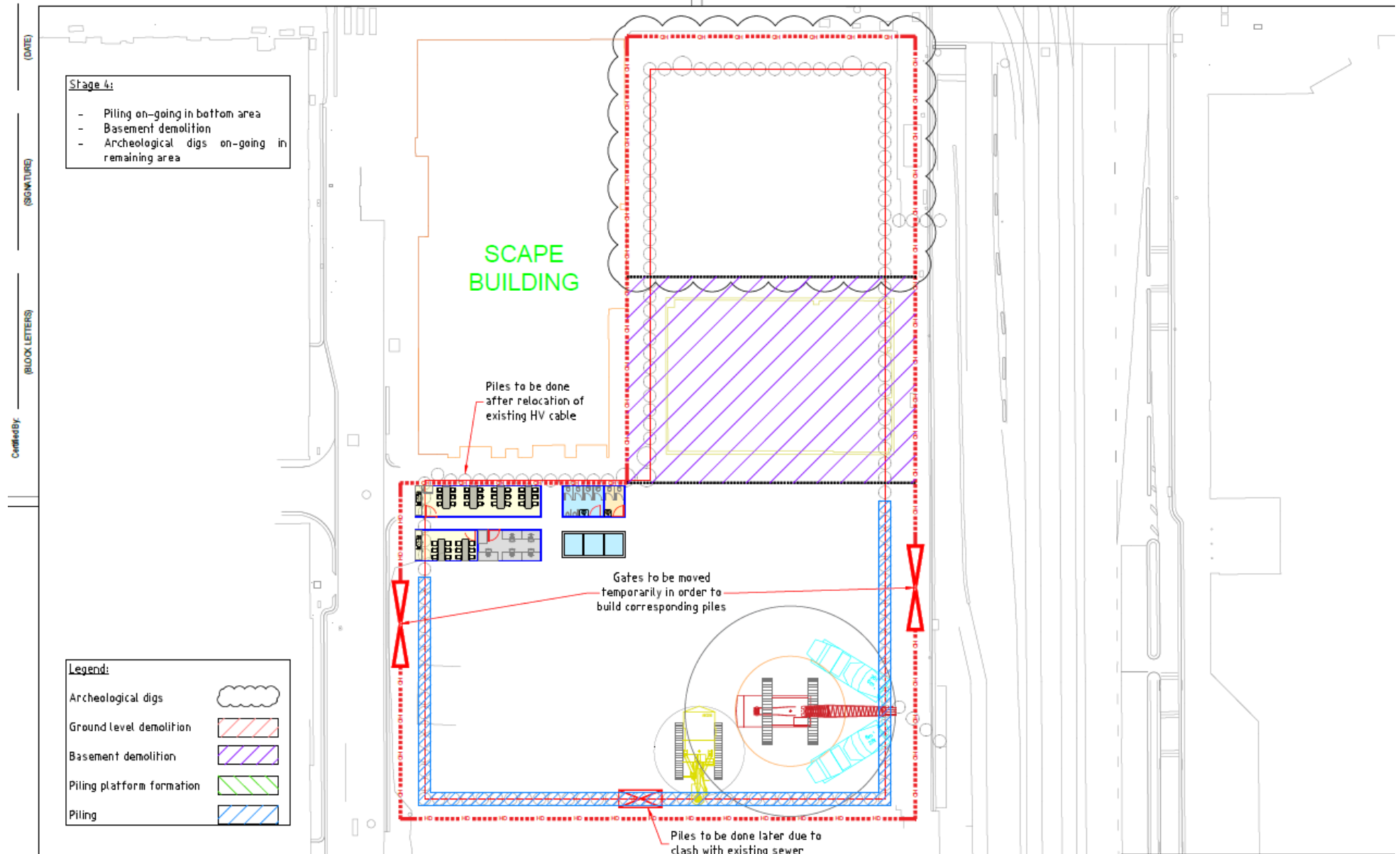
STAGE 1-2: LA TROBE STREET PILING



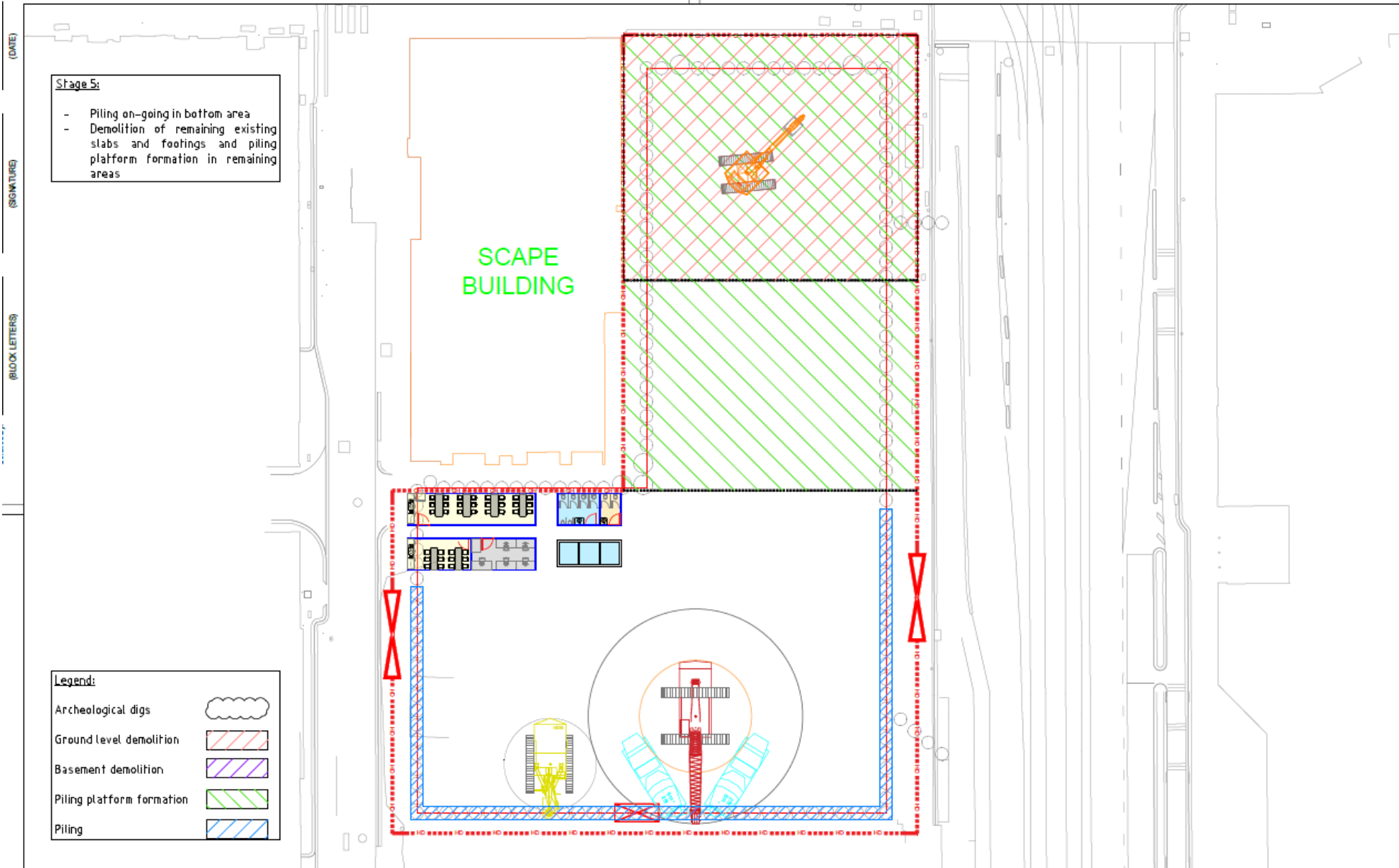
STAGE 3: LA TROBE STREET PILING



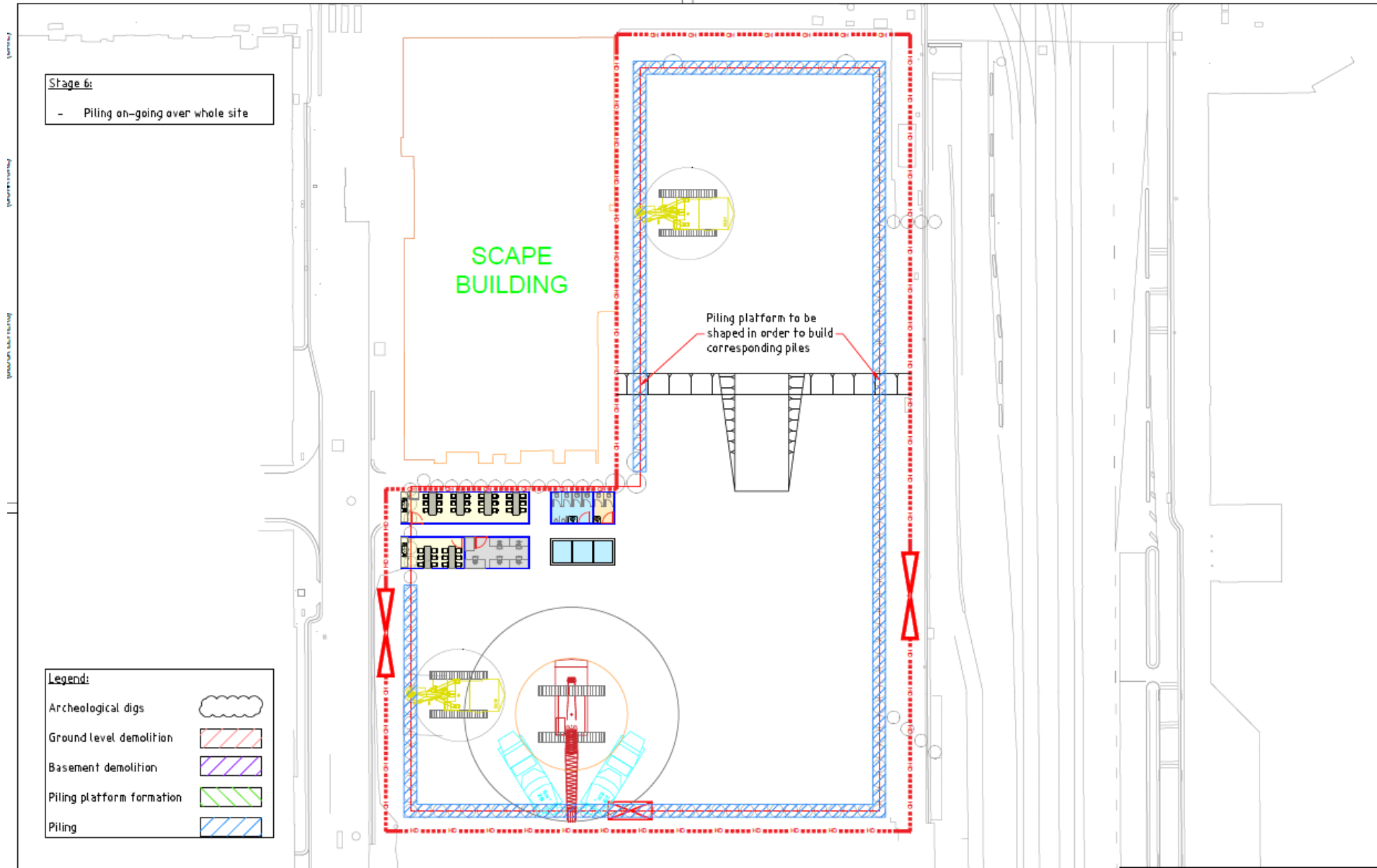
STAGE 4: LA TROBE STREET PILING



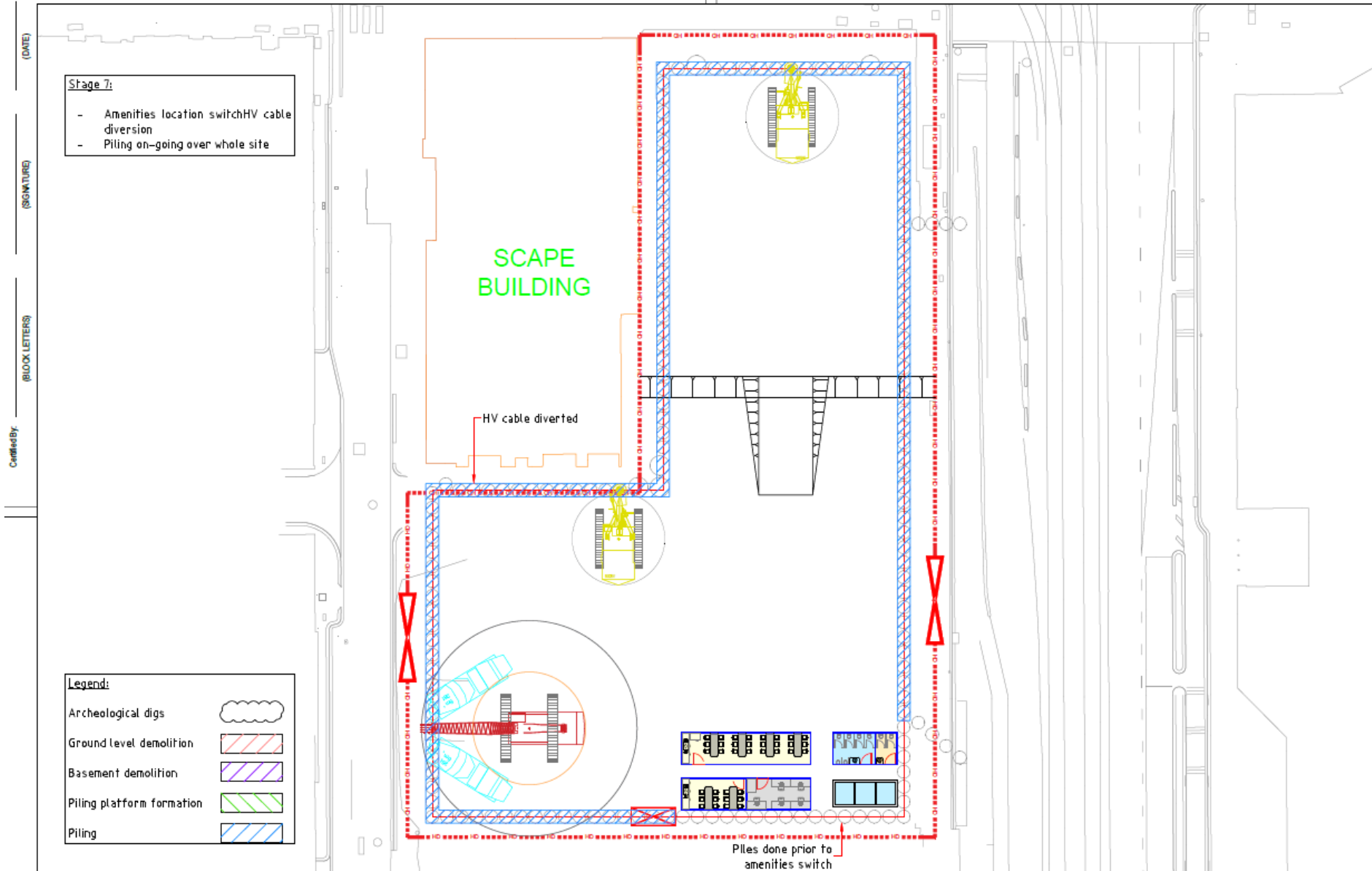
STAGE 5: LA TROBE STREET PILING



STAGE 6: LA TROBE STREET PILING



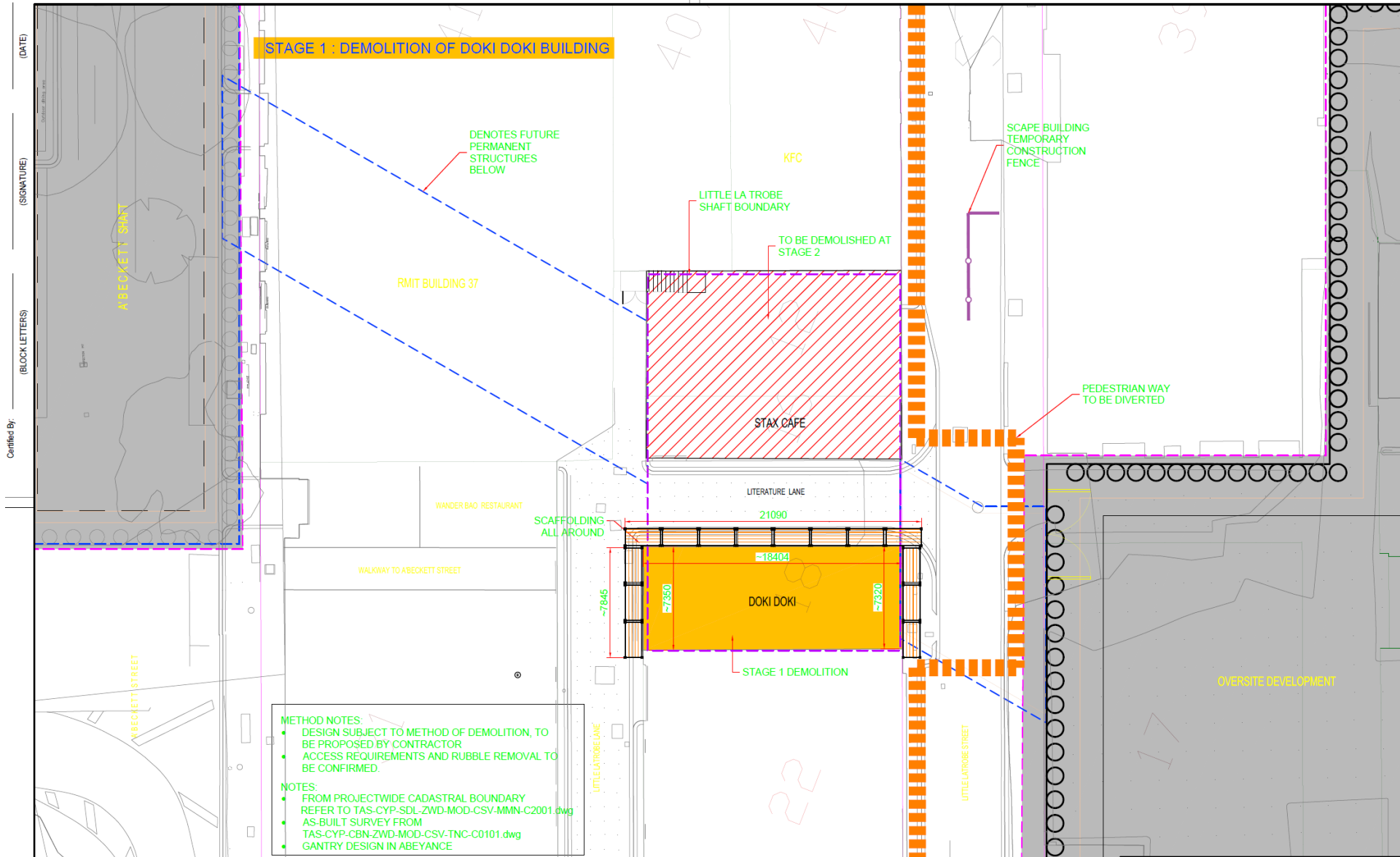
STAGE 7: LA TROBE STREET PILING



