09 Randwick
Assessment of
Landscape Impacts

Royal Randwick Racecourse

The north-western portion of the racecourse currently comprises the services precinct which includes a number of heritage buildings and trees of exceptional and high significance (DCP, 2013). It is proposed that this area would be used for construction and would accommodate 3200m^2 for parking and laydown facilities, approximately 620m^2 for a site compound and 250m^2 for a substation. A number of trees would be removed to accommodate the stabling yard, this includes many which have been identified as having exceptional and high significance; they have set out to form a distinctive broad arc, remnant of a previous landscape design for the site. Although not in a publicly accessible area, these trees contribute to the character and amenity of the area due to their size and layout.

Construction Assessment

Resulting from this loss of vegetation during construction, it is expected that there would be a considerable reduction in the quality of a landscape feature of regional sensitivity, and therefore there is expected to be a **high adverse** landscape impact during construction.

During operation there would be open views to the stabling yards, ancillary buildings and car park owing to the loss of mature trees. These trees would be replaced in accordance with the Transport for NSW 'Vegetation Offset Guide' (TfNSW 2013) and in consultation with the Randwick City Council, in suitable nearby locations. However, the loss of trees of high and exceptional significance (DCP, 2013) would result in the loss of a treed internal streetscape and the visual connection to the landscape of the racecourse would be lost on this site.

Operations Assessment

These changes would result in a considerable reduction to the quality of this landscape feature, which is of regional sensitivity. This results in a **high adverse** landscape impact during operation.

01 View of Randwick Racecourse from Alison Rd. Photography by HASSELL

01

09 Randwick
Assessment of Landscape Impacts

Avenue of Figs at Royal Randwick Racecourse on Alison Road, George Dan Reserve and Wansey Road

The Racecourse is lined with a number of mature Figs fronting Alison Road and Wansey Road. The perimeter of the racecourse along these two roads would be used for construction of the light rail track. At this time, approximately 85 trees along Alison Road (from Doncaster Avenue to Wansey Road) and approximately 30 trees fronting Wansey Road would be removed to accommodate the alignment.

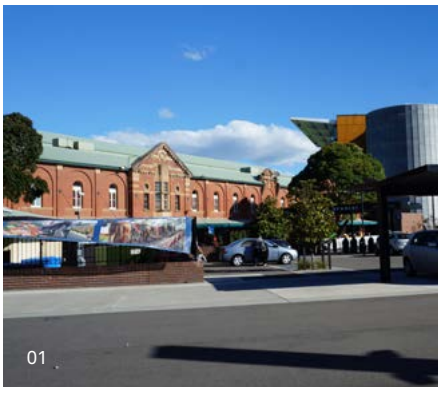
Construction Assessment

Due to this loss of vegetation, during construction it is expected that there would be a considerable reduction in the quality of a landscape feature of regional sensitivity, and therefore there is expected to be a **high adverse landscape impact** during construction.

During operation there would be open views to the Racecourse, but due to width restrictions there would not be any trees provided along the souther side of Alison Road or Wansey Road to replace those removed. However, these trees would be replaced in accordance with the Transport for NSW 'Vegetation Offset Guide' (TfNSW 2013) and in consultation with the Randwick City Council, in other suitable nearby locations. The loss of trees of "exceptional significance" (DCP, 2013), would result in a substantial loss of street tree cover.

Operations Assessment

It is expected that there would be a considerable reduction in the landscape quality of this avenue of trees which are a landscape feature of regional sensitivity. This would result in a **high adverse landscape impact** during operation.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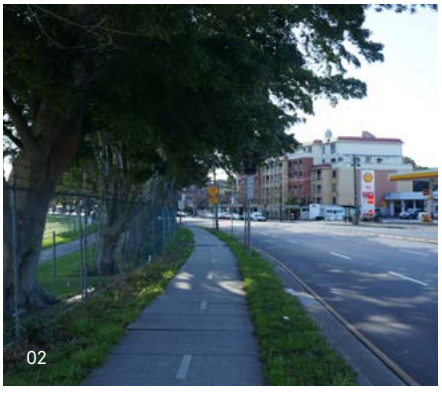
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03

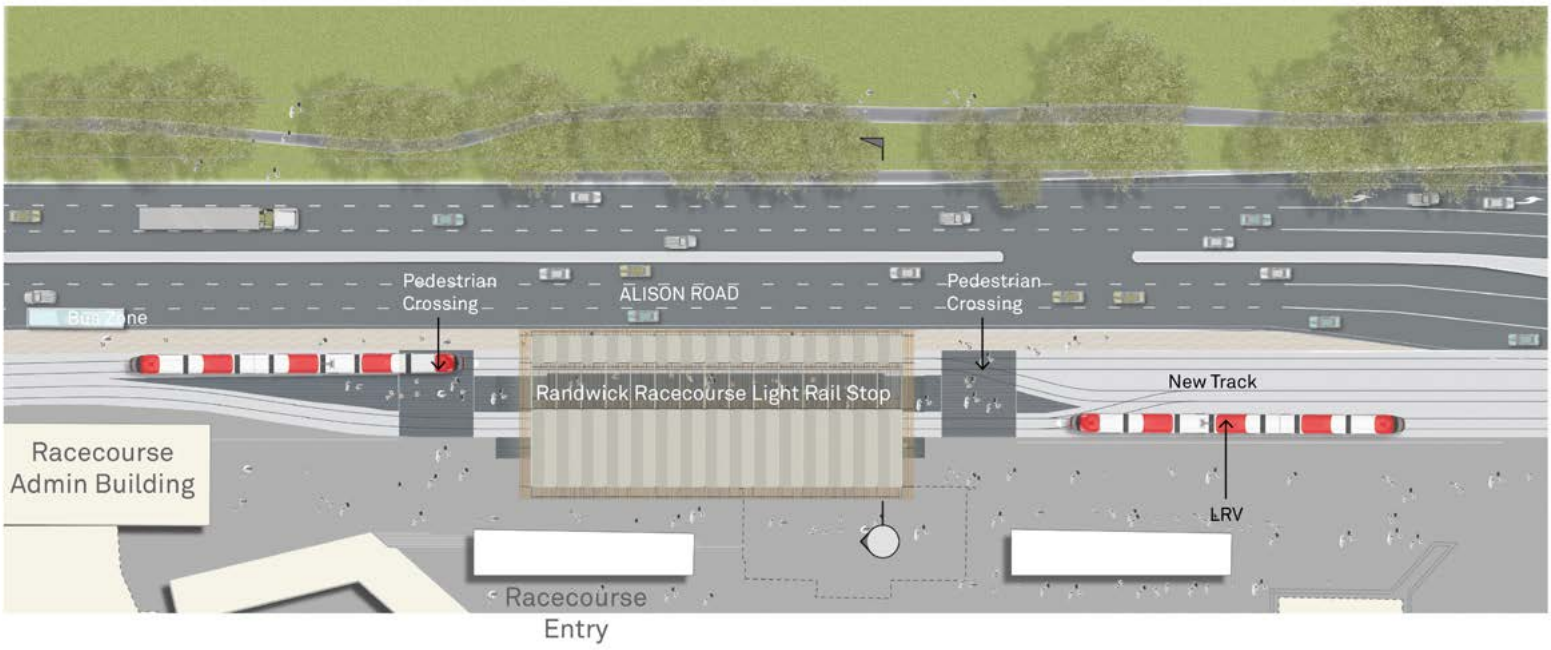
01 View of Royal Randwick Racecourse. Photography by HASSELL

02 Shared path adjacent to Alison Road. Photography by HASSELL

03 View across Alison Road to the Racecourse. Photography by HASSELL

04 Illustrative concept plan of Randwick Racecourse Stop

04



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09 Randwick
Assessment of Landscape Impacts

High Cross Park

During construction this park would be directly impacted to accommodate the Randwick interchange within the existing park. An estimated 16 trees within the park, including the significant Cook Pines and Figs, would be required to be removed. The park would be enclosed by heras (temporary mesh) fencing, and access to the open space would be removed.

Construction Assessment

During construction, it is expected that there would be a considerable reduction in the quality of this landscape. This is a landscape feature of regional sensitivity and consequently there is expected to be a **high adverse landscape impact** during construction.

During operation, the High Cross Park would be substantially reduced in size. The development of the interchange would change the character and types of uses that are suitable for this location. Due to local landform, the installation of the two stop platforms would also require a number of ramps and handrails to maintain accessibility. As a result, there may be some adverse impacts on the Belmore Road entry to the park as well as additional clutter. The remaining parkland area may be revitalised with improvements including new tree planting, a public plaza and new landscaping. However, the park's landmark status resulting from the existing significant trees; which would be removed for construction, would take a considerable time to be restored. A substation would be positioned within the park, surrounded by a shade structure, on the Cuthill Street frontage.

Operations Assessment

These changes would result in a considerable reduction to the quality of this landscape feature, which is of regional sensitivity. This results in a **high adverse landscape impact** during operation.


01


02


03

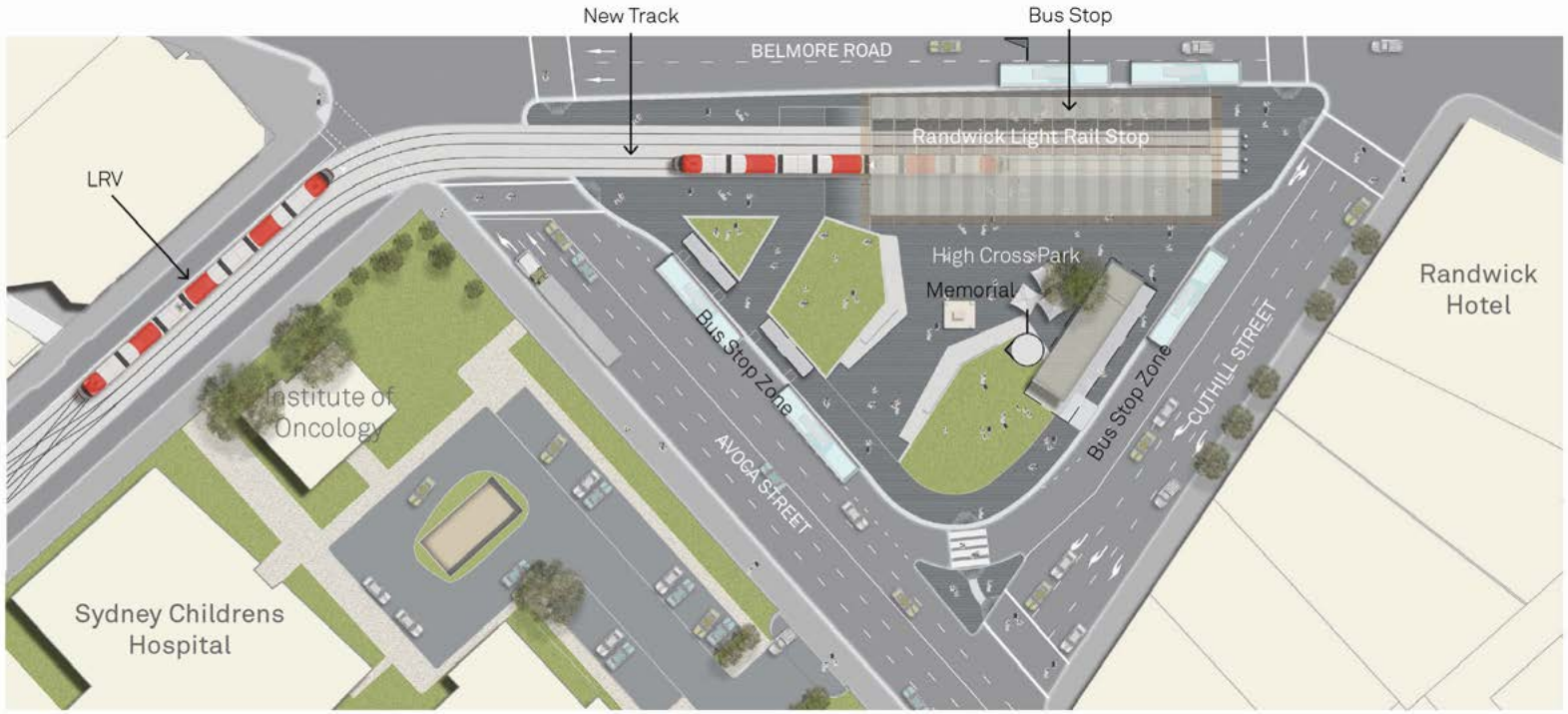
01 View of the Memorial in High Cross Park. Photography by HASSELL

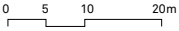
02 View north west on Belmore Road. Photography by HASSELL

03 View south east on Belmore Road. Photography by HASSELL

04 Illustrative concept plan of Randwick Stop

04





09 Randwick
Assessment of Landscape Impacts

Rear gardens at Doncaster Avenue (adjacent to proposed stabling)

The construction of the site will be seen from the adjacent gardens at the residences on Doncaster Avenue. The works may result in some overshadowing as work occurs adjacent to these private residential properties.

Construction Assessment
This work would result in a considerable change to the amenity of these gardens, which are of neighbourhood sensitivity. This would result in a **minor adverse** landscape impact during construction.

During operation the structures along the western boundary of the site is likely to cause overshadowing to adjacent properties. Long shadows would be created by this noise attenuating wall, blocking morning sun to a number of rear gardens to properties on Doncaster Street. This overshadowing is not likely to directly impact on the living spaces of these homes; however, the reduction in solar access will change the landscape character and landscape function of these back gardens.

Operations Assessment
This will result in a considerable change to the amenity of these gardens which are of neighbourhood sensitivity, resulting in a **minor adverse** visual impact.


01

02


03

01 View east to entry of rear gardens, from Doncaster Avenue
Photography by HASSELL

02 View south along Doncaster Avenue.
Photography by HASSELL

03 View west across Alison Rd to Randwick Racecourse.
Photography by HASSELL

04 Illustrative concept plan of Randwick Stabling

04

0 5 10 20m

09 Randwick
Assessment of Daytime Visual Impacts

9.7 Assessment of Daytime Visual Impacts

Selection of Representative Viewpoints
The following viewpoints were selected as representative of the range of views to the site and the proposed development:

Randwick Racecourse
_View 4-1: View east on Doncaster Avenue to the Royal Randwick Racecourse
_View 4-2: View south on Alison Road to the Royal Randwick Racecourse
_View 4-3: View north west on Alison Road, at the Royal Randwick Racecourse

Wansey Road
_View 4-4 Wansey Road, Randwick
_View 4-5 View south along Wansey Road to the UNSW High Street stop

High Street UNSW to High Cross Park
_View 4-6 View to High Cross Park, Randwick

Assessment of Representative Viewpoints
The following sections summarise the daytime visual impacts identified in the representative viewpoint assessment and site visit observations.

not to scale

Royal Randwick Racecourse

View 4-1: View east on Doncaster Avenue to the Royal Randwick Racecourse
In this location, the study area is characterised by a varied built form on Abbotford Street, including medium density low to mid rise apartments punctuated by stand alone Federation and Interwar dwellings. The landscaped central strip along Abbotford Street is generally of poor quality with a mixed variety of tree plantings and car parking interrupting the linear space, it provides a visual landscape connection with the periphery of the Royal Randwick Racecourse and views of the iconic racecourse buildings. This portion of the racecourse is open with an avenue plantation framing the access road and low quality fencing. Viewpoint 4-1 is representative of views from the northern end of Doncaster Avenue looking towards the services area of the racecourse grounds.

