27 April 2018

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Mirvac Projects Pty Ltd
6001 (Bay 6) and 7006 (Bay 7)
2 Locomotive Street
Eveleigh NSW 2015

Attention: Stephen Simpson

Dear Stephen

Locomotive Workshop Redevelopment | SSD 8157 and SSD 8449
Traffic and Transport Response to Agency Submission

Reference is made to the State Significant Development Applications relating to the proposed Locomotive Workshop redevelopment (reference SSDA 8517); and specifically, the Agency Submissions received from The Department of Planning, Heritage Division, City of Sydney, Roads and Maritime Services and Transport for NSW.

Reference is made to revised plans of development which supersede those submitted with the original SSDA. The complete revised plan set referenced herein is included in the Ethos Urban Response to Submission (RtS).

This letter documents the response to the traffic and transport matters raised throughout the combined Agency Submissions. **Table 1** overleaf reproduces the individual Agency Submission text for items that are addressed herein.

1 Agency Submissions - Traffic and Transport Item Summary

There are several traffic and transport matters that were noted across the various Agencies, albeit with slight variations specific to their area of authority and/or technical discipline. Most simply, the matters raised by multiple agencies can be summarised as:

1. External truck travel on public roads and conflicts with pedestrian movement to/from the Australian Technology Park (ATP) and Redfern Train Station
2. Internal truck movements in Innovation Plaza and conflicts with pedestrian movement
3. Internal truck movements within the proposed Locomotive Workshop loading dock and conflicts with heritage elements
4. The need for management plans including a Loading Management Plan and Construction Pedestrian and Traffic Management Plan.

Whilst individual responses are detailed for each of the **Table 1** items in **Section 3**, a consolidated response for each of the four key or repeated matters above is also made in **Section 2** for ease of reference.

Table 1 Summary of Traffic and Transport Related Agency Submission Matters

Agency	Request Item		SLR Response
Department of Planning	**[C] Parking and Loading Management** The proposal must consider how arrangements for parking and loading may vary depending on the staging and uptake of various proposed uses, particularly the proposed retail/ supermarket. Further information is required to demonstrate satisfactory access, loading and car parking arrangement have been considered with respect to the different scenarios and the associated potential impacts on site facilities and surrounding road network, including the following:	iii) The time restrictions, access route and frequency of use of the proposed loading facilities and associated impacts on the main pedestrian route from Redfern Station to the Locomotive Workshop via the northern end of Innovation Plaza.	2.1 3.1.1
		iv) Any loading access (and swept paths) must consider the land proposed to be compulsorily acquired by Transport for NSW for the new Intercity Fleet Eveleigh Facility Project.	2.2 3.1.1
		v) Any conflicts between proposed loading/ unloading by and pedestrian access, including couriers/ other vehicles off Locomotive Street and main pedestrian entries to the building and the proposed loading access via Innovation Plaza.	2.2 3.1.1
		Please also respond to RMS's request for an electronic copy of the SIDRA intersection analysis for the AM and PM peak periods for the intersection of Henderson Street/ Mitchell Roads.	3.1.1
	[C] Public Domain Improvement Further information is required to illustrate how the proposal will be coordinated with the approved Public Domain works of SSD 7317 and overall public domain qualities for ATP. This should include consideration of:	i) Pre-development and post-development layout of Locomotive Street, clearly identifying any changes to parking/ loading layout, any restrictions/ management, changes to carriage width, pedestrian crossing and integration with Building 2, the location of traffic calming device, bicycle parking (visitors) etc.	3.1.2
		iii) Changes to Innovation Plaza, including any existing site features and trees.	2.2 3.1.2
		v) Impacts of the proposal (including loading access) on the connectivity to ATP and the Locomotive Workshop from Redfern Station via Innovation Plaza and any approved improvements required under SSD 7317.	2.1 3.1.2
Heritage Division	**[D] Loading Dock**	ii) Provide detailed design on how the significant fabric/columns are to be protected (internally and externally) from impact from large vehicles.	3.2
		iii) Provide detailed design of how vehicle will unload, currently there is no indication of how they access back of house areas.	3.2
City of Sydney	**[A] Loading Dock**	The possible conflicts between service vehicle requirements and the Davy Furnace enclosure walls must be resolved in favour of maximum 'breathing space' (buffer zone) around the Davy Furnace.	2.3 3.3.1
	[G] Traffic and Access	Careful management of waste transfer from the tenancies to the waste storage areas will be required to minimise interface with the public.	3.3.2

Agency	Request Item		SLR Response
		The Department of Planning and Environment are requested to impose a condition specifically requiring that the 46 visitor bike spaces are installed in accordance with Australian Standard (AS2890.3 2015).	3.3.2
		Consider allocating one of the centrally positioned bays in the Locomotive Workshop for vehicle loading.	3.3.2
		The shared zone in Marian Street should not be used by delivery/service vehicles and a condition to this effect should be imposed on any consent and/or Loading Management Plan.	2.1 3.3.2
		It is recommended that a condition is imposed upon the applicant, requiring the submission of a comprehensive Loading Management Plan that applies to all tenancies within the Locomotive Workshop and not just the Loading Dock area.	2.4 3.3.2
	[H] Tree Removal	The Department of Planning and Environment are strongly encouraged to seek clarification from the applicant with regard to potential tree removal in Innovation Plaza.	2.2 3.3.3
Roads and Maritime Services	1. Roads and Maritime requires the electronic copies of the SIDRA intersection analysis for both AM and PM peak periods for the intersection of Henderson Road and Mitchell Roads for review and comments.		3.4
	2. Impacts to pedestrian and cyclist amenity as a result of the development should be considered, particularly in relation to connections to bus and train services. Potential improvements to pedestrian and cyclist facilities should be identified and provided, either through works-in-kind or contributions.		2.1 3.4
	3. The layout of the proposed car parking areas associated with the subject development (including, driveways, grades, turn paths, sight distance requirements in relation to landscaping and/or fencing, aisle widths, aisle lengths, and parking bay dimensions) should be in accordance with AS 2890.1- 2004, AS2890.6-2009 and AS 2890.2 – 2002 for heavy vehicle usage.		3.4
	4. A Construction Traffic Management Plan detailing construction vehicle routes, number of trucks, hours of operation, access arrangements and traffic control should be submitted to Council for approval prior to the issue of a Construction Certificate.		2.4 3.4
Transport for NSW	**Locomotive Street Layout**	TfNSW requests that the proponent continues to work with TfNSW to resolve the design for Locomotive Street, in particular the provision for coaches. Any works that occur in Locomotive Street as part of this application should not occur until the design of Locomotive Street is resolved.	3.5
	Loading and Servicing	The proposal requires vehicles to reverse into the loading dock proposed within the Innovation Plaza. Details on how conflicts with reversing vehicles and pedestrians will be managed should be provided. If this conflict can't be adequately managed, the design should be modified to eliminate the need for reversing vehicles.	2.3/2.4 3.5