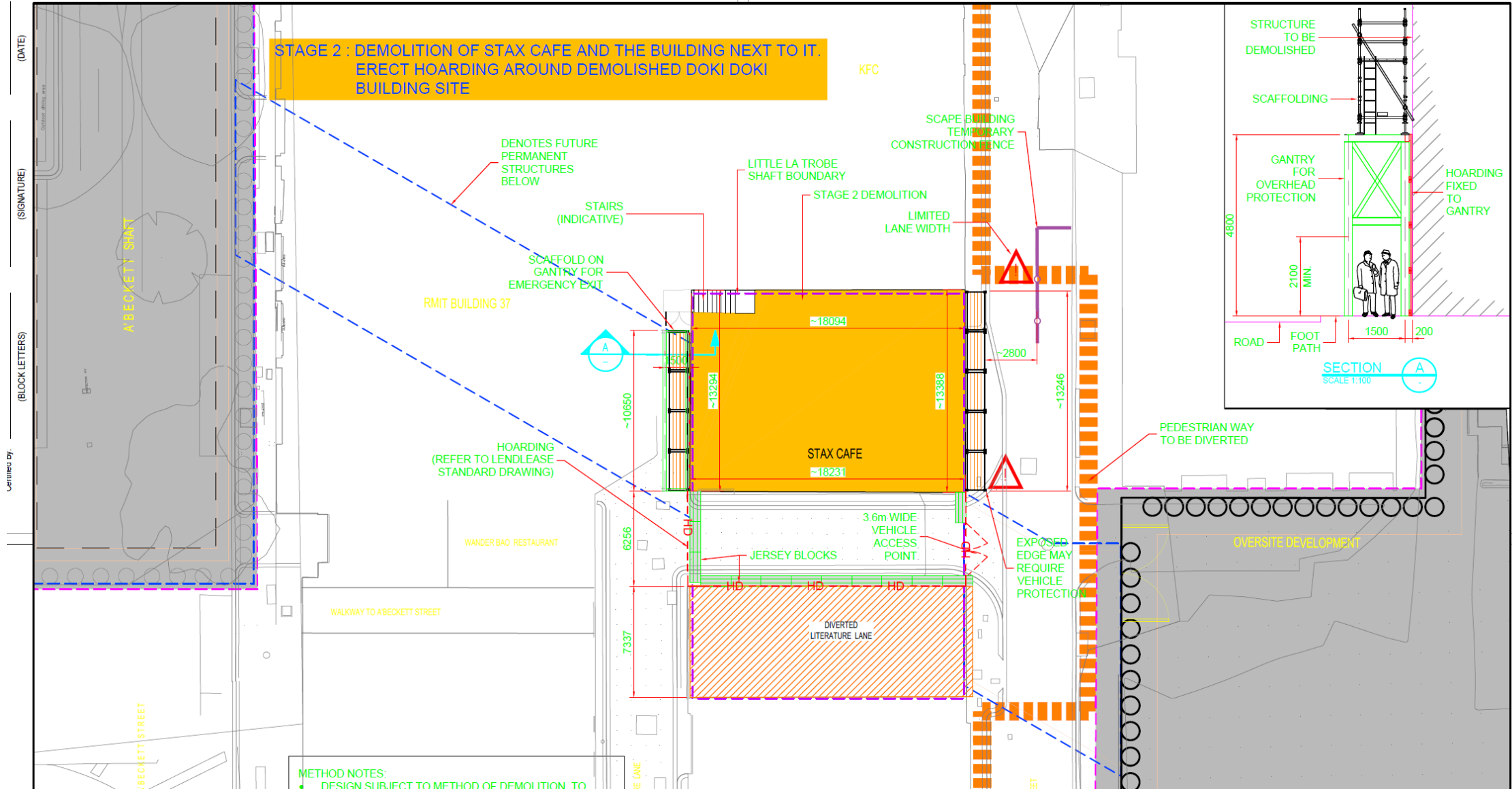
LITTLE LA TROBE STREET DEMOLITION – LOCATIONS



STAGE 1: 18-20 LITTLE LA TROBE STREET



STAGE 2: 12-16 LITTLE LA TROBE STREET





QUESTIONS?

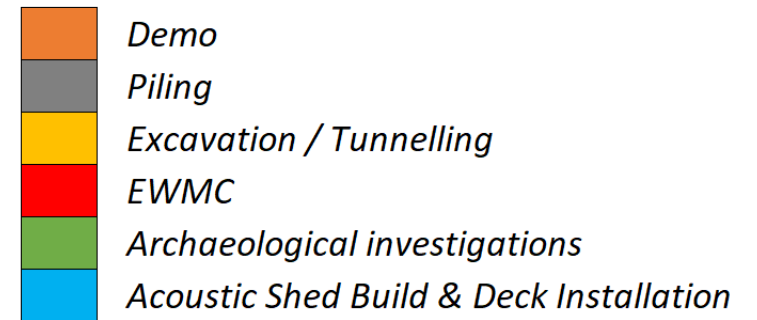


TOWN HALL STATION UPDATE

INDICATIVE CONSTRUCTION DATES

Sites	2018			2019				2020				2021			
	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
City Square															
Flinders Quarter															
