



Form

Mulga Road

OATLEY STATION PRECINCT ACCESSIBILITY UPGRADE



Form

Oatley Parade

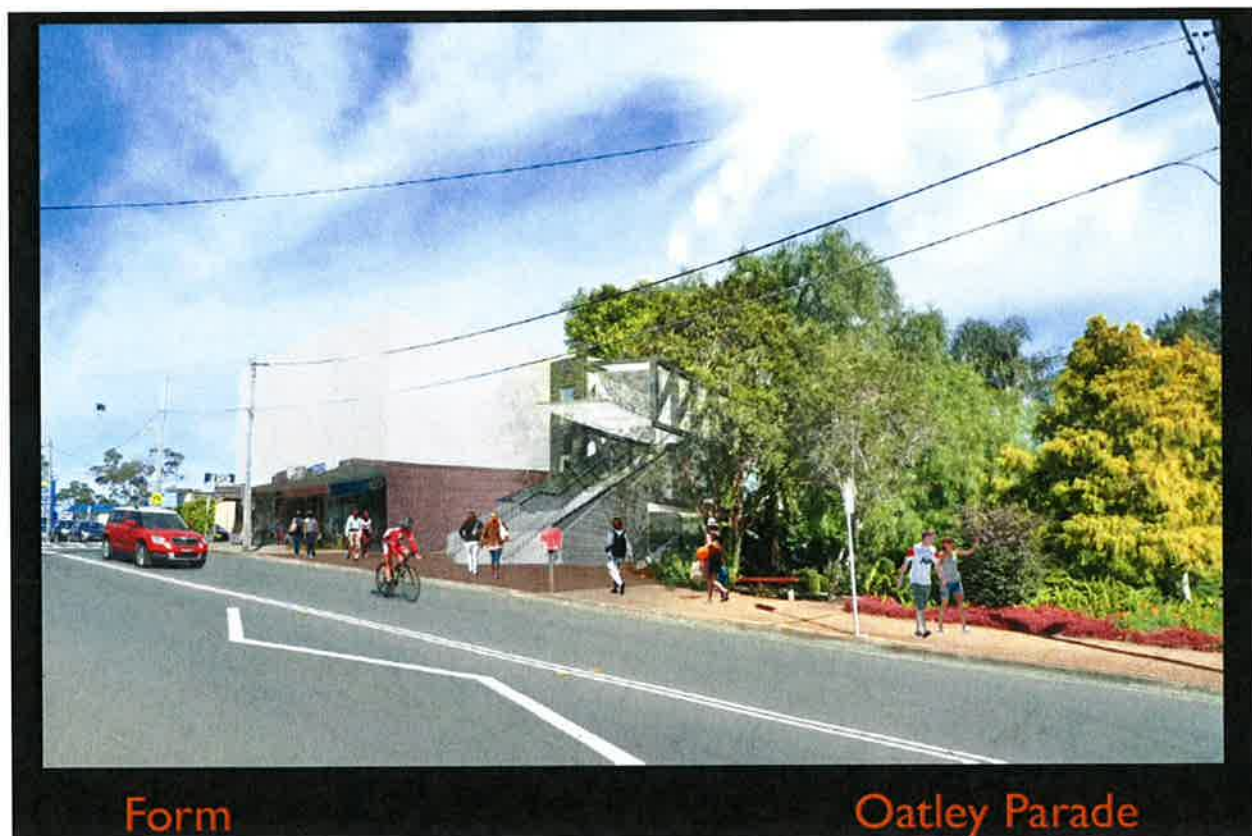
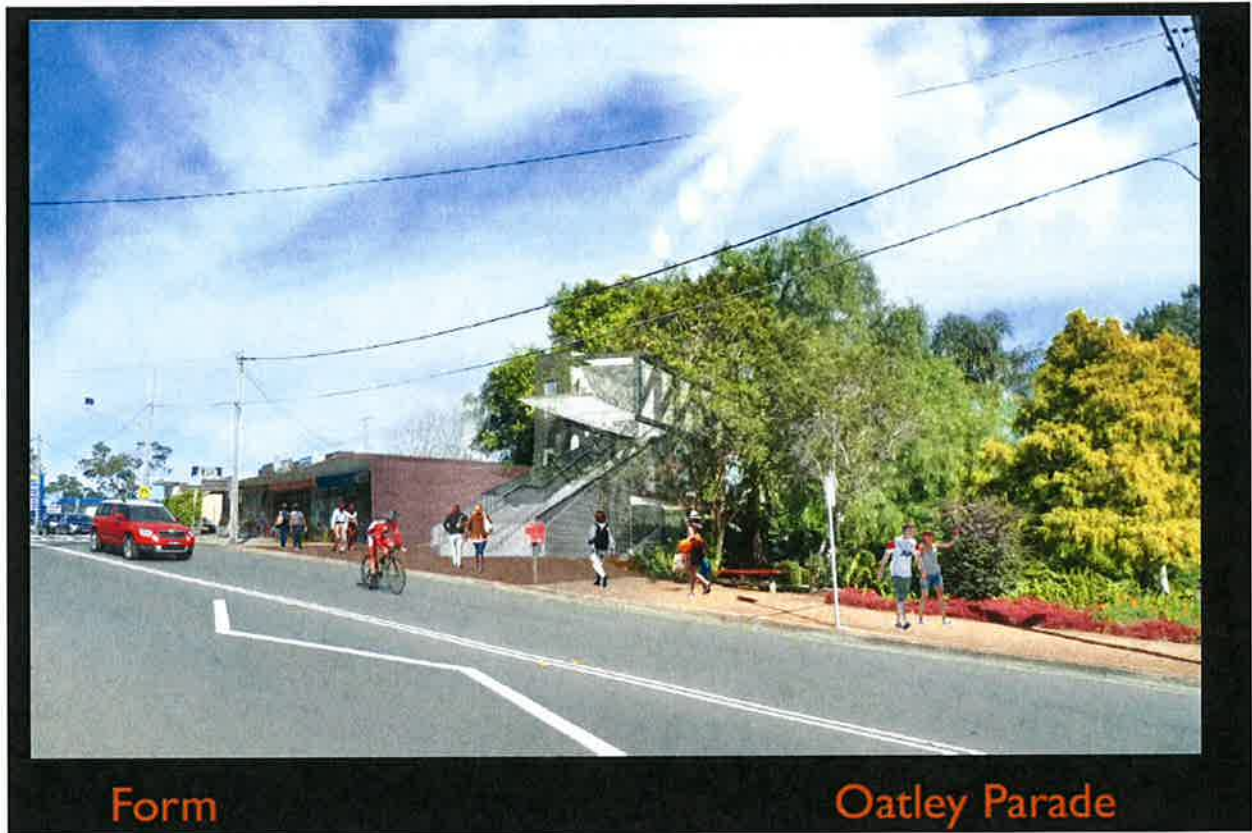


Figure 4: Artist impression of the proposal as viewed from Mulga St and Oatley Parade

Note the last picture in Figure 4 includes blocking to demonstrate potential redevelopment of the commercial premises to the south of the station on Oatley Parade and how the proposal fits in the scenario.

3.4 Tree removal

Under the current Reference Design, a total of sixteen (16) trees, both exotic and native, would need to be removed as a direct result of the Proposal. This would include the removal of three (3) Cocos Palms are to be removed due to the construction of the overbridge and up to five (5) trees to be removed in connection with re-construction of the commuter car park. The trees to be removed will range in height from 6 to 21 metres and have spreads from 4 to 12 metres.

Description of Existing Visual Landscape Character

'Landscape character in the public realm is difficult to define. It is a combination of perceptions, values and feelings carried around by communities of diverse people' (Mongard, 2002). It results from the way that different parts of our environment, both natural and cultural interact and are perceived by us. This is not just about visual perception, but how we hear, smell and feel our surroundings and the feelings, memories and associations they evoke (Countryside Agency, 2002). However, as the community engagement program for the project had not yet commenced at the time of preparing this report, the approach taken has been to define the landscape character based on the visual qualities that identify the area. These qualities often contribute to lifestyle quality for a place and its people.

In order to gain a full understanding of the site's visual character, it was first necessary to undertake a broad analysis of the visual character of the local area. The local area was divided into character units for the purpose of evaluation and to assist with developing guidelines to manage and plan for each character unit and their relationship with the site. The assessment then focussed on determining individual site features that contributed to the overall character of the area.

3.5 Local Visual Landscape Character

The landform of the area is generally sloping with gentle ridges to the east and west of the site, before sloping away to the banks of the Georges River.

The site and surrounding area can be described as a typical suburban area with residential dwellings the dominant land use. This includes mainly single detached dwellings with some two to three level multi unit residential developments. Generally the streetscapes to the east of the site included a mix of dwelling types with patchy landscape urban plantings of trees and shrubs. To the west of the site the land use was generally single detached dwellings with generous nature strips dominated by mature trees.



Figure 5: Typical Street east of site



Figure 6: Typical Street west of site

Immediately to the east of the site a large linear park runs north-south and provides a separation from the railway line and the Oatley town centre and residential area to the east. The park is a valuable leftover space from the original railway corridor that was later rebuilt to the west in its current form. The park is well vegetated with a variety of mature tree species and provides valuable shaded passive recreation spaces along with a large playground space. Oatley Parade borders the park to the west and the park rises steeply to Oatley Avenue to the east. The park is divided by Fredrick St, which is the town centre, and at its western end a striking town clock forms its centrepiece.



Figure 7: Oatley Memorial Park



Figure 8: Oatley Village Centre

To the south west of the site is a large urban bushland reserve that acts as a buffer between the residential neighbourhood and the site. While views to the railway line exist there are no clear views to the site where the infrastructure is proposed.

Oatley Bay is further to the east of the site and Georges River is to the south. There are no views to the site from either waterway due to ridgelines with the ridgeline canopy is generally intact.



Moore Reserve



Foreshore at Oatley Bay



Oatley Pleasure Grounds

Figure 9 Foreshore and waterways

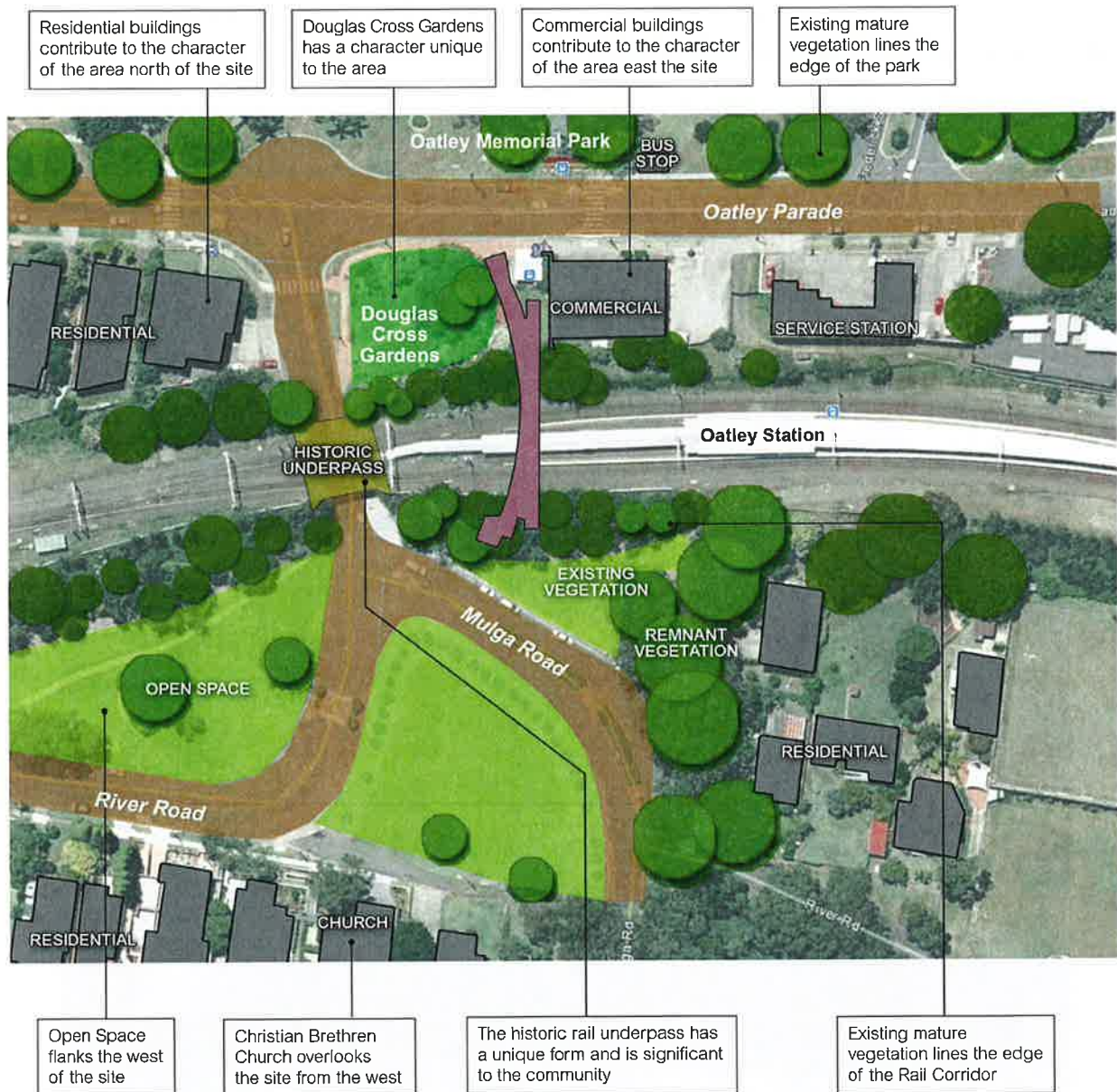


Figure 10: Local Landscape Character Plan

Visual exposure to the site is limited by the presence of the topography, trees, vegetation and the built form of the surrounding local area. These features assist with the ability of the site to support additional infrastructure without potential of extensive visual impacts.

3.6 Site Visual Landscape Character

The extent of visual impact of the proposed works is largely determined by the visual prominence of the elements proposed, the extent of view shed from the proposal and number of visual receivers likely to be impacted by any change in the visual landscape character of the site post development.

Immediate to the site the visual landscape character to the east is framed by the large trees that are scattered through Oatley Memorial Park which will limited views through to the site. Visitors to the park will be the main visual receivers impacted by the proposal.

The park provides amenity for passive recreation and helps define the streetscape, particularly in Oatley Avenue where its scale balances with the built form. More pertinent for this assessment is the fact that it provides a visual barrier to the site from the east.



Figure 11: Oatley Avenue

The scale and continuity of vegetation defines the streetscape and restricts visual access to the site

To the west of Oatley Memorial Park, Oatley Parade flanks the site and is intersected by River Road. This junction forms a hub for pedestrian movement and is embellished by a small cottage style garden park, named Douglas Cross Gardens. This manicured landscape space is unique to the area and is well used, not just for passive recreation but also for special events. The combination of tree species used, combined with the form of the nearby arched underpass provides a unique visual contrast that gives this space a distinctive quality. With the proposed infrastructure in place, views from River Road across Douglas Park will be partially framed by the proposed overhead bridge.