Agency	Request Item		SLR Response
	Events / Functions	Additional details on the arrival and departure profiles for vehicles accessing the event/function space (when operating at full capacity) should be provided. Details on how these vehicles can be accommodated within Locomotive Street should be provided, taking into consideration other vehicles using Locomotive Street to access the surrounding developments.	3.5
	Construction Pedestrian and Traffic Management Plan	Several construction projects, including the Sydney Metro City and South West are likely to occur at the same time as this development. The cumulative increase in construction vehicle movements from these projects could have the potential to impact on general traffic and bus operations, and the safety of pedestrians and cyclists particularly during commuter peak periods. TfNSW requests that the applicant prepare a Construction Pedestrian and Traffic Management Plan (CPTMP) in consultation with the Sydney Coordination Office within TfNSW. Details of the inclusions for the CPTMP are at Attachment A. A final copy of the plan is to be submitted to the Coordinator General, Transport Coordination for endorsement, prior to the commencement of any works.	2.4 3.5

2 Traffic and Transport Response Summary

As was introduced in **Section 1**, there are four key matters that are repeated cross the various Agency Submissions, being:

1. External truck travel on public roads and conflicts with pedestrian movement to/from the Australian Technology Park (ATP) and Redfern Train Station
2. Internal truck movements in Innovation Plaza and conflicts with pedestrian movement
3. Internal truck movements within the proposed Locomotive Workshop loading dock and conflicts with heritage elements
4. The need for management plans including a Loading Management Plan and Construction Pedestrian and Traffic Management Plan.

An overarching response to these four themes is made in the following sections.

2.1 External Truck Movements on Public Roads

There are two possible external road routes that can be used by trucks to access the subject Innovation Plaza loading dock:

1. Rosehill Street – Margaret Street – Site
2. Rosehill Street – Marian Street – Cornwallis Street – Site.

The two route options were investigated and reported previously as part of the GTA traffic and transport assessment that was submitted with the SSDA's in 2017.

SLR undertook a comprehensive assessment of both routes that was informed by electronic swept paths prepared in AutoTURN using two design vehicles that are anticipated to service the subject development:

- RCV – Rear lift Roll-on/Roll-off Refuse Compactor Collection Vehicle (ACCO 2350 | 10.2m)
- LRV – Large Rigid Vehicle (Tenant specified Mercedes Benz 2324L | 10.15m).

To be clear, an Austroads Heavy Rigid Vehicle (12.5m) cannot negotiate either route without modifications to existing road kerbs. Accordingly, servicing by this larger truck is not proposed.

Mirvac's preference is for the Option 1 route (Rosehill Street – Margaret Street) based on:

- Consultation with residents of the Water Tower site who identified it as their preferred route
- Avoidance of the need to travel through the Marian Street Shared Zone
- Option 1 being shorter than Option 2 and thereby affect fewer local residents.

The SLR swept path assessment shows that Option 1 is physically possible without the need to modify existing road kerbs along the route. **610.17901.SK04B** included at **Appendix A** shows that both the RCV and LRV can negotiate the left turn from Rosehill Street into Margaret Street clear of permanent obstructions. The plans show.

- Vehicle body (blue dashed line) does not extend beyond the existing kerb line
- Front/rear wheels are well within the existing road pavement
- Vehicle clearance (red line) does not conflict with existing roadside objects or property boundaries.

It is noted that the left turning trucks would conflict with Rosehill Street kerbside space opposite Margaret Street where it is currently possible for motorists to park without restriction. The existing No Stopping zone would have to be extended by approximately 11.5-12m from its current position so as to accommodate the design vehicles turning into Margaret Street. This additional length of prohibited parking is equivalent to two parking spaces.

SLR understands that the City of Sydney, as managers of Rosehill Street, have concerns relating to the extension of the No Stopping zone, namely:

a) That is will result in a loss of two parking spaces

b) That there is the potential for motorists to disregard the No Stopping regulation and potentially block the truck access route.

With respect to point a), there are engineering options available that could offset the loss of the two parking spaces. One such option would involve the reconfiguration of existing landscaping build-outs in Rosehill Street and Cornwallis Street illustrated overleaf **Figure 1**.

During a meeting held 16 February 2018, City of Sydney technical officers confirmed that the possible reconfiguration of landscaping was reasonable on traffic engineering grounds but undesirable from an urban design or landscape perspective. Ultimately, the reconfiguration is located within road reserve and it would be a decision for City of Sydney if maintaining the current car parking supply was desired.

Figure 1 Existing Landscaping Build-outs (Rosehill Street and Cornwallis Street)

A second route, Option 2 (Rosehill Street – Marian Street – Cornwallis Street) has also been investigated in preparing this response.

610.17901.SK04 and **SK05** show that the LRV and RCV can physically negotiate the Option 2 route clear of obstructions including parked cars. The plans show.

- Vehicle body (blue dashed line) does not extend beyond the existing kerb line
- Front/rear wheels are well within the existing road pavement
- Vehicle clearance (red line) does not conflict with roadside objects and property boundaries. Furthermore, the full 0.6m clearance projected from the truck body can be provided to parked cars observable from the Nearmap imagery.

It is also important to note that this route can be legally traversed by trucks and is not subject to any existing vehicle limits or regulation.

It is acknowledged that the Option 2 route would require trucks to travel through an approximate 90m segment of Marian Street that is currently sign posted as a 10km/h Shared Zone. Approximately 30m of this Shared Zone length relates directly to pedestrian movements travelling between the ATP site and Redfern Station.