Federation Square															

Indicative Program





TOWN HALL UPDATE

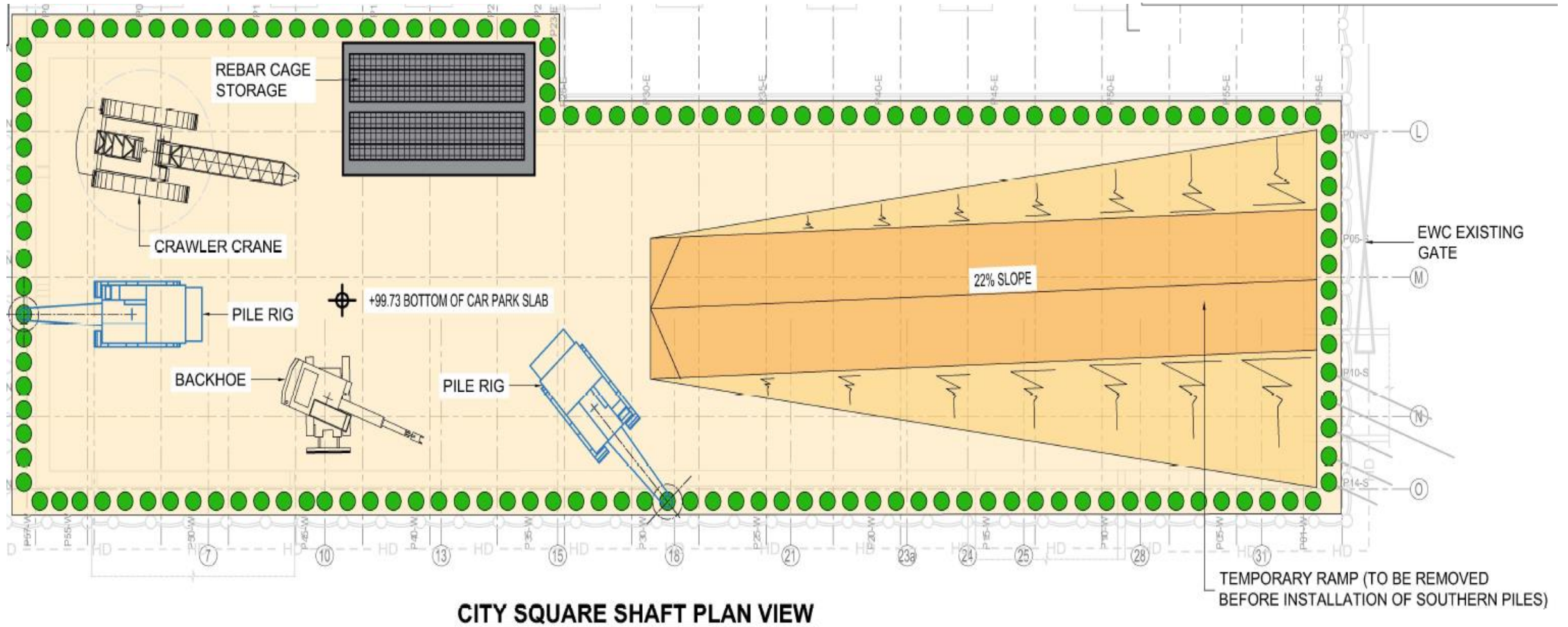
City Square site set up activities for June and July

- Saw cutting of perimeter and removal of slab
- Delivery of equipment including excavator
- Soil testing
- Reconfiguration of ramp
- Demolition of structure behind ramp
- Hoarding retrofit
- Heavy equipment delivery (e.g. piling rig, crawler crane)
- Piling