To the north and south along Oatley Parade there are residential dwellings and commercial premises respectively. The railway line is elevated from view and is fringed by mature vegetation on a steep embankment, with only the regular sound of passing trains giving its presence away. River Road passes beneath the historic arched underpass before leading to the north.

To the west of the site River Road and Mulga Road meet and are enclosed by open space. From here the elevation of the railway line is more exaggerated and the tall trees that line its fringe are balanced by the large open green spaces. Mulga Road leads to the west with its southern boundary initially lined by large remnant vegetation before being fully enclosed with vegetation on both sides of the road. Views to the proposal will be more evident from the west of the site.



Figure 12: Douglas Cross Gardens



Figure 13: Open space to the west of the site, with tall vegetation lining the rail line

4.0 Visual Landscape Character Guidelines

When assessing the visual impact of the proposal the following guidelines were considered:

- Ensure the scale of the new built form is appropriate and in keeping with the existing / future built form where possible and that the mass of the new structure does not diminish the importance of the nearby Douglas Cross Gardens;
- Minimise the visual impact the development will have on sensitive viewpoints (section 5 & 6);
- Retain significant views to and from the existing platform buildings and other items/areas of heritage significance at the site;
- The new design should improve and enhance existing legibility for road users/pedestrians/cyclists. The new built form should not obscure/disguise/overshadow existing legibility and way finding of the area;
- The material and colour palette should reflect the existing urban design character and palette;
- Any urban design features should reflect and be sympathetic to the existing historic arched underpass;
- Minimise reflectivity of new materials in relation to road users. Ensure reflectivity will not impede the ability of adjacent road users or shine into nearby private properties. Consider reflectivity angles throughout the daytime and at differing times of the year;
- Consider shadow effect of the new built form in locating and designing built structure. Consideration should be given to the proximity of the built form to Douglas Cross Gardens and the tolerance or otherwise of users having shadows cast across them;
- Design lighting so not to negatively impact adjacent land uses. For instance no light spill into adjacent residential properties to the north of the site along Oatley Parade;
- Maximise the retention of existing visual screening opportunities, such as the retention of the existing mature vegetation that lines the railway track and working with existing landform. Ensure the mature vegetation in Douglas Cross Gardens is retained and protected during construction;
- Minimise the construction footprint of the new development and disturbance to the area. Site storage and facilities during construction should be concentrated to the open space to the west of the site and disturbance of Douglas Cross Park should be avoided;
- Visually screen the new development as appropriate with new planting. Consider the potential to reflect a similar treatment to Douglas Cross Park on the western side of the site;
- Maximise ease of ongoing maintenance and graffiti removal in the design and finish selection; and
- Consider the refurbishment of the historic arch underpass as part of the project upgrade, by removing graffiti etc.

5.0 Viewpoint Identification

An initial desk top survey was undertaken to identify all possible viewing points from which the proposed infrastructure may be visible. A detailed field survey and assessment was then conducted over one day in July 2014 to 'ground truth' the desk top survey.

A photographic survey of each of the potential viewing locations was undertaken during the field survey. The viewpoints were tested on an immediate site scale and a local area scale. During the 'ground truth' process it was revealed that most views of the site were apparent at the immediate site scale (Figure 13). Most of the viewpoints at the local area scale proved to have no visibility of the site. Figure 14 provides a plan of the viewing point locations at the local area scale.

Viewpoint 1 (Figure 15) represents the view shed for pedestrians moving toward the site through the open space west of the railway line. Figures 15 – 20 represent a range of viewpoints discussed below.

From the west drivers moving in an easterly direction along Mulga and River Roads would predominantly experience viewpoints 2 and 4. Viewpoint 3 represents the view shed of pedestrians moving in an easterly direction, residential properties lining River Road and gatherings of parishioners at the Christian Brethren Church on River Road. Viewpoint 5 and 8 represent the views to the site from the edge of Oatley Memorial Park. Viewpoint 6 and 9 represent the view for both pedestrians and vehicles moving along Oatley Road, while viewpoint 7 reveals the view shed for users of the Douglas Cross Gardens.

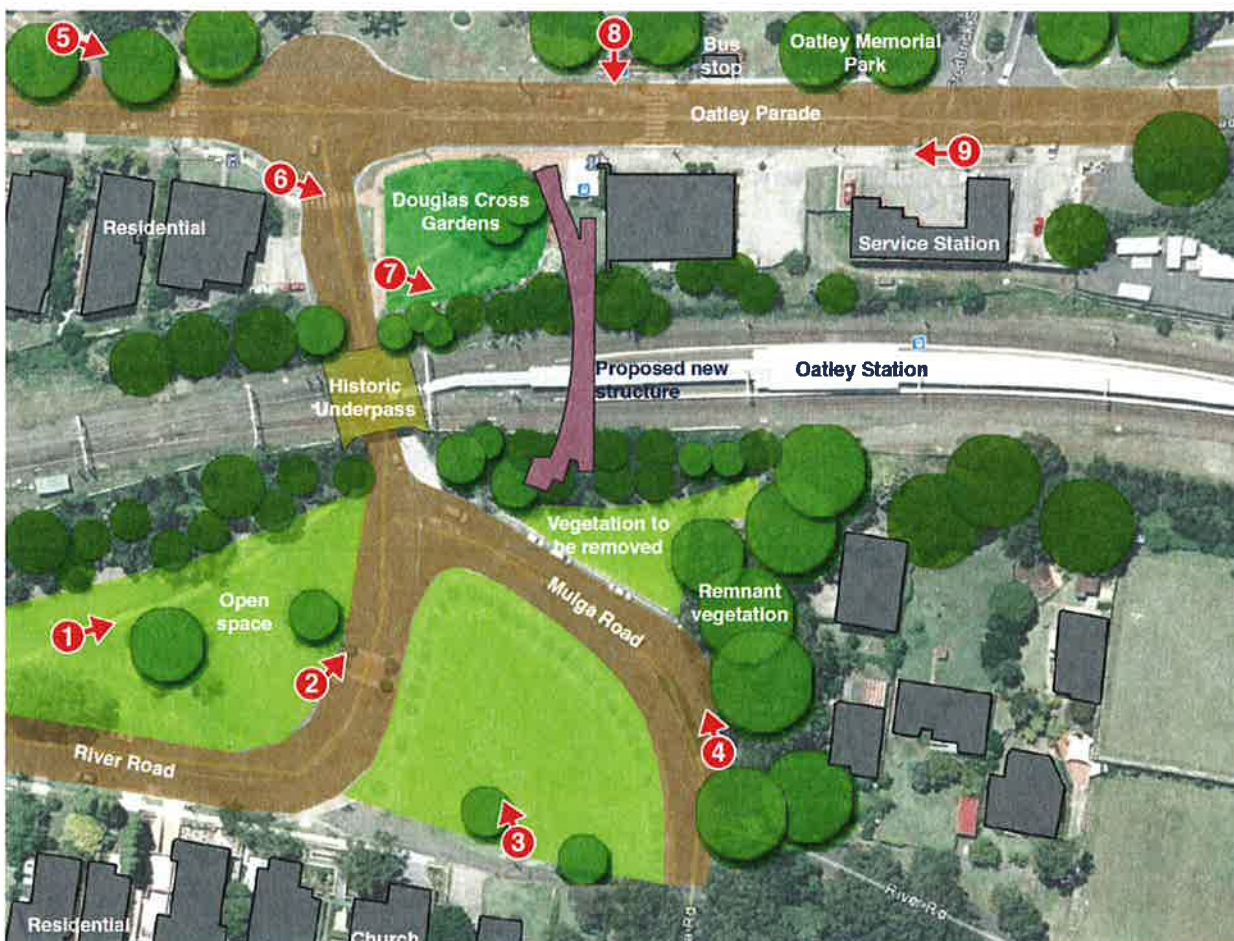


Figure 14: Immediate Site Viewpoint Plan



Figure 15 Viewpoint 1



Viewpoint 2



Viewpoint 4

Figure 16: Viewpoint 2&4

Note vegetation including one of the 3 large trees under the site symbol in these pictures will be removed as part of the proposal.



Figure 17: Viewpoint 3



Viewpoint 5



Viewpoint 8

Figure 18: Viewpoint 5 & 8



Viewpoint 6



Viewpoint 9

Figure 19: Viewpoint 6 & 9



Figure 20: Viewpoint 7



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	<small>PRELIMINARY FOR DISCUSSION PURPOSES ONLY</small>		<small>Scale: 1:5000 Date Issued: 10/09/14 Project No: 13043</small>

Figure 21: Local Area Viewpoint Plan

6.0 Visual Impact Assessment

The availability of views to a new element in the environment is a prerequisite for visual impact. The severity of visual impact is determined by the relative importance of such views in the context of the view shed and the value placed on the landscape in and around the site where the element is placed. As previously mentioned, the community engagement program for the project had not commenced at the time of preparing this report. Therefore a qualitative assessment of the visual impact was undertaken. The process aims to be objective and describe any changes factually. However, rating these changes requires subjective judgements to be made. The conclusions of this assessment therefore combine objective measurement and subjective professional interpretation.

To help quantify the potential visual impact of the study area, the following table of definitions is used. The table provides a landscape visual prominence rating based on the capacity of the landscape to absorb the degree of impact proposed by the development proposal.

Table 2 Assessment of Visual Prominence¹.

Visual Prominence	Definition
Large	A substantial / obvious change to the landscape due to total loss of, or change to, elements, features or characteristics of the landscape. Would cause a landscape to be permanently changed and its quality diminished. Change is likely to cause a direct adverse permanent or long term (more than 10 years) impact on the value of the receiver.
Moderate	Discernible changes in the landscape due to partial loss of, or change to the elements, features or characteristics of the landscape. May be partly mitigated. The change would be out of scale with the landscape, and at odds with the local pattern and landform and will leave an adverse impact on the landscape. Change is likely to impact adversely the integrity/value of the receiver but recovery is predicted in the medium term (5-10 years).
Small	Minor loss or alteration to one or more key landscape elements, features, or characteristics, or the introduction of elements that may be visible but may not be uncharacteristic within the existing landscape. Change is likely to adversely impact the integrity/value of the receiver but recovery is expected in the short term (0-4 years).
Negligible	Almost imperceptible or no change in the view as there is little or no loss of / or change to the elements, features or characteristics of the landscape. The existing landscape quality is maintained but may be slightly at odds to the scale, landform and pattern of the landscape. Water in background without prominence. Presence of polluted water or stagnant water.

Despite the word 'landscape' having its foundations in the idea of fixed views, in reality, we all experience landscapes by the way we move through them. Small scale landscapes or spaces such as the study site are generally experienced by pedestrians or at low speed from a vehicle. Our perspective as we move through

¹ Adapted from (Landscape Institute and Institute for Environmental Management and Assessment, 2002)

the landscape in this way can be influenced by a number of elements. The following table provides a landscape visual exposure rating.

Table 3 Assessment of Visual Exposure².

Visual Exposure	Definition
High	<ul style="list-style-type: none"> ▪ Occupiers of residential properties with long viewing periods, within close proximity to the proposed development ▪ Communities that place value upon the landscape and enjoyment of views of their landscape setting
Medium	<ul style="list-style-type: none"> ▪ Outdoor workers who have a key focus on their work who may also have intermittent views of the project area ▪ Viewers at schools, or similar, when outdoor play and recreation areas are located within close proximity but viewing periods are limited ▪ Occupiers of residential properties with long viewing periods, at a distance from or screened from the project area
Low	<ul style="list-style-type: none"> ▪ Road users in motor vehicles, trains or on transport routes that are passing through or adjacent to the study area and therefore have short term views ▪ Viewers indoor at their place of work, schools or similar
Negligible	<ul style="list-style-type: none"> ▪ Viewers from locations where there is screening by vegetation or structures where only occasional screened views are available and viewing times are short ▪ Road users in motor vehicles, trains or on transport routes that are passing through/adjacent to the study area and have partially screened views and short viewing times

Visual impact can also be influenced by the cultural landscape – i.e. the idea that places are made up of complementary interactions of setting and human activity. The meanings of a cultural landscape are manifested in the experiences and perceptions of the people acting within them. Therefore the value placed on a landscape by a community or individual is inherently subjective. This assessment has attempted to be objective, however it is recognised that visual assessment can be highly subjective and individuals are likely to associate different visual experiences to the study area.

For the purposes of this assessment the degree of visual impact is rated by importance (Table 4) as determined by the scale of impact on the landscape (visual prominence), the perceived sensitivity of the view shed (visual exposure) and where warranted the cultural landscape.

²Adapted from (Landscape Institute and Institute for Environmental Management and Assessment, 2002)

Table 4 Rating of Importance of Impact.

		Landscape Visual Prominence			
		Large	Moderate	Small	Negligible
Visual	High	Major significance	High significance	Medium significance	Low significance
	Medium	High significance	Medium significance	Low significance	Insignificant
	Low	Medium significance	Low significance	Insignificant	Insignificant
	Negligible	Low significance	Insignificant	Insignificant	Insignificant

Field survey work enabled analysis of actual visibility of the subject site and probable impact of the proposed infrastructure for each of the viewpoint locations where the potential for visual impact has been identified. As noted previously, these available views were at the immediate site scale.