Irrespective of the Option 2 truck route being a legal one, it is accepted that the movement should be avoided during periods of high pedestrian utilisation of the Shared Zone like that experienced during the morning and evening commuter peak periods.

Furthermore, any conflict that may arise between trucks and pedestrians in the Marian Street Shared Zone would occur at very low speed (<10km/h) and visibility between users is good. Additionally, it is likely that the delivery trucks will be driven by regular drivers who will be attuned to site specific constraints and behaviours.

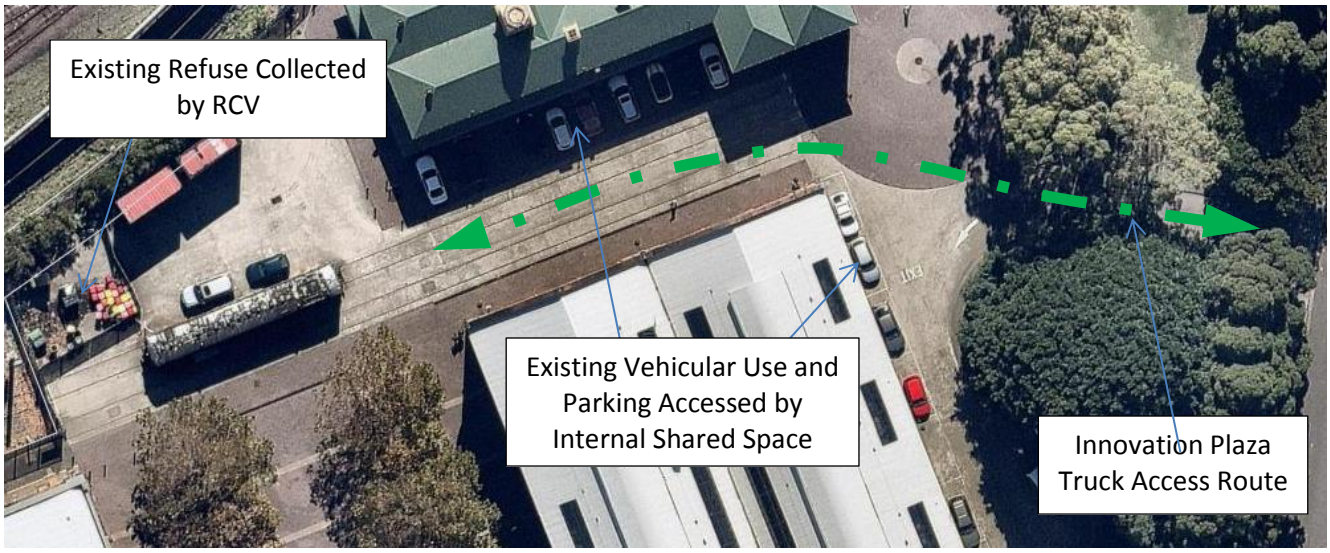
Figure 2 Marian Street – Shared Zone

In conclusion, and to be categorically clear, Mirvac has a preference for Option 1 although this would require Council to accept and implement changes to the existing kerbside car parking arrangements in Rosehill Street (loss of approximately two spaces). Should Council not accept this Mirvac preferred outcome, the subject development will be serviced via the Option 2 route.

2.2 Internal Truck Movements within the ATP Site Including Innovation Plaza

Within the ATP site, the routes travelled by trucks are the same irrespective of the arrival route. Trucks will approach/depart Innovation Plaza in a forward gear at low speed. The area between Innovation Plaza and Cornwallis Street is already shared between pedestrians and vehicles, including large trucks which regularly collect refuse generated by the ATP site.

Figure 3 Internal ATP Travel Route between Cornwallis Street Access and Innovation Plaza



Within Innovation Plaza, trucks will enter in a forward gear, stop, and reverse into the subject loading dock. **610.17901.SK09** and **SK09B** show these arrangements for the RCV and LRV respectively. Potential conflicts between pedestrians and trucks in Innovation Plaza can be categorised as occurring in three segments when trucks:

Potential conflicts between pedestrians and trucks in Innovation Plaza can be categorised as occurring in three segments:

1. Truck entering Innovation Plaza in a forward gear
2. Truck reversing into loading dock
3. Exit the loading dock in a forward gear and continue through Innovation Plaza.

Conflict types 1 and 3 are not dissimilar to what occurs in many pedestrian malls and shared spaces in city centre environments and is considered acceptable based on the following:

- Servicing movements can occur outside peak pedestrian demand periods
- Trucks will be travelling in a forward gear and at low speed
- Drivers are likely to be regulars to the site and will be familiar with the locale and behaviours
- All users will have good observational sight distance to one another. Conflict type 2 involves the truck reversing into the proposed loading dock from a stopped position in Innovation Plaza.

Conflict type 2 involves the truck reversing into the proposed loading dock from a stopped position in Innovation Plaza. Whilst the specifics should be resolved as part of a Loading and Access Management Plan that can be imposed as a consideration of approval; this manoeuvre is considered acceptable based on the following:

- Servicing movements can occur outside peak pedestrian demand periods
- Innovation Plaza incorporates physical landscaping and street furniture that has been designed to emphasise the desired walking route being central to Innovation Plaza. Devices and treatments are selected to passively shift pedestrians away from walking in close proximity to the loading dock entry
- Truck will be travelling at low speed and will be fitted with reversing claxons
- Pedestrians occupying the potential conflict area inside the truck turning circle will be visible to the driver from his driving position
- Drivers are likely to be regulars to the site and will be familiar with the locale and behaviours
- All users will have good observational sight distance to one another.

The swept path plans confirm that one of the existing trees in Innovation Plaza will have to be removed to facilitate entry/exit to the loading dock. The impact on the remainder of the trees including partial conflict with canopies is limited. Additional detail is included in the arborist's Tree Removal and Pruning Application prepared by Hancock Consulting.

2.3 Internal Truck Movements within the Proposed Loading Dock

The previously submitted development plans have been revised such that the flexibility and internal scale of the service area and loading dock is improved. **610.17901.SK09** and **SK09B** show the swept path requirement for the two larger design vehicles manoeuvring within the loading dock area.