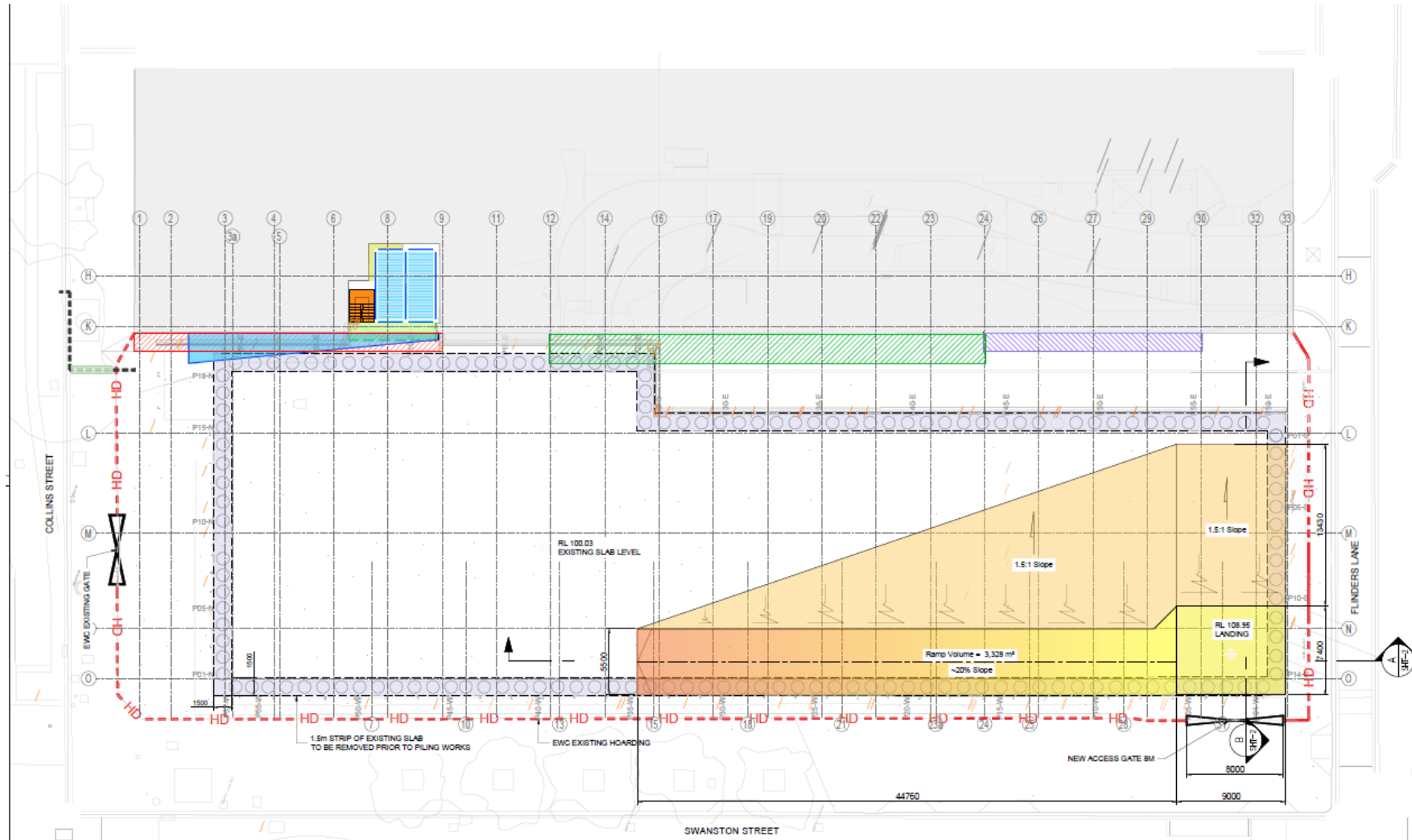
Flinders Quarter site

- Archaeology investigations

RAMP WORKS




RAMP WORKS: RECONFIGURATION



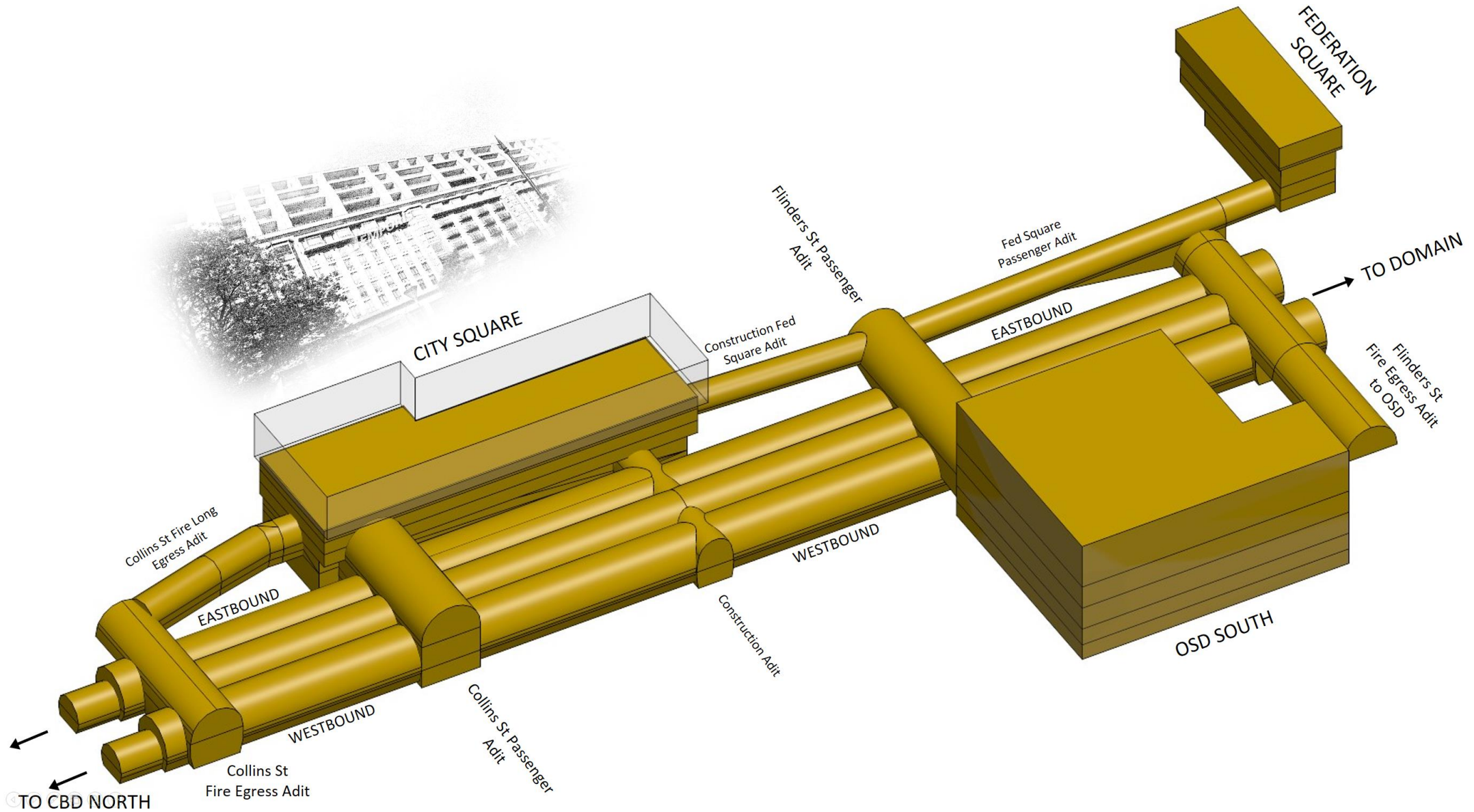


QUESTIONS?