The following table presents the results of the analysis;

Table 5 Viewpoint Analysis

Viewpoint	Figure Reference (see section 5.0 above)	Analysis	Impact Rating
1	14	Visual receivers in this location are likely to be pedestrians passing through the open space to the east of River Road, with the potential for intensive recreational use during weekend periods, both passive and active. However views to the site are restricted for much of the open space (Figure 22). Due to the size and frequency of vegetation in this area it is unlikely that the proposed development will impose discernable visual impact.	Insignificant
2	15	It is likely that visual receivers in this location will be vehicles travelling at low speeds, however viewing time is likely to be limited as the vehicle moves closer to the site and into the driver's frame of vision before passing beneath the underpass or turning away from the site into Mulga Road. It is likely that receivers will also be in the form of passengers choosing to 'park and ride'. For these receivers it is unlikely that the development will have a negative impact but rather improve legibility to the station. It is clear that the prominence of the proposed infrastructure will be high due to the scale of the structures required and at least one of the large trees in this view will be required to be removed for the forecourt and stairs. However, there will not be a total loss of the vegetation in this area and this will assist in absorbing and balancing the bulk of the structure.	Low
3	16	Visual receivers in this area will likely be pedestrians, recreational users, parishioners and residential property owners. This view is likely to have medium exposure due to the frequency and type off use and duration of viewing periods. Not unlike view sheds from points 2 and 4, the visual prominence of the proposal will be moderate. However due to the longer viewing periods it is likely that the impact will be greater. At present the extent of the view encompasses the historic underpass framed by vegetation and open space. The prominence of the proposed structure will impact on the quality of this view with the scale of the new structure likely to diminish the underpass as the focal point (Figure 23). The design of the structure has considered the	Medium

Viewpoint	Figure Reference (see section 5.0 above)	Analysis	Impact Rating
		form and materials of the proposal to ensure they compliment the underpass rather than detract from its visual appeal.	
4	15	<p>It is likely that visual receivers in this location will be vehicles travelling at low speeds, however viewing time is likely to be limited as the vehicle moves closer to the site and into the driver's frame of vision before passing beneath the underpass or turning away from the site into River Road. It is likely that receivers will also be in the form of passengers choosing to 'park and ride'. For these receivers it is unlikely that the development will have a negative impact but rather improve legibility to the station.</p> <p>It is clear that the prominence of the proposed infrastructure will be high due to the scale of the structures required. However the remnant vegetation and vegetation lining the rail corridor will assist in absorbing and balancing the bulk of the structure. Due to the prominence of the proposal at this point and the moderately high exposure, the impact is considered to be medium.</p>	Medium
5	17	<p>Receivers in this location will be predominantly pedestrians moving towards the road crossing on Oatley Parade. Views of the site don't become available until moving closer to the park edge. At this point the site will have a medium level of exposure. However the visual prominence of the proposal is likely to be tempered by the existing vegetation of the adjacent Douglas Cross Gardens. The distance from the site and the existence of adjacent retail buildings to the south and residential buildings further north in the composition of the view will mean that the proposal will be integrated into the sites combined built form and landscape character.</p>	Low
6	18	<p>Receivers in this location will be predominantly pedestrians moving towards the road crossing on River Road. At this point the site will have a high level of exposure due to the proximity of the viewer. This view also encompasses views from nearby residential occupiers, although the buildings / windows themselves are oriented away from the site.</p> <p>Vehicles are likely to have views for short durations only.</p> <p>However the visual prominence of the proposal is likely to be tempered by the existing vegetation of the adjacent Douglas Cross Gardens (Figure 24). Notwithstanding the visual impact on this view shed without an appropriate design response and mitigation strategies would be considered to be high.</p> <p>The current proposal has considered the design guidelines to ensure the proposal can be integrated into the site with a lower level of impact.</p> <p>The proposal allows for as much existing vegetation as possible to remain allowing the new structures to be more easily absorbed into the landscape. The low reflection punctuated materials used also allow the structure to blend into the setting and therefore reducing the bulk of its appearance. The shape and form of the structure also reflects the nearby arches of the heritage underpass and so allows the new structure to be more easily integrated into the surrounding landscape. These design modifications result in a medium visual impact rating.</p>	Medium

Viewpoint	Figure Reference (see section 5.0 above)	Analysis	Impact Rating
7	19	<p>This view shed is the most visually prominent due to the proximity of visual receivers to the site, the scale of the proposal in relation to the human scale of the receivers and the change in levels from the lowest point of the park at the street edge rising up to the location of the proposed infrastructure. This viewpoint warrants a high visual exposure rating because of the assumed cultural value placed on the character of the park setting.</p> <p>The design guidelines have been considered to ensure the proposal can be integrated into the site with a lower level of impact.</p> <p>The proposal allows for as much existing vegetation as possible to remain allowing the new structures to be more easily absorbed into the landscape. The low reflective colours and perforated materials used also allow the structure to blend into the background and behind retained vegetation. These actions result in the perception of reduced bulk when viewing the structure. The form of the structure also reflects the nearby arches of the heritage underpass and therefore allows the new structure to be more easily integrated into the surrounding landscape. These design modifications result in a medium visual impact rating.</p>	Medium
8	17	<p>Receivers in this location will be predominantly pedestrians moving towards the road crossing on Oatley Parade (Figure 26). It is likely that the duration of visual exposure will be for brief periods for the majority of users, however for those using the nearby bus stop exposure could be for extended periods. The visual exposure rating is therefore considered to be medium. The visual prominence rating is also considered to be a moderate level due to scale of the proposal and the proximity of the receivers to the site.</p> <p>The distance from the site and the existence of adjacent retail buildings to the south and residential buildings further north in the composition of the view will mean that the proposal will be integrated into the sites combined built form and landscape character.</p> <p>It should also be noted that filtered views of the proposal will be available from various points throughout the park however, none are considered to have an importance rating higher than Medium.</p>	Medium
9	18	<p>Receivers in this location will be predominantly pedestrians moving towards the site and vehicles likely to have views for short durations only. The visual exposure of the site will be low to medium and visual prominence is considered low due to the dominance of the commercial buildings in the foreground of the view shed. This will assist in screening the bulk of the structure.</p>	Low



Figure 22: Photomontage of the scale of the proposal from viewpoint 1



Figure 23: Photomontage of the scale of the proposal from the vicinity of viewpoint 3



Figure 24: Photomontage of the scale of the proposal from viewpoint 6



Figure 25: Photomontage of the scale of the proposal from viewpoint 7



Figure 26: Photomontage of the scale of the proposal from viewpoint 8

6.2 Visual Impacts

The field survey and visual impact analysis confirms that potential impacts from the proposal will only occur in the immediate vicinity of the site due to existing topography, parks and reserves, trees and built form. The assessment of impacts categorises them from insignificant, to low or moderate due mainly to sufficient interruption of views through to the site by mature vegetation and the fact that the majority of receptors will be pedestrians or drivers moving through the area.

It is considered that the design response which includes the overhead bridge as a sweeping arc assists the infrastructure to sit neatly into its landscape setting. The arc softens and reduces the view lines through to the bridge so that only part of the infrastructure is viewed at any one time. The materials chosen will be perforated to reduce appearance of bulk and assist in the structures blending with the sky or sitting unobtrusively behind existing vegetation. Low reflective colour choices also ensure that the stairs, bridge and lift wells do not dominate the view.

The infrastructure will positively impact the precinct by improving legibility of location of the station and significantly improving access for all users from all modes of transport and with any ability.

Visual impacts during the construction phase have also been considered and would typically include:

- Vegetation removal
- Construction fencing
- Temporary site signage
- Cranes and other construction plant
- Construction compound and construction worker parking
- Temporary lighting
- Temporary pedestrian detours and associated signage
- Temporary relocation of taxi, bus and kiss and ride zones and associated signage.

These works would be temporary in nature and therefore visual impacts as a result of these items would also be temporary.

7.0 Conclusions and Recommendation

Whilst the degree to which a development of the scale of the proposed Oatley Station Upgrade is visible from certain vantage points can be quantified, the degree to which the changes to the landscape are perceived negatively will in the end depend on the actual users / residents.

This visual assessment has determined that visual impacts will be limited to the immediate site and surrounds due to topography and the existing urban and landscape setting of the proposal.

A number of view sheds were identified as presenting views to the site. The degree of importance placed on these viewpoints varied according to a combination of considerations including predominantly visual prominence and visual exposure. It is concluded that views to the site from Oatley Parade from the north and closer to the site from Douglas Cross Gardens were the most significant. However, the design response including choices of materials and colours and sensitively placing the infrastructure within an existing well vegetated setting will ensure impacts are reduced substantially.

The report provides a number of guidelines to assist with maintaining the character of the area. The following recommendations are based on these guidelines and the results of the visual impact assessment:

7.1 Construction

- Avoid unnecessary loss or damage to vegetation adjacent to the rail corridor and Douglas Cross Gardens by protecting trees prior to construction and/or trimming vegetation to avoid total removal. This includes vegetation that makes a substantial and positive contribution to landscape character and/or provides screening to view sheds nominated as receiving potentially high visual impact.
- Minimise light spill from the rail corridor into adjacent visually sensitive properties by directing construction lighting into the construction areas and ensuring the site is not over-lit. This includes the sensitive placement and specification of lighting to minimise any potential increase in light pollution.
- Temporary hoardings, barriers, traffic management and signage would be removed when no longer required.
- Work/site compounds would be screened, with shade cloth (or similar material) (where necessary) to minimise visual impacts key viewing locations. The location of compounds and storage should not be on or in the vicinity of Douglas Cross Gardens.

7.2 Operation

- Undertake rehabilitation planting as early as possible to replace vegetation that provided screening to adjacent residential properties and sensitive visual receivers. Specifically, the design provides the opportunity for the planting of twenty-two (22) specimen trees to screen the Mulga Road lift (subject to requirement in subsequent Landscape Plans).
- Use specifically designed lighting equipment that minimises the upward spread of light near to and above the horizontal. Care should be taken when selecting luminaries to ensure that appropriate units are chosen and that their location will reduce spill light and glare to a minimum.
- Disturbed embankments should be landscaped to complement the existing visual character of the study area.
- Materials and colour palette should be consistent with the character of the site area and where possible a muted colour palette should be used concurrently with heritage requirements to minimise impacts.
- Consideration should be given to design solutions that minimise the bulk of the structure particularly when viewed from the north east of the site e.g. light/translucent panelling to walkways and lift shafts and horizontal or slim line-roofing profiles. Attention should be given to solutions that reduce the amount of

shadowing to the gardens and open grassed areas.

- The extent of vegetation on the southern edge of Douglas Cross Gardens should be retained and ongoing management plans established to ensure their long-term protection.
- A landscape plan should be prepared for the western side of the rail corridor between the new structure and the underpass. The intent should be to provide some integration between the new structure and the underpass.

8.0 References

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Attachment 5

Transport Strategy, GHD, August 2014



Transport for New South Wales
Oatley Station Precinct Accessibility Upgrade
Transport Strategy

August 2014

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1. Introduction

1.1 Background

The accessibility upgrade of the Oatley Station Precinct forms part of Transport for NSW's (TfNSW) Transport Access Program (TAP) which aims to provide a better experience for public transport customers by delivering accessible, modern, secure and integrated transport infrastructure at stations where it is required the most. The aims of the program include:

- Making stations accessible to the disabled, ageing and parents with prams.
- Providing modern facilities for all modes to provide for potential population growth and seamless transfer between modes.
- Improving safety of all public transport facilities.
- Improving signage.
- Undertaking other necessary maintenance and improvements around the interchange and station.

Four concept design options of the upgrade of Oatley Station were assessed against Multi Criteria Analysis. Table 1 shows an assessment of each of the all the options. Option 2 is the preferred option, and this Transport Strategy has been based on this option.

Table 1 Oatley Station upgrade options matrix – transport assessment

	Option 1 Underpass	Option 2 North Footbridge	Option 3 ½ Footbridge	Option 4 South Footbridge	Commentary	Revised Design (Based on Option 2)	Impacts mitigated by the following
Cross rail corridor pedestrian access	√	√	X	√	Option 3 cross corridor link does not meet DDA requirements	√	Provides full cross-rail corridor path, providing an interchange to the whole community
Pedestrian access from the east and west	√	√	X	√	Option 3 does not provide compliant access between Oatley Parade and Mulga Road	√	Provides full access to interchange from the east and west sides of the station
Cycle parking to the east and west	√	√	X	√	Option 3 does not provide covered cycle parking on both sides of the station	√	Provides covered cycle parking to the east and west to integrate the station interchange
Bus interchange to the east and west	√	√	X	√	Option 3 does not integrate with bus stops to the west of the station interchange	√	Provides bus stop with bus shelter at Mulga Road and Oatley Parade
Taxi parking to the east and west	√	√	X	√	Taxi parking provided at Oatley Parade for all options	√	Provides taxi bay near the forecourt at Oatley Parade
Kiss and Ride to the east and west	√	√	√	√	Option 3 does not provide formal Kiss and Ride at both sides of the station interchange	√	Provides formal Kiss and Ride zones on Oatley Parade with accessible Kiss and Ride zones on Mulga Road
Commuter parking to the east and west	√	√	√	√	Option 3 and 4 does not provide accessible parking spaces to the west of the station interchange.	√	Provides commuter parking to the east and west, with accessible parking bays on Mulga Road

1.2 Interchange scope

The main aim of the options development is to develop a preferred integrated solution for the accessibility of Oatley Station and its wider precinct. The Oatley Station Precinct encompasses the railway station, associated interchange facilities and passenger access between facilities. The elements include station platforms, buildings, pedestrian and cycle access paths, pedestrian access footbridge, pedestrian linkages to the adjacent streets and commuter carpark, bus stops and shelters, taxi stands, kiss and ride locations and bicycle facilities.

Specific objectives of the proposed interchange upgrade in relation to transport and access include to:

- Improve the customer experience.
- Improve accessibility in accordance with Disability Discrimination Act (DDA) and Disability Standards for Accessible Public Transport (DSATP).
- Increase accessibility for commuters with mobility impairment.
- Minimise walking distances between transport modes and promote interchange with other modes of transport.
- Improve intermodal access facilities and integration with the precinct.
- Where possible, increase station patronage.
- Upgrade station interchange facilities.
- Improve amenity.
- Accommodate growth in station patronage.

1.3 Purpose of this report

This report sets out the proposed Transport Strategy for the Oatley Station Precinct. The transport strategy will develop an interchange which accommodates all transport modes including walking, cycling, buses, taxis and private vehicles, including kiss and ride and commuter parking.

The Transport Strategy will provide an accessible transport interchange that integrates with other modes of transport at Oatley Station, with a new cross-rail pedestrian connection between Oatley Parade and Mulga Road.

2. Transport strategy

The proposed station upgrade provides an opportunity to improve accessibility for all transport modes at the Oatley Station Precinct and provide an accessible interchange. A key element of the upgrade will be to provide a new accessible cross-rail pedestrian connection between Mulga Road and Oatley Parade, which will integrate with other modes of transport to form an interchange.

Access to Oatley Station will be provided via a new pedestrian footbridge between Oatley Parade and Mulga Road. Entrances to the station will be provided at both the eastern and western sides in order to improve accessibility from the surrounding residential catchment area. The pedestrian footbridge will be located on the northern end of the station platform as this will provide the best connectivity with existing pedestrian and cycle desire lines from the surrounding area, as shown at Figure 2-1.

Steps and lifts would be provided at either end of the proposed pedestrian footbridge, and also to the station platform. The existing pedestrian access from River Road will also remain open.