Of particular note, the service area can now accommodate at least two large trucks concurrently, i.e. two trucks can enter, stop/service, and exit clear of one another irrespective of their arrival and departure order. Concurrent loading/refuse collection was not previously possible with reference to the swept path plans prepared by GTA as part of the original SSDA.

The SLR swept paths confirm that the design vehicles can manoeuvre to, within, and from the service area with 0.6m clearances measured from the truck body. This clearance is double the 0.3m specified by AS2890.5 for low speed truck manoeuvring. Furthermore, the swept paths indicate that there is even more clearance or 'breathing space' available beyond the 0.6m clearance envelope. This is especially the case where trucks travel past the Davy Furnace and other heritage and building elements. The internal loading dock arrangements accord with that specified in AS2890.2.

610.17901.SK06 and **SK06B** show the RCV and LRV vehicles exiting Innovation Plaza and the ATP site to Cornwallis Street. The plans confirm that these larger design vehicles can exit the site with sufficient clearance to the kerbside parking located on the eastern side of Cornwallis Street.

2.4 Need for Operational Plans

Several Management Plans were prepared by GTA and submitted as part of the SSDA's, including:

- Green Travel Plan
- Construction Management Plan.

It is accepted that new or expanded Management Plans may be warranted before construction and commencement of the proposed use. The need for these plans could be formalised as a condition of approval.

Most importantly, the proposed arrangements and information presented to date would not preclude a reasonable Management Plan being prepared.

3 Detailed Traffic and Transport Response to Agency Submissions

3.1 Department of Planning

Table 2 summarises the Department of Planning matters addressed as part of this response.

Table 2 Summary of Department of Planning Traffic and Transport Related Matters

Request Item	
[C] Parking and Loading Management The proposal must consider how arrangements for parking and loading may vary depending on the staging and uptake of various proposed uses, particularly the proposed retail/ supermarket. Further information is required to demonstrate satisfactory access, loading and car parking arrangement have been considered with respect to the different scenarios and the associated potential impacts on site facilities and surrounding road network, including the following:	iii) The time restrictions, access route and frequency of use of the proposed loading facilities and associated impacts on the main pedestrian route from Redfern Station to the Locomotive Workshop via the northern end of Innovation Plaza.
	iv) Any loading access (and swept paths) must consider the land proposed to be compulsorily acquired by Transport for NSW for the new Intercity Fleet Eveleigh Facility Project.
	v) Any conflicts between proposed loading/ unloading by and pedestrian access, including couriers/ other vehicles off Locomotive Street and main pedestrian entries to the building and the proposed loading access via Innovation Plaza.
	Please also respond to RMS's request for an electronic copy of the SIDRA intersection analysis for the AM and PM peak periods for the intersection of Henderson Street/ Mitchell Roads.
[C] Public Doman Improvements Further information is required to illustrate how the proposal will be coordinated with the approved Public Domain works of SSD 7317 and overall public domain qualities for ATP. This should include consideration of:	i) Pre-development and post-development layout of Locomotive Street, clearly identifying any changes to parking/ loading layout, any restrictions/ management, changes to carriage width, pedestrian crossing and integration with Building 2, the location of traffic calming device, bicycle parking (visitors) etc.
	iii) Changes to Innovation Plaza, including any existing site features and trees.
	v) Impacts of the proposal (including loading access) on the connectivity to ATP and the Locomotive Workshop from Redfern Station via Innovation Plaza and any approved improvements required under SSD 7317.

3.1.1 Parking and Loading Management

The proposal must consider how arrangements for parking and loading may vary depending on the staging and uptake of various proposed uses, particularly the proposed retail/ supermarket. Further information is required to demonstrate satisfactory access, loading and car parking arrangement have been considered with respect to the different scenarios and the associated potential impacts on site facilities and surrounding road network, including the following:

iii. The time restrictions, access route and frequency of use of the proposed loading facilities and associated impacts on the main pedestrian route from Redfern Station to the Locomotive Workshop via the northern end of Innovation Plaza.

As per the discussion in **Section 2.1**, it is accepted that time restrictions should be imposed to limit conflict in Innovation Plaza. It would be reasonable to impose a condition of approval precluding truck movements in Innovation Plaza at certain times of day.

Two possible truck access routes have been nominated. Both are legal although Option 1 would require an extension of the current No Stopping zone located in Rosehill Street. The approximate 12m extension would result in the loss of two current kerbside parking spaces.

In the event that Option 1 isn't accepted by the City of Sydney, both the LRV and RCV design vehicles would travel via Marian Street (Option 2). The Rosehill Street – Marian Street – Cornwallis Street – site route can legally and physically accommodate these vehicles without any modification to the existing road arrangements. It is noted that residents of the Water Tower development have indicated that this is there least favoured option.

Whilst trucks travelling via the Option 2 route must pass through the Shared Zone opposite the Redfern Station; it is legal for trucks to do so and it is considered reasonable on the following grounds:

- Trucks would be travelling in a forward gear and at low speed
- Visibility between all users is good
- Drivers are likely to be regulars to the site and will be attuned to site specific constraints and user behaviours.

At a meeting held 16 February 2018, City of Sydney officers confirmed that a truck travelling via this route was undesirable, but permissible.