During construction this view would change considerably owing to the removal of the majority of mature trees forming part of the avenue, which currently acts as a gateway feature. This vegetation would be replaced with a site compound and substation. The removal of vegetation and its associated gateway role would signify the change in use of the site from racecourse servicing area to light rail stabling and would change the character of this view. Although the visual catchment of this particular view would be less than that from Alison Road, views from the residential properties immediately adjacent to the racecourse on Doncaster Avenue would also be impacted. These changes are not visually consistent with the existing character of the surrounding Racecourse landscape and residual area.

Construction Assessment
It is expected that these changes would create a considerable reduction in the visual amenity of this view of regional sensitivity. This results in a **high adverse visual impact** during construction. In this location, the stabling yards would be sited at the rear of the residential dwellings. A number of trees and existing buildings would have been removed to accommodate a stabling area, ancillary buildings and car parking. These elements would be largely screened by a six metre high noise attenuation wall on the eastern edge of the site.

Operations Assessment
The removal of trees would open up views into the site and the access road, catenary structure and overhead wiring would be prominent in this view, resulting in a considerable adverse change to the amenity of this views. From views in this area, which are of regional sensitivity, it is expected that the visual impact of the proposal would be **high adverse** during operation.

View 4-1: View east on Doncaster Avenue to the Royal Randwick Racecourse. Photography by HASSELL.

09 Randwick
Assessment of Daytime Visual Impacts

Royal Randwick Racecourse

View 4-2: View south on Alison Road to the Royal Randwick Racecourse
In this location, the study area is characterised by the ornamental landscape treatment of Royal Randwick Racecourse and Centennial Park along Alison Road. The ornamental landscape treatment along the racecourse is generally of good quality with a consistent pattern of tree and shrub planting creating a strong edge and visual landscape connection with the Royal Randwick Racecourse. This planting softens views of the iconic racecourse buildings and main entrance to the racecourse. Viewpoint 4-2 is representative of views from the northern end of Alison Road looking towards the racecourse grounds and its car park.

During construction this view would change considerably owing to the removal of the ornamental planting and mature avenue of figs at Doncaster Avenue to accommodate the light rail alignment and stabling yards. The view would be focused on the worksite for both the light rail alignment and the stabling yards, which would be established directly adjacent to the road. These changes are not visually consistent with the existing character of the surrounding Racecourse landscape.

Construction Assessment
It is expected that these changes would create a considerable reduction in the visual amenity of this view of regional sensitivity. This results in a **high adverse impact** during construction. Construction of the CSELR proposal is expected to commence in mid-2014 (subject to planning approval) and is anticipated to take approximately five to six years.

In this view the light rail corridor would run along the southern edge of Alison Road with catenary structures and wires overhead. In this area Alison Road would be reduced from six lanes to four. The landscaping treatment on the southern edge which was removed to accommodate the light rail corridor would not be replaced, due to width restrictions, and therefore no trees would be seen in this view. LRVs would be seen moving through this view in the foreground with the stabling yards beyond. This view would include the service road, light rail maintenance shed, and LRV storage yard which will be visually prominent with limited screening along Alison Road. The entrance to the Royal Randwick Racecourse will be located alongside the LRV entrance to the stabling yard, creating a large barren opening with limited opportunities for landscape treatments. The combination of the road corridor, light rail infrastructure and stabling yards will introduce additional visual clutter at street level.

Operations Assessment
It expected that this change would result in a considerable reduction in the amenity of this view, which is of regional sensitivity. This would result in a **high adverse impact** during operation of the proposal.

View 4-2: View south on Alison Road to the Royal Randwick Racecourse. Photography by HASSELL.

09 Randwick
Assessment of Daytime Visual Impacts

Royal Randwick Racecourse

View 4-3: View north west on Alison Road, at the Royal Randwick Racecourse
In this location the study area is dominated by the Royal Randwick Racecourse which has landmark status. The Racecourse is the visually prominent feature of this area with the canopy of mature Port Jackson and Moreton Bay Figs, which follow its boundary along Alison Road, allowing for filtered views into the Racecourse grounds and beyond to the stands. This avenue of trees are particularly important in setting the character of the Racecourse, and providing a visual edge to the site, and contributing to the image of the streetscape. Viewpoint 4-3 has been selected as it is representative of open views of the Racecourse from Alison Road.

During construction this view would change considerably as the grouping of mature fig trees (of exceptional significance) which define and frame views to the Racecourse are removed to accommodate the site works. The view would be focused on the worksite which would be established directly adjacent to the road, and move progressively along the length of Alison Road, adding visual clutter to views to the Racecourse beyond. This view would become more open and exposed, with the loss of the trees, changing the character of this view substantially. These changes are not visually consistent with the existing character of the surrounding Racecourse landscape.

Construction Assessment
It is expected that these elements would be visually prominent as they create a strong visual contrast with the landscape beyond, creating a considerable reduction in the visual amenity of this view. As this is a view of regional sensitivity, this would result in a **high adverse visual impact** during both early works and civil works stages. Construction of the CSELR proposal is expected to commence in mid-2014 (subject to planning approval) and is anticipated to take approximately five to six years.

In this view, the light rail corridor would run along the southern edge of Alison Road (in the vicinity of the existing footpath) with catenary structures and wires overhead. In this area Alison Road would be reduced from six lanes to four. The row of Fig trees (of exceptional significance) which were removed to accommodate the light rail corridor would not be replaced, due to width restrictions, and therefore no trees would be seen in this view. LRVs would be seen moving through this view in the middle ground. The LRVs would have a visual envelope extending for up to 45m, and would be visually prominent due their length and scale. The road corridor would become more visually dominant in the view, as the proposed light rail infrastructure merges visually with the road corridor. Whilst there would be a reduction in traffic lanes the project would introduce additional visual clutter at street level.

Operation Assessment
These changes constitute a considerable reduction in the visual amenity of this view.
From views in this area, which are of regional sensitivity, it is expected that there would be a **high adverse visual impact** during operation of the proposal.

View 4-1 north west on Alison Rd, at the Randwick Racecourse. Photography by HASSELL.

09 Randwick
Assessment of Daytime Visual Impacts

Wansey Road

View 4-4 Wansey Road, Randwick
At the western end of Wansey Road, the precinct is dominated by the mature tree plantings along the outer boundary of the Royal Randwick Racecourse and adjacent to residential properties on Wansey Road. The topography rises to the east which allows views from the housing across Wansey Road and the racecourse and towards the CBD. Street tree plantings are varied, with a notable avenue of Moreton Bay Figs forming a wide canopy over the street at its intersection with Alison Road (George Dan Reserve), which forms a visual gateway to the street and enhances the amenity of Wansey Road overall. Viewpoint 4-4 has been selected as representative of a view of the light rail in this area.

During construction this view would change considerably as the trees, which define and frame views to the racecourse, are removed along the western boundary of Wansey Road to accommodate the site works. The view would be focused on a worksite which would be established directly adjacent to the road, and extend progressively along the length of the road, intervening in views to the racecourse beyond. These changes to the view are not visually consistent with the character of the surrounding landscape of residential streets and adjacent Racecourse landscape. Additional construction traffic would also be seen in using the street to access the worksites, as this is a local street, this would have a visual effect.

Construction Assessment
Overall, it is expected that these elements would be visually prominent as they contrast with the surrounding landscape, creating a considerable reduction in the visual amenity of this view of regional sensitivity during both early works and civil works stages. This results in a **high adverse visual impact** during construction. Construction of the CSELR proposal is expected to commence in mid-2014 (subject to planning approval) and is anticipated to take approximately five to six years.

During operation, this view would include light rail track running parallel to the western side of Wansey Road with catenary structures and wires overhead. Some additional street tree plantings would be lost, and replaced in accordance with the Transport for NSW 'Vegetation Offset Guide' (TfNSW 2013) and in consultation with Randwick City Council, however, this would not replace the character of the vegetation lost at the western end of Wansey Road, and within the Racecourse grounds during construction.

This view would open up to the Racecourse to the west. In the centre of this view the Wansey Road stop infrastructure, including single canopy roof structure and platforms, would terminate this view with the canopy of trees forming a less prominent background element. With the introduction of elements such as the stop canopy, platform, overhead wires and roadside barriers, there would be additional visual clutter at street level. LRVs would be seen moving through this view, and stationary at the stop. The LRVs would have a visual envelope extending for up to 45m, and would be visually prominent due their length and scale.

Operations Assessment
The loss of vegetation, together with the introduction of the infrastructure, is expected to create a noticeable reduction in the visual amenity of these views. From views in this area, which are of regional sensitivity, it is expected that there would be a **moderate adverse visual impact** during the operation of the proposal.

View 4-2 Wansey Road, Randwick. Photography by HASSELL.

Wansey Road

View 4-5 View south along Wansey Road to the UNSW High Street Stop
At the eastern end of Wansey Road, the precinct is characterised by detached residential dwellings and a green edge along the racecourse boundary. Mature Fig trees with large canopies overhang the street. These trees, located within the Racecourse, and high fencing obscure views towards the stables which are located at the corner of High Street and Wansey Road, and filter views of the large institutional buildings within the UNSW. Viewpoint 4-5 is representative of views looking south along Wansey Road to the UNSW.

During construction this view would change considerably as the trees, located along the western boundary of Wansey Road, which define and visually enclose local views from the racecourse, are removed to accommodate the site corridor and stop works. This view would be focused on the stop site which would be established directly adjacent to the road, in the centre foreground of the view, with corridor works extending progressively across the view. These changes to the view are not visually consistent with the character of the surrounding landscape of this residential street and adjacent Racecourse landscape.

Construction Assessment
It is expected that these elements would be visually prominent as they contrast with the surrounding landscape, creating a considerable reduction in the visual amenity of this view of regional sensitivity during both early works and civil works stages. This would result in a **high adverse visual impact** during construction. Construction of the CSELR proposal is expected to commence in mid-2014 (subject to planning approval) and is anticipated to take approximately five to six years.

During operation, the dedicated rail corridor would be seen along the western edge of the Racecourse and the UNSW stop with platform structure and associated elements introduced, centrally in the foreground of the view, creating visual clutter at street level. LRVs would be seen moving through this view, approaching and departing as well as stationary at the stop. The LRVs would have a visual envelope extending for up to 45m, and would be visually prominent due their length and scale. The new shared pedestrian and cycleway would encroach onto the Racecourse grounds and result in the loss of a number of existing mature street trees, stables and the large Fig tree at the corner of Wansey Road and High Street. The loss of a mature Fig at the eastern end of Wansey Road would open views to the massing of the institutional buildings at the University.

Operation Assessment
These changes would create a noticeable reduction in the amenity of these views. From views in this area, which are of regional sensitivity, it is expected that there would be a **moderate adverse visual impact** during operation.

View 4-3 south along Wansey Road to the UNSW High St stop. Photography by HASSELL.

09 Randwick
Assessment of Daytime Visual Impacts

High Street UNSW to High Cross Park

View 4-6 View to High Cross Park, Randwick

In this location the principal elements defining the character of this part of Randwick are: High Cross Park and the residential buildings that define edge; the village pattern of Avoca Road; and the historic sandstone buildings within the hospital grounds. Visual connections within this area are particularly significant including views to the statue of Captain Cook and views from the retail strip terminating at High Cross Park. In this area, the street is visually active with the cross roads of traffic, high pedestrian volumes, signage and overhead wires. Viewpoint 4-6 is representative of local views to this park.

During construction this view would change considerably as the site would be transformed into a worksite. Views to the park and surrounding historic buildings would be somewhat obscured by security fencing. The significant Cook Pines and Figs would be removed. The landmark function of these trees would be lost. These changes to the view are not consistent with the expected visual character of the parkland and historic built form which address the park.

Construction Assessment

It is expected that the construction site would be visually prominent as it contrasts with the surrounding landscape, creating a considerable reduction in the visual amenity of this view of regional sensitivity during both early works and civil works stages. This results in a **high adverse visual impact.** Construction of the CSELR proposal is expected to commence in mid-2014 (subject to planning approval) and is anticipated to take approximately five to six years.

In this view the light rail track would be located within the existing roadway and terminate within the eastern edge of the historic park. The location of the stop would result in the loss of 16 trees in the centre of the view. The use of High Cross Park for the light rail interchange would change the character of the park considerably from a Victorian era park to a contemporary styled transport interchange plaza and park. LRVs would be seen moving towards the viewer from this location, approaching, departing, and stationary at the stop. The LRVs would have a visual envelope extending for up to 45m, and would be visually prominent due their length and scale.

Operations Assessment

As a result of the proposal, there would be a considerable reduction in amenity of views of the park. From views in this area, which are of regional sensitivity, it is expected that there would be a **high adverse visual impact** during operation.

View 4-4 High Cross Park, Randwick. Photography by HASSELL.

09 Randwick
Assessment of Night Time Visual Impacts

9.8 Assessment of Night Time Visual Impacts

At night the study area, in the vicinity of Randwick Racecourse, High Street UNSW and High Cross Park, can be categorised as an area of E4: high district brightness (Refer to section 3). The area includes brightly lit plazas at the university and hospital precinct, local commercial areas alongside moderate traffic and lit streets. During racecourse events this landscape includes lit plazas and lighting associated with the racecourse venue. As well as the direct light sources, there is an existing skyglow effect around this area of the city.

At night the study area, in the vicinity of Wansey Road, can be categorised as an area of E3: medium district brightness as the area is predominantly residential with moderate traffic and lit local streets. During events, the lights from the Racecourse would increase the adjacent site to E4 high district brightness. Currently, this is largely buffered from adjacent residential areas by existing mature trees. As well as the direct light sources, there is an existing skyglow effect around Randwick, and particularly the adjacent areas of Alison Street.

The project would introduce lit LRVs to an area that currently is brightly lit and within view of busy arterial roads. The proposal would include LRVs with moving headlights at regular intervals. These would be similar to the size, breadth and brightness of standard car headlights.

During construction there may be times when there would be 24 hour use of the construction sites, particularly at High Cross Park. At these times the site would include brightly lit areas providing a safe work environment for construction activities to occur. There would also be the headlights from construction related traffic including trucks accessing the site. It is expected that lighting on the site would be brighter than the current traffic and street lighting in both the E4 and E3 brightness areas; this would have a noticeable visual effect. It is also expected that any additional skyglow would be managed by cut-off light fittings and directed lights for the construction tasks.

Royal Randwick Racecourse
Views to these works would be largely unfiltered by vegetation and in close proximity to adjacent residential properties. The loss of the tree cover would allow existing lighting to be seen more widely. There may be some direct light spill onto the Racecourse and adjoining residential properties on Doncaster Avenue, however, it is expected that this spill and any additional skyglow would be minimised by cut-off light fittings and directed lights for construction tasks. This additional light would have a visual effect but is generally compatible with the existing night scene.

Construction Assessment
These elements would create a noticeable reduction in the amenity of the area and are expected to result in a **negligible visual impact** during evening hours.