The Transport Strategy for Oatley Station Precinct has been developed by considering a hierarchy of transport modes including:

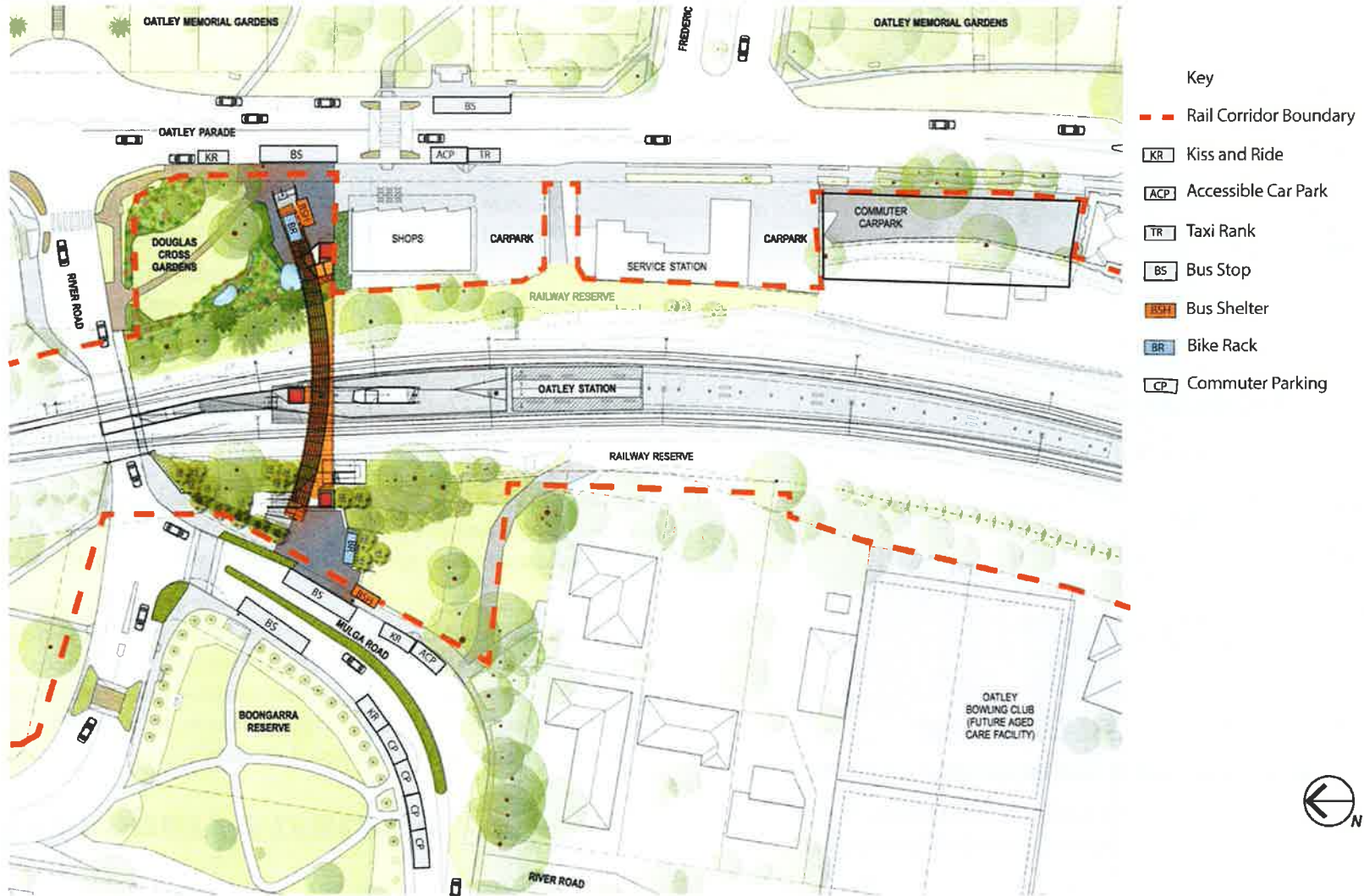
1. Walking
2. Cycling
3. Buses
4. Taxis
5. Private vehicles.

The following sections outline the strategy for each of the above modes at Oatley Station Precinct. Figure 2-2 illustrates the Transport Strategy.

Figure 2-1 Pedestrian and cycle connections



Figure 2-2 Oatley Station Precinct Transport Strategy



2.1 Walking

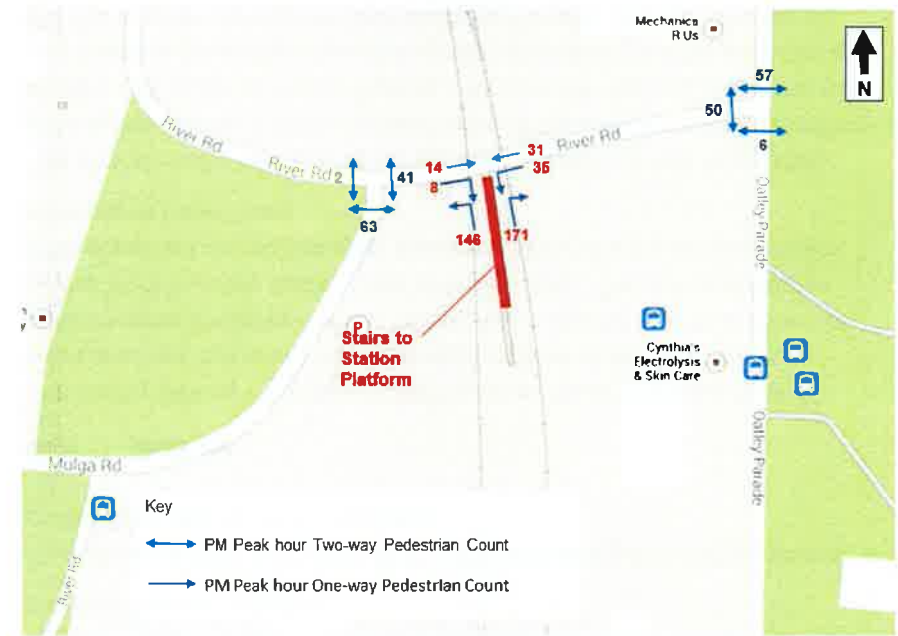
Currently, pedestrian access to Oatley Station is provided from a set of stairs leading from beneath the railway bridge at River Road. No disabled or pram access is currently provided to the station and the footpath beneath the bridge at River Road is very narrow.

Existing pedestrian access between the eastern and western sides of Oatley Station is poor, with only one pedestrian route provided via a narrow footpath along the southern side of River Road beneath the rail bridge. There is also a long pedestrian crossing across a wide section of Mulga Road at the intersection with River Road, where a non-standard pedestrian refuge island is provided.

Weekday PM peak pedestrian surveys undertaken in November 2013 at Oatley Station entrance at River Road, show that 57% of passengers accessed the station from/to the west, with 43% accessing the station from the east. The surveyed pedestrian counts are shown at Figure 2-3. This pedestrian count data indicates a fairly even split in the number of pedestrians accessing the station from the eastern and western sides of the station.

Weekday station patronage at Oatley Station has increased by around 30 since the frequency of train services at the station increased in October 2013. Train services increased from two trains per hour to four trains per hour in each direction during the weekday AM peak. This increase resulted in some passengers deciding to board trains at Oatley Station rather than at Mortdale Station, which previously had a more frequent train service.

Figure 2-3 PM peak hour surveyed pedestrian movements at Oatley Station entrance (1700-1800)



Source: Google Maps (2014), modified by GHD

The proposed interchange upgrade will provide a new DDA compliant pedestrian access to Oatley Station from both Oatley Parade and Mulga Road via a new pedestrian footbridge. Lifts and stairs will be provided between the proposed pedestrian footbridge and the station platform and also at either end of the bridge at Oatley Parade and Mulga Road respectively. It is also proposed to retain the existing access to the station from River Road if pedestrians wish to access the station from this location.

The proposed pedestrian footbridge will improve pedestrian connectivity in Oatley by providing a new DDA compliant pedestrian route between the eastern and western sides of the railway line. This pedestrian route will be attractive for pedestrians, providing a new direct connection between Mulga Road and Oatley Parade, which will also provide weather protection.

The surveyed pedestrian movements shown at Figure 2-3 indicated that there is a need to provide pedestrian access at both sides of the station, with a fairly even split in the number of pedestrians accessing from each side.

There are proposals to develop a site located on the western side of the station to provide a new aged care facility. The proposed pedestrian bridge between Mulga Road would provide a new accessible route between the western side of Oatley Station to both the train station and towards Oatley Town Centre.

New pedestrian forecourts will be provided at the proposed station entrances at Oatley Parade, and at Mulga Road. These will improve pedestrian amenity at the new station entrances and will be integrated with new bus stop shelters and bicycle parking.

The location of the proposed station entrance at Oatley Parade will be located adjacent to the existing wombat pedestrian crossing, allowing for access to the eastern side of Oatley Parade. A new raised platform pedestrian crossing will be provided across Mulga Road at the intersection with River Road to improve pedestrian safety and connectivity to the west of Oatley Station.

2.2 Cycling

Cycle parking at Oatley Station is currently provided at Mulga Road and within the commuter car park at Oatley Parade. These cycle parking spaces currently have low usage as the cycle parking consists of non-

sheltered cycle hoops, with no weather protection, provided at unsecure locations with limited surveillance, as these are located away from the train station access.

The proposed interchange upgrade will encourage cycling as a mode of transport to access Oatley Station interchange by providing additional cycle parking spaces at the interchange precinct in accordance with TfNSW requirements. These cycle parking facilities will be integrated into the new station forecourts at Oatley Parade and Mulga Road as part of the interchange. Shelter would be provided at the cycle parking to protect bicycles from wet weather.

Cyclists will access the Oatley Station Precinct along the existing on-road cycle routes and off-road cycleways.

2.3 Buses

The Oatley Station Precinct is currently served by one bus per hour in each direction, operating from bus stops located on the eastern and western sides of Oatley Parade. A bus stop is also located to the west of Oatley station on the eastern side of Mulga Road. There is currently no DDA compliant access between these bus stops and the existing station entrance at River Road.

The provision of a new pedestrian access to Oatley Station from Oatley Parade will provide a DDA compliant access between the station and the existing bus stops on Oatley Parade, which will be retained. Improved bus stop facilities, including a new bus shelter and seating will be provided at the bus stop on the western side of Oatley Parade. The bus stop on the eastern side of Oatley Parade will be accessed via the existing wombat pedestrian crossing, which provides a DDA compliant route between this bus stop and the proposed station access.

The proposed interchange upgrade will also provide DDA compliant bus stops on both the eastern and western sides of Mulga Road. These bus

stops will be located adjacent to the proposed station forecourt at Mulga Road, with the new bus stop on the western side of Mulga Road accessed via a DDA compliant pedestrian crossing. The additional bus stop at Mulga Road will provide a pair for bus stops at this location to improve legibility for passengers.

The proposed bus stop arrangement will allow passengers to interchange with buses on both the eastern and western sides of Oatley Station. Residents and visitors to the west of the station will also have a new bus stop at Mulga Road which will improve accessibility by bus at this location.

2.4 Taxis

A taxi zone, which accommodates one taxi, is currently located on the western side of Oatley Parade to the south of the intersection with River Road. There is currently no DDA compliant access between this taxi zone and the station entrance.

The proposed interchange upgrade will provide an additional DDA compliant taxi zone on the eastern side of Mulga Road near the proposed station entrance. This will provide a DDA compliant route between the station and the proposed taxi zone.

The existing taxi zone at Oatley Parade will also be relocated closer to the station entrance to provide a DDA compliant taxi space.

2.5 Private vehicles

2.5.1 Kiss and ride

Kiss and Ride is currently undertaken informally at “No Parking” zones along Oatley Parade, Mulga Road, and River Road. Pedestrians crossing River Road from the informal Kiss and Ride currently cross at an unsafe location to access the station entrance, where drivers travelling

westbound direction beneath the bridge have a restricted view of pedestrians crossing at this location.

Pedestrians are also currently required to access the station entrance from the “No Parking” zone at River Road by crossing at an unsafe location beneath the rail bridge.

The proposed interchange upgrade will provide formal Kiss and Ride zones near the proposed station entrance at Oatley Parade. A DDA compliant Kiss and Ride parking space will also be provided on each side of Mulga Road near the station entrance.

The existing informal Kiss and Ride zone at River Road will be removed, with a new formal Kiss and Ride zone provided on the eastern side of Oatley Parade. This new Kiss and Ride zone will be accessed from the station via the existing wombat pedestrian crossing to provide a safe pedestrian crossing to these spaces.

There will be no change to the existing number of Kiss and Ride spaces at Oatley Station Precinct.

2.5.2 Commuter car parking

An existing 16 space commuter car park serving the Oatley Station Precinct located at Oatley Parade, to the southeast of the station. Commuter parking is also provided at unrestricted on-street parking locations on the surrounding streets.

It is proposed to expand the existing commuter car park at Oatley Parade to provide 33 parking spaces, including one accessible parking space. Access to the car park from Oatley Parade will remain as existing.

The proposed changes to on-street parking will require some of the existing on-street commuter car parking spaces to be converted to accessible spaces, bus stops, Kiss and Ride spaces or taxi parking spaces. However, with the expansion of the existing commuter car park,

the proposal will result in no net loss of commuter car parking at Oatley Station Precinct.

2.5.3 Accessible parking

There is currently no accessible car parking provision at Oatley Station Precinct.

A total of three accessible parking spaces will be provided at Oatley Station. One accessible space is proposed to be provided within the commuter car park, with one on-street space provided on Oatley Parade and one on-street space provided on Mulga Road, near the proposed station entrance. Footpath upgrades will be required to achieve an accessible path between the station entrance and the accessible parking bays at Oatley Parade.

Kerb ramps will be provided at both of the proposed on-street car parking spaces. These on street car parking spaces will be 3.2 metres wide in accordance with standards provided in AS2890.6 (2009).

2.6 Precinct interchange place making

2.6.1 Interaction with interchange elements

Transport interchanges are the interface between people and the transport system. These public places and adjoining landscape treatments require careful attention to achieving places where people enjoy spending time and this includes, making appropriate connections to cycle and walkways, ensuring the interchange buildings are suitably prominent elements within the street presence, and ensuring the functionality of the associated elements such as kiss and ride, and bus facilities.

In our strategy we have identified the interchange as a place making opportunity, providing an improved experience for passengers travelling

to and from the interchange. Contributing to this experience is the integration of the interchange elements with the surrounding cultural and landscape characteristics. This integrated design acknowledges the layers of culture and heritage of the area, providing a more meaningful passenger experience.

The key themes of this transport strategy for an integrated and passenger focussed interchange, which meet the TfNSW requirements, are outlined below.

Providing for the customer: The Oatley Station Precinct interchange facilities improve customer experience and provides seamless transfer between different types of travel modes such as pedestrian and cycle paths, bus stops, adjacent buildings, streets and commuter carpark. Access to the station platform is via a lift located at the Mulga Road forecourt and Oatley Parade forecourt. Access to the station can be achieved from both sides of the station.

The interchange is also DDA compliant, providing access for the aged, disabled and parents with prams. Furthermore, the strategy provides modern facilities to address future population growth and subsequent passenger use.

The Public Domain: The design of the forecourt setting is sympathetic to the surrounding landscape character of Douglas Cross Gardens and Boongarra Reserve. The landscape treatment applied to these areas reflects the surrounding landscape character.

Performance of the interchange: The interchange successfully improves the intermodal access and integrates the Oatley Station Precinct by providing a set of facilities that improve current and future customer experience.