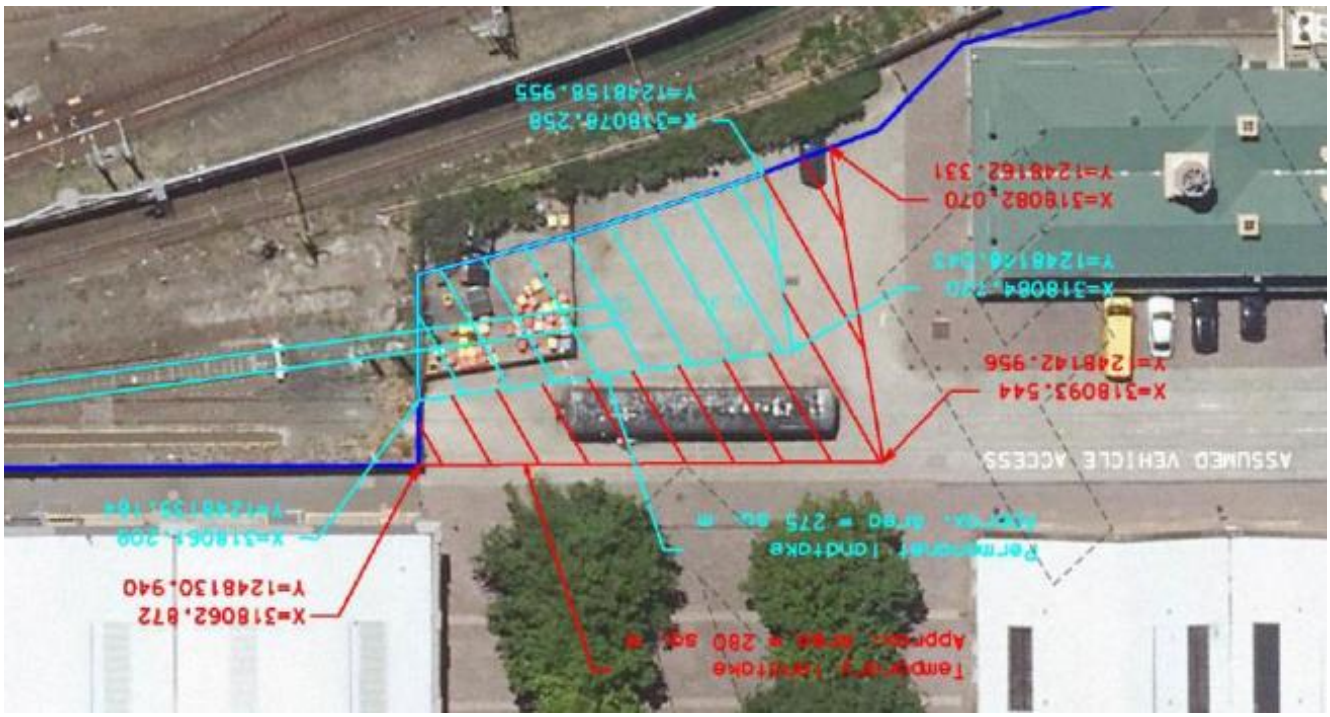
To be clear, Mirvac has a preference for Option 1 although this would require Council to accept and implement changes to the existing kerbside car parking arrangements in Rosehill Street (loss of approximately two spaces). Should Council not accept this Mirvac preferred outcome, the subject development will be serviced via the Option 2 route.

iv. Any loading access (and swept paths) must consider the land proposed to be compulsorily acquired by Transport for NSW for the new Intercity Fleet Eveleigh Facility Project

SLR understands that the blue hatched area illustrated in **Figure 4** overleaf was previously identified by TfNSW. The red hatched area is referred to as a temporary land take and the blue hatch was defined as a permanent resumption.

Based on recent Nearmap imagery, the TfNSW works situated within the permanent resumption area were completed in the period December 2017-January 2018. Accordingly, the electronic swept path assessments undertaken by SLR consider the TfNSW permanent resumption area.

Figure 4 TfNSW Compulsory Land Acquisition



v. Any conflicts between proposed loading/ unloading by and pedestrian access, including couriers/ other vehicles off Locomotive Street and main pedestrian entries to the building and the proposed loading access via Innovation Plaza.

As per the discussion in **Section 2.2**, conflicts occurring in Innovation Plaza are considered acceptable on the basis of the following:

- Innovation Plaza incorporates physical landscaping and street furniture that has been designed to emphasise the desired walking route being central to Innovation Plaza and passively shift users away from walking in close proximity to the loading dock entry
- Pedestrians occupying the potential conflict area inside the truck turning circle will be visible to the driver from his driving position
- Truck movements can occur outside peak commuter periods when pedestrian movements are lower
- Trucks will be travelling in a forward gear when entering, exiting and driving through Innovation Plaza
- Trucks will be travelling at low speed
- Truck drivers are likely to be regulars and will be familiar with the locale and behaviours.

It is suggested that the restriction of servicing times to those that fall outside of high pedestrian demand periods will manage (by avoidance) the majority of the risk. The remaining risks will be minimised through the installation of landscaping and street furniture devices that will passively emphasise the preferred pedestrian route being central to the plaza and away from the loading dock access/truck reversing zone.

Please also respond to RMS's request for an electronic copy of the SIDRA intersection analysis for the AM and PM peak periods for the intersection of Henderson Street/ Mitchell Roads.

Copies of the SIDRA file developed by GTA in their preparation of the traffic and transport assessment submitted in support of the SSDA are made available electronically as part of this response.

3.1.2 Public Doman Improvements

Further information is required to illustrate how the proposal will be coordinated with the approved Public Domain works of SSD 7317 and overall public domain qualities for ATP. This should include consideration of:

i) Pre-development and post-development layout of Locomotive Street, clearly identifying any changes to parking/ loading layout, any restrictions/ management, changes to carriage width, pedestrian crossing and integration with Building 2, the location of traffic calming device, bicycle parking (visitors) etc.

The pre-development (existing situation) Locomotive Street arrangement is illustrated on plans that are included in the consolidated RtS prepared by Ethos Urban. Post –development plans have been prepared by Aspect and are also included in the Ethos Urban RtS. The proposed plans detail the following design features:

- Car parking, taxi, loading and drop-off/set-down facilities
- Carriageway widths
- Pedestrian crossing locations and their integration with Building 2 and the Locomotive Workshop
- Traffic calming devices
- Visitor bicycle parking facilities.

Physical traffic calming devices like speed humps are not proposed on Locomotive Street. Beyond speed limit signage, passive engineering measures will consist of the following:

- Contrasting pavement colour and texture at pedestrian crossing desire lines
- Continuous narrow road pavement with street furniture and landscaping located in close proximity to roadway
- Flush kerbing which is perceived by motorists as a low-speed environment.

iii) Changes to Innovation Plaza, including any existing site features and trees.

As per the discussion in **Section 2.2**, swept path plans **610.17901.SK09** and **SK09B** confirm that one existing tree in Innovation Plaza will have to be removed in order to facilitate access/egress to the proposed loading dock.