During operation, the stabling yards and maintenance sheds would create a new source of light at this part of the former racecourse grounds. It would introduce lit LRVs, with moving headlights at regular intervals. These would be similar to the size, breadth and brightness of standard car headlights. The maintenance and stabling facility, which would be predominately used at night, would require brightly lit working areas and security lighting. These elements would be seen in the context of surrounding lit roads and partially screened by the proposed wall and existing vegetation.

There would also be lighting at the light rail stop at Randwick and headlights on the LRVs seen moving along the alignment. The headlights of the LRVs would run parallel to the roadway, and not directly into the Racecourse site. As the alignment follows the road, and Alison Road is very broad in this area, it is unlikely that there would be any direct light spill from the headlights onto private properties. There may be, however, some light spill onto the Racecourse; however, during events these areas are currently brightly lit. It is possible that there would be some additional skyglow visible above the proposal alignment; however this would be in character with an area of high district brightness.

Operations Assessment
Generally, it is expected that these elements would not create a noticeable change in the amenity of this area at night and result in a **negligible visual impact.**

Wansey Road
The loss of the tree cover in this area would allow existing lighting to be seen more widely. Views to these works would be largely unfiltered by vegetation and in close proximity to adjacent residential properties. In this residential area, the additional construction traffic that may be seen during night time works would be visually prominent. The additional light during night works is not compatible with the existing night scene in the medium district brightness areas.

Construction Assessment
These elements would create a considerable reduction in the amenity of the areas of medium district brightness and result in a **moderate adverse visual impact** for this area during evening hours.

During events at the Racecourse, it is likely that views across the course would be more prominent from this location as the intervening vegetation is removed.

Construction Assessment
During events it is expected that the combination of the construction works and additional exposure to the Racecourse would create a considerable reduction in the amenity of adjacent areas. This would result in a **minor adverse visual impact.**

During operation, there would be lighting at the light rail stop at Wansey Road and headlights on the LRVs following the alignment. As LRVs turn into Wansey Road from Alison Road, there is the potential for direct light spill from the headlights into the George Dan Reserve. Once on Wansey Road the LRVs would generally run parallel to the roadway, and there would not be any directly light spill on adjacent residential properties. At the stop, however, headlights would likely be directed across the intersection with High Street into the University site, and the lower levels of buildings directly in view of the stop. It is possible that there would be some additional skyglow visible above the proposal alignment.

09 Randwick
Assessment of Night time Visual Impacts

Operations Assessment
Generally, it is expected that these elements would create a noticeable reduction in the amenity of adjacent areas which are of medium district brightness. This would result in a **minor adverse visual impact.**

High Street UNSW to High Cross Park
Views to these works would be largely unfiltered by vegetation and in close proximity to adjacent residential, commercial and institutional buildings. Adjacent to the hospital and university in particular, where night time activity occurs, the additional lit activity of construction would add to the illumination of the night scene. However, this additional light is generally compatible with the existing active night scene.

Construction Assessment
These elements would create a noticeable reduction in the amenity of the areas of high district brightness and result in a **negligible visual impact** for this area during evening hours.

During operation, there would be lighting at the light rail stop at High Cross Park and headlights on the LRVs following the alignment. The LRVs would run centrally along the High Street and then towards the park, in this area there should not be any directly light spill on adjacent residential properties. However, there would be light spill on High Cross Park and potentially on residential properties adjacent to the High Cross Park stop on the northern side of Belmore Road as the LRVs turn from High Street into the stop area. There may also be direct light spill into the buildings on the corner of Cuthill and Belmore Road as LRVs are stopped at the stop. This stop, however, is located on a busy intersection and there are currently car headlights using the same intersections, and causing similar visual impacts. It is possible that there would be some additional skyglow visible above the proposal alignment.

Operations Assessment
Largely due to the potential for direct headlight intrusion onto private sites, it is expected that these elements would create a noticeable reduction in the amenity of the area which is of high district brightness. This would, however, result in a **negligible visual impact.**

9.9 Summary of Impacts

The following tables summarise the impacts within the precinct:

Landscape Impacts

		Construction			Operation		
No.	**Location**	**Modification**	**Sensitivity**	**Impact**	**Modification**	**Sensitivity**	**Impact**
1	**Centennial Parklands**	Noticeable reduction	Regional sensitivity	Moderate adverse impact	No perceived change	Regional sensitivity	Negligible
2	**Royal Randwick Racecourse**	Considerable reduction	Regional sensitivity	High adverse impact	Considerable reduction	Regional sensitivity	High adverse impact
3	**Rear gardens at Doncaster Avenue**	Considerable reduction	Neighbourhood sensitivity	Minor adverse impact	Considerable reduction	Neighbourhood sensitivity	Minor adverse impact
2	Avenue of figs at Randwick Racecourse on Alison Road, George Dan Reserve and Wansey Roads	Considerable reduction	Regional sensitivity	High adverse impact	Considerable reduction	Regional sensitivity	High adverse impact
3	**High Cross Park**	Considerable reduction	Regional sensitivity	High adverse impact	Considerable reduction	Regional sensitivity	High adverse impact

Table 9.1: Summary of Landscape Assessment

Day time Visual Impacts

		Construction			Operation		
No.	**Location**	**Modification**	**Sensitivity**	**Impact**	**Modification**	**Sensitivity**	**Impact**
	Royal Randwick Racecourse						
4-1	View east on Doncaster Avenue to the Royal Randwick Racecourse	Considerable reduction	Regional sensitivity	High adverse impact	Considerable reduction	Regional sensitivity	High adverse impact
4-2	View south on Alison Road to the Royal Randwick Racecourse	Considerable reduction	Regional sensitivity	High adverse impact	Considerable reduction	Regional sensitivity	High adverse impact
4-3	View north west on Alison Road, at the Randwick Race Course	Considerable reduction	Regional sensitivity	High adverse impact	Considerable reduction	Regional sensitivity	High adverse impact
	Wansey Road						
4-4	Wansey Road, Randwick	Considerable reduction	Regional sensitivity	High adverse impact	Noticeable reduction	Regional sensitivity	Moderate adverse impact
4-5	**View south along Wansey Road to the UNSW High Street Stop**	Considerable reduction	Regional sensitivity	High adverse impact	Noticeable reduction	Regional sensitivity	Moderate adverse impact
	High Street UNSW to High Cross Park						
4-6	View to High Cross Park, Randwick	Considerable reduction	Regional sensitivity	High adverse impact	Considerable reduction	Regional sensitivity	High adverse impact

Table 9.2: Summary of Daytime Viewpoint Assessment

Night time Visual Impacts

		Construction			Operation		
No.	**Location**	**Modification**	**Sensitivity**	**Impact**	**Modification**	**Sensitivity**	**Impact**
4-1	Randwick Racecourse	Noticeable reduction	High district brightness	Negligible	No perceived change	High district brightness	Negligible
4-2	Wansey Road	Considerable reduction	Medium to high district brightness (High district brightness during racecourse events)	Minor adverse	No noticeable reduction or improvement	High district brightness	Minor adverse
4-3	High Street UNSW to High Cross Park	Noticeable reduction	High district brightness	Negligible	Noticeable reduction	High district brightness	Negligible

Table 9.3: Summary of Night time Viewpoint Assessment

Kensington / Kingsford

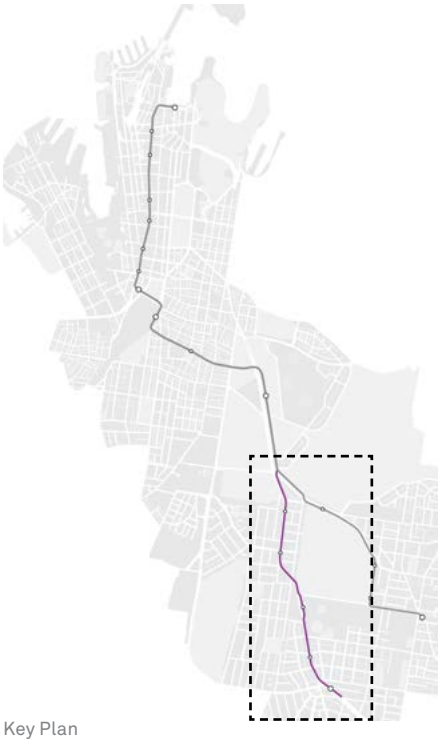
Image of UNSW Building from Anzac Parade. Photography by HASSELL.

10

10 Kensington / Kingsford
Overview

Overview

This precinct starts on Anzac Parade at the intersection with Alison Road and extends south through Kensington and onto the Nine Ways at Kingsford. There are stops proposed at Carlton Street, Todman Avenue, the UNSW Kensington Campus, and Strachan Street. The line ends at an interchange stop at Kingsford, south of the Nine Ways intersection on Wilson Place at Anzac Parade.



Key Plan

Not to scale

10 Kensington / Kingsford
Policy Framework

10.1 Policy Framework

The following review identifies key documents which provide the policy context for the landscape and visual impact assessment of the Kingsford precinct.

Randwick Comprehensive Development Control Plan (DCP) 2013
The desired characteristics and streetscape qualities for the area are identified in the DCP for a number of specific sites. In this precinct the Kensington Centre and Kingsford Centre are the specific areas of relevance.

Kensington Centre
The Kensington Centre is focussed on Anzac Parade and extends from Carlton Street to Doncaster Avenue in the north and south respectively. The vision for the Centre is to promote medium density mixed use development and improvements to the public realm which support active transport. The DCP acknowledges the significant presence of public transport along Anzac Parade and is supportive of creating an urban form which supports greater use of public transport, including the LRV.

Kingsford Centre
Kingsford Centre is another strip shopping centre on Anzac Parade. It extends in the north from Barker Street, through the Kingsford Nine Ways, to Sturt Street in the south. Specific objectives include enhancing spatial definition and character and enhancing the pedestrian environment and facilitating safe and direct pedestrian movements.

10 Kensington / Kingsford
Urban Design Strategy

10.2 Urban Design Strategy

The opportunity for light rail within this part of the Anzac Parade corridor is to provide a further activation of the streetscape within these town centres. By introducing a singular linear element to the centre median of the boulevard it has the potential to provide a unifying character and identity to the public realm.

This is proposed to be achieved within the public domain by using a controlled palette of materials along the length. There is further opportunity to improve the streetscape and build upon the linear character of the space by introducing new street tree plantings to the side footpaths of the corridor. These trees will greatly improve the amenity of the street while acting to reinforce that unified character that light rail will bring along its length.

BOULEVARD - Material Strategy
The proposed public domain materials for the boulevard should be of a limited palette which are used consistently; this will further assist the boulevard to be unified as a single linear space from the top of Kensington to the Kingsford terminus.

BOULEVARD - Stop Design
The light rail platforms are intended to be of a local suburban identity that respond to the scale and character of the streetscape that are located within.

The Carlton Street, Todman Avenue and Strachan Street stops are intended to be of an appropriate scale for their position as local suburban stops. The materials used for these stops are of an economical grade.

The interchange stops of the University of NSW and the Kingsford interchange will have a higher quality finish due to their prominence on the network and their higher patronage.

Major BOULEVARD stops

UNSW - Anzac Parade

The UNSW Anzac Parade stop will serve as the primary campus interchange stop for the UNSW lower campus at Kensington; providing an important service connecting the University with the heavy rail interchange at Central Station.

The stop is located adjacent to the main pedestrian entrance to the campus at the 'University Mall'. Therefore the stop is best positioned to provide easy and safe access to the campus from light rail.

Kingsford

Positioned as the terminus for the South East light rail network, the Kingsford stop will not only serve the immediate catchment of Kingsford residential area, but will primarily serve interchanging passengers travelling to the CBD from buses originating south of Kingsford such as Maroubra Junction and La Perouse. The public domain strategy for this stop is therefore to provide easy access and wayfinding for these interchanging passengers while still providing a convenient and accessible stop for the local residential catchment.

10 Kensington / Kingsford
Existing Landscape Character and Visual Conditions

10.2 Existing Landscape Character and Visual Conditions

The wide arterial road corridor of Anzac Parade dominates the landscape character of this precinct. The grand, ceremonial character of Anzac Parade experienced in the previous precincts is lessened somewhat south of the Alison Road intersection as the mature boulevard of figs makes way for a less consistent, variable street tree pattern. In this precinct the built form quality becomes a mix of remnant character buildings, multi storey residential complexes and commercial premises including warehousing and service stations. However, northward views from the intersection with Abbotford Street, offer views to the CBD skyline and glimpses to the southern extent of Moore Park.

At Kingsford the scale and character of the landscape becomes more coherent. A central grassed median emerges with groups of formal street trees creating some visual relief from the six lane road corridor. This median also includes banners and decorative fencing to guide pedestrians to signalised pedestrian crossings. The shopping precinct creates a consistent built edge defining the streetscape, and includes interesting corner buildings, and varied two storey shopfronts with awning covered footpaths. The bright, pink Peters of Kensington building draws the eye in views along this street.

Buildings at the Royal Randwick Racecourse are visible in views east from Anzac Parade between Doncaster Avenue and High Street. However, these include a rear access, car parking, stables and other brick buildings which have a 'back of house' feel. The site is bounded by a barbed wire topped chain wire fence and poor quality timber fences. These views do not contribute positively to the character of this area.

At the UNSW Kensington Campus the landscape and visual character changes abruptly to a higher quality public realm with a mature leafy outlook and a mix of historic and contemporary institutional style buildings of 4-6 storeys. Landscape features and iconic campus elements include the Pool Lawn, the University Lawn, and University Mall along the eastern edge of Anzac Parade on the campus site. Mature trees punctuate the streetscape and visually soften the buildings. Brick walls and clipped hedges define the streetscape; whilst decorative fencing, located centrally along the median, guide pedestrians to safe signalised pedestrian crossings, both visually reinforcing the linear character of the street.

South of Barker Street, Anzac Parade forms the Kingsford high street. Anzac Parade continues at a width of six lanes, with a dedicated, visually prominent bus lane, painted in red. The urban form is more densely developed with 6-8 storey mixed use complexes with predominantly residential above commercial ground floor uses. A consistent built edge defines the streetscape. At street level, there is a mix of historic shopfronts and contemporary developments with awning covered footpaths. A number of small street trees have been located in the brick paved footpaths, however, these are immature and not providing a notable visual softening effect. The central median is paved in this area, and includes some banners highlighting the centre of Kingsford and reflecting the urban design treatment of the Anzac Parade corridor.

At the Nine Ways intersection a large roundabout includes a collection of banners, lawn and shrub planting. A mature copse of trees is located in the median on Anzac Parade, opposite the roundabout, creating a leafy backdrop to views in this vicinity. Beyond the intersection, the median of Anzac Parade widens out considerably and includes a mix of car parks and lawn areas with mature trees scattered throughout.

01 Mature fig tree at Nine Ways roundabout, Kingsford.
Photography by HASSELL

02 Nine Ways roundabout, Kingsford.
Photography by HASSELL

03 UNSW Mall.
Photography by HASSELL

04 Intersection of Todman Avenue and Anzac Parade.
Photography by HASSELL

10 Kensington / Kingsford
Existing Landscape Character and Visual Conditions

10.2 Existing Landscape Character and Visual Conditions

The following illustrative section shows the key features along the light rail route and gives a sense of both the ground plane and skyline topography of the site.