UNDERGROUND CONSTRUCTION METHODOLOGY

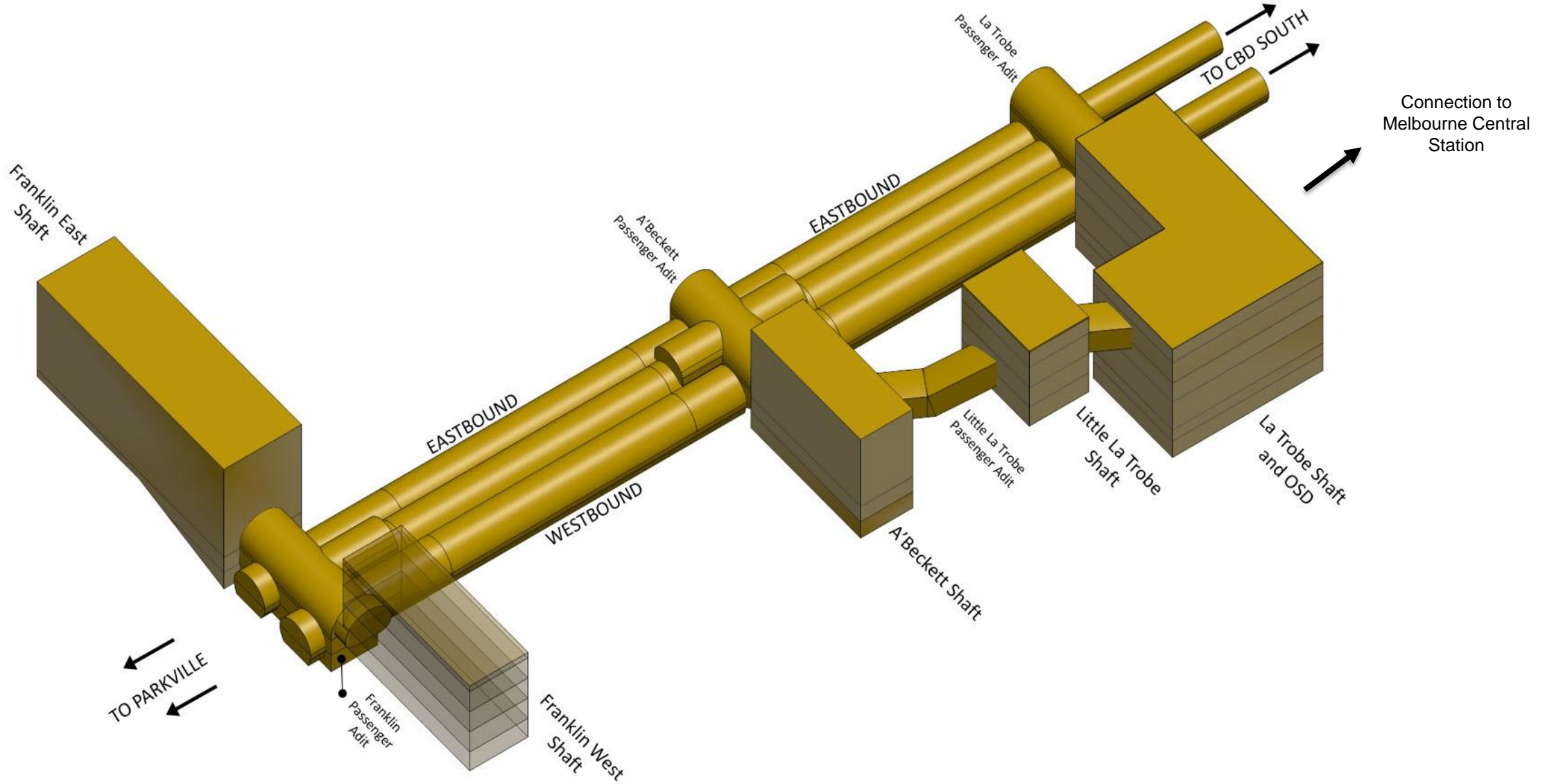
TOWN HALL – UNDERGROUND





TOWN HALL - CONCOURSE

STATE LIBRARY – UNDERGROUND





STATE LIBRARY - PLATFORM

ROAD HEADER OPERATIONS



PRIMARY GROUND SUPPORT



WATERPROOF LINING




CONCRETE LINING WORKS





QUESTIONS?

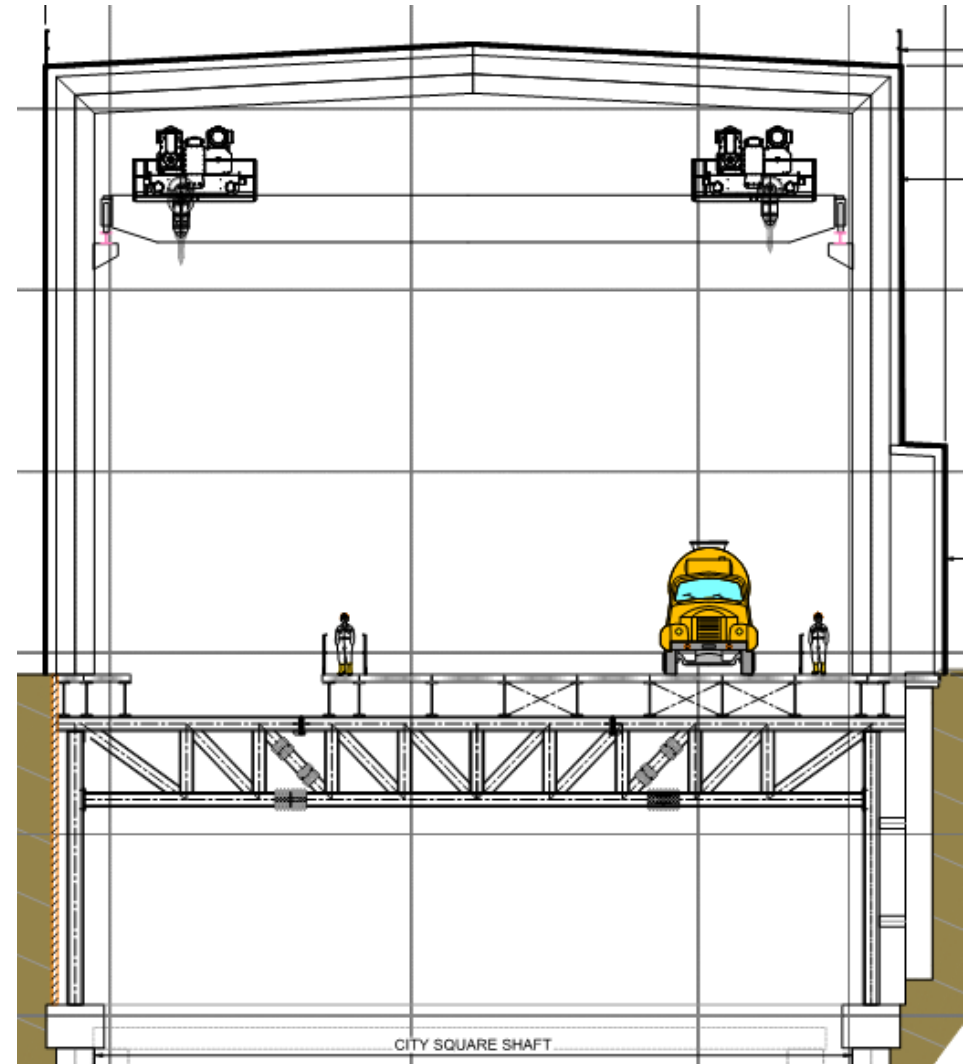


ACOUSTIC ENCLOSURE METHODOLOGY

ACOUSTIC SHED DESIGN

Design considers

- Building fabric
- Doors and seals
- Roller doors
- Airflow paths
- Truck movements
- Noise control of plant and equipment



NOISE CONTROL ELEMENTS



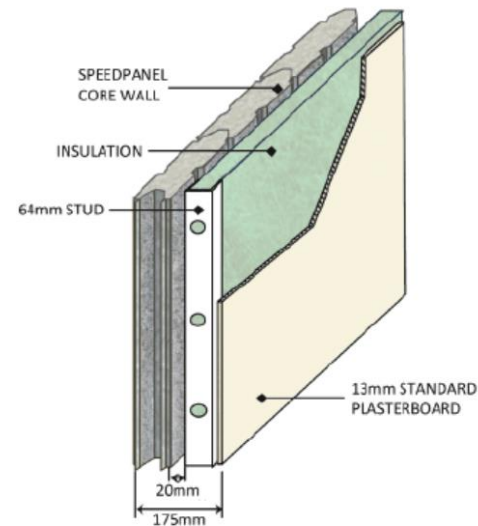
Splitter-silencers



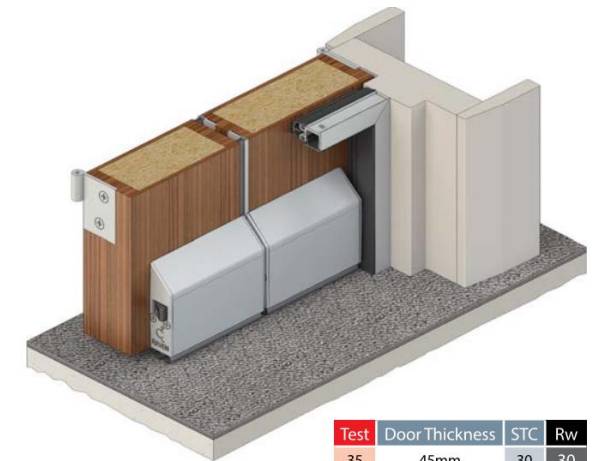
Acoustic louvres

Absorption between splitters/louvres to reduce sound while allowing airflow

Constructions selected to reduce transmission of sound through building elements



Wall construction



Test	Door Thickness	STC	Rw
35	45mm	30	30

Door and seals

NOISE CONTROL ELEMENTS CONT.

Controls noise breakout, minimises duration of open doorway.



Reduces noise of individual items of plant. Requires detailed design.