The swept paths are inclusive of a 0.6m clearance projected from both sides of the truck body and the paths indicate that the remaining trees canopies will not be significantly impacted. Further information pertaining to site trees is reported within the arborist's Tree Removal and Pruning Application prepared by Hancock Consulting.

It is also noted that the swept paths assume that the in-situ train carriage located at the northern end of Innovation Plaza will be retained in its current location. SLR understands that the existing location is not heritage specific, and it may be possible to relocate it elsewhere such that there is additional manoeuvring space available that would improve clearance to tree canopies.

v) Impacts of the proposal (including loading access) on the connectivity to ATP and the Locomotive Workshop from Redfern Station via Innovation Plaza and any approved improvements required under SSD 7317.

As per the discussion in **Section 2.2**, two possible external truck access routes were investigated:

1. Rosehill Street – Margaret Street
2. Rosehill Street – Marian Street – Cornwallis Street

Mirvac's preference is for the Option 1 route (Rosehill Street – Margaret Street) based on local resident feedback and the desire to minimise the length of affected stakeholders.

The SLR swept path assessment indicates that Option 1 is physically possible without the need to modify existing road kerbs. **610.17901.SK04B** shows that both the RCV and LRV can negotiate the left turn from Rosehill Street into Margaret Street clear of permanent obstructions although the left turning trucks will require the extension of the No Stopping zone resulting in the loss of kerbside length comparable to two parking spaces.

There are engineering options available that could offset the loss of the two parking spaces if this was the outcome desired by the City of Sydney. It is possible to reconfigure existing landscaping build-outs located in Rosehill Street and Cornwallis Street illustrated earlier herein at **Figure 1**. Ultimately, the possible reconfiguration is located within road reserve and it would be a decision for the City of Sydney.

A second route, Option 2 (Rosehill Street – Marian Street – Cornwallis Street – Site) has also been investigated. **610.17901SK04** and **SK05** show that the LRV and RCV can physically negotiate the Option 2 route clear of obstructions including existing car parking. It is also important to note that this route can legally be traversed by trucks.

Irrespective of the Option 2 truck route being a legal one, it is accepted that the movement should be avoided during periods of high pedestrian utilisation of the Shared Zone like that experienced during the morning and evening commuter peak periods.

Any conflict that may arise between trucks and pedestrians in the Marian Street Shared Zone would occur at very low speed (<10km/h) and visibility between users is good. Furthermore, it is likely that large trucks will be operated by regular drivers who would be more attuned to site specific constraints.

Within the Australian Technology Park, the routes travelled by trucks are the same regardless of the external arrival route. Trucks will approach/depart Innovation Plaza in a forward gear at low speed. This area is already shared by pedestrians and vehicles, including large trucks that regularly collect refuse generated by the ATP site.

In Innovation Plaza, trucks will enter in a forward gear, stop, and reverse into the subject loading dock. Following the completion of site servicing, trucks will exit the proposed loading dock, Innovation Plaza, and the ATP site in a forward gear

3.2 Heritage Division

Table 3 summarises the Department of Planning matters addressed as part of this response.

Table 3 Summary of Heritage Department Traffic and Transport Related Matters

Request Item	
[D] Loading Dock	ii) Provide detailed design on how the significant fabric/columns are to be protected (internally and externally) from impact from large vehicles.
	iii) Provide detailed design of how vehicle will unload, currently there is no indication of how they access back of house areas.

ii) Provide detailed design on how the significant fabric/columns are to be protected (internally and externally) from impact from large vehicles.

The Australian Standard AS2890.2 specifies that a 0.3m truck manoeuvring clearance should be adopted for low speed manoeuvres like those occurring within a service area and loading dock. The design vehicles illustrated in **610.17901.SK09** and **SK09B** incorporate a 0.6m clearance projected from the body on both sides which is double that required by AS2890.2.

Notwithstanding the conservatism included in the swept path assessment, it may be prudent (subject to heritage consideration) to physically protect critical building elements and heritage items from possible driver error. There are numerous product examples that could be implemented, some of which are illustrated in **Figure 5**. The need and type of these devices will be resolved at the detailed design stage.

Figure 5 Possible Physical Protection Devices in Loading Dock Area

iii) Provide detailed design of how vehicle will unload, currently there is no indication of how they access back of house areas.

The revised redevelopment plans indicate that there will be a Dock Leveller installed at the rear of the main loading bay used by large trucks. The device will be used to transition goods from truck level to floor level after which they will be moved through the site via internal building routes. The operational specifics relating to the transfer of goods within the building after deliveries are made to the loading dock will be subject to the final tenants and their uses

3.3 City of Sydney

Table 4 summarises the Department of Planning matters addressed as part of this response.

Table 4 Summary of City of Sydney Traffic and Transport Related Matters

Request Item	
[A] Loading Dock	The possible conflicts between service vehicle requirements and the Davy Furnace enclosure walls must be resolved in favour of maximum 'breathing space' (buffer zone) around the Davy Furnace.
[G] Traffic and Access	Careful management of waste transfer from the tenancies to the waste storage areas will be required to minimise interface with the public.
	The Department of Planning and Environment are requested to impose a condition specifically requiring that the 46 visitor bike spaces are installed in accordance with Australian Standard (AS2890.3 2015).
	Consider allocating one of the centrally positioned bays in the Locomotive Workshop for vehicle loading.
	The shared zone in Marian Street should not be used by delivery/service vehicles and a condition to this effect should be imposed on any consent and/or Loading Management Plan.
	It is recommended that a condition is imposed upon the applicant, requiring the submission of a comprehensive Loading Management Plan that applies to all tenancies within the Locomotive Workshop and not just the Loading Dock area.
[H] Tree Removal	The Department of Planning and Environment are strongly encouraged to seek clarification from the applicant with regard to potential tree removal in Innovation Plaza.

3.3.1 Loading Dock

The possible conflicts between service vehicle requirements and the Davy Furnace enclosure walls must be resolved in favour of maximum 'breathing space' (buffer zone) around the Davy Furnace.

The previously submitted development plans have been revised such that the flexibility and internal scale of the service area and loading dock is improved. **610.17901.SK09** and **SK09B** show the swept path requirement for the two larger design vehicles manoeuvring within the loading dock area.