2.6.2 Mulga Road forecourt public domain

This station forecourt offers essential transport interchange facilities such as:

- Stair and lift access to the proposed overhead footbridge
- Way finding signage
- Seating
- Covered bicycle parking
- Bus stops with shelters

The use of brick paving to the forecourt ground plane references the recurrent use of brick along the railway line and the predominantly brick local buildings, while also being sympathetic to the existing Boongarra reserve design language. The lower two flights of stairs to the bridge are arranged to form landscape terraces set into the existing railway embankment, integrating the bridge architecture with the existing landform. Similarly, retaining walls create a series of low landscape terraces on the southern end of the existing reserve, anchoring the lift tower into the existing landscape. Public seating is integrated with the landscape terraces. The stair terraces, retaining walls and seats are expressed as contemporary concrete elements that are sympathetic to the 'bushland' character of the forecourt.

Native tree planting directs pedestrian movement with visual links to the surrounding parkland and infrastructure. Copse of native canopy planting to the edges of the station forecourt and stairs will enhance the spatial significance of this interchange surrounded by bushland. A wombat crossing has also been provided for pedestrians crossing Mulga Road and accessing Mulga Road entrance.

The extent of paving to the Mulga Road interchange has been carefully considered and the materiality has been chosen to reflect the surrounding

public domain language. Therefore the extent of proposed paving will be arranged to suit a combination of traditional and contemporary practices and retain the surrounding parkland.

2.6.3 Oatley Parade forecourt public domain

The station forecourt will provide the following transport interchange facilities:

- Stair access to the proposed overhead footbridge
- Way finding signage
- Covered bicycle parking
- Lift access
- Bus stops and shelter

Similar to the Mulga Road side, the brick paving of the station forecourt will reflect the existing paving language of the adjacent parkland area, residential built form and surrounding commercial streetscape character. The extent of paving will facilitate future pedestrian movement to the station platform, respect the heritage elements in Douglas Cross Gardens and reflect the heritage significance of the Oatley suburb.

The proposed exotic planting in the forecourt will integrate with the existing Douglas Cross Gardens landscape character.

2.6.4 Place making opportunity

The interchange requirements and their integration with the local character have driven the development of the preferred concept for Oatley Station Precinct. The strategy developed ensures an efficient arrangement of the various elements required e.g. kiss and ride, bus set-down, taxi facilities, as well as the creation of a place that customers enjoy and value now and in the future.

GHD

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Document Status

Rev No.	Author	Reviewer		Approved for Issue		
		Name	Signature	Name	Signature	Date
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Final	J Forbes	L Sorrell	L Sorrell*	L Sorrell	L Sorrell*	8/08/2014

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Attachment 6

Oatley Accessibility Addendum Flora and Fauna Assessment, Biosis, September 2014

Oatley Station Accessibility Upgrade Determination Report

29 September 2014

Ms Catherine Barlow
Environment & Planning Manager
Transport Projects
Level 5, Tower A, Zenith Centre
821 Pacific Highway
Chatswood NSW 2067

Dear Catherine,

Re: Oatley Accessibility Upgrade Addendum Flora and Fauna Assessment

Project no. 18526

Biosis Pty Ltd was commissioned by Transport for NSW (TfNSW) to undertake a terrestrial flora and fauna assessment of Oatley Station, Oatley (Figure 1).

As a part of the Transport Access Programme, currently being rolled out across the network, TfNSW is proposing a number of upgrades to the existing infrastructure of Oatley Station, including an aerial overbridge stairs, lift and entrance forecourt, extension of commuter car parking and commuter drop-off areas.

A Review of Environmental Factors (REF) was submitted as part of the approval process under Part 5 of the *Environmental Planning and Assessment Act 1979* (EP&A Act). Biosis previously completed a flora and fauna assessment that formed part of this REF. The REF was placed on public display April – May 2014, and presented to the NSW Heritage Council Approvals Committee (HCAC) in May 2014. Following community feedback from the public exhibition period, and feedback on the design from HCAC, it was considered that the proposed structure required redesign.

The revised design for the Oatley Station Accessibility Upgrade has resulted in a change in impacts to flora and fauna, and new plans were provided to Biosis in July 2014. Biosis has therefore been engaged to issue an addendum to the original flora and fauna assessment (Biosis, 2014), to reassess the potential impacts of the proposed upgrade, in accordance with Clause 228 of the NSW *Environmental Planning and Assessment Regulation 2000*.

On examination of the modified design plans, Biosis became aware that the area of vegetation clearance on the western (Mulga Road) side of the project required by the original design was underestimated. This addendum report therefore avoids making comparisons between the required clearance for the original design and the revised design (TfNSW, 2014), instead focussing on the potential impacts of the revised design.

Scope of assessment

The objectives of this addendum are:

- Review of new documentation prepared on behalf of TfNSW relating to the revised design and impact assessment of the Project.
- The assessment of any potential construction issues resulting from temporary facilities and plant and equipment.
- The revision of potential impacts arising from the project, including calculations for required vegetation clearing and tree removal.
- The provision of any new or additional proposed mitigation measures to minimise potential impacts on ecology (during construction and operation).

Potential Impacts

The subject site for the revised design is 1,710 m² in size (Figure 2). The construction of the revised design will require clearing of approximately 0.096 hectares of largely non-native vegetation, predominantly in the Mown Exotic Grasses and Ornamental Plantings community. No modifications have been made to the commuter car park layout, which will require the clearing of the Modified Eucalypt Woodland community.

The required vegetation clearance for each community is provided in Table 1.

Table 1: Vegetation clearing required by the revised design

Vegetation community	Revised design (ha)
Mown Exotic Grasses and Ornamental Plantings	0.038
Modified Eucalypt Woodland	0.040
Exotic Closed Woodland	0.018

The likelihood of removal for trees within the study area have been reassessed based on the revised design and is outlined in Figure 3 and Appendix 1 (Table 2). It was determined that 20 trees, including 7 large trees and 13 medium trees, will be removed to facilitate the proposed upgrade.

Recommended mitigation measures

The following mitigation measures (Biosis, 2014) are still recommended to avoid and minimise potential impacts to ecological values during and after the construction phase of the proposed upgrade:

- Existing native vegetation would be retained where possible.
- Tree protection zones, including root protection zones and canopy protection zones, should be established around remnant trees in accordance with AS 4970 – 2009. An approximate alignment for fencing for the Degraded hinterland sandstone gully forest remnant trees is marked in Figure 3. Additional fencing may be required for remnant trees to the east of Oatley Parade once the final location of construction compounds is determined.
- Construction staff would be inducted to an appropriate level and made aware of the importance of the remnant trees within the Degraded hinterland sandstone gully forest.

- The vegetation within the Exotic Closed Woodland community is of relatively low ecological value; however it is currently stabilising the western railway embankment. The current extent of this stabilisation is unknown; therefore its removal should be carried out in a precautionary manner. Where possible, stumps would be left *in situ* and poisoned with an appropriate herbicide to prevent regrowth. If complete removal of trees providing substantial stabilisation is required, additional advice regarding engineering works may need to be sought.
- Construction compounds should be located in the lowest category area that is viable (Figure 3). Where Category 1 areas are not available, areas of native vegetation should be rehabilitated following construction activities. The removal of native or mature canopy species for compound purposes should be avoided.
- Prevent the dispersal of weed seed or soil born pathogens into native vegetation through the implementation of vegetation hygiene protocols for footwear, vehicles, heavy plant and machinery.
- Be aware of nesting fauna within shrubby vegetation. Avoid permanent removal of these occupied habitats wherever possible. Where vegetation removal/maintenance must take place, wait until the nesting fauna have moved on.
- Appropriately designed sediment and erosion controls should be installed and maintained during excavation works to prevent any potential sediment runoff entering Myles Dunphy Reserve.
- There is potential to improve the quality of the Exotic Closed Woodland community either side of the overbridge alignment by engaging a bush regeneration contractor to remove exotic species, particularly noxious weeds from this area, and revegetate these areas with endemic native species.
- On the eastern side of the station:
 - A terraced rock garden bed would be provided to capture the change of grade between the forecourt and Douglas Cross Gardens
- On the western side of the station:
 - Existing vegetation would be retained where possible.
 - The disturbed embankments would be re-vegetated. Advanced trees would be planted to filter views, provide a gateway to the station overpass entrance and reduce the scale of the proposed overpass.
- In the commuter car park:
 - Existing vegetation would be retained and protected where possible.
 - To soften hard treatments, low planting would be introduced.

In accordance with the Vegetation Offset Guide (TfNSW, 2013), a total of 108 native endemic trees should be planted to compensate the required tree clearance (including those in the commuter carpark). It is recommended that native species such as Spotted Gum, Sydney Red Gum and Turpentine are used.

Conclusions and recommendations

The revised designs for the proposed upgrade will require clearance of approximately 1,710 m² of native and exotic vegetation. The requirement for clearance will be restricted to the Exotic closed Woodland community, the Modified Eucalypt Woodland community and the Mown Exotic Grasses and Ornamental Plantings community, which were considered to be in poor condition (Biosis, 2014). No clearance will be required within the Degraded Hinterland Sandstone Gully Forest community, which was determined to be moderately constrained (Biosis, 2014)

The 0.096 ha of vegetation clearance required by the revised design will have no greater potential impact to threatened flora and fauna or ecological communities that have been previously recorded within 5 km of the study area, beyond those previously assessed (Biosis, 2014). There continues to be no requirement for clearance of the moderately constrained areas, and no clearing of native vegetation communities, other than isolated trees, will be undertaken. Fencing of the Degraded Hinterland Sandstone Gully Forest community (Figure 3) will ensure that the indirect impacts to this community are not increased beyond what was previously assessed (Biosis, 2014).

The overall impact of the proposed upgrade of Oatley station to native flora and fauna is considered to be low. It is unlikely that the proposed works will result in a significant impact to threatened species, populations or communities and additional approvals are not required.

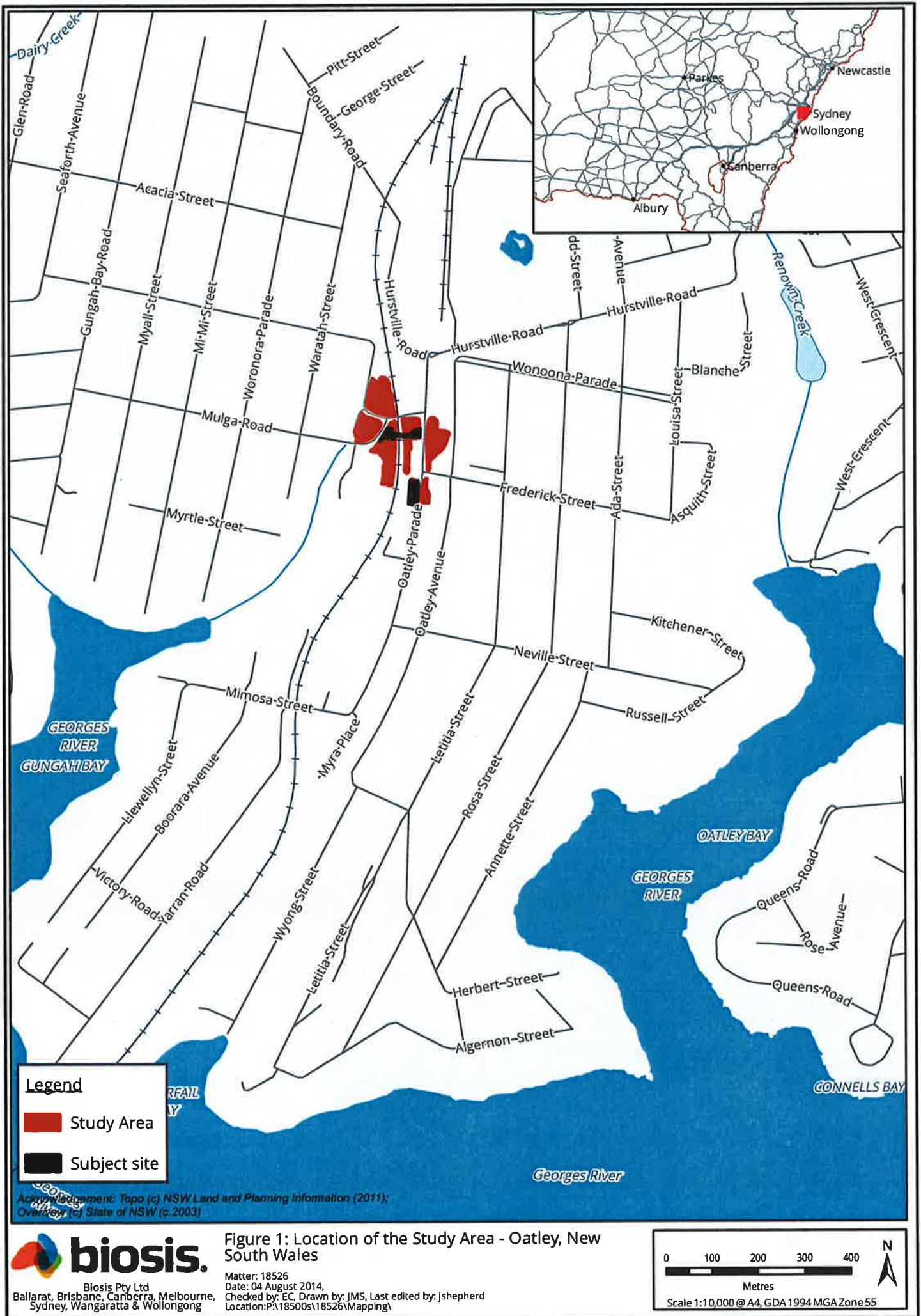
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DS&P 2013. Showing Sheet Layout for Detail and Levels of Oatley Railway Station and Interchange Facilities. Drawing 33700A01.dwg.

TfNSW, 2013. Vegetation Offset Guide and associated vegetation offset calculator tool.

TfNSW, 2014. Oatley Station Precinct Accessibility Upgrade plans.