VIBRATION CONTROL ELEMENTS



Spring isolation

Reduces vibration energy transmitted into the structure

Reduces structure-borne energy transferring through building elements

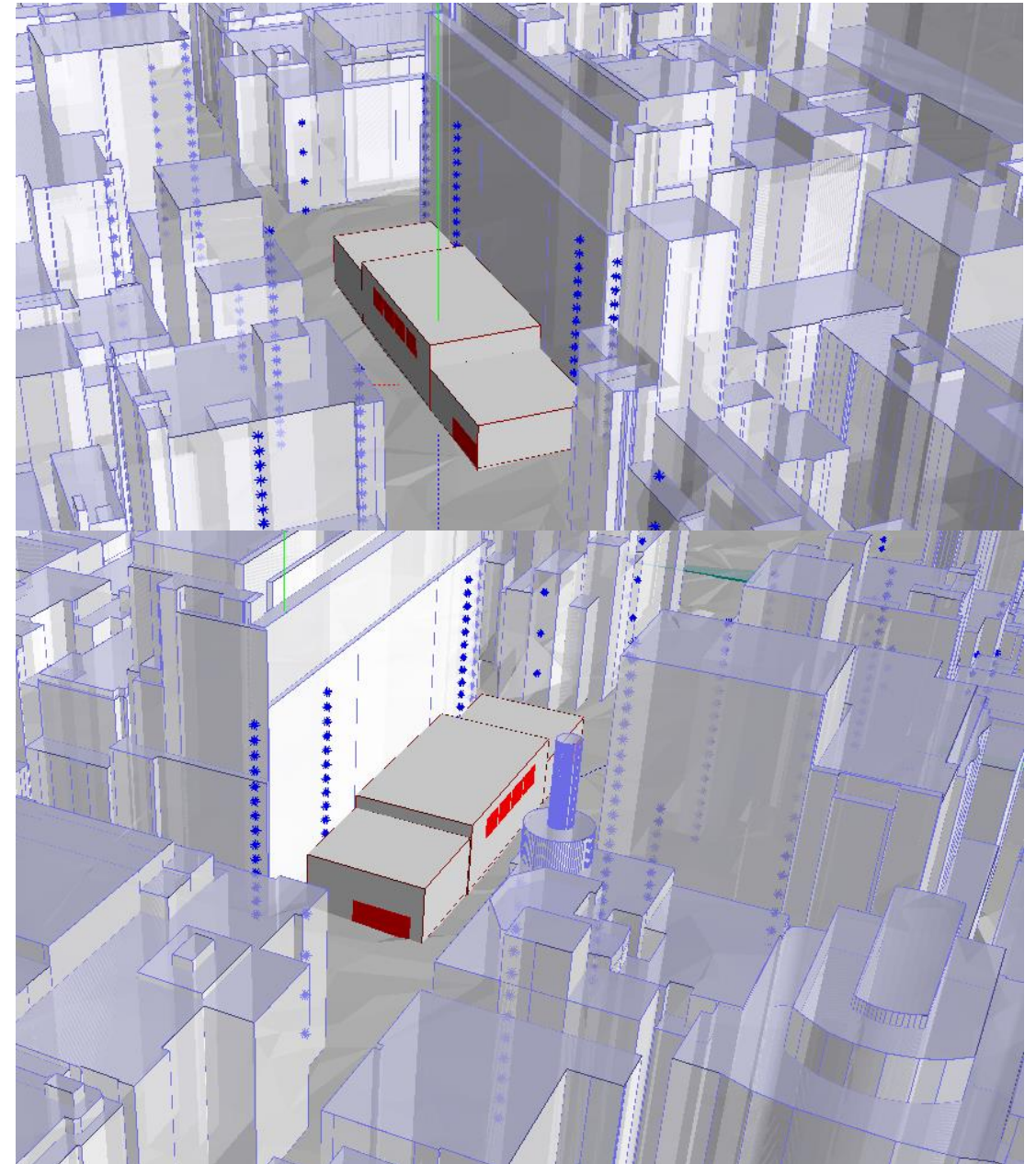


Wall construction

MODELLING

Software considers:

- 3D geometry
- Area of source
- Reflections off buildings
- Spectral content of sound
- Air absorption
- Ground effect
- Angle of view





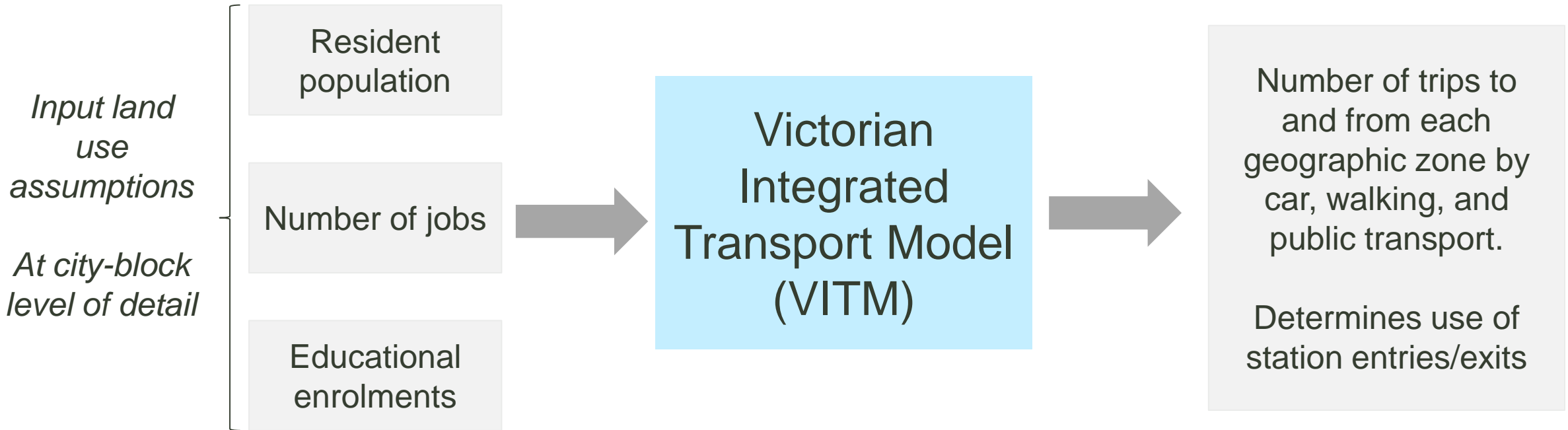
QUESTIONS?