UNSW at Anzac Parade

Strachan Street

Kingsford
(Anzac Parade)

10 Kensington/ Kingsford
Landscape and Visible Components of the Project

10.3 Landscape and Visible Components of the Project

The following assessment is based on the current design alignment as described in the Environmental Impact Statement. Generally, the proposed stop and corridor design for this precinct applies three key treatments along the route. These are:

- **Alison Road to High Street Kensington**, light rail in the centre of Anzac Parade with two lanes of traffic in each direction;
- **UNSW Kensington Campus**, light rail moves from centre to the eastern side of Anzac Parade and back to the centre, the corridor widens with busway lanes and two lanes of traffic in each direction; and
- **Barker Street to Kingsford Nine Ways,** light rail in centre of Anzac Parade with two lanes of traffic in each direction.

Each of these treatments is described generally in the following paragraphs.

Alison Road to High Street Kensington
From Moore Park, the light rail alignment crosses over into the central median of Anzac Parade at the Alison Road intersection where the alignment follows Anzac Parade south towards Kingsford. The light rail would be located in the centre of Anzac Parade with a minimum of two lanes of traffic in each direction maintained, one being a dedicated bus lane as required. Shared user paths are provided on both sides of the street with new street trees proposed to replace those lost on Anzac Parade.

This section contains two local stops; Carlton Street and Todman Avenue. Both stops would be positioned within the median of Anzac Parade close to the intersection of their respective streets. A single 45m island platform would be provided at each stop with a single access at one end of the platform via a signalised pedestrian crossing to both sides of the street. This work would require the removal of much of the existing vegetation within the central median of Anzac Parade.

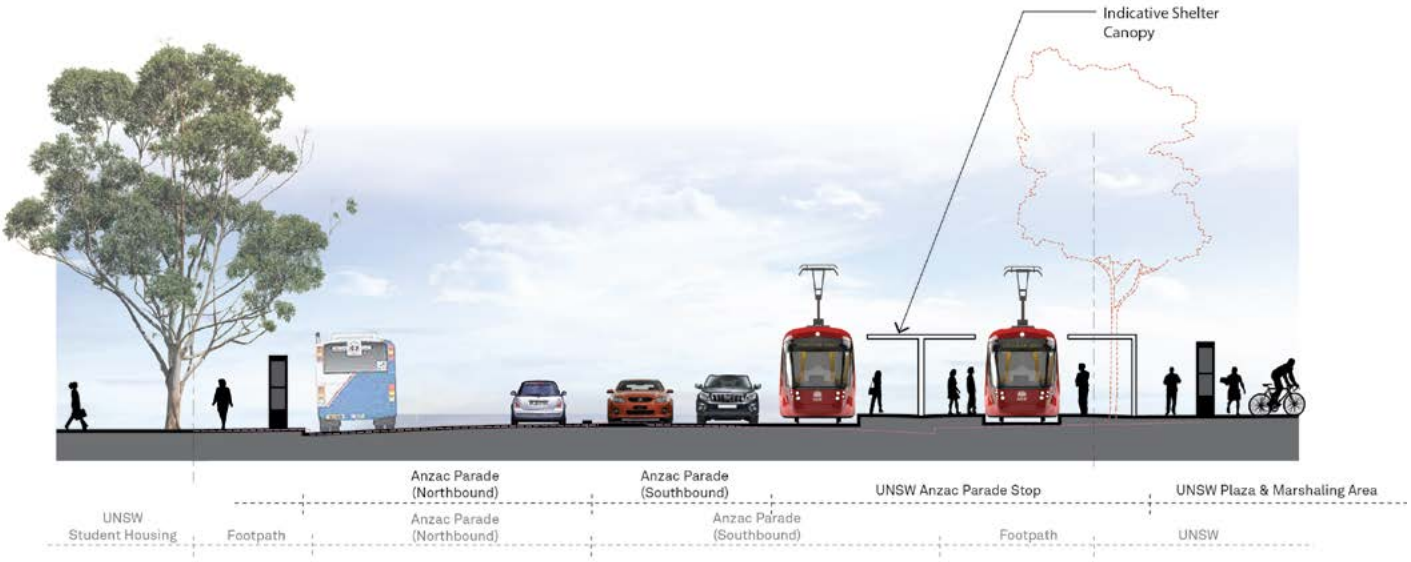
UNSW Kensington Campus
The light rail alignment diverts from the centre to the eastern side of Anzac Parade for the UNSW Anzac Parade stop, before moving back to the centre. Four lanes of traffic on Anzac Parade would continue to be provided. The UNSW Anzac Parade stop is located adjacent to the University Mall which is the main pedestrian entrance to the campus. At this stop the rail would be set into trafficable pavers creating a ground plane that is visually consistent with the surrounding plaza. A clear physical and visual connection between the light rail stop and the University Mall is provided through a new widened public forecourt. A 45m island and a single side platform would be located on the eastern footpath. Approximately four trees along the eastern side of Anzac Parade would be removed to allow for the construction of the light rail alignment and stop.

Typical Section through Anzac Parade - near Todman Avenue

Barker Street to Kingsford Nine Ways
Beyond UNSW, the light rail alignment would continue south along the centre of Anzac Parade with two lanes of traffic in each direction. Shared paths would be provided on both sides of Anzac Parade with trees replaced in the vicinity of those removed. The alignment includes the Strachan Street stop, in Kingsford before crossing the Nine Ways intersection and terminating at the Kingsford Interchange stop. In this area the alignment would sit in concrete and have a ground plane which is visually consistent with the surrounding roads.

The Strachan Street stop would be an island platform located within the median of Anzac Parade, accessed on one side via a signalised crossing. Kingsford interchange would be located within the central median of Anzac Parade to the south of the Nine Ways intersection. Two island platforms would be provided allowing light rail to service one side of a platform and buses on the other to allow for ease of access for interchanging passengers. The east-west cross fall along the site requires a retaining wall between the island platforms and additional ramps and handrails to provide accessible access. Pedestrian crossings are provided at both ends of the island platforms across the bus way.

The Nine Ways intersection would be reconstructed to a signalised configuration including pedestrian crossing facilities and opportunities for improved public domain. A single mature fig and several smaller trees located within existing median of Anzac Parade would be removed to allow for the interchange works. A substation would be located at the interchange site screened by vegetation.



Typical Section through UNSW - Anzac Parade Stop

10 Kensington / Kingsford
Landscape and Visible Components of the Project

Construction

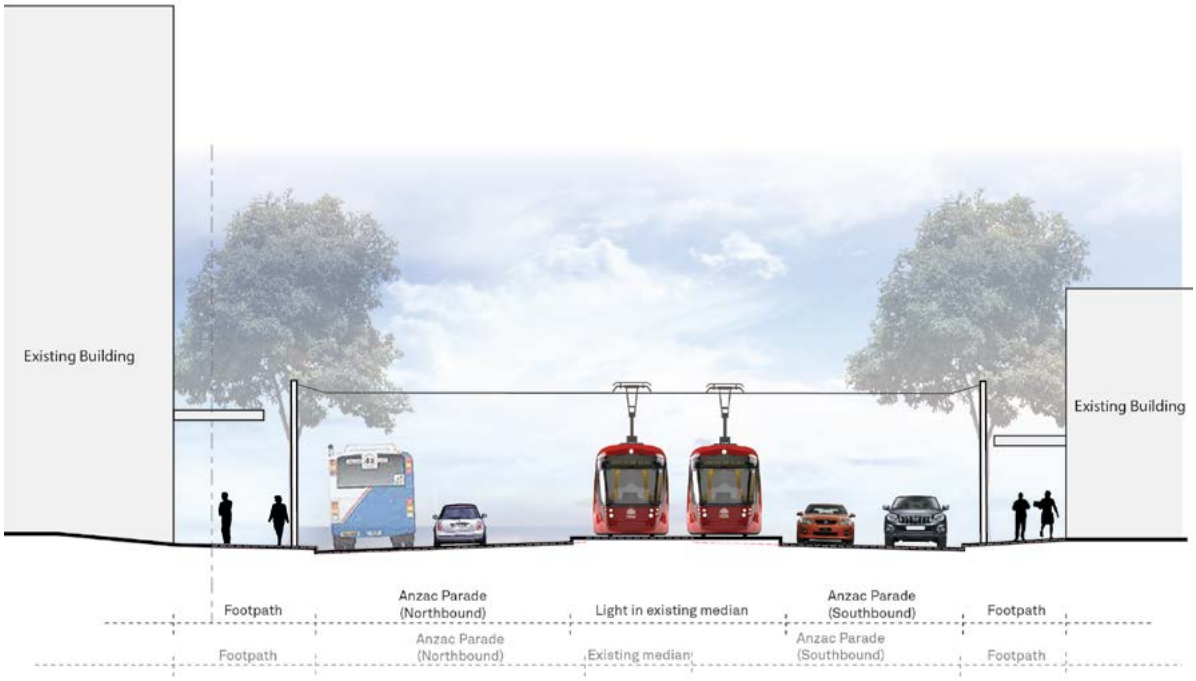
Construction of the proposal would require early works including utility relocations, vegetation and public realm demolition works, preparatory works for the track slab construction and systems works. Kerbside parking would be removed and a number of turning movements and several intersections along Anzac Parade would be closed during the works.

Civil and systems works would require a centrally located construction zone to be established along Anzac Parade and work would progress sequentially. This would allow for two lanes of traffic in each direction separated from the construction zone by jersey kerbs and green mesh on herase fencing. Works would include the preparation and construction of the track slab and rail installation, followed by construction of the stop platforms, canopy and overhead wires. This section is expected to use a combination of handwork and the Slipform system. Equipment used in this area that may be seen would include slip track machinery, cherry pickers, mobile cranes, and 6-wheel tip trucks.

A substation at Dacey Avenue and another near the stables of Randwick Racecourse would be provided, covering an area of approximately 250m^2 each. The substation works would be predominately civil works including excavation and foundation preparations to allow for the off site manufactured substation to be placed on site.

From High Street to the UNSW Anzac Parade stop, extensive kerb and road adjustments would be required due to the alignment shifting to the eastern side of Anzac Parade from the centre. The extent of construction would require an area of the UNSW between High Street and the University Mall to form part of the worksite. The total worksite area would encompass approximately 6000m^2 with site offices and laydown facilities for local works.

Construction across the Nine Ways intersection would require the existing roundabout to be removed and replaced with a signalised diversion utilising adjacent streets. Two worksite areas are proposed to facilitate the construction of the light rail alignment on Anzac Parade and the Kingsford interchange. A worksite would be located at Kingsford interchange area covering 9000m^2. This area would include site facilities, equipment storage and a laydown area to service the construction of the interchange and the light rail alignment on Anzac Parade. A substation would be constructed at the interchange site. After the construction of the interchange, the worksite would move to a block of land located on corner of Rainbow Street and Anzac Parade and would utilise the existing building and surrounding car parks for both parking and laydown. This worksite is smaller, requiring an area of 3500m^2.



Typical Section through Anzac Parade - between Barker Street and Nine Ways, Kingsford

10 Kensington / Kingsford
Sensitivity Levels

10.5 Sensitivity Levels

This precinct is influenced by the busy Anzac Parade, and key precincts including the Royal Randwick Racecourse, and the UNSW at Kensington. The following list summarises the landscape and visual sensitivity of key areas within the study area:

- Tay Reserve is a small park located at the southeast corner of the Anzac Parade and Alison Road intersection. This reserve includes a number of mature trees providing a local visual resource to the community. It is therefore considered to be of **local sensitivity.**

- Anzac Parade is a main route from the south-eastern suburbs of Sydney into the CBD. The landscape and visual amenity of this major roadway are considered to be of **regional sensitivity.** The street received its name in memory of the ANZACs who marched along this route from their barracks (now a heritage listed part of UNSW) to Sydney Harbour, where they were transported to Europe during World War I. More recently it was a part of marathon during the 2000 Summer Olympics. This portion of the route is less ceremonial in character and largely flanked by precincts being transformed by contemporary medium density residential and commercial development. Therefore, it is considered to have a slightly lower sensitivity level.

- UNSW Kensington Campus, including the Pool Lawn and University Mall, is a clearly defined precinct characterised by mature trees and green lawns, pedestrian plazas, and modern institutional buildings. The landscape and visual amenity of this area is considered to be of **regional sensitivity** as this precinct is a feature of the locality. The university attracts students from across the City, regionally, interstate and internationally, and is therefore an important and identifiable precinct for the local area.

- Wilson Place, as the Kingsford Nine Ways, is located on a major intersection in Kingsford and currently includes a number of mature trees. This intersection is an important route and decision making location for movement through the area and connection to South Coogee and Maroubra. The landscape and visual amenity of this location is considered to be of **local sensitivity.**

10 Kensington / Kingsford
Assessment of Landscape Impacts

10.6 Assessment of Landscape Impacts

Within this precinct, the following landscape features have been identified as potentially being impacted by the proposal:

1. Tay Reserve;
2. Street trees on Anzac Parade from Alison Road to Kingsford;
3. UNSW Pool Lawn and University Mall; and
4. Wilson Place.

The following section summarises the impacts identified by the landscape assessment and site visit observations. This includes impacts during construction and operation.

Not to scale

01 View of Tay Reserve. Photography by HASSELL

02 View of Tay Reserve. Photography by HASSELL

03 View of Tay Reserve. Photography by HASSELL

Tay Reserve

During construction there would be direct impacts on the Tay Reserve. A number of mature trees, which provide visual relief at this busy intersection, would be removed and the size of the park would be reduced substantially as construction occurs on this small reserve.

Construction Assessment
This would displace users of the reserve and its function as an open space would be further degraded. During construction it is expected that there would be a considerable reduction in landscape quality of this landscape feature of local visual sensitivity. This results in a **moderate adverse landscape impact** during construction.

During operation of the proposal trees would be replaced in the park in accordance with the Transport for NSW 'Vegetation Offset Guide' (TfNSW 2013) and in consultation with Randwick City Council. These trees would be of a smaller size and maturity. The size of the park would be reduced overall, and the amenity it provides to the area somewhat diminished.

Operations Assessment
It is considered that the proposal would create a noticeable reduction in the quality of this landscape feature, which is of local sensitivity. This results in a **minor adverse landscape impact** during operation.

10 Kensington / Kingsford
Assessment of Landscape Impacts

Street trees on Anzac Parade from Alison Road to Kingsford

During construction there would be considerable direct impacts on the trees which provide visual relief to this road dominated corridor. In order to construct the proposal, approximately 120 trees of varying species, age and quality would be removed. In particular, the areas of Kensington and the UNSW would experience the greatest change in character due to this loss.

Construction Assessment
During construction it is expected that there would be a considerable reduction in landscape quality of this landscape feature of regional visual sensitivity. This results in a **high adverse landscape impact** during construction.

During operation of the proposal these trees would be replaced on Anzac Parade, in accordance with the Transport for NSW 'Vegetation Offset Guide' (TfNSW 2013) and in consultation with Randwick City Council, in the vicinity of where they were removed. These trees would be of a smaller size and be located in a varied pattern as space allows.