Legend

- Study Area
- Subject site

Acknowledgment: Topo (c) NSW Land and Planning Information (2011); Overlay (c) State of NSW (c. 2003)

biosis.
 Biosis Pty Ltd
 Ballarat, Brisbane, Canberra, Melbourne,
 Sydney, Wangaratta & Wollongong

Figure 1: Location of the Study Area - Oatley, New South Wales
 Matter: 18526
 Date: 04 August 2014,
 Checked by: EC, Drawn by: JMS, Last edited by: jshepherd
 Location: P:\18500s\18526\Mapping

0 100 200 300 400
 Metres
 Scale 1:10,000 @ A4, GDA 1994 MGA Zone 55



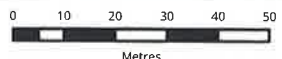
Figure 2: Vegetation Communities and Fauna Habitat Features of the Study Area



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Acknowledgements: Imagery provided by Transport for New South Wales

Matter: 18526
Date: 08 August 2014,
Checked by: EC, Drawn by: JMS, Last edited by: ngarvey
Location: P:\18500s\18526\Mapping\18526_F2_Veg



Coordinate System: GDA 1994 MGA Zone 56

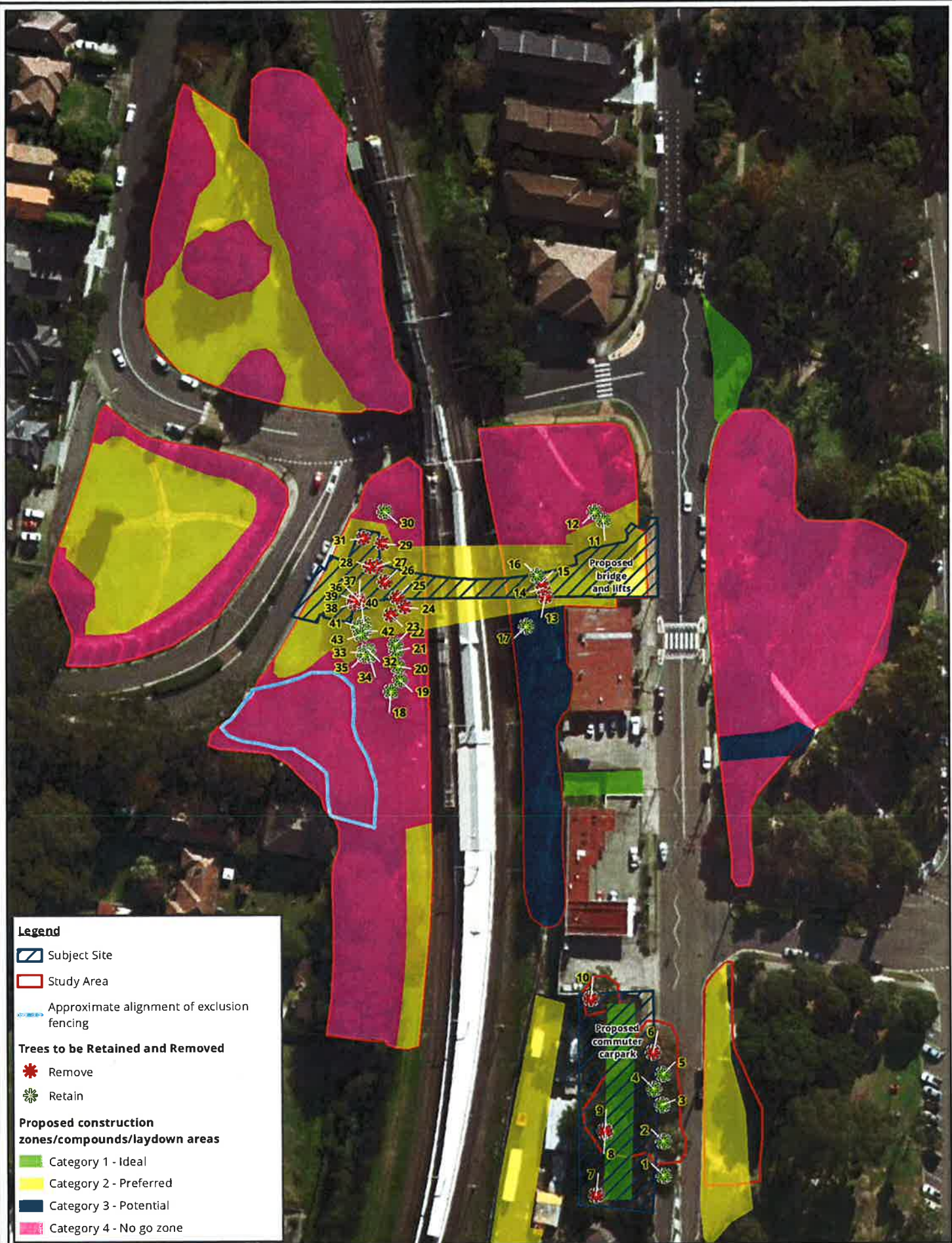


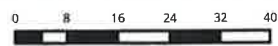
Figure 3: Trees to be removed



Ballarat, Brisbane, Canberra, Melbourne, Sydney, Wangaratta & Wollongong

Acknowledgements: Imagery provided by Transport for New South Wales

Matter: 18526
 Date: 29 September 2014.
 Checked by: NMG, Drawn by: JMS/ANP, Last edited by: ngarvey
 Location: P:\18500s\18526\Mapping\18526_F3_Trees to be removed_20140916



Metres
 Scale 1:800 @ A3
 Coordinate System: GDA 1994 MGA Zone 56

Appendices

Appendix 1: Tree removal

Table 2: Details of trees to potentially be affected

Tree Number	Scientific name	Common name	Height (m)	DBH (m)	Retain or remove	Hurstville/Kogarah LGA preservation status	Comments
1	<i>Corymbia maculata</i>	Spotted gum	12	0.5	Retain	Protected	Retain if possible
2	<i>Corymbia maculata</i>	Spotted gum	15	0.5	Retain	Protected	Retain if possible
3	<i>Corymbia maculata</i>	Spotted gum	15	0.5	Retain	Protected	Retain if possible
4	<i>Eucalyptus microcorys</i>	Tallowood	12	0.6	Retain	Protected	Retain if possible
5	<i>Corymbia maculata</i>	Spotted gum	12	0.3	Retain	Protected	Retain if possible
6	<i>Corymbia maculata</i>	Spotted gum	15	0.6	Remove	Protected	Retain if possible
7	<i>Callistemon viminalis</i>	Weeping Bottlebrush	4	0.4	Remove	Protected	Low value
8	<i>Angophora costata</i>	Sydney Red Gum	12	0.5	Remove	Protected	Tree hollow provides fauna habitat
9	<i>Schinus areira</i>	Pepper Tree	8	0.5	Remove	Protected	Low value
10	<i>Angophora costata</i>	Sydney Red Gum	12	0.9	Remove	Protected	Retain if possible
11	<i>Schinus areira</i>	Pepper Tree	8	0.6	Retain	Protected	Low value
12	<i>Schinus areira</i>	Pepper Tree	8	1	Retain	Protected	Low value
13	<i>Syagrus romanzoffiana</i>	Cocos Palm	7	0.4	Remove	Protected	Low value

Tree Number	Scientific name	Common name	Height (m)	DBH (m)	Retain or remove	Hurstville/Kogarah LGA preservation status	Comments
14	<i>Syagrus romanzoffiana</i>	Cocos Palm	7	0.4	Remove	Protected	Low value
15	<i>Syagrus romanzoffiana</i>	Cocos Palm	7	0.4	Remove	Protected	Low value
16	<i>Syagrus romanzoffiana</i>	Cocos Palm	7	0.4	Retain	Protected	Low value
17	<i>Schinus areira</i>	Pepper Tree	8	0.7	Retain	Protected	Low value
18	<i>Populus nigra</i>	Lombardy Poplar	21	0.9	Retain	Not Protected	Low value
19	<i>Glochidion ferdinandi</i>	Cheese Tree	5	0.3	Retain	Protected	Retain if possible
20	<i>Glochidion ferdinandi</i>	Cheese Tree	10	0.8	Retain	Protected	Moderate value
21	<i>Glochidion ferdinandi</i>	Cheese Tree	8	0.5	Retain	Protected	Moderate value
22	<i>Cinnamomum camphora</i>	Camphor Laurel	6	0.3	Retain	Protected	Low value
23	<i>Glochidion ferdinandi</i>	Cheese Tree	10	0.6	Remove	Protected	Moderate value
24	<i>Glochidion ferdinandi</i>	Cheese Tree	8	0.5	Remove	Protected	Moderate value
25	<i>Glochidion ferdinandi</i>	Cheese Tree	8	0.3	Remove	Protected	Moderate value
26	<i>Cinnamomum camphora</i>	Camphor Laurel	12	0.8	Remove	Protected	Low value
27	<i>Populus nigra</i>	Lombardy Poplar	21	0.6	Remove	Not Protected	Low value
28	<i>Populus nigra</i>	Lombardy Poplar	18	0.6	Remove	Not Protected	Low value
29	<i>Eucalyptus microcorys</i>	Tallowood	20	0.6	Remove	Protected	Retain if possible
30	<i>Eucalyptus microcorys</i>	Tallowood	16	0.6	Retain	Protected	Retain if possible

Tree Number	Scientific name	Common name	Height (m)	DBH (m)	Retain or remove	Hurstville/Kogarah LGA preservation status	Comments
31	<i>Populus nigra</i>	Lombardy Poplar	20	0.3	Remove	Not Protected	Low value
32	<i>Syncarpia glomulifera</i>	Turpentine	6	0.2	Retain	Protected	Juvenile planted tree
33	<i>Syncarpia glomulifera</i>	Turpentine	6	0.2	Retain	Protected	Juvenile planted tree
34	<i>Syncarpia glomulifera</i>	Turpentine	6	0.2	Retain	Protected	Juvenile planted tree
35	<i>Syncarpia glomulifera</i>	Turpentine	8	0.2	Retain	Protected	Juvenile planted tree
36	<i>Syncarpia glomulifera</i>	Turpentine	8	0.2	Remove	Protected	Juvenile planted tree
37	<i>Syncarpia glomulifera</i>	Turpentine	8	0.2	Remove	Protected	Juvenile planted tree
38	<i>Syncarpia glomulifera</i>	Turpentine	8	0.2	Remove	Protected	Juvenile planted tree
39	<i>Syncarpia glomulifera</i>	Turpentine	7	0.2	Remove	Protected	Juvenile planted tree
40	<i>Syncarpia glomulifera</i>	Turpentine	11	0.2	Retain	Protected	Juvenile planted tree
41	<i>Syncarpia glomulifera</i>	Turpentine	9	0.2	Retain	Protected	Juvenile planted tree
42	<i>Syncarpia glomulifera</i>	Turpentine	9	0.2	Retain	Protected	Juvenile planted tree
43	<i>Syncarpia glomulifera</i>	Turpentine	11	0.2	Retain	Protected	Juvenile planted tree

Attachment 7

Oatley Station Accessibility Upgrade
Conditions of Approval (October 2014)

**CONDITIONS of APPROVAL
Oatley Station Accessibility Upgrade**

Note: These Conditions of Approval must be read in conjunction with the final mitigation measures in the REF.

Schedule of Acronyms and Definitions used:

CECR	Construction Environmental Compliance Report
CEMP	Construction Environmental Management Plan
CIR	Contamination Investigation Report
CLP	Community Liaison Plan
CNS	TfNSW Construction Noise Strategy
CoA	Condition of Approval
DECC	former Department of Environment & Climate Change (now Department of Planning & Environment)
ECM	Environmental Controls Map
EPA	NSW Environment Protection Authority
EP&A Act	<i>Environmental Planning and Assessment Act 1979</i>
EPL	Environment Protection Licence issued by the Environmental Protection Authority under the Protection of the Environment Operations Act 1997.
ISO	International Standards Organisation
OEH	former NSW Office of Environment and Heritage
ONVMP	Operational Noise and Vibration Management Plan
PCSR	Pre-Construction Sustainability Report
PECM	Pre-Construction Environmental Compliance Matrix
POCR	Pre-Operational Compliance Report
PMEM	TfNSW Principal Manager Environmental Management (or nominated delegate)
PMEIA	TfNSW Principal Manager Environmental Impact Assessment (or nominated delegate)
PMS	TfNSW Principal Manager Sustainability (or nominated delegate)
RAP	Remedial Action Plan
RBL	Rating Background Level
REF	Review of Environmental Factors
TfNSW	Transport for NSW
TMP	Traffic Management Plan
UDLP	Urban Design and Landscape Plan

Construction	Includes all work in respect of the Proposed Activity other than survey, acquisitions, fencing, investigative drilling or excavation, building/road dilapidation surveys or other activities determined by the Environmental Management Representative to have minimal environmental impact such as minor access roads, minor adjustments to services/utilities, establishing temporary construction sites (in accordance with this approval), or minor clearing (except where threatened species, populations or ecological communities would be affected).
Contamination	The presence in, on or under land or any other aspect of the environment of a substance at a concentration above the concentration at which the substance is normally present in, on or under land or any other aspect of the environment in the same locality.
Designated Works	Includes tunnelling, blasting, piling, excavation or bulk fill or any vibratory impact works including jack hammering and compaction, for Construction.
Emergency Work	Includes works to avoid loss of life, damage to external property, utilities and infrastructure, prevent immediate harm to the environment, contamination of land or damage to a heritage (indigenous or non-indigenous) item.
Environmental Impact Assessment	The documents listed in Condition 1 of this approval.
EMR	Environmental Management Representative (or nominated delegate). An independent environmental representative appointed to the Project or a delegate nominated by Transport for New South Wales.
Noise Sensitive Receiver	In addition to residential dwellings, noise sensitive receivers include, but are not limited to, pre-schools and day care facilities, educational institutions (e.g. school, TAFE college), health care facilities (e.g. nursing home, hospital), recording studios and places of worship/religious facilities (e.g. church).
Project	The construction and operation of the Sutherland Multi-Storey Commuter Car Park Project works as described in the Environmental Impact Assessment.
Proponent	A person or body proposing to carry out an activity under Part 5 of the EP&A Act – in this instance, Transport for NSW (TfNSW)
Reasonable and Feasible	Consideration of best practice taking into account the benefit of proposed measures and their technological and associated operational application in the New South Wales and Australian context. Feasible relates to engineering considerations and what is practical to build. Reasonable relates to the application of judgement in arriving at a decision, taking into account: mitigation benefits, cost of mitigation versus benefits provided, community views and nature and extent of potential improvements.