PEDESTRIAN MODELLING RESULTS

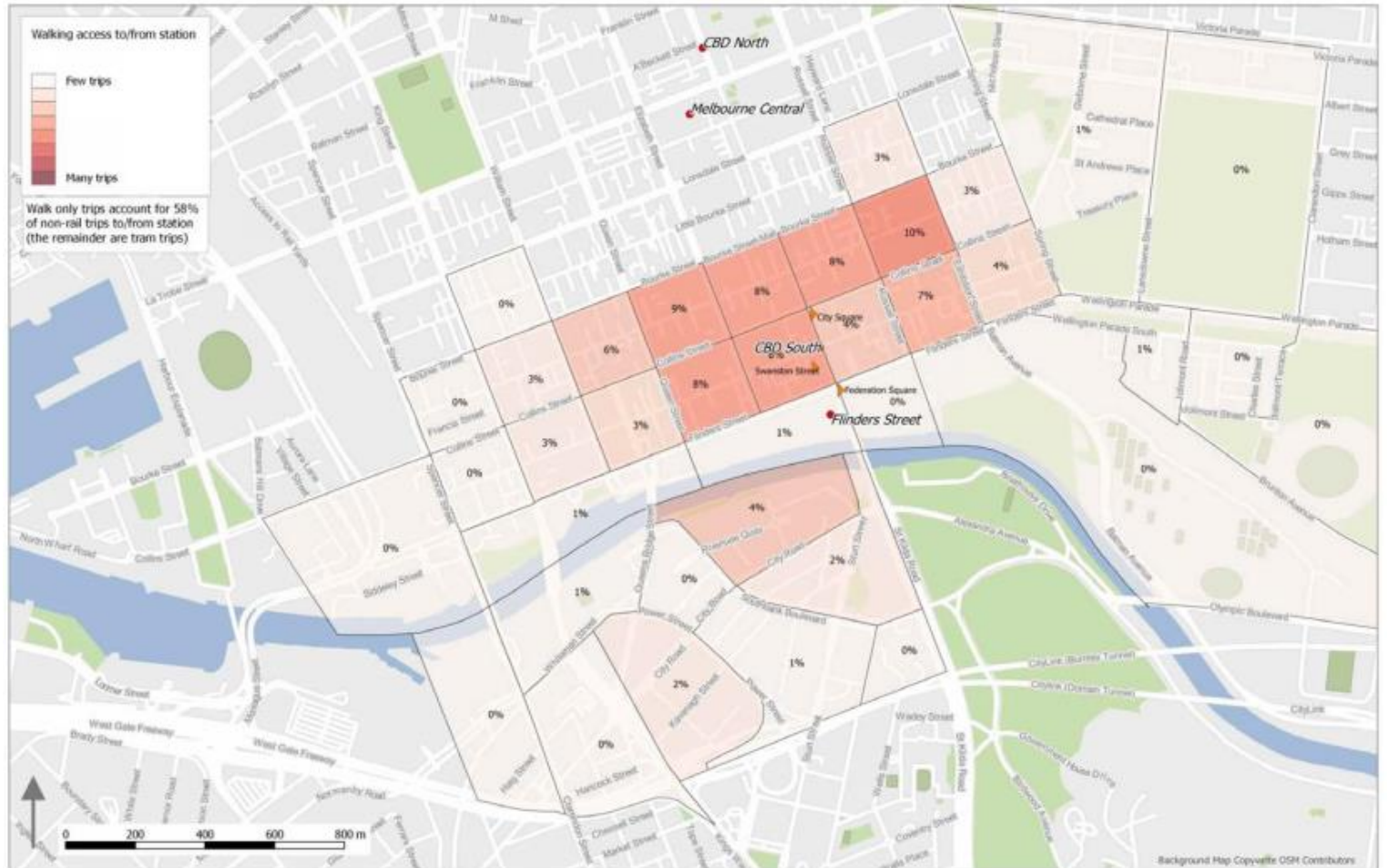
RAIL PROJECTS VICTORIA PRESENTATION

PROCESS TO DETERMINE STATION ENTRANCES – VITM



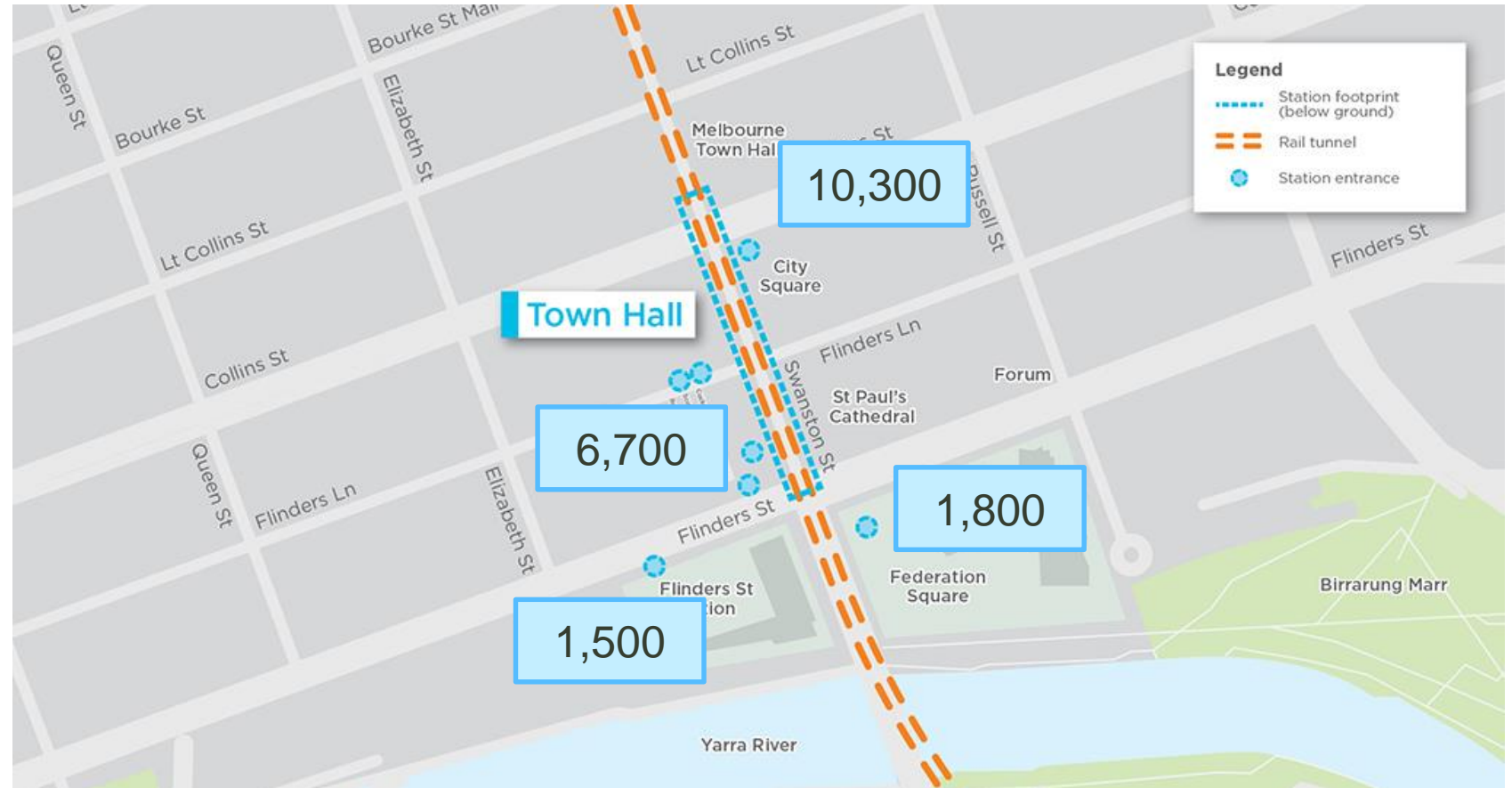
PROCESS TO DETERMINE STATION ENTRANCES – VITM – EXAMPLE

- Graphic shows 2031 AM Peak Town Hall Station walk access catchment distributions
- Higher colour densities represent more trips to/from that city-block zone
- 58% of people accessing the station will walk. The remaining 42% will interchange to/from trams.



TOWN HALL 2031 AM PEAK STATION ENTRY AND EXIT FOOTFALL

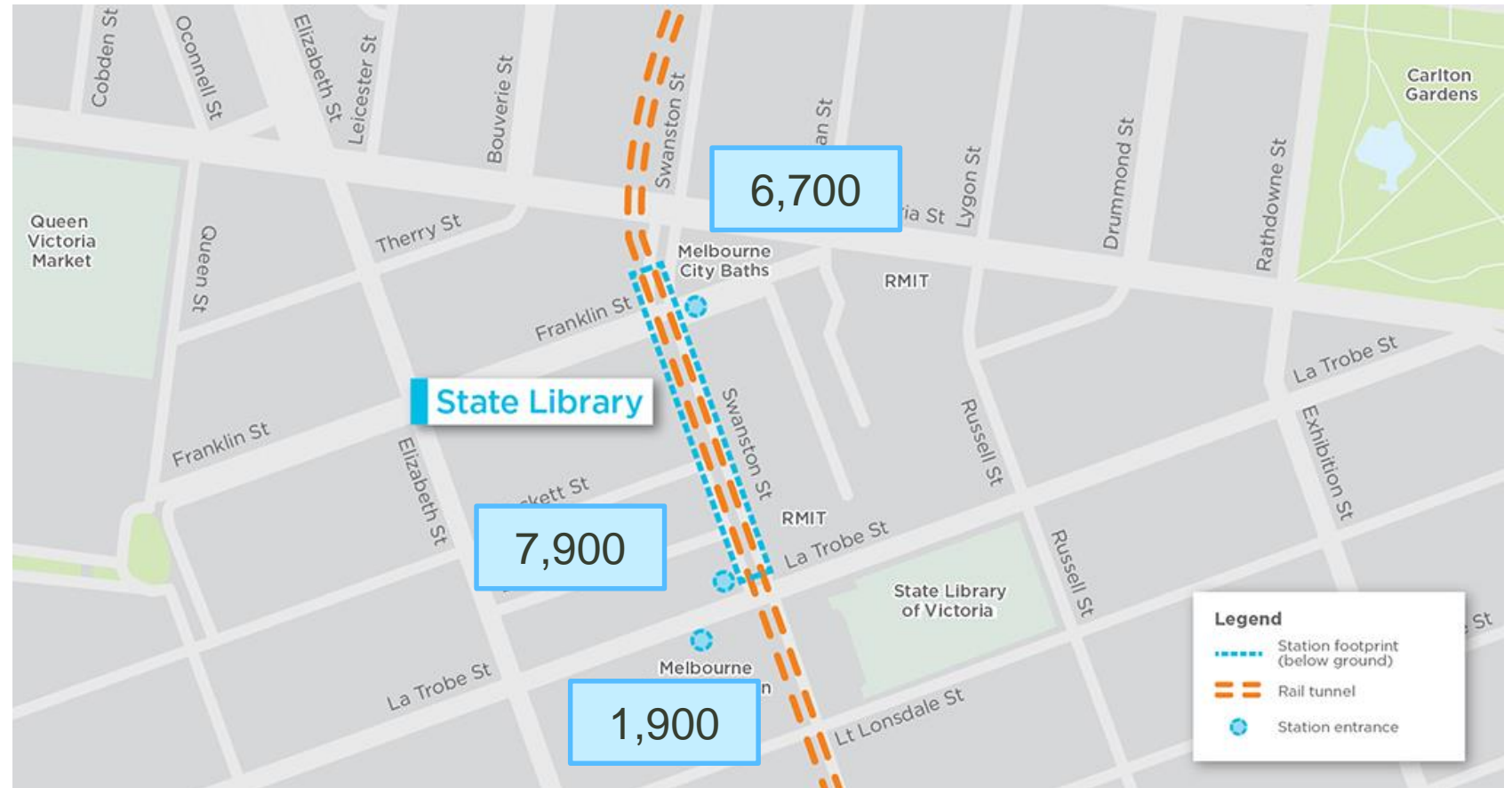
- 2031 AM two hour peak Town Hall Station walk entries and exits
- Flinders Street Station passengers and interchanging passengers are not included in totals
- Similar distribution observed for PM peak



Values rounded to nearest 100 passengers

STATE LIBRARY 2031 AM PEAK STATION ENTRY AND EXIT FOOTFALL

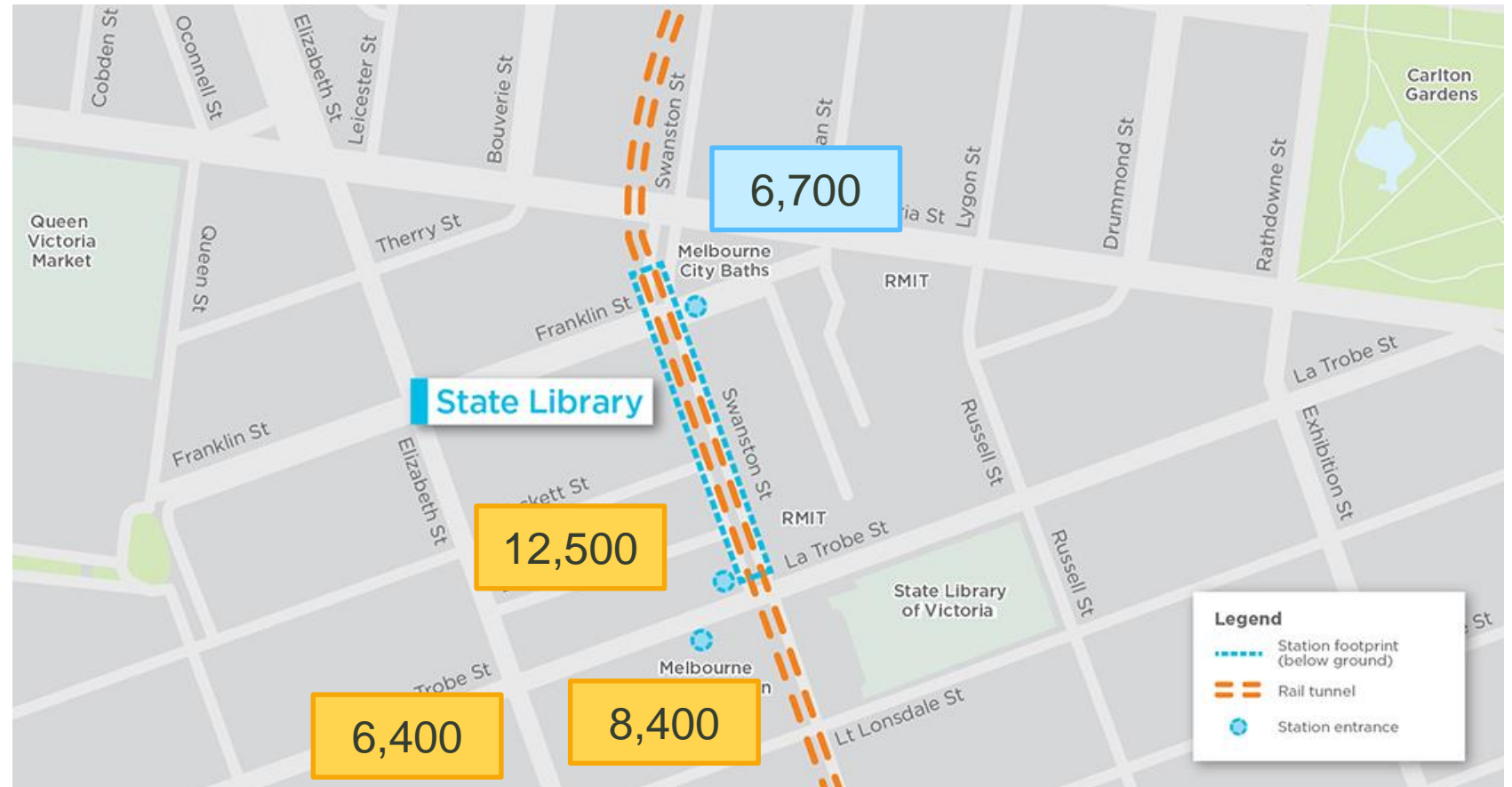
- 2031 AM two hour peak State Library Station walk entries and exits
- Melbourne Central passengers and interchanging passengers are not included in totals
- Similar distribution observed for PM peak