Operations Assessment
Overall, it is expected that the proposal would create a noticeable reduction in the quality of this landscape feature, which is of regional sensitivity. This results in a **moderate adverse landscape impact** during operation.

01 Trees along Anzac Parade at UNSW.
Photography by HASSELL

02 University Mall, UNSW.
Photography by HASSELL

03 Mature fig tree at Kingsford roundabout.
Photography by HASSELL

10 Kensington / Kingsford
Assessment of Landscape Impacts

UNSW Pool Lawn and University Mall

During construction a worksite would be required along the eastern side of Anzac Parade, adjacent to the University Mall. The worksite would be enclosed by visually opaque hoarding, cover some 6000m^2, and would be approximately 200 metres in length. It is likely that the flow of pedestrian movement across Anzac Parade would be diverted around the site, so that some visual connectivity and legibility in this precinct may be impacted. In addition, a number of mature trees and the continuous hedge, which define this edge, would be removed.

Construction Assessment

For this reason, during construction it is expected that there would be a considerable reduction in landscape quality. As this is a landscape feature of regional sensitivity, there is expected to be a **high adverse landscape impact** for the duration of construction.

The function of this area would be restored during operation of the proposal. Footpath continuity would be established and this edge of the campus would be activated by the light rail stop. In accordance with the Transport for NSW 'Vegetation Offset Guide' (TfNSW 2013) and in consultation with stakeholders, trees would be replaced in adjacent areas, but would be of smaller size and maturity.

The roadway would be broadened, however, the introduction of light rail is visually compatible with the surrounding urban landscape and the preferred location for transport stops as noted in the DCP (2013).

Operations Assessment

For this reason it is expected that the proposal would create a noticeable reduction to the quality of this landscape feature, which is of regional sensitivity. This results in a **moderate adverse landscape impact** during operation.


01


02


03

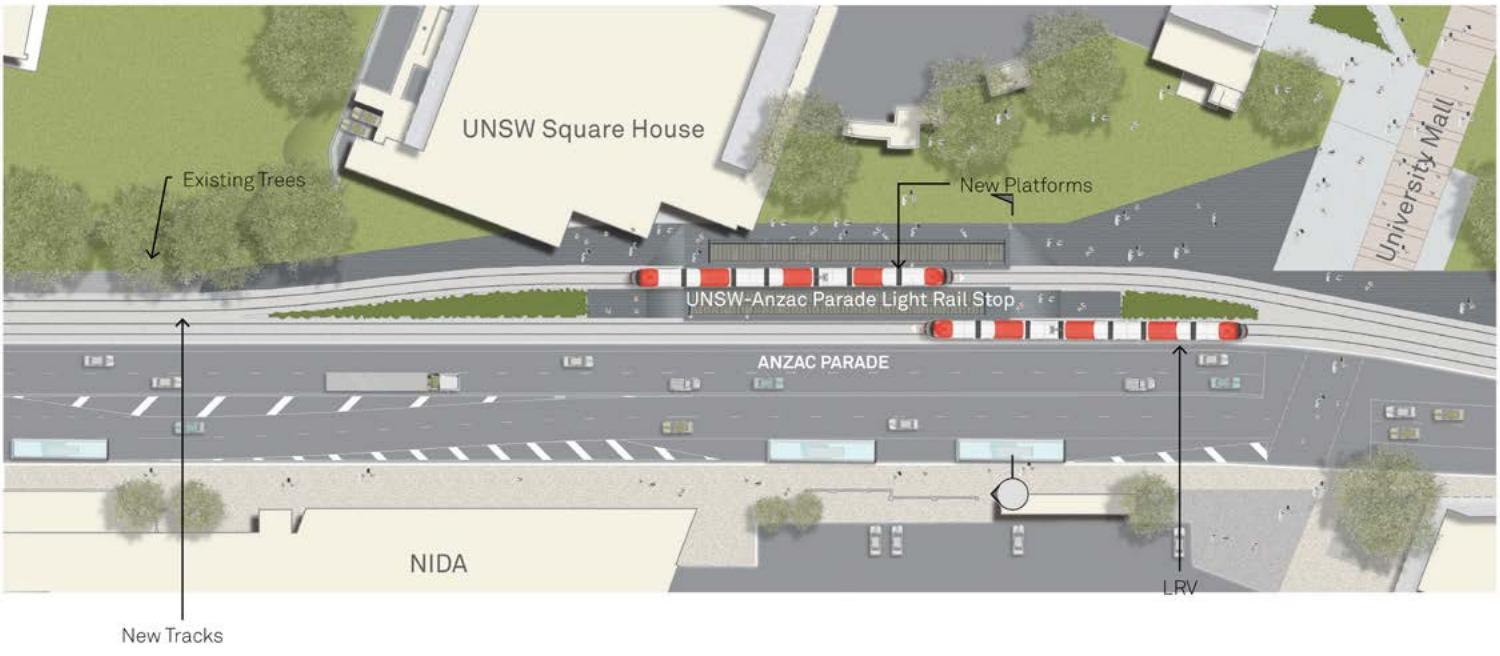
01 Signalised crossing to UNSW along Anzac Parade. Photography by HASSELL

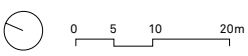
02 University Mall, UNSW. Photography by HASSELL

03 Plantings within UNSW boundary. Photography by HASSELL

04 Illustrative concept plan of UNSW - Anzac Parade Stop

04





10 Kensington / Kingsford
Assessment of Landscape Impacts

Wilson Place

During construction the roundabout at the Nine Ways would be removed and a temporary intersection established. Two worksites would be located in this location including a large site utilising the centre of Anzac Parade between the Nine Ways and Sturt Street, and a 3500m^2 worksite that would utilise the site between Anzac Parade and Rainbow Street. Construction would require the removal of much of the vegetation on these sites and at the current intersection including a number of mature figs and eucalypts. There would be minimal impacts on pedestrian movement across the intersection and sites as there are currently few opportunities to cross.

Construction Assessment

During construction it is expected that there would be a noticeable reduction in landscape quality. As this is a landscape feature of local sensitivity, there is expected to be a **minor adverse landscape impact** during construction.

The function of the public realm in this area would be maintained and improved during operation of the proposal. Footpath continuity would be improved and the Kingsford stop and bus interchange would be connected to the main street by more direct pedestrian routes.

In accordance with the Transport for NSW 'Vegetation Offset Guide' (TfNSW 2013) and in consultation with stakeholders, trees would be replaced in adjacent areas, but would be of smaller size and maturity. There would be a considerable change in the quality of vegetation as mature specimens are replaced by new planting areas and street trees.

Operations Assessment

These changes are somewhat compatible with the surrounding urban landscape and it is expected that the proposal would create a noticeable reduction to the quality of this landscape feature, which is of local sensitivity. This results in a **minor adverse landscape impact** during operation.


01


02


03

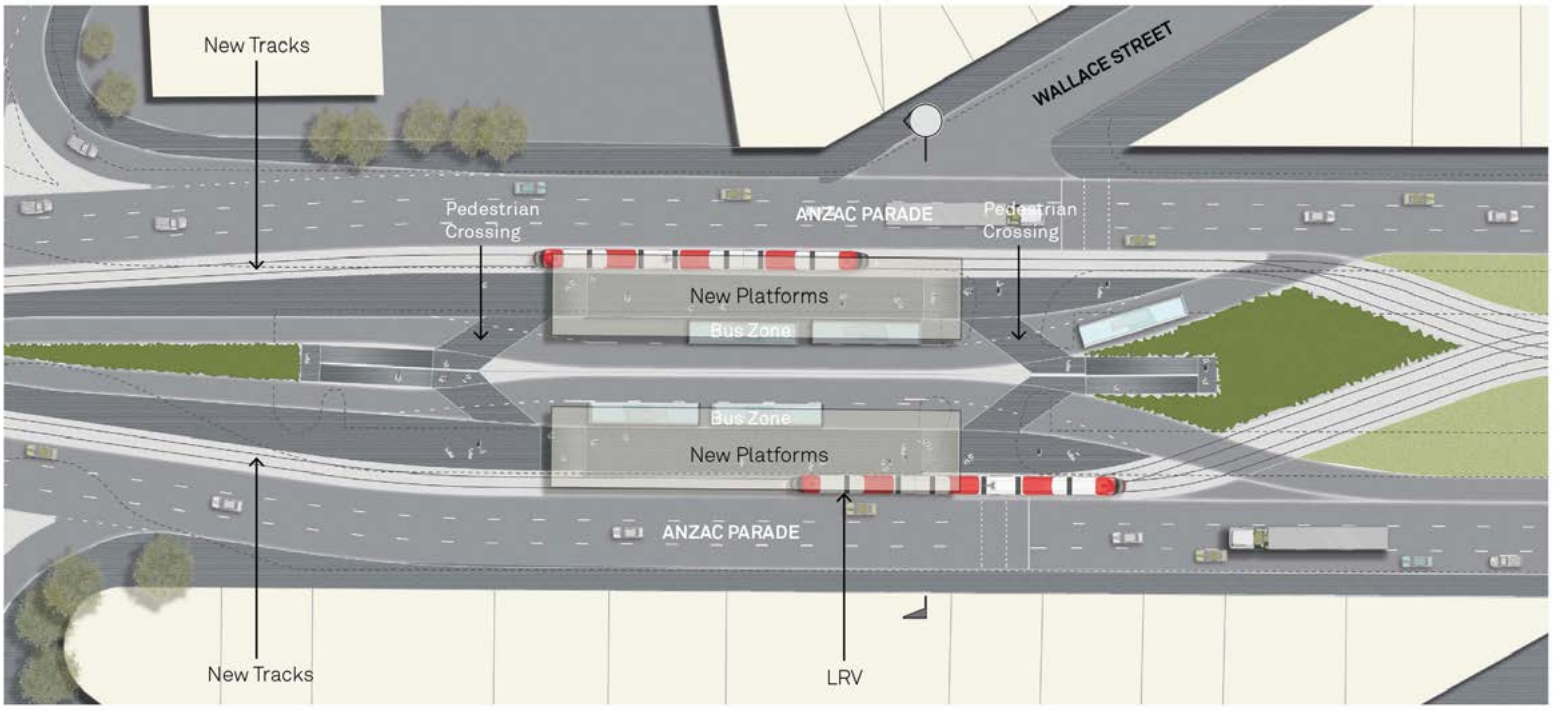
01 View north of the Nineways Roundabout. Photography by HASSELL

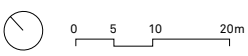
02 Existing tree planting and carpark within the Anzac Pde median. Photography by HASSELL

03 Existing tree planting and carpark within the Anzac Pde median. Photography by HASSELL

04 Illustrative concept plan of the Kingsford Stop

04





10 Kensington / Kingsford
Assessment of Daytime Visual Impacts

10.7 Assessment of Daytime Visual Impacts

Selection of Representative Viewpoints
The following viewpoints were selected as representative of the range of views to the site and the proposed development:

Alison Road to High Street Kensington
_View 5-1: View south on Anzac Parade to the Todman Avenue stop

UNSW Kensington Campus
_View 5-2 Anzac Parade, at the UNSW Kensington Campus

Barker Street to Kingsford Nineways
_View 5-3 View to Kingsford Nine Ways from Anzac Parade

Assessment of Representative Viewpoints

The following sections summarise the daytime visual impacts identified in the representative viewpoint assessment and site visit observations.

Alison Road to High Street Kensington

View 5-1: View south on Anzac Parade to the Todman Avenue Stop

In this location the study area is characterised by the arterial road corridor of Anzac Parade. A central grassed median with groups of formal street trees creating some visual relief from the six lane road corridor. This median also includes banners and decorative fencing to guide pedestrians to signalised pedestrian crossings. The shopping precinct creates a consistent built edge defining the streetscape, and includes interesting corner buildings, and varied two storey shopfronts with awning covered footpaths. The bright, pink Peters of Kensington building draws the eye in views along this street. Viewpoint 5-1 is representative of views to the high street in Kensington.

During construction this view would change as the street trees are removed along the length of the central median to accommodate the site works. The view would be focused on the worksite which would be established down the centre of the road, and extend progressively along the length of the road. These changes to the view are not visually consistent with the character of the surrounding high-street, being more uniform and larger in scale.

Construction Assessment

It is expected that these elements would be visually prominent as they contrast with the surrounding urban form, creating a considerable reduction in the visual amenity of this view of regional sensitivity during both early works and civil works stages. This is expected to result in a **high adverse visual impact.**

In this view the traffic would be maintained and the centre median would be removed to accommodate the light rail corridor. The catenary structures and wires would be seen across the view, following the line of the roadway, and adding visual clutter to the view. As a part of the proposal, the existing street trees would have been removed and replaced by some trees where space permits. These trees, however, would be less mature and located to the edge of the road corridor. The LRVs would be seen moving through this view, and stationary at the stop, with a visual envelope extending for up to 45m and comprising a large portion of the view.

Operations Assessment

As the planted median would be replaced with rail, it is expected that there would be a noticeable reduction in the amenity of this view. From views in this area, which are of regional sensitivity, this results in a **moderate adverse visual impact** during operation.

View 5-1 south on Anzac Parade to Todman Avenue Stop

10 Kensington / Kingsford
Assessment of Daytime Visual Impacts

UNSW Kensington Campus

View 5-2: Anzac Parade, UNSW
In this location the study area is characterised by modern university buildings set within leafy mature gardens. The University Mall runs perpendicular to Anzac Parade in the middle ground of the view. The ground plane is visually active with four lanes of traffic and two bus lanes, light poles, traffic lights, central fence and bollards delineate the busy footpaths. Viewpoint 5-2 is representative of views along Anzac Parade in the vicinity of the UNSW.

During construction this view would change considerably during early works, as utilities relocation, minor road adjustments, vegetation and public realm demolition works are undertaken. The construction site would be established, accommodating a large site adjacent to Anzac Parade and on the university campus. These changes to the view are not visually consistent with the character of this area.

Construction Assessment
During both early works and civil construction work the proposal is expected to create a considerable reduction in visual amenity, resulting in a **high adverse visual impact.**

In this view the traffic would be maintained and the corridor widened to accommodate the light rail corridor. In this location, the light rail corridor would divert from the centre of the road, crossing the view to connect with the University Mall on the eastern side of the road at the UNSW stop with platforms and shelters. The rail would be set within a trafficable pavement and there would be little room for additional street trees. The catenary structures and wires would be seen across the view, crossing the view and veering away from the roadway. These structures would add clutter to the view, particularly when seen against the sky. The LRVs would be seen moving through this view, travelling both north and south as well as stationary at the stop. The LRVs would have a visual envelope extending for up to 45m, and would be visually prominent due to this scale. Although it is considered that the proposal would be of similar visual character to that which currently exists, due to less visual softening from vegetation, the additional visual clutter and prominence of the LRVs, it is expected that there would be a noticeable adverse change to the amenity of these views.