The SLR swept paths confirm that the design vehicles can manoeuvre to, within, and from the service area with 0.6m clearances measured from the truck body. This clearance is double the 0.3m specified by AS2890.5 for low speed truck manoeuvring. Furthermore, the swept paths indicate that there is even more clearance or 'breathing space' available beyond the 0.6m clearance envelope. This is especially the case where trucks travel past the Davy Furnace and other heritage and building elements. The internal loading dock arrangements accord with AS2890.2.

3.3.2 Traffic and Access

Careful management of waste transfer from the tenancies to the waste storage areas will be required to minimise interface with the public.

Noted. SLR understands that refuse will be transferred from individual building tenancies to the service area via the rear access laneway that runs between the building and the adjacent rail corridor. Waste should be loaded into the refuse compactor wholly within the service area and clear of manoeuvring pavement.

The details of any post-development refuse arrangements should be detailed as part of a Refuse Management Plan which could form part of the broader Loading and Access Plan.

The Department of Planning and Environment are requested to impose a condition specifically requiring that the 46 visitor bike spaces are installed in accordance with Australian Standard (AS2890.3 2015).

Noted. SLR understands that the 46 visitor bicycle spaces will be indicated on landscape and urban design plans prepared by Aspect. It would be reasonable to impose a condition of approval requiring the installation of these spaces in accordance with AS2890.3.

Consider allocating one of the centrally positioned bays in the Locomotive Workshop for vehicle loading.

Servicing of the Locomotive Workshop from a centrally positioned bay on Locomotive Street is not considered possible from a retail planning, urban design and/or traffic engineering perspective.

SLR suggests that the intensification of loading activities and reversing manoeuvres to/from Locomotive Street would be in conflict with the desire to promote Locomotive Street as the centrally located pedestrian spine between the Locomotive Workshop and other ATP buildings including Building 2. A significant level of pedestrian activity is anticipated throughout the day along the well-defined and narrow Locomotive Street verges and trucks reversing across this path would conflict with following vehicles and pedestrians.

The existing heritage structure cannot be significantly modified; hence, pedestrian sight lines would be constrained in most locations. Furthermore, representatives of the City of Sydney have indicated that Locomotive Street will ultimately vest back to the City as a public road at which time perpendicular loading may no longer be supported. This outcome would not be suitable to a major retail tenant which requires dedicated loading facilities.

Further responses to this RtS item are included in Macroplan Dimasi advice dated 21 February 2018 which forms part of the consolidated Ethos Urban RtS package.

The shared zone in Marian Street should not be used by delivery/service vehicles and a condition to this effect should be imposed on any consent and/or Loading Management Plan.

At a meeting held 16 February 2018, City of Sydney representatives acknowledged that trucks travelling via Marian Street is undesirable, yet legal and physically possible.

As discussed throughout **Section 2.1**, truck movements within Innovation Plaza could be limited by a condition of approval such that conflicts were avoided during periods of elevated pedestrian demand associated with commuter movement to/from Redfern Train Station. This approach was discussed with City of Sydney representatives where it was noted as being a reasonable method to avoid and mitigate risk.

> ***It is recommended that a condition is imposed upon the applicant, requiring the submission of a comprehensive Loading Management Plan that applies to all tenancies within the Locomotive Workshop and not just the Loading Dock area.***

Noted. It would be reasonable for a Loading Management Plan to be prepared in consultation with relevant authorities and submitted for consideration prior to the commencement of the use. The requirement for such a plan or strategy could be imposed as a condition of approval.

3.3.3 Tree Removal

> ***The Department of Planning and Environment are strongly encouraged to seek clarification from the applicant with regard to potential tree removal in Innovation Plaza.***

As per the discussion in **Section 2.2**, swept path plans **610.17901.SK09** and **SK09B** confirm that one existing tree in Innovation Plaza will have to be removed to facilitate access/egress to the proposed loading dock. The swept paths are inclusive of a 0.6m clearance projected from both sides of the truck body and the paths indicate that the remaining trees canopies will not be significantly impacted.

It is also noted that the swept paths consider the in-situ train carriage at the northern end of Innovation Plaza will be retained in its current location. SLR understands that the existing location is not heritage specific, and it may be possible to relocate it elsewhere such that there is additional manoeuvring space made available so the clearance to tree canopies can be increased further.

3.4 Roads and Maritime Services

Table 5 summarises the Roads and Maritime Services matters addressed as part of this response.

Table 5 Summary of NSW RMS Matters

Request Item
1. Roads and Maritime requires the electronic copies of the SIDRA intersection analysis for both AM and PM peak periods for the intersection of Henderson Road and Mitchell Roads for review and comments.
2. Impacts to pedestrian and cyclist amenity as a result of the development should be considered, particularly in relation to connections to bus and train services. Potential improvements to pedestrian and cyclist facilities should be identified and provided, either through works-in-kind or contributions.
3. The layout of the proposed car parking areas associated with the subject development (including, driveways, grades, turn paths, sight distance requirements in relation to landscaping and/or fencing, aisle widths, aisle lengths, and parking bay dimensions) should be in accordance with AS 2890.1- 2004, AS2890.6-2009 and AS 2890.2 – 2002 for heavy vehicle usage.
4. A Construction Traffic Management Plan detailing construction vehicle routes, number of trucks, hours of operation, access arrangements and traffic control should be submitted to Council for approval prior to the issue of a Construction Certificate.

1. ***Roads and Maritime requires the electronic copies of the SIDRA intersection analysis for both AM and PM peak periods for the intersection of Henderson Road and Mitchell Roads for review and comments.***

Copies of the SIDRA file developed by GTA in their preparation of the traffic and transport assessment submitted in support of the SSDA are made available electronically as part of this response.

2. ***Impacts to pedestrian and cyclist amenity as a result of the development should be considered, particularly in relation to connections to bus and train services. Potential improvements to pedestrian and cyclist facilities should be identified and provided, either through works-in-kind or contributions.***

See discussion made in **Section 2.1**, **2.2** and throughout the individual responses to City of Sydney issues.

It is suggested that the combination of time limitations and physical landscaping and street furniture indicated on plans prepared by Aspect Studios will be sufficient to passively manage risks on-site. Ultimately, supplementary active management measures may be necessary and these can be detailed and conditioned in accordance with a Loading and Access Management Plan.