No	TYPE									
	General									
1.	<p>Terms of Approval</p> <p>The Project shall be carried out generally in accordance with the:</p> <ul style="list-style-type: none"> (a) Environmental Impact Assessment (including all identified mitigation measures); and (b) Conditions of Approval. <p>In the event of an inconsistency between these conditions and the Environmental Impact Assessment, these conditions will prevail to the extent of the inconsistency.</p> <p>The Environmental Impact Assessment for this Project comprises the following documents:</p> <table border="1"> <thead> <tr> <th>DOCUMENT</th> <th>AUTHOR</th> <th>DATE</th> </tr> </thead> <tbody> <tr> <td>Oatley Station Accessibility Upgrade – Review of Environmental Factors</td> <td>TfNSW</td> <td>April 2014</td> </tr> <tr> <td>Oatley Station Accessibility Upgrade – Determination Report</td> <td>TfNSW</td> <td>October 2014</td> </tr> </tbody> </table> <p>In the event of any inconsistency between the Determination Report and REF, the Determination Report prevails to the extent of any inconsistency.</p>	DOCUMENT	AUTHOR	DATE	Oatley Station Accessibility Upgrade – Review of Environmental Factors	TfNSW	April 2014	Oatley Station Accessibility Upgrade – Determination Report	TfNSW	October 2014
DOCUMENT	AUTHOR	DATE								
Oatley Station Accessibility Upgrade – Review of Environmental Factors	TfNSW	April 2014								
Oatley Station Accessibility Upgrade – Determination Report	TfNSW	October 2014								
2.	<p>Project modifications</p> <p>Any modification to the Project as approved in the EIA would be subject to further assessment. This assessment would need to demonstrate that any environmental impacts resulting from the modifications have been minimised. The assessment shall be subject to approval by the Principal Manager Environmental Impact Assessment (PMEIA).</p>									
3.	<p>Statutory Requirements</p> <p>These conditions do not relieve the Proponent of the obligation to obtain all other licences, permits, approvals and land owner consents from all relevant authorities and land owners as required under any other Act for the Project. The Proponent shall comply with the terms and conditions of such licences, permits, approvals and permissions.</p>									
4.	<p>Pre-Construction Environmental Compliance Matrix</p> <p>A Pre-Construction Environmental Compliance Matrix (PECM) for the Project (or such stages of the Project as agreed to by the EMR) shall be prepared detailing compliance with all relevant conditions prior to commencement of Construction. The PECM shall also include details of approvals, licences and permits required to be obtained under any other legislation for the Project.</p> <p>The PECM shall include details demonstrating how the design and Construction of the Project will be in compliance with the Proponent's <i>Sustainable Design Guidelines</i> Version 3.0.</p>									

	<p>The Proponent shall:</p> <ul style="list-style-type: none"> (a) submit a copy of the PECM to the EMR & PMS for review. The EMR and PMS are to be given a minimum period of 7 days to review and provide any comments to the Proponent in relation to the PECM (b) upon completion of the EMR and PMS review period submit a copy of the PECM to the Principal Manager Environment Management (PMEM) for approval, at least 14 days (or within such time as otherwise agreed to by the PMEM) prior to commencement of Construction of the Project.
<p>5.</p>	<p>Construction Environmental Compliance Report</p> <p>The Proponent shall prepare a Construction Environmental Compliance Report (CECR) which addresses the following matters:</p> <ul style="list-style-type: none"> (a) compliance with the Construction Environmental Management Plan (CEMP) and these conditions (b) compliance with the Sustainable Design Guidelines Version 3.0 compliance checklist (c) compliance with any approvals or licences issued by relevant authorities for construction of the Project (d) implementation and effectiveness of environmental controls. The assessment of effectiveness should be based on a comparison of actual impacts against performance criteria identified in the CEMP (e) environmental monitoring results, presented as a results summary and analysis (f) details of the percentage of waste diverted from landfill and the percentage of spoil beneficially reused (g) number and details of any complaints, including summary of main areas of complaint, action taken, response given and intended strategies to reduce recurring complaints (subject to privacy protection) (h) details of any review and amendments to the CEMP resulting from construction during the reporting period (i) any other matter as requested by the Principal Manager Environmental Impact Assessment (PMEIA) and PME. <p>The Proponent shall:</p> <ol style="list-style-type: none"> 1. submit a copy of the CECR to the EMR for review. The EMR is to be given a minimum period of 7 days to review and provide any comments to the Proponent in relation to the CECR 2. submit a copy of the CECR to the PME (or nominated delegate) for approval upon completion of the EMR review period 3. make publicly available a copy of the CECR by posting the CECR on the TfNSW website within 7 days of approval of the CECR by the PME. <p>The first CECR shall report on the first six months of construction and be submitted within six weeks of expiry of that period (or at any other time interval agreed to by the PMEM). CECRs shall be submitted no later than six months after the date of submission of the preceding CECR (or at other such periods as requested by the PMEM) for the duration of construction.</p>
<p>6.</p>	<p>Pre-Operation Compliance Report</p> <p>A Pre-Operation Compliance Report (POCR) for the Project shall be prepared, prior to commencement of operation of the Project. The POCR shall detail compliance with all</p>

	<p>CoA and the Sustainable Design Guidelines Version 3.0 compliance checklist (refer to Condition 39).</p> <p>The Proponent shall:</p> <ul style="list-style-type: none"> (a) submit a copy of the POCR to the EMR for review. The EMR is to be given a minimum period of 7 days to review and provide any comments to the Proponent in relation to the POCR (b) upon completion of the EMR review period submit a copy of the POCR to the PMEM and Principal Manager Sustainability (PMS) for approval. <p>The POCR is to be provided to the PMEM and PMS at least one month prior to the scheduled operation of the Project (or such time as otherwise agreed to by the PMEM).</p>
	<p>Communications</p>
<p>7.</p>	<p>Community Liaison Plan (Community and Stakeholder Involvement Plan)</p> <p>The Proponent shall develop and implement a Community Liaison Plan (CLP) to engage with government agencies, relevant councils, landowners, community members and other relevant stakeholders (such as utility and service providers, bus companies and businesses). The CLP shall provide a single, consistent consultation framework for proactive communications management for the duration of the Construction period. The CLP shall comply with the obligations of these conditions and should include, but not necessarily be limited to:</p> <ul style="list-style-type: none"> (a) details of the protocols and procedures for disseminating information and liaising with the community and other key stakeholders about Construction activities (including timing and staging) and any associated impacts during the Construction period (b) details of the community liaison team appointed to manage and implement the plan (c) stakeholder and issues identification and analysis (d) identification of opportunities where community feedback will be sought throughout the Project (including sustainability initiatives) (e) procedures for dealing with complaints or disputes and response requirements, including advertising the 24 hour Construction response line number (f) details (including a program) of training for all employees, contractors and sub-contractors on the requirements of the CLP. <p>Sub-plans to the CLP will be developed as required. These sub-plans will detail site-specific consultation and communication requirements for construction works that impact residents, other stakeholders and businesses. They will also identify further mitigation measures and processes to reduce construction impacts.</p> <p>The CLP shall be prepared to the satisfaction of the Technical Director Project Communications at least 14 days prior to the commencement of Construction and implemented, reviewed and revised as appropriate during Construction of the Project.</p>
<p>8.</p>	<p>Community Notification and Liaison</p> <p>The local community shall be advised of any activities related to the Project with the potential to impact upon them.</p> <p>Prior to any site activities commencing and throughout the Project duration, the community is to be notified of works to be undertaken, the estimated hours of Construction and details of how further information can be obtained (i.e. contact telephone number/email, website, newsletters etc) including the 24 hour Construction</p>

	<p>response line number.</p> <p>Construction-specific impacts including information on traffic changes, access changes, detours, services disruptions, public transport changes, high noise generating work activities and work required outside the nominated working hours shall be advised to the local community at least seven (7) days prior to such works being undertaken or other period as agreed to by the Technical Director Project Communications.</p>
9.	<p>Website</p> <p>The Proponent shall provide electronic information (or details of where hard copies of this information may be accessed by members of the public) related to the Project, on dedicated pages within its existing website, including:</p> <ul style="list-style-type: none"> (a) a copy of the documents referred to under Condition 1 of this approval (b) a list of environmental management reports that are publicly available (c) details of construction information (d) 24 hour contact telephone number for information and complaints. <p>Detailed updates of work progress and Construction activities shall be regularly provided on the website.</p>
10.	<p>Complaints Management</p> <p>The Proponent shall set up a 24 hour Construction response line number.</p> <p>Details of all complaints received during Construction are to be recorded on a complaints register. A verbal response to phone enquiries on what action is proposed to be undertaken is to be provided to the complainant within two (2) hours during all times Construction is being undertaken and within 24 hours during non-Construction times (unless the complainant agrees otherwise). A detailed written response is to be provided to the complainant within seven (7) calendar days. Responses to written complaints (email/letter) should be provided within 48 hours of receipt of the communication.</p> <p>Information on all complaints received during the previous 24 hours and response times shall be forwarded to the EMR each working day.</p>
	<p>Property</p>
11.	<p>Property Condition Surveys</p> <p>Subject to landowner agreement, property condition surveys shall be completed on the following buildings/structures prior to proximate piling, excavation or bulk fill or any vibratory impact works including jack hammering and compaction ("Designated Works"):</p> <ul style="list-style-type: none"> (a) All buildings/structures/roads within a plan distance of 50 metres from the edge of the Designated Works (b) All heritage listed buildings and other sensitive structures within 150 metres from the edge of the Designated Works unless otherwise determined following geotechnical and vibration assessment as endorsed by a qualified geotechnical engineer and as approved by the PMEM as not likely to be adversely affected. <p>Property condition surveys need not be undertaken if a risk assessment indicates buildings/structures/roads will not be affected as determined by a qualified geotechnical and Construction engineering expert with appropriate registration on the National Professional Engineers Register prior to commencement of Designated Works.</p>

	<p>Selected potentially sensitive buildings and/or structures shall first be surveyed prior to the commencement of the Designated Works and again immediately upon completion of the Designated Works.</p> <p>All owners of assets to be surveyed, as defined above, are to be advised of the scope and methodology of the survey and the process for making a claim regarding property damage within a reasonable time (not less than 14 days) prior to commencement of the surveys.</p> <p>A copy of the survey(s) shall be given to each affected owner. A register of all properties surveyed shall be maintained.</p> <p>Any damage to buildings, structures, lawns, trees, sheds, gardens etc as a result of Construction activity direct and indirect (i.e. including vibration and groundwater changes) shall be rectified at no cost to the owner(s).</p>
	<p>Environmental Management</p>
<p>12.</p>	<p>Environmental Induction</p> <p>Prior to the commencement of Construction, all contractors shall be inducted by the Proponent on the key Project interfaces and associated environmental risks and procedures.</p>
<p>13.</p>	<p>Environmental Management System</p> <p>Construction works shall be undertaken in accordance with the Proponent's Environmental Management System(s) (EMS) which has been accredited as ISO14001 compliant.</p>
<p>14.</p>	<p>Environmental Management Representative</p> <p>Prior to the commencement of construction, the PMEM shall appoint an Environmental Management Representative (EMR) who is independent of the design and construction personnel of the Project, for the duration of the Construction period for the Project.</p> <p>The EMR shall provide advice to the PMEM in relation to the environmental compliance and performance of the Project. The EMR shall have responsibility for:</p> <ul style="list-style-type: none"> (a) considering and advising the Proponent on matters specified in these conditions and compliance with such (b) reviewing and where required by the PMEM, providing advice on the Project's induction and training program for all persons involved in the Construction activities and monitoring implementation (c) periodically auditing the Project's environmental activities to evaluate the implementation, effectiveness and level of compliance of on-site Construction activities with authority approvals and licences, the CEMP and associated plans and procedures, including carrying out site inspections weekly, or as required by the PME; (d) reporting weekly to the Proponent, or as otherwise agreed by the PMEM (e) issuing a recommendation to the Proponent for work to stop immediately, if in the view of the EMR circumstances so require. The stop work recommendation may be limited to specific activities if the EMR can easily identify those activities (f) requiring reasonable steps to be taken to avoid or minimise unintended or adverse environmental impacts (g) reviewing corrective and preventative actions to ensure the implementation of recommendations made from the audits and site inspections

	<p>(h) providing reports to the Proponent on matters relevant to the carrying out of the EMR role as necessary</p> <p>(i) where required by the PMEM, providing advice on the content and implementation of the CEMP and Environmental Controls Map (ECM) in accordance with the CoA.</p> <p>The EMR shall be available during Construction activities to inspect the site(s) .</p>
<p>15.</p>	<p>Construction Environmental Management Plan</p> <p>The Proponent shall prepare a CEMP prior to commencement of Construction which addresses the following matters:</p> <ul style="list-style-type: none"> (a) traffic and pedestrian management (in consultation with the relevant roads authority) (b) noise and vibration management, including TfNSW's Construction Noise Strategy and EPA's Interim Construction Noise Guideline July 2009 (c) air quality management (including dust suppression) (d) indigenous and non-Indigenous heritage management (e) water and soil management including TfNSW's <i>Water Discharge and Reuse Guidelines</i> (7TP-ST-146) (f) storage and use of hazardous materials (g) contaminated land including acid sulphate soils (h) flora and fauna management (i) weed management (j) environmental incident reporting and management procedures including TfNSW's <i>Environmental Incident Classification and Reporting procedure</i> (9TP-PR-105) (k) non-compliance and corrective/preventative action procedures (l) waste management (m) sustainability (n) light spill. <p>The CEMP shall:</p> <ol style="list-style-type: none"> 1. comply with the CoA, conditions of any licences, permits or other approvals issued by government authorities for the Project, all relevant Acts and Regulations and accepted best practice management 2. be prepared in accordance with the Guideline for Preparation of Environmental Management Plans (Department Infrastructure, Planning and Natural Resources, 2004) 3. include a site specific Environmental Policy 4. be a stand-alone document. <p>The Proponent shall:</p> <ul style="list-style-type: none"> (i) consult with relevant government agencies and service/utility providers as part of the preparation of the CEMP (ii) submit a copy of the CEMP to the EMR for review. The EMR is to be given a minimum period of 7 days to review and provide any comments to the Proponent in relation to the CEMP (iii) submit a copy of the CEMP to the PMEM (for approval upon completion of the

	<p>EMR review period, at least 14 days prior to commencement of Construction (or such time as is otherwise agreed to by the PMEM)</p> <p>(iv) review and update the CEMP at minimum 6-monthly intervals, and in response to any actions identified as part of the EMR's audit of the document</p> <p>(v) ensure updates to the CEMP are made within 7 days of the completion of the review or receipt of actions identified by any EMR audit of the document, and be submitted to the EMR for approval.</p> <p>The CEMP must be approved by the PMEM prior to the commencement of Construction work associated with the Project.</p>
16.	<p>Environmental Controls Map</p> <p>The Proponent shall prepare an ECM in accordance with TfNSW's <i>Guide to Preparing ECMs 2010</i> prior to the commencement of Construction for implementation for the duration of Construction. The ECM may be prepared in stages as set out in the CEMP.</p> <p>The Proponent shall submit a copy of the ECM to the EMR for review and endorsement. The EMR is to be given a minimum period of 7 days to review and endorse the ECM. Following receipt of the EMR's endorsement, the ECM shall be submitted to the PMEM for approval, at least 14 days prior to commencement of Construction (or such time as is otherwise agreed to by the PMEM).</p> <p>The ECM shall be prepared as a map – suitably enlarged (e.g. A3 size or larger) for mounting on the wall of a site office and included in site inductions, supported by relevant written information.</p> <p>Updates to the ECM shall be made within 7 days of the completion of the review or receipt of actions identified by any EMR audit of the document, and be submitted to the EMR for approval.</p>
	<p>Hours of Work</p>
17.	<p>Standard Construction Hours</p> <p>Construction activities shall be restricted to the hours of 7:00 am to 6:00 pm (Monday to Friday); 8:00 am to 1:00 pm (Saturday) and at no time on Sundays and public holidays except for the following works which are permitted outside these standard hours:</p> <ul style="list-style-type: none"> (a) any works which do not cause noise emissions to be more than 5dBA higher than Rating Background Level (RBL) (background) noise levels at any nearby residential property and/or other noise sensitive receivers (b) the delivery of plant, equipment and materials which is required outside these hours as requested by police or other authorities for safety reasons and with suitable notification to the community as agreed by the PME (c) Emergency Work to avoid the loss of lives, property and/or to prevent environmental harm (d) any other work as agreed by the PMEM in accordance with TfNSW's Out of Hours Work Procedure, and considered essential to the Project, or as approved by EPA (where relevant to the issuing of an EPL).
	<p>Noise & Vibration</p>
18.	<p>High Noise Generating Activities</p> <p>Rock breaking or hammering, jack hammering, pile driving, vibratory rolling, cutting of pavement, concrete or steel and any other activities which result in Impulsive or Tonal Noise generation shall only be scheduled between the following hours unless otherwise agreed to by the PMEM or as approved by EPA (where relevant to the</p>