Operations Assessment
From views in this area, which are of regional sensitivity, it is expected that during operation there would be a **moderate adverse visual impact.**

View 5-2 Anzac Parade, UNSW

Barker Street to Kingsford Nine Ways

View 5-3: View to Kingsford Nine Ways from Anzac Parade

In this location the precinct is characterised by a large roundabout where nine major roads intersect. A collection of banners are located in a lawn area with feature shrub planting. A mature copse of trees is the visual feature of this location, creating a leafy backdrop, enclosing views and shading the intersection. Beyond the intersection the character changes as the median of Anzac Parade widens considerably and accommodates car parking and lawn areas with mature scattered trees. Viewpoint 5-3 shows the Nine Ways from Anzac Parade, and the roundabout which serves as an entry to the Kingsford shopping centre.

This view would change considerably during early works construction, as the car parking area is removed; the mature trees which characterise this area are removed in the middle ground of the view.

Construction Assessment

It is expected that the proposal would create a considerable reduction in the visual amenity of the view, which is of local visual sensitivity during both early works and civil construction work. This results in a **moderate adverse visual impact.**

This view would change considerably during early works construction, as the car parking area is removed; the mature trees which characterise this area are removed in the middle ground of the view. Reconstruction of the Nine Ways intersection to a signalised configuration would be seen in the background of the view. Following this, a number of large worksites would be established. These changes to the view are not visually consistent with the character of this area.

Operations Assessment

It is expected that the proposal would create a considerable reduction in the amenity of this view. From views in this area, which are of local sensitivity, this would result in a **moderate adverse visual impact** during operation**.**

View 5-3 to Kingsford Nine Ways from Anzac Parade

10 Kensington / Kingsford
Assessment of Night Time Visual Impacts

10.7 Assessment of Night time Visual Impacts

At night the precinct can be categorised as a mixture of E3: medium district brightness, and E4: high district brightness areas (refer Section 3). This precinct includes brightly lit commercial areas, low to midrise residential buildings through Kensington and taller residential buildings at Kingsford. Anzac Parade is brightly lit with a high volume of traffic and lit streets. The university is also operational at night with illuminated buildings and brightly lit public realm areas. As well as the direct light sources, there is an existing skyglow effect around Kensington, the UNSW, and Kingsford, particularly along the High Street and Anzac Parade.

The project would introduce lit LRVs to an area that is currently occupied by a highly trafficked roadway. There would be LRVs moving along Anzac Parade at regular intervals with headlights which are generally the same size, breadth and brightness as standard car headlights. The LRVs would also include lit carriages. The stops proposed at Carlton Street, Todman Avenue, the UNSW Kensington Campus, Strachan Street and Kingsford Nine Ways would also be brightly lit to ensure community safety.

During construction there may be times when there would be 24 hour use of the construction sites. At these times the site would include brightly lit areas providing a safe work environment for construction activities to occur. There would also be the headlights from construction related traffic including trucks accessing the site. It is expected that lighting on the site would be brighter than the current traffic and street lighting. It is expected that any additional skyglow would be managed by cut-off light fittings and directed lights for the construction tasks.

Alison Road to High Street Kensington
Views to the construction works in this area would be largely unfiltered by vegetation and in close proximity to adjacent commercial and residential properties. This additional lighting would have a visual effect but is generally compatible with the existing night scene.

Construction Assessment
It is expected that these elements would create a noticeable reduction in the amenity of the areas of medium to high district brightness and result in a **negligible to minor adverse visual impact** for this area during evening hours.

During operation, there would be lighting at the Carlton Street and Todman Avenue stops, as well as headlights on the LRVs following the alignment. The LRVs would run centrally along the Anzac Parade, following the current road alignment, and there should not be any noticeable additional light spill on adjacent residential properties. The LRV headlights would be consistent with the existing headlights from traffic and there should be no noticeable adverse effect. It is possible that there would be some additional skyglow visible above the proposal alignment.

Operations Assessment
It is expected that these elements would create a noticeable reduction in the amenity of the area which is of medium to high district brightness. This would result in a **negligible to minor adverse visual impacts.**

UNSW Kensington Campus
Views to the construction works would be largely unfiltered by vegetation and in close proximity to university buildings. There may be some direct light spill onto the campus, however, it is expected that this spill and any additional skyglow would be minimised by cut-off light fittings and directed lights for the construction tasks. This additional light would have a visual effect but is generally compatible with the existing night scene.

Construction Assessment
It is expected that these elements would create a noticeable reduction in the amenity of the areas of medium to high district brightness and result in a **negligible to minor adverse visual impact** for this area during evening hours.

During operation, there would be lighting at the UNSW Anzac Parade stop, as well as headlights on the stationary LRVs and following the alignment. The LRVs would manoeuvre across Anzac Parade to access the stop, creating an opportunity for direct light spill into the University plaza areas and buildings. In other areas, where the alignment follows the current road alignment, there should not be any noticeable additional light spill on adjacent properties. It is possible that there would be some additional skyglow visible above the proposal alignment.

Operations Assessment
Overall, it is expected that these elements would create a noticeable reduction in the amenity of views generally, and a considerable reduction where there is direct light spill. This is an area which of medium to high district brightness, and therefore this would result in **minor to moderate adverse visual impacts.**

Barker Street to Kingsford Nine Ways
Views to the construction works would be largely unfiltered by vegetation and in close proximity to adjacent commercial and residential properties. This additional light would have a visual effect but is generally compatible with the existing night scene. These elements would create a noticeable reduction in the amenity of the areas of medium to high district brightness and result in a **negligible to minor adverse visual impact** for this area during evening hours.

During operation, there would be lighting at the Kingsford light rail stop and bus interchange on Anzac Parade, as well as headlights on the LRVs following the alignment. The LRVs would run centrally along the Anzac Parade, following the current road alignment, and then turning at the reconstructed Nine Ways intersection. As there is already a considerable volume of traffic headlights moving along this alignment and around the intersection, there should not be any additional light spill on adjacent properties. The LRV headlights would be consistent with the existing headlights from traffic and there would be no noticeable adverse effect. It is possible that there would be some additional skyglow visible above the proposal alignment. It is considered that these elements would create a noticeable reduction in the amenity of the area which is of medium to high district brightness. This would result in a **negligible to minor adverse visual impact**.

10 Kensington / Kingsford
Summary of Impacts

10.8 Summary of Impacts

The following tables summarise the impacts within the precinct:

Landscape Impacts

		Construction			Operation		
No.	**Location**	**Modification**	**Sensitivity**	**Impact**	**Modification**	**Sensitivity**	**Impact**
1	Tay Reserve	Considerable reduction	Local sensitivity	Moderate adverse impact	Noticeable reduction	Local sensitivity	Minor adverse impact
2	Street trees on Anzac Parade from Alison Road to Kingsford	Considerable reduction	Regional sensitivity	High adverse impact	Noticeable reduction	Regional sensitivity	Moderate adverse impact
3	UNSW Pool Lawn and University Mall	Noticeable reduction	Regional sensitivity	High adverse impact	Noticeable reduction	Regional sensitivity	Moderate adverse impact
4	Wilson Place	Noticeable reduction	Local sensitivity	Minor adverse impact	Noticeable reduction	Local sensitivity	Minor adverse impact

Table 10.1: Summary of Landscape Assessment

Day time Visual Impacts

		Construction			Operation		
No.	**Location**	**Modification**	**Sensitivity**	**Impact**	**Modification**	**Sensitivity**	**Impact**
	Alison Road to High Street Kensington						
5-1	View south on Anzac Parade to the Todman Avenue Stop	Considerable reduction	Regional sensitivity	High adverse visual impact	Noticeable reduction	Regional sensitivity	Moderate adverse visual impact
	UNSW Kensington Campus						
5-2	Anzac Parade, UNSW	Considerable reduction	Regional sensitivity	High adverse visual impact	Noticeable reduction	Regional sensitivity	Moderate adverse visual impact
	Barker Street to Kingsford Nine Ways						
5-3	View to Kingsford Nine Ways from Anzac Parade	Considerable reduction	Local sensitivity	Moderate adverse visual impact	Noticeable reduction	Local sensitivity	Moderate adverse visual impact

Table 10.2: Summary of Daytime Viewpoint Assessment

Night time Visual Impacts

		Construction			Operation		
No.	**Location**	**Modification**	**Sensitivity**	**Impact**	**Modification**	**Sensitivity**	**Impact**
5-1	Alison Road to High Street Kensington	Noticeable reduction	High district brightness	Negligible to minor adverse impact	Noticeable reduction	High district brightness	Negligible to minor adverse impact
5-2	UNSW Kensington Campus	Noticeable reduction	High district brightness	Negligible to minor adverse impact	Noticeable to considerable reduction	High district brightness	Minor to moderate adverse impact
5-3	Barker Street to Kingsford nine ways	Noticeable reduction	High district brightness	Negligible to minor adverse impact	Noticeable reduction	High district brightness	Negligible to minor adverse impact

Table 10.3: Summary of Night time Viewpoint Assessment

Rozelle Locality

Rozelle stabling . Photography by HASSELL.

11 Rozelle Locality
Overview

Overview

This precinct is located at Rozelle, in the inner west of Sydney. The proposal is located on an existing railway and industrial corridor between City West Link and Lilyfield Road. This site is located remotely to the CSELR, and on the alignment of the Inner West Light Rail (IWLR) corridor, adjacent to the Lilyfield stop, the terminus of the line.

11 Rozelle Locality
Policy Framework

11.1 Policy Framework

The following documents provide a policy framework for this landscape and visual impact assessment.

Leichhardt Development Control Plan, Town of Leichhardt, 2001

The *Leichhardt Development Control Plan* (DCP) identifies a number of distinctive neighbourhoods and defines the desired future character for the relevant area. Relevant neighbourhoods and principles have been summarised in the following paragraphs.

Catherine Street Distinctive Neighbourhood
The neighbourhood is predominately detached, single storey cottages with a variety of development reflecting the early part of the twentieth century. To the south of the City West Link Road there is a variety of built form and use, however, the neighbourhood still contains pockets of detached single story character cottages.
Principles: Maintain character, diversity of land uses, mixed built form and contemporary designed development and accommodation types along City West Link Road; encourage higher density consisting of variety of accommodation types where appropriate; preserve prevalence of mature and visually significant trees; and maximum wall height of 7.2m shall be applied to area along City West Link Road and Balmain Road.

Nanny Goat Hill Distinctive Neighbourhood
Nanny Goat Hill is strongly defined by its topography with key views provided to the east and west, including views to the city. This neighbourhood is predominately residential with the dominant built form as single storey detached cottages with some post war public housing buildings. There is a range of well-developed industrial and business uses along Justin Street and Lilyfield Road.
Principles: preserve and enhance predominant low scale 'cottages' character of residential streets; preserve views and scenic vistas from public places; preserve mature and visually significant trees; and retain industrial uses and existing character of area at junction of Justin Street and Lilyfield Road.

11 Rozelle Locality
Existing Landscape Character and Visual Conditions

11.2 Existing Landscape Character and Visual Conditions

This precinct is located on the site of the former Metropolitan Goods railway line in a wide cutting. The site is dominated by rail infrastructure and large industrial sheds, the site contains rail yards, a range of large storage facilities, stacked shipping containers, and stockpiles. The site is industrial in character and although mature vegetation largely encloses the site to views from adjacent roads, the elevated residential areas to the north, are afforded filtered views across the site.

To the south of the site are the IWLR and the Lilyfield stop, which is located adjacent to the existing railway yard. The stop, which is built as an island platform, is accessed by stairs and a lift from Catherine Street. Catherine Street forms a bridge connecting Lilyfield Road with the City West Link road which sits above the rail yards.

From Catherine Street there are limited views due to the tall brick walls which form the edge of the bridge. However, over the wall, and from the entry to the light rail stop, broad views across the site are seen. In these views, the City is visible in the background, with the Sydney Harbour Bridge, Anzac bridge and CBD skyline forming part of the view. Views to the west also include working rail yards channelled along steep sandstone cuttings.

Beyond the light rail, to the south, is the City West Link road. This road is a broad four lane arterial road, characterised by concrete barriers and high timber noise attenuation walls and buffer planting.

This road is located above the rail yards, and connects with the Western Distributor Freeway. Glimpses into the rail yards site are visible from vehicles using this road, through existing site boundary vegetation. Beyond the road, to the south, is a mix of residential and commercial development of mixed quality.

Lilyfield Road creates the northern boundary to the site. The road is located above the rail yards and includes mature eucalypt planting and a row of semi-mature fig trees to the east of Catherine Street. To the west, large shrubs and scattered small eucalypt trees filter views into the site. The residential areas to the north of the site are a mix of detached residential properties and apartments. The landform rises to the north, allowing these properties views over the site and across the suburbs.

01 View east from Catherine Street bridge.
Photography by HASSELL

02 View east of Catherine Street bridge and existing cutting.
Google Street View Image

03 View west of cutting from Catherine Street.
Photography by HASSELL

04 View west on Lilyfield Rd.
Photography by HASSELL

11 Rozelle Locality
Landscape and Visible Components of the Project

11.3 Landscape and Visible Components of the Project

The following assessment is based on the current design alignment as described in the Environmental Impact Statement. The depot and stabling for this area applies the following key treatment:

Rozelle Goods Yard, maintenance depot located on existing rail yards.

The depot and stabling yard is described generally in the following paragraphs.

Rozelle Goods Yard

The Rozelle Goods Yard would provide a maintenance depot and additional stabling for the project. The site would be accessed by the existing entry road on Lilyfield Road, be surrounded by an access road, and include a car park of approximately 40-50 spaces. The site would include a large enclosed shed with storage, workshops, staff facilities and stabling on six parallel tracks.

Construction

Construction of the stabling yards would be undertaken concurrently with the routes to allow for the LRV delivery and testing. Early works for this area would include utilities relocation and modification, excavation, site remediation, clearing and site preparation. In particular, major rock excavation would be required on the north western side of the site. This work would utilise a small excavator with hammer alongside with rock protection fencing to remove the rock, followed by rock bolting and shotcrete stabilisation. Site remediation, bulk earthworks and construction of retaining walls would be undertaken, followed by demolition of the existing maintenance workshop and facilities. An area on site would be used to test, sort and stockpile materials.

Civil and systems works would include formation and track work, laying track slab and rail, overhead wire installation, and erection of buildings.
Equipment used in this area that may be seen would include bobcats, excavators, concrete agitators and pumps, scissor lifts and cranes.

Construction of the CSELR proposal is expected to commence in mid-2014 (subject to planning approval) and is anticipated to take approximately five to six years.