3. ***The layout of the proposed car parking areas associated with the subject development (including, driveways, grades, turn paths, sight distance requirements in relation to landscaping and/or fencing, aisle widths, aisle lengths, and parking bay dimensions) should be in accordance with AS 2890.1- 2004, AS2890.6-2009 and AS 2890.2 – 2002 for heavy vehicle usage.***

The ATP Building 2 car parking and access arrangements have been reviewed by Parking and Traffic Consultants to ascertain design compliance with AS2890.1 and AS2890.6. These facilities form part of a current application (SSDA 7317 - Modification six) that is being assessed by the Department of Environment and Planning.

The proposed Innovation Plaza loading dock area has been reviewed by SLR and the facility either meets or exceeds the standards and swept path parameters specified by AS2890.5. The traffic, car parking, taxi, drop-off/set-down and loading facilities located on Locomotive Street have also been reviewed and are considered to comply with AS2890 specifications.

Notwithstanding the above findings, it would be appropriate for a condition of approval to be imposed requiring the development to be designed and constructed in accordance with relevant Australian standards.

4. ***A Construction Traffic Management Plan detailing construction vehicle routes, number of trucks, hours of operation, access arrangements and traffic control should be submitted to Council for approval prior to the issue of a Construction Certificate.***

Noted. It would be reasonable for a Construction Management Plan to be prepared in consultation with relevant authorities and submitted for consideration prior to the commencement of the use. It is noted that a similar plan was prepared by GTA and has been submitted as part of the SSDA. The requirement for any new or expanded construction planning or strategies could be imposed as a condition of approval.

3.5 Transport for NSW

Table 6 summarises the TfNSW matters addressed as part of this response.

Table 6 Summary of TfNSW Matters

Request Item	
Locomotive Street Layout	TfNSW requests that the proponent continues to work with TfNSW to resolve the design for Locomotive Street, in particular the provision for coaches. Any works that occur in Locomotive Street as part of this application should not occur until the design of Locomotive Street is resolved.
Loading and Servicing	The proposal requires vehicles to reverse into the loading dock proposed within the Innovation Plaza. Details on how conflicts with reversing vehicles and pedestrians will be managed should be provided. If this conflict can't be adequately managed, the design should be modified to eliminate the need for reversing vehicles.
Events / Functions	Additional details on the arrival and departure profiles for vehicles accessing the event/function space (when operating at full capacity) should be provided. Details on how these vehicles can be accommodated within Locomotive Street should be provided, taking into consideration other vehicles using Locomotive Street to access the surrounding developments.
Construction Pedestrian and Traffic Management Plan	Several construction projects, including the Sydney Metro City and South West are likely to occur at the same time as this development. The cumulative increase in construction vehicle movements from these projects could have the potential to impact on general traffic and bus operations, and the safety of pedestrians and cyclists particularly during commuter peak periods. TfNSW requests that the applicant prepare a Construction Pedestrian and Traffic Management Plan (CPTMP) in consultation with the Sydney Coordination Office within TfNSW. Details of the inclusions for the CPTMP are at Attachment A. A final copy of the plan is to be submitted to the Coordinator General, Transport Coordination for endorsement, prior to the commencement of any works.

> ***TfNSW requests that the proponent continues to work with TfNSW to resolve the design for Locomotive Street, in particular the provision for coaches. Any works that occur in Locomotive Street as part of this application should not occur until the design of Locomotive Street is resolved.***

SLR Consulting understand that consultations with TfNSW have occurred subsequent to receiving their Submission comment. The Locomotive Street design was finalised and submitted to the Department of Planning for approval under SSDA 7317.

The proposed changes to Locomotive Street are within the site boundary for the Locomotive Workshop SSDA's.

The submitted Locomotive Street concept plan does not include any provision for coaches as it was not geometrically possible, nor was it considered to be warranted based on the proposed land use that will replace the existing function/event use.

> ***The proposal requires vehicles to reverse into the loading dock proposed within the Innovation Plaza. Details on how conflicts with reversing vehicles and pedestrians will be managed should be provided. If this conflict can't be adequately managed, the design should be modified to eliminate the need for reversing vehicles.***

See discussion made in **Section 2.1** and throughout the individual responses to City of Sydney issues. It is suggested that the combination of time limitations and physical landscaping and street furniture provisions will be sufficient to passively manage (avoid and mitigate) risks associated with trucks reversing into the subject loading dock. Ultimately, supplementary active management measures may be necessary and these can be detailed and conditioned in accordance with a Loading and Access Management Plan.

> ***Additional details on the arrival and departure profiles for vehicles accessing the event/function space (when operating at full capacity) should be provided. Details on how these vehicles can be accommodated within Locomotive Street should be provided, taking into consideration other vehicles using Locomotive Street to access the surrounding developments.***

SLR understands that the event and function component of the existing development will be replaced by commercial uses that are proposed as part of SSDA 8157 for Bays 5-16. Accordingly, no additional data is provided nor consideration made for the retention of the event/function use.

> ***Several construction projects, including the Sydney Metro City and South West are likely to occur at the same time as this development. The cumulative increase in construction vehicle movements from these projects could have the potential to impact on general traffic and bus operations, and the safety of pedestrians and cyclists particularly during commuter peak periods. TfNSW requests that the applicant prepare a Construction Pedestrian and Traffic Management Plan (CPTMP) in consultation with the Sydney Coordination Office within TfNSW. Details of the inclusions for the CPTMP are at Attachment A. A final copy of the plan is to be submitted to the Coordinator General, Transport Coordination for endorsement, prior to the commencement of any works.***

Noted. It would be reasonable for a Construction Management Plan to be prepared in consultation with relevant authorities and submitted for consideration prior to the commencement of the use. It is noted that a similar plan was prepared by GTA and has been submitted as part of the SSDA. The requirement for any new or expanded construction planning or strategies could be imposed as a condition of approval.

We trust that this response is sufficient to address the traffic and transport related matters identified in the combined Agency Submissions for SSDA 8157. Please feel free to contact Kris Stone on 0403 655 466 or kstone@slrconsulting.com if you have any queries or wish to discuss further.

Yours sincerely

KRIS STONE
Principal Consultant | Transport Advisory