Values rounded to nearest 100 passengers

STATE LIBRARY + MELBOURNE CENTRAL 2031 AM PEAK STATION ENTRY AND EXIT FOOTFALL

- 2031 AM two hour peak State Library Station walk entries and exits
- For comparison with the previous slide, Melbourne Central passengers **are** included in totals. Interchanges are not.
- Similar distribution observed for PM peak



Values rounded to nearest 100 passengers

ASSESSMENT OF PEDESTRIAN CIRCULATION AT STREET LEVEL

People walking through precinct

=

Background flows (b)

+

Station flows (s)

+

Tram flows (t)

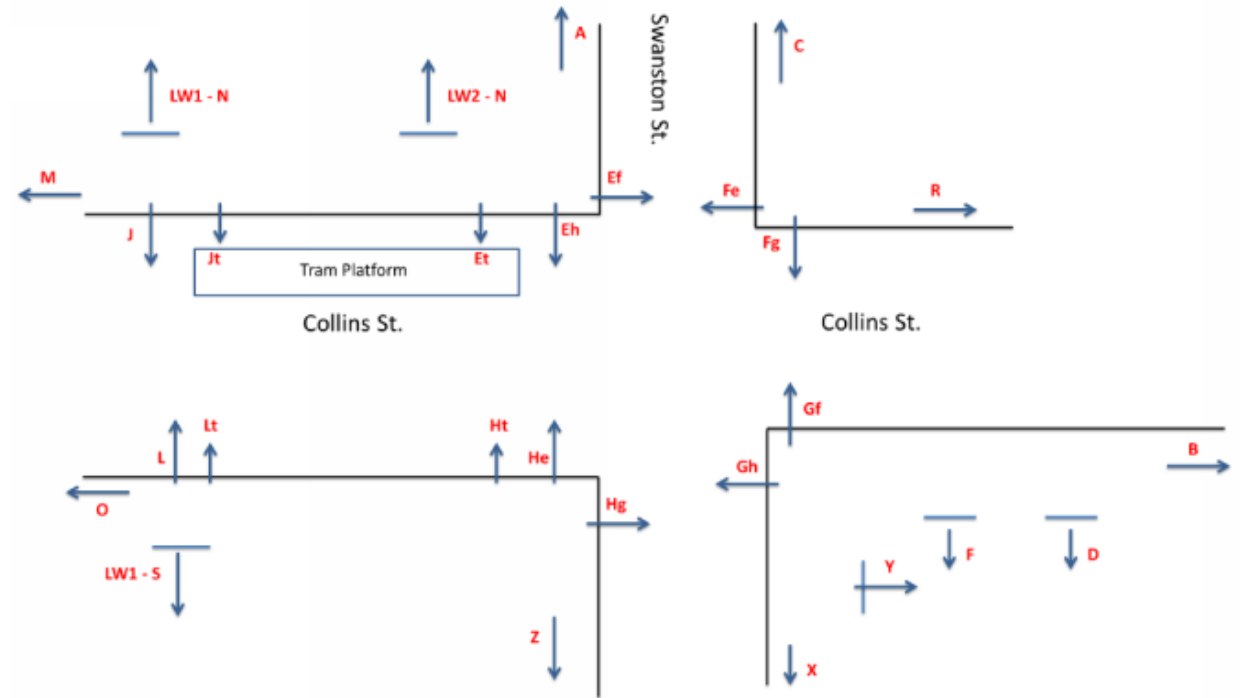
Walking trips not associated with the Metro Tunnel Station, nor the adjacent tram stops

Walking trips to and from the station and their distribution around the precinct

Walking trips to and from tram stops near the station

ASSESSMENT OF BACKGROUND FLOWS AT STREET LEVEL

- Pedestrian survey in AM and PM peak periods undertaken since 2015, ongoing
- Survey analysed to determine current day background (non station and non tram) flows
- Growth applied to the background flows to obtain 2031 background matrix
 - Growth based on VITM model
 - Growth between current data and 2031 is 2.16% p.a.



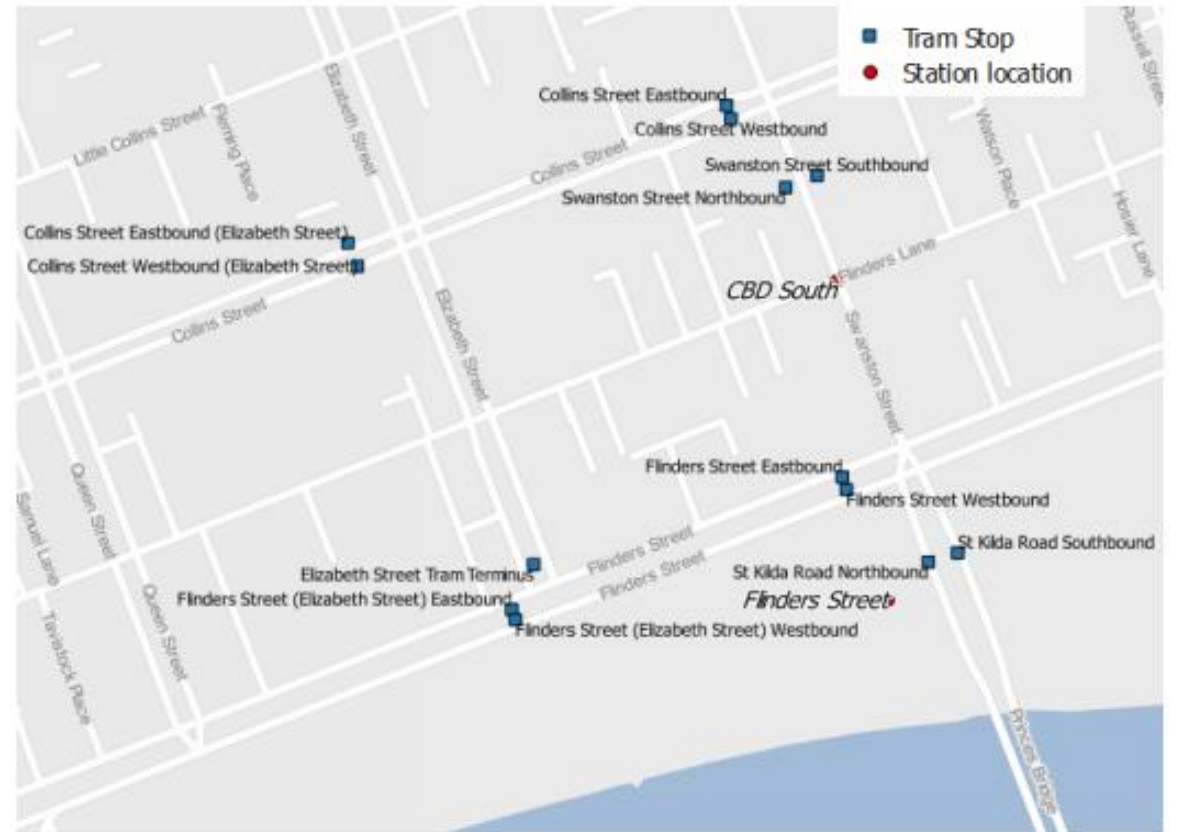
ASSESSMENT OF STATION EXIT FLOWS AT STREET LEVEL: EXAMPLE

- Zones for pedestrians exiting from the City Square exit and dispersing to/from the Collins Street precinct are sub-divided
- Forecasts for residents, jobs, and educational enrolments for each sub-zone assessed to provide distribution of station walk access trips



ASSESSMENT OF TRAM ACCESS FLOWS AT STREET LEVEL: EXAMPLE

- VITM provides tram trips between origin and destination (zone) and station





ONGOING WORK TO ASSESS PEDESTRIAN PRECINCT FLOWS

- Pedestrian modelling undertaken through Reference Design and EES to assess base (no project) and project case pedestrian flows, assess capacity and pedestrian comfort, and inform design
- CYP currently building new models, with CYP station design and updated data, to assess CYP stations



QUESTIONS?



GENERAL FEEDBACK AND ITEMS FOR FUTURE DISCUSSION



Western Portal

North Melbourne

Parkville

State Library

Town Hall

Anzac

Eastern Portal

The existing 'North Melbourne' station will be renamed West Melbourne.

Sunbury Line

South Kensington

West Melbourne

Melbourne Central

Flagstaff

Parliament

Southern Cross

Flinders Street

Richmond

South Yarra

Cranbourne / Pakenham Line