Typical Section through Rozelle Stabling

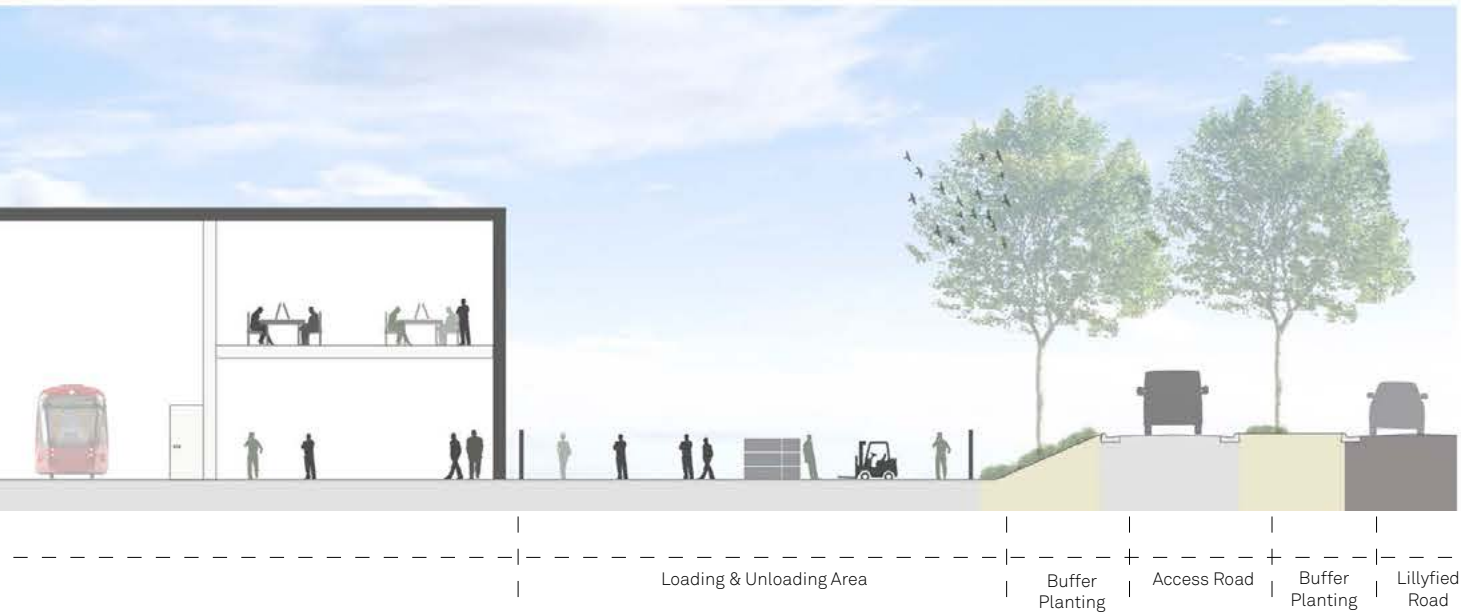
11 Rozelle Locality
Sensitivity Levels

11.4 Sensitivity Levels

This precinct is influenced by the rail yards, IWLR line, panoramic views to the city, elevated residential areas with workers cottages, and the road corridors of Lilyfield Road and City West Link. The assessment of visual sensitivity for the main viewing areas across the study area are:

- IWLR line and Lilyfield stop are used by large numbers of local commuters and visitors to the area. The landscape and visual amenity of this existing rail line are considered to be of local level sensitivity as this is an important public transport facility for the community.
- Lilyfield Road is a local route running mainly east west along the southern edge of Lilyfield. The landscape and visual amenity of this road are characterised by the mature eucalypts and figs located along its southern boundary, and other shrubs and scattered vegetation. This area is considered to be of local level sensitivity, as it is a local route.

These sensitivity levels would be used consistently throughout the following assessment.



11 Rozelle Locality
Assessment of Landscape Impacts

11.5 Assessment of Landscape Impacts

Within this precinct, the following landscape features have been identified as potentially being impacted by the proposal:

1. Trees on Lilyfield Road

The following section summarises the impacts identified by the landscape assessment and site visit observations. This includes impacts during construction and operation.

Image of Rozelle Stabling Site. Photography by HASSELL.

11 Rozelle Locality
Assessment of Landscape Impacts

Trees on Lilyfield Road

During construction a number of mature eucalypts and shrubs located on the southern boundary of Lilyfield Road would be removed to accommodate the site access road and associated retaining structures. This would result in a considerable break in the continuity of the roadside vegetation.

Construction Assessment
During construction it is expected that there would be a considerable reduction in the quality of a landscape feature of local level sensitivity, and therefore there is expected to be a **moderate adverse** landscape impact during construction.

It is unlikely that there would be the opportunity for significant tree and shrub planting in this area to replace the trees lost during construction. During operation, there would remain a break in this vegetated edge, reducing the visual continuity of this edge.

Operations Assessment
It is expected that this would result in a noticeable reduction in the amenity of the trees on Lilyfield Road, and a **minor adverse** landscape impact during operation on this resource of local sensitivity.

01 View west on Lilyfield Rd, showing existing trees. Photography by HASSELL

02 View east on Lilyfield Rd, showing existing trees. Photography by HASSELL

0 5 10 20m

11 Rozelle Locality
Assessment of Daytime Visual Impacts

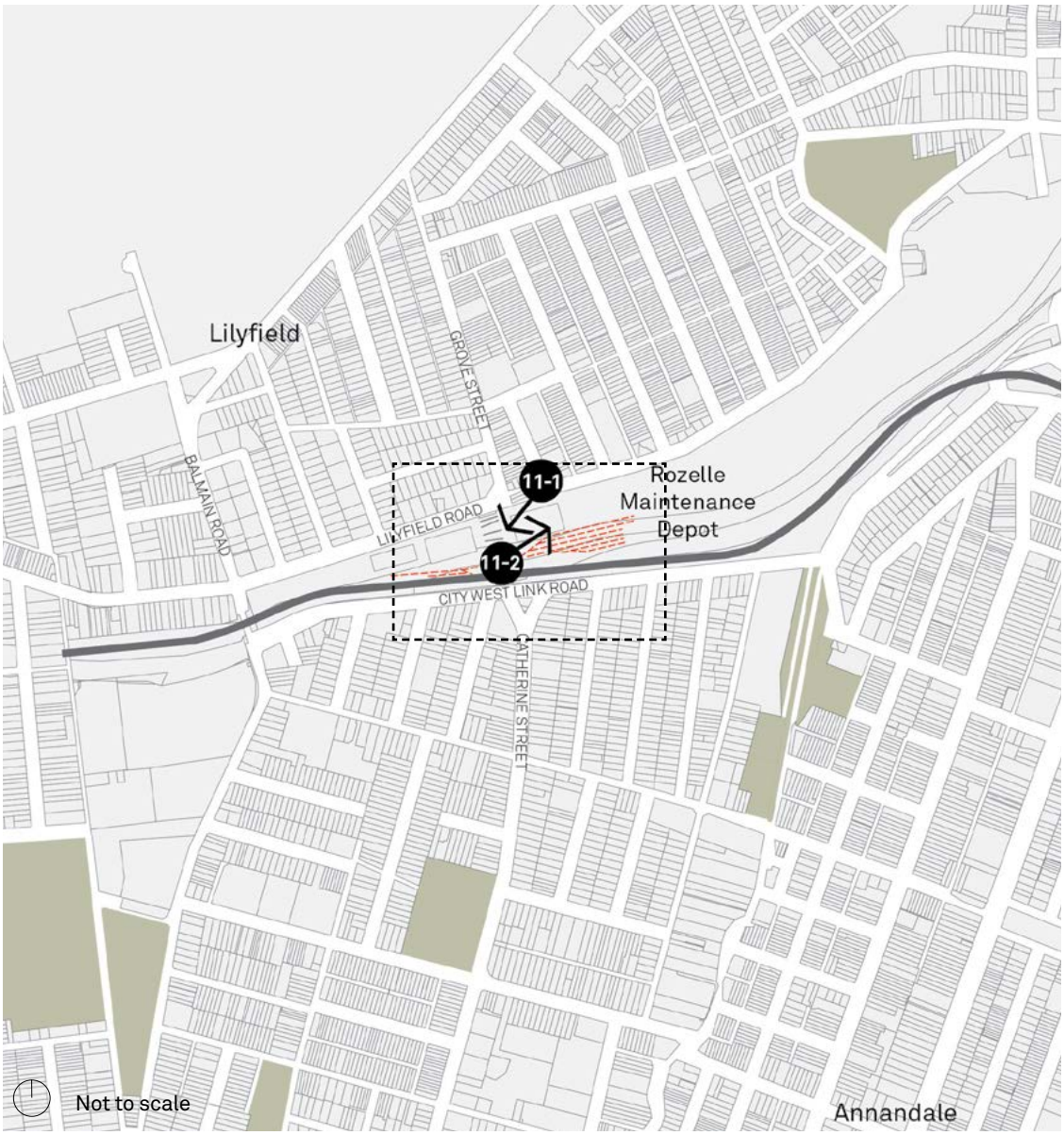
11.6 Assessment of Daytime Visual Impacts

Selection of Representative Viewpoints
The following viewpoints were selected as representative of the range of views to the site and the proposed development:

_View 11-1 View west along Lilyfield Road
_View 11-2 View from the Catherine Street bridge

Assessment of Representative Viewpoints

The following sections summarise the daytime visual impacts identified in the representative viewpoint assessment and site visit observations.



Lilyfield Road

View 11-1: View west along Lilyfield Road
In this location Lilyfield Road is characterised by mature Fig and Eucalypt trees and shrubs, filtering views from adjacent residential properties and streets to the large industrial scale sheds on the site. The site is located generally below the level of Lilyfield Road and the surrounding streets, and is therefore partly enclosed by landform. From this location there are framed and filtered views to the existing industrial landscape of the rail yards. View 11-1 is representative of views from Lilyfield Road and adjacent residential areas, south across the site.

During construction this view would change noticeably as the mature trees, shrubs and buildings in the middle ground of the view are removed to accommodate the site works. This work would be visible in the foreground of the view, directly adjacent to the road. As the facility is constructed, the site would be open to views across the site, with the lower areas of the site partially obscured due their location in cut. In particular, it is expected that the landform and orientation of the site would limit visibility of the major rock excavation works, required along the northern edge of the site, from this location. These changes to the view are not visually consistent with the character of the surrounding landscape as the view becomes more open to the industrial uses on the site.

Construction Assessment
It is considered that these elements would be visually prominent as they contrast with the surrounding landscape, creating a considerable reduction in the visual amenity of this view of local sensitivity during both early works and civil works stages. This results in a **moderate adverse visual impact.**

In this location, the maintenance facility would be built on the southern side of Lilyfield Road. The existing sheds would have been removed during construction and would be replaced with one large shed. These elements would be partially screened by the level change. However, these sheds would be visually prominent due to their size and scale.

Operations Assessment
Overall, the view to the maintenance facility would be more open and unfiltered by vegetation. Although the maintenance facility would be similar in character to the sheds on the existing rail yards, the area would be more prominent in views due to the loss of filtering vegetation, resulting in a considerable adverse change to the amenity of these views. From views in this area, which are of local level sensitivity, it is considered that the visual impact of the proposal is **moderate adverse** during operation.

_ View 11-1 View west along Lilyfield Road

11 Rozelle Locality
Assessment of Daytime Visual Impacts

Catherine Street

View 11-2 View from Catherine Street from the entrance to the Lilyfield light rail stop

In this location the rail yards are clearly visible and characterised by industrial scale structures, maintenance equipment, vehicles, dirt roads and stockpiles. This landscape sits in contrast with the surrounding residential landscapes. The site is located below the level of the viewer on Catherine Street, City West Link and residential locations on Brenan and Catherine Streets. The site will be generally level with the Lilyfield stop. Views at the light rail stop are open with the city skyline and Harbour Bridge visually prominent in the background of the view. Views from surrounding residential areas, to the south of the site, currently view the site over the City West Link, a major arterial road leading from the inner western suburbs to the City. View 11-2 is representative of views from the Catherine Street bridge viewing north east, as well as views from potential future developments on Brenan Road between Catherine Street and Percival Street, or the City West Link between Lonsdale Street and Catherine Street, that have a height greater than 2 storeys.

During construction this view would change as vegetation along the northern edge is removed and major rock excavation works begins. Further work to remediate the site, civil and building work would be seen across the site, which comprises a large portion of the middle ground of the view. These changes are visually consistent with the character of the rail yards as the view would remain generally as an industrial use. However, it is considered that the construction of the shed, in particular, would be of a size and scale that would contrast with the surrounding urban grain. These elements would be visually prominent due to the scale and extent of the works seen within the view.

Construction Assessment

This creates a considerable reduction in the visual amenity of this view of local sensitivity during both early works and civil works stages, resulting in a **moderate adverse visual impact**. Construction of the CSELR proposal is expected to commence in mid-2014 (subject to planning approval) and is anticipated to take approximately five to six years.

During operation, the large shed structures would be prominent in the centre and middle ground of the view. The structure would be large in scale, spanning almost the entire site, and have a monotonous, utilitarian form. There would be little vegetation remaining on the site. This scale of building would contrast with the finer urban grain of the surrounding landscape. Furthermore, it is likely that part of the view to the City and Harbour Bridge obscured by the new structures. Although generally the maintenance facility would be similar land use to the existing rail yards, the maintenance facility is different in character.

Operations Assessment

The proposal would result in a considerable adverse change to the amenity of these views. From views in this area, which are of local level sensitivity, it is considered that the visual impact of the proposal is **moderate adverse** during operation.

_ View 11-2 View from the Catherine Street bridge

11 Rozelle Locality
Assessment of Night Time Visual Impacts

11.7 Assessment of Night time Visual Impacts

At night the study area, in the vicinity of the Rozelle Goods Yard, can be categorised as an area of E3: medium district brightness as the area is predominantly residential with moderate traffic and lit local streets. Currently, the site is largely buffered from adjacent residential areas by existing mature trees. As well as the direct light sources, there is an existing skyglow effect around Rozelle and Lilyfield. In views to the CBD the brightly lit skyline are a feature of the area, and add visual interest to the night scene.

During construction there may be times when there would be 24 hour use of the site. At these times the site would include brightly lit areas providing a safe work environment for construction activities to occur. There would also be headlights from construction related traffic including trucks accessing the site. It is expected that lighting on the site would be brighter than the current traffic and street lighting in the E3 medium district brightness area; this would have a noticeable visual effect. It is also expected that any additional skyglow would be managed by cut-off light fittings and directed lights for the construction tasks. These elements would be seen in the context of adjacent brightly lit roads, and partially filtered by existing vegetation. Due to the location of the site within the existing rail yards and large cuttings, there would be limited opportunity for direct light intrusion from the project onto any private properties. It is considered that these elements would create a considerable reduction in the amenity of this area at night and result in a **moderate adverse visual impact.**

During operation, the project would introduce lit LRVs, with moving headlights at regular intervals. These would be similar to the size, breadth and brightness of standard car headlights. The maintenance and stabling facility, which is predominantly used at night, would require brightly lit working areas and security lighting. The shed would enclose a considerable area of the maintenance facility, so that the additional visible lighting would be reduced somewhat. These elements would be seen in the context of surrounding lit roads and partially filtered by existing vegetation, particularly to the south of the site. Due to the location within the existing rail yards corridor and levels, there would be limited opportunity for direct light intrusion into private properties. The additional lighting around the works would have a visual effect but is generally compatible with the existing night scene. These elements would not create a noticeable reduction in the amenity of the area and result in a **negligible visual impact** during evening hours.

11 Rozelle Locality
Summary of Impacts

11.8 Summary of Impacts

The following tables summarise the impacts within the precinct:

Landscape Impacts

		Construction			Operation		
No.	**Location**	**Modification**	**Sensitivity**	**Impact**	**Modification**	**Sensitivity**	**Impact**
1	**Trees on Lilyfield Road**	Considerable reduction	Local sensitivity	Moderate adverse impact	Noticeable reduction	Local sensitivity	Minor adverse impact

Table 11.1: Summary of Landscape Assessment

Day time Visual Impacts

		Construction			Operation		
No.	**Location**	**Modification**	**Sensitivity**	**Impact**	**Modification**	**Sensitivity**	**Impact**
	Lilyfield Road						
11-1	View 11-1 View west along Lilyfield Road	Considerable reduction	Local sensitivity	Moderate adverse impact	Considerable reduction	Local sensitivity	Moderate adverse impact
11-2	View 11-2 View from Catherine Street	Considerable reduction	Local sensitivity	Moderate adverse impact	Considerable reduction	Local sensitivity	Moderate adverse impact

Table 11.2: Summary of Daytime Viewpoint Assessment

Night time Visual Impacts

		Construction			Operation		
No.	**Location**	**Modification**	**Sensitivity**	**Impact**	**Modification**	**Sensitivity**	**Impact**
11	Rozelle	Considerable reduction	Medium district brightness	Moderate adverse impact	No perceived change	Medium district brightness	Negligible impact

Table 11.3: Summary of Night time Viewpoint Assessment

Mitigation Measures

Aerial View over Moore Park. Photography by HASSELL.

12

12 Mitigation Measures

12.0 Mitigation Measures

This section addresses the mitigation measures developed to avoid, reduce and manage the identified potential adverse operational and construction landscape and visual impacts. Mitigation measures would ultimately form part of the Operational Environmental Management Plan and Construction Environmental Management Plan.

	Construction	
No.	**Mitigation Measures**	**Applicable Locations**
0-1	Where feasible and reasonable, the elements within construction sites would be located to minimise visual impacts e.g. materials and machinery would be stored back behind fencing.	All
0-2	All existing trees to be retained would be protected prior to the commencement of construction in accordance with AS4970 the Australian Standard for Protection of Trees on Development Sites and Adjoining Properties.	All
0-3	Lighting of compounds and works sites would be restricted to agreed hours and security needs and in accordance with the Construction Environmental Management Plan.	All
0-4	Visual mitigation would be implemented as soon as feasible and reasonable, and remain for the duration of the construction period.	All
0-5	Cut off and directed lighting would be used to ensure glare and light spill are minimised.	All
0-6	Regular maintenance of site hoarding and perimeter site areas would be undertaken, including the prompt removal of graffiti.	All
0-7	Monitoring of the effectiveness of mitigation measures would be undertaken by the relevant construction contractor.	All
0-8	Explore further ways to reduce the amount of trees to be removed. This may include careful siting of construction worksite and site compound locations to avoid trees.	All
0-9	On completion of construction work sites and other land occupied temporarily would be reinstated.	All
City Centre Precinct		
1-1	Position equipment and site access away from the forecourt of the MCA and Quay area.	Circular Quay
1-2	Restrict works to the southern part of the site where possible, away from the MCA.	Circular Quay
1-3	Avoid any impacts to the heritage listed Tank Stream Fountain in Alfred St plaza.	Circular Quay
1-4	Timing of works should avoid special events, such as New Year's Eve and Vivid Festival events.	Circular Quay and plaza on Alfred Street
1-5	Identify opportunities for an artistic approach to treatment of the site hoarding and enclosure, in collaboration with the MCA. This should include consideration of day and night time activation of the exterior of the site.	Circular Quay
1-6	Identify opportunities for an artistic / historic harbour side narrative approach to the treatment of the site hoarding and enclosure, in collaboration with Customs House.	Plaza on Alfred Street

	Construction	
No.	**Mitigation Measures**	**Applicable Locations**
1-7	Position site compound and construction areas to avoid any direct impact to existing trees in Belmore Park.	Belmore Park
1-8	Position site compounds and construction areas to not impact directly upon or impact the use of the Cenotaph.	Martin Place
1-9	Timing of works to avoid special events, such as Anzac day given the significance of the Sydney Cenotaph.	Martin Place
1-10	Position equipment and site access away from the Queen Victoria Statue and Plaza.	Queen Victoria Statue and Plaza
1-11	Identify opportunities for an artistic approach to treatment of the site hoarding and enclosure, in collaboration with the City of Sydney. This should include consideration of day and night time activation of the exterior of the site.	Queen Victoria Statue and Plaza and Town Hall and St Andrews Cathedral Square
1-12	Position equipment and site access away from the plaza as far as practicable.	Ibero-American Statue Plaza
Surry Hills Precinct		
2-1	Identify opportunities for an artistic approach to treatment of the site hoarding and enclosure, in collaboration with the City of Sydney. May involve local community groups and schools.	Ward Park; Wimbo Park and Olivia Gardens demolition site
2-2	Consolidate site equipment and facilities within one location to maximise the area of useable public green space, and maintaining pedestrian permeability where reasonable and feasible.	Ward Park and Wimbo Park
Moore Park Precinct		
3-1	Maintain permeability or identify an alternative pedestrian route within Moore Park (to replace the key pedestrian route between Parkham Street and Driver Avenue affected by construction) without encroaching onto the existing playing fields	Moore Park West
3-2	Hoardings to be designed to visually recede into the open space setting	Moore Park West
Randwick Precinct		
4-1	Consolidate site equipment and facilities within one location to maximise the area of useable public green space, and maintaining pedestrian permeability.	Centennial Park
4-2	Locate site equipment and facilities to avoid impact to the Parklands Sports Centre, maintaining access or providing alternative access to the existing sports facilities.	Centennial Park
4-3	Hoardings to be designed to visually recede into the open space setting. Use hoarding treatment (colours and or materials) that complement the green parkland surroundings.	Centennial Park
4-4	Identify opportunities for an artistic approach to treatment of the site hoarding and enclosure, in collaboration with the Randwick City Council.	Randwick Racecourse and UNSW Randwick
4-5	Timing of works to avoid special events, such as Anzac day given the significance of the war memorial.	High Cross Park
4-6	Identify opportunities for an artistic approach to treatment of the site hoarding and enclosure, in collaboration with Randwick City Council.	High Cross Park
Kensington / Kingston Precinct		
5-1	Where possible consolidate site equipment and facilities within one location to minimise the intervention into the University campus grounds.	UNSW Kensington
5-2	Maintain access or provide alternative pedestrian access to all existing University campus facilities.	UNSW Kensington
5-3	Use hoarding treatment (colours and or materials) that complement the University surroundings.	UNSW Kensington
5-4	Identify opportunities for an artistic approach to treatment of the site hoarding and enclosure, in collaboration with the UNSW.	UNSW Kensington

	Operation	
No.	**Mitigation Measures**	**Applicable Locations**
0-1	Use pattern and colour to break-up the visual mass of the LRVs where possible.	All
0-2	Minimise the use of advertising on the exterior of LRVs.	All
0-3	Consider options for the overhead wire/catenary system to be an integrated part of the public domain suite of materials in consultation with City of Sydney and Randwick City Council.	All (excluding wire free areas)
0-4	Where possible catenary should be located with consistent pole types and even spacing.	All
0-5	Consider the opportunity to combine several above-ground street elements (lighting, traffic signals etc.) on common use poles to reduce visual clutter, in consultation with the City of Sydney or Randwick City Council as appropriate.	All
0-6	Cut off and directed light fittings (or similar techniques) should be used to minimise glare and light spill onto private property.	All
City Centre Precinct		
1-1	Use mature tree specimens to replace the character of those lost on 'like for like' basis, in consultation with the City of Sydney.	First Fleet Park; Belmore Park
1-2	Reconstruct the plaza to incorporate all statues and restore its setting in consultation with the City of Sydney.	Ibero-American Statue Plaza
1-3	Use mature tree specimens to replace the character of those lost on Chalmers Street on 'like for like' basis, in consultation with the City of Sydney.	Chalmers Street
1-4	Consider the opportunity to use central poles and combine several above-ground street elements to reduce potential impacts on existing awnings and footpaths, in consultation with the City of Sydney as appropriate.	Rawson Place
1-5	Where possible any areas of direct light intrusion (glare and spill) from LRV headlights should be identified and managed.	The corner of George St and King St, George St and Park St, George St and Bathurst St, and other locations where the alignment bends.
1-6	At stops and stabling areas, cut off and directed light fittings (or similar techniques) should be used to minimise glare and light spill onto private property.	Circular Quay stop, Wynyard stop, Town Hall stop, Grosvenor Street stop, World Square stop, Chinatown stop, Rawson Place stop, Central Station stop and Rawson Place interstate coach terminal.
Surry Hills Precinct		
2-1	Tree planting within the Northcott Estate's northern boundary to reinforce the green edge and filtering effect of trees lost in consultation with Housing NSW.	Devonshire Street, Clisdell Street to Ward Park
2-2	Incorporate semi mature tree specimens on the corners of streets intersecting with Devonshire Street, to restore the leafy character of this portion of the street, in consultation with the City of Sydney.	Devonshire Street, Clisdell Street to Ward Park
2-3	Redefine the northern edge of Ward Park through a new plaza and tree planting in consultation with the City of Sydney.	Ward Park
2-4	Incorporate substation into urban development to maintain street edge in urban areas.	Ward Park substation
2-5	Enhance the northern edge with tree planting (to replace the character of those lost within the Devonshire Street road corridor) in consultation with the City of Sydney.	Nickson Street pocket park

	Operation	
No.	**Mitigation Measures**	**Applicable Locations**
2-6	Recreate Wimbo Park, together with the new Olivia Gardens, as a high quality open space and enhance with mature tree specimens to replace the character of those lost, in consultation with the City of Sydney.	Wimbo Park
2-7	Where possible any areas of direct light intrusion (glare and spill) from LRV headlights should be identified and managed.	The corner of Devonshire and Chalmers streets, Devonshire and Elizabeth streets, George and Bathurst streets, and other locations where the alignment bends.
2-8	At stops, cut off and directed light fittings (or similar techniques) should be used to minimise glare and light spill onto private property.	Ward Park stop
Moore Park Precinct		
3-1	Reinstate the key pedestrian route within Moore Park (between Parkham Street and Driver Avenue). Use mature tree specimens to replace the character of those lost on a and 'like for like' basis.	Moore Park West
3-2	Provide appropriate landscape treatment to the surroundings of the tunnel portal in consultation with the Centennial Park and Moore Park Trust.	Moore Park West
3-3	Where feasible and reasonable, reduce the amount of hard paved areas through the parkland	Fig tree avenue on Anzac Parade
3-4	Use mature Fig trees to enhance and maintain the integrity of the boulevard of trees along Anzac Parade (in proximity to where existing Fig trees are proposed to be removed) in consultation with the Centennial Park and Moore Park Trust.	Fig tree avenue on Anzac Parade
3-5	Consider the opportunity for a central pole catenary system to minimise visual impact in parkland areas, in consultation with the City of Sydney and Centennial Park and Moore Park Trust as appropriate.	Moore Park (all)
3-6	Where possible any areas of direct light intrusion (glare and spill) from LRV headlights should be identified and managed.	Moore Park East
3-7	At stops, cut off and directed light fittings (or similar techniques) should be used to minimise glare and light spill onto private property.	Moore Park stop
Randwick Precinct		
4-1	Reinstate planting, where removed for construction purposes, on the periphery of Centennial Park in accordance with the Centennial Parklands Conservation Management Plan	Centennial Park
4-2	Replace the impacted row of Fig trees of 'exceptional significance' on Alison Road with semi-mature Fig trees as appropriate in consultation with the Australian Turf Club.	Figs at Randwick racecourse on Alison Road and Wansey Road
4-3	Investigate opportunities for siting ex-ground mature Fig trees within the racecourse grounds in the vicinity of the intersection of Wansey Road and Alison Road, and in the Wansley Road nature strip (between Arthur and High streets) to recreate the canopy of the lost street trees on the western side of Wansey Road in consultation with the Australian Turf Club.	Figs at Randwick racecourse on Alison Road and Wansey Road
4-4	Consider the opportunity for a central pole catenary system as the alignment diverts from north to south to minimise visual impacts.	Alison Road to Wansey Road
4-5	Revitalise High Cross Park with new tree planting, plaza and landscaping, including a semi-mature Fig and Pine trees to replace those lost at the corner of Avoca Street and Belmore Road in consultation with Randwick City Council.	High Cross Park

12 Mitigation Measures

	Operation	
No.	**Mitigation Measures**	**Applicable Locations**
4-6	Investigate opportunities to incorporate the substation into other uses such as seating and shade structures or built development, to reduce its visual prominence, in consultation with Randwick City Council.	High Cross Park substation
4-7	Where possible any areas of direct light intrusion (glare and spill) from LRV headlights should be identified and managed.	At The Royal Randwick Racecourse, Wansley Road, UNSW, corner of Belmore Road and Avoca Street, corner of Belmore Road and Cuthill Street, and other locations where the alignment bends.
4-8	At stops and stabling yards, cut off and directed light fittings (or similar techniques) should be used to minimise glare and light spill onto private property.	Royal Randwick Racecourse stop, Wansey Road stop, UNSW High Street stop, High Cross Park stop, and Randwick Stabling Yard
Kensington / Kingston Precinct		
5-1	Provide a boulevard of street trees along Anzac Parade to improve streetscape and extend the ceremonial avenue of street trees	Street trees on Anzac Parade from Alison Road to Kingsford
5-2	Investigate opportunities to incorporate the substation into urban development or utilise landscape/art to maintain street edge and reduce visual impact of substation structure at Abbotford Street intersection, in consultation with Randwick City Council.	Dacey Avenue substation
5-3	Investigate opportunities for siting semi mature Fig trees within the UNSW grounds (in the vicinity of the proposed station) to recreate the perimeter planting along the Anzac Parade frontage and reinforce campus thresholds in consultation with the University of NSW	UNSW Kensington
5-4	Investigate opportunities to incorporate the substation into other uses such as seating and shade structures or built development, to reduce its visual prominence, in consultation with Randwick City Council.	Kingsford/Anzac Parade substation
5-5	Where possible any areas of direct light intrusion (glare and spill) from LRV headlights should be identified and managed.	All
5-6	At stops and interchanges, cut off and directed light fittings (or similar techniques) should be used to minimise glare and light spill onto private property.	Carlton Street stop, Todman Avenue stop, UNSW Kensington Campus stop, Strachan Street stop, Kingsford interchange.
Rozelle Precinct		
6-1	Provide tree and shrub planting to the northern side of the site, adjacent to Lilyfield Road, to restore the green edge and filter views.	Rozelle Goods Yard Trees on Lilyfield Road
6-2	Investigate opportunities to provide screen planting along the southern edge of the site to filter views from the Lilyfield light rail station.	Rozelle Goods Yard Lilyfield Light Rail Stop
6-3	Consider opportunities to locate buildings within the maintenance facility so that the cut embankments partially screen their size and scale.	Rozelle Goods Yard

	Operation	
No.	**Mitigation Measures**	**Applicable Locations**
6-4	Where possible any areas of direct light intrusion (glare and spill) from LRV headlights should be identified and managed.	Rozelle Maintenance Depot, IWLR Lilyfield stop.
6-5	At stops and stabling yards, cut off and directed light fittings (or similar techniques) should be used to minimise glare and light spill onto private property.	Rozelle Maintenance Depot

References

View of Kippax Lake. Photography by HASSELL.

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