	<p>issuing of an EPL), unless inaudible at nearby residential properties and/or other noise sensitive receivers:</p> <ul style="list-style-type: none"> (a) 8 am to 12 noon, Monday to Saturday (b) 2 pm to 5 pm Monday to Friday.
<p>19.</p>	<p>Construction Noise and Vibration</p> <p>Construction noise and vibration mitigation measures shall be implemented through the CEMP, in accordance with TfNSW's <i>Construction Noise Strategy and EPA's Interim Construction Noise Guideline July 2009</i>. The mitigation measures shall include, but not necessarily be limited to:</p> <ul style="list-style-type: none"> (a) details of Construction activities and an indicative schedule for Construction works (b) identification of Construction activities that have the potential to generate noise and/or vibration impacts on surrounding land uses, particularly sensitive noise receivers. (c) detail what Reasonable and Feasible actions and measures shall be implemented to minimise noise impacts (including those identified in the Review of Environmental Factors) (d) procedures for notifying sensitive receivers of Construction activities that are likely to affect their noise and vibration amenity, as well as procedures for dealing with and responding to noise complaints (e) an out of hours work protocol (OOHWP) for the assessment, management and approval of works outside the standard Construction hours identified in Condition 17 of this approval, including a risk assessment process which deems the out of hours activities to be of low, medium or high environmental risk, is to be developed. All out of hours works are subject to approval by the EMR and/or PMEM or as approved by EPA (where relevant to the issuing of an EPL). The OOHWP should be developed consistent with TfNSW's Construction Noise Strategy and Out of Hours Work Assessment Procedure (2011) (f) a description of how the effectiveness of actions and measures shall be monitored during the proposed works, clearly indicating the frequency of monitoring, the locations at which monitoring shall take place, recording and reporting of monitoring results and if any exceedance is detected, the manner in which any non-compliance shall be rectified.
<p>20.</p>	<p>Vibration Criteria</p> <p>Vibration (other than from blasting) resulting from Construction and received at any structure outside of the Project shall be limited to:</p> <ul style="list-style-type: none"> (a) For structural damage vibration – German Standard DIN 4150:Part 3 – 1999 “Structural Vibration in Buildings: Effects on Structures” (b) For human exposure to vibration the acceptable vibration values set out in the Environmental Noise Management Assessing Vibration: A Technical Guideline (DEC 2006). <p>These limits apply unless otherwise approved by the PMEM through the CEMP.</p>
<p>21.</p>	<p>Non-tonal Reversing Beepers</p> <p>Non-tonal reversing beepers (or an equivalent mechanism) shall be fitted and used on all construction vehicles and mobile plant regularly used on site (i.e. greater than one day) and for any out of hours work.</p>

22.	<p>Noise Impact on Educational Facilities</p> <p>Not used.</p>
23.	<p>Operational Noise and Vibration</p> <p>An operational noise and vibration management plan (ONVMP) shall be prepared to confirm the final mitigation measures for operational noise and vibration that would be implemented.</p> <p>The ONVMP shall be prepared in consultation with Sydney Trains (where relevant) and other relevant stakeholders. The ONVMP shall:</p> <ul style="list-style-type: none"> (a) consider any changes to the predicted noise and vibration levels resulting from design refinements (b) examine all reasonable and feasible noise and vibration mitigation measures consistent with the Rail Infrastructure Noise Guidelines (c) identify specific physical and other mitigation measures for controlling noise and vibration at the source and at the receiver (if relevant) including location, type and timing of implementation of the proposed operational noise and vibration mitigation measures (d) seek feedback from directly affected receivers on the final mitigation measures proposed in the review (e) consider measures identified in the NSW Government's broader noise mitigation program and the role this would play in mitigation at the project level.
24.	<p>Operational Noise Compliance Monitoring</p> <p>Not used.</p> <p>See site-specific Condition 53 below.</p>
25.	<p>Piling</p> <p>Wherever practical, piling activities shall be completed using non-percussive piles. If percussive piles are proposed to be used, approval of the EMR or PME shall be obtained.</p>
Contamination/Spoil	
26.	<p>Duty to Notify</p> <p>If previously unidentified contamination is identified within the site, the Proponent is to determine whether there is a Duty to Report under section 60 of the <i>Contaminated Land Management Act 1997</i>, and notify the EPA in accordance with the EPA's <i>Guidelines on the Duty to Report Contamination under the Contaminated Land Management Act 1997</i> (2009).</p>
27.	<p>Unidentified Contamination (Other than Asbestos)</p> <p>If previously unidentified contamination (excluding asbestos) is discovered during Construction, work in the affected area must cease immediately, and an investigation must be undertaken and report prepared to determine the nature, extent and degree of any contamination. The level of reporting must be appropriate for the identified contamination in accordance with EPA <i>Guidelines for Consultants Reporting on Contaminated Sites</i>.</p> <p>The Proponent shall:</p>

	<p>(a) submit a copy of any contamination report to the EMR for review. The EMR is to be given a minimum period of 7 days to review and provide any comments to the Proponent in relation to the report</p> <p>(b) submit a copy of the report to the PMEM for consideration upon completion of the EMR review period. The PMEM shall determine whether consultation with the relevant council and/or EPA is required prior to continuation of Construction works within the affected area.</p> <p><i>Note: In circumstances where both previously unidentified asbestos contamination and other contamination are discovered within a common area, nothing in these conditions shall prevent the preparation of a single investigation report to satisfy the requirements of both Condition 27 and Condition 28.</i></p>
<p>28.</p>	<p>Asbestos Management</p> <p>If previously unidentified asbestos contamination is discovered during construction, work in the affected area must cease immediately, and an investigation must be undertaken and report prepared to determine the nature, extent and degree of the asbestos contamination. The level of reporting must be appropriate for the identified contamination in accordance with relevant EPA and WorkCover Guidelines and include the proposed methodology for the remediation of the asbestos contamination. Remediation activities must not take place until receipt of the investigation report.</p> <p>Works may only recommence upon receipt of a validation report from a suitably qualified contamination specialist that the remediation activities have been undertaken in accordance with the investigation report and remediation methodology.</p> <p><i>Note: In circumstances where both previously unidentified asbestos contamination and other contamination are discovered within a common area, nothing in these conditions shall prevent the preparation of a single investigation report to satisfy the requirements of both Condition 27 and Condition 28.</i></p>
<p>29.</p>	<p>Storage and Use of Hazardous Materials</p> <p>Construction hazard and risk issues associated with the use and storage of hazardous materials shall be addressed through risk management measures, which shall be developed by the construction contractor prior to Construction as part of the overall CEMP, in accordance with relevant EPA guidelines, TfNSW <i>Chemical Storage and Spill Response Guideline</i> and Australian and ISO standards. These measures shall include:</p> <p>(a) the storage of hazardous materials, and refuelling/maintenance of Construction plant and equipment to be undertaken in clearly marked designated areas that are designed to contain spills and leaks</p> <p>(b) spill kits, appropriate for the type and volume of hazardous materials stored or in use, to be readily available and accessible to construction workers. Kits to be kept at hazardous materials storage locations, in site compounds and on specific construction vehicles. Where a spill to a watercourse is identified as a risk, spill kits to be kept in close proximity to potential discharge points in support of preventative controls</p> <p>(c) all hazardous materials spills and leaks to be reported to site managers and actions to be immediately taken to remedy spills and leaks</p> <p>(d) training in the use of spill kits to be given to all personnel involved in the storage, distribution or use of hazardous materials.</p>
<p>Traffic and Access</p>	
<p>30.</p>	<p>Traffic Management Plan</p> <p>The Proponent shall prepare a Construction Traffic Management Plan (TMP) as part of</p>

	<p>the CEMP which addresses, as a minimum, the following:</p> <ul style="list-style-type: none"> (a) ensuring adequate road signage at construction work sites to inform motorists and pedestrians of the work site ahead to ensure that the risk of road accidents and disruption to surrounding land uses is minimised (b) maximising safety and access for pedestrians and cyclists (c) ensuring adequate sight lines to allow for safe entry and exit from the site (d) ensuring access to railway stations, businesses and residential properties (unless affected property owners have been consulted and appropriate alternative arrangements made) (e) managing impacts and changes to on and off street parking and requirements for any temporary replacement provision (f) parking locations for construction workers away from stations and busy residential areas and details of how this will be monitored for compliance (g) routes to be used by heavy construction-related vehicles to minimise impacts on sensitive land uses and businesses (h) details for relocating kiss-and-ride, taxi ranks and "Rail Replacement" bus stops if required, including appropriate signage to direct patrons, in consultation with the relevant bus operator (i) measures to manage traffic flows around the area affected by the Project, including as required regulatory and direction signposting, line marking and variable message signs and all other traffic control devices necessary for the implementation of the TMP. <p>The Proponent shall consult with the relevant roads authority during preparation of the TMP, as required. The performance of all Project traffic arrangements must be monitored during Construction.</p>
31.	<p>Road Condition Reports</p> <p>Prior to construction commencing, the Proponent shall prepare condition surveys and reports on the condition of roads and footpaths affected by Construction. Any damage resulting from the construction of the Project, aside from that resulting from normal wear and tear shall be repaired at the Proponent's expense.</p>
	<p>Lighting</p>
32.	<p>Lighting Control</p> <p>Not used.</p> <p>See site-specific Condition 50 below.</p>
	<p>Flora and Fauna</p>
33.	<p>Replanting Program</p> <p>All cleared vegetation shall be replaced and/or offset in accordance with TfNSW's – Transport Projects <i>Vegetation Offsetting Guide</i>. All vegetation planted on-site is to consist of locally endemic native species, unless otherwise agreed by the PME, following consultation with the relevant Local Authority, where relevant, and/or the owner of the land upon which the vegetation is to be planted.</p>
34.	<p>Removal of Trees or Vegetation</p> <p>Separate approval, in accordance with TfNSW's <i>Application for Removal or Trimming of Vegetation</i>, is required for the trimming, cutting, pruning or removal of trees or vegetation where the impact has not already been identified in the Environmental</p>

	Impact Assessment for the Project.
	Erosion and Sediment Control
35.	<p>Erosion and Sediment Control</p> <p>Soil and water management measures shall be prepared as part of the CEMP for the mitigation of water quality and hydrology impacts during construction of the Project. The management measures shall be prepared in accordance with:</p> <ul style="list-style-type: none"> (a) <i>Managing Urban Stormwater; Soils and construction 4th Edn (Landcom, 2004)</i> and (b) TfNSW's <i>Concrete Washout Guideline – 3TP-SD-112</i>
	Heritage
36.	<p>Indigenous and Non-Indigenous Heritage – During Construction</p> <p>If previously unidentified Indigenous or non-Indigenous heritage/archaeological items are uncovered during construction works, all works in the vicinity of the find shall cease and appropriate advice shall be sought from a suitably qualified heritage consultant (and in consultation with the Heritage Division of OEH where appropriate). Works in the vicinity of the find shall not re-commence until clearance has been received from the heritage consultant.</p>
	Urban Design and Landscaping
37.	<p>Urban Design and Landscaping Plan</p> <p>Not used.</p> <p>See site-specific Condition 49 below.</p>
	Sustainability
38.	<p>Sustainability Role</p> <p>The Proponent shall appoint a Sustainability Officer who is responsible for implementing sustainability objectives for the Project.</p> <p>Details of the Sustainability Officer, including defined responsibilities consistent with the Proponent's sustainability objectives, included in the Project's REF, are to be submitted to the satisfaction of the Principal Manager Sustainability prior to preparation of the Pre-Construction Sustainability Report.</p>
39.	<p>Pre-Construction Sustainability Report</p> <p>Prior to commencement of construction, a Pre-Construction Sustainability Report (PCSR) shall be prepared to the satisfaction of the PMS. The Report shall include the following minimum components:</p> <ul style="list-style-type: none"> (a) a completed electronic checklist demonstrating compliance with the <i>Sustainable Design Guidelines Version 3.0</i> to a "silver" level standard (b) a statement outlining the Proponent's own corporate sustainability obligations, goals, targets, in house tools etc (c) a section specifying any areas of innovation that will be explored and/or implemented on the Project during the course of the construction period. (d) a sourcing strategy outlining how the sustainable procurement criteria for the Project will be met and reported against. The sourcing strategy should also identify key staff responsible for ensuring implementation of the strategy. <p>The Proponent shall submit a copy of the Pre-Construction Sustainability Report to the</p>

	PMS for approval, at least 14 days (or within such time as otherwise agreed to by the PMS) prior to the commencement of construction.
	Additional Conditions
40.	<p>Graffiti and Advertising Control</p> <p>Hoardings, site sheds, fencing, acoustic walls around the perimeter of the site and any structures built as part of the Project are to be maintained free of graffiti and advertising not authorised by the Proponent during the Construction period. Graffiti and unauthorised advertising will be removed or covered within the following timeframes:</p> <ul style="list-style-type: none"> (a) offensive graffiti will be cleaned or covered within 24 hours (b) highly visible yet non-offensive graffiti will be cleaned or covered within 1 week (c) graffiti that is neither offensive nor highly visible will be cleaned or covered during normal operations within one month (d) any advertising material will be removed within 24 hours.
41.	<p>Authorised Water Servicing Co-ordinator</p> <p>The Proponent shall engage a Sydney Water authorised water servicing coordinator to manage the design and construction of any works to the existing water or sewer mains, where applicable.</p>

No	Site-specific Conditions
	Environmental management
42.	In association with Condition 15, the CEMP shall include a site-specific inspection schedule that shall include daily inspections of erosion and sediment control measures.
	Heritage
43.	<p>All works are to be undertaken in accordance with the Section 60 Approval (2014/S60/030) under the <i>Heritage Act 1977</i>.</p> <p>Where further documentation is required to be submitted to the Heritage Division of OEH, such documentation is to be submitted to the PMEM for review and acceptance a minimum of 21 days prior to lodgement.</p>
44.	<p>The Proponent is to engage a heritage consultant and/or architect to prepare a heritage interpretation plan, in consultation with, and in accordance with the requirements, as required, of the Heritage Division of OEH, and TfNSW.</p> <p>Additionally the Proponent will be responsible for seeking and gaining approval, as required, for the proposed interpretation elements from Heritage Division of OEH and implementation of the agreed interpretation measure(s).</p>
	Traffic and access
45.	<p>Traffic Management</p> <p>The Construction Traffic Management Plan (CTMP) (Condition 30) would include:</p> <ul style="list-style-type: none"> (a) a Bicycle Management Sub Plan that provides for continued safe access around the construction site (b) a Construction Parking Strategy that identifies any temporary changes to on-street parking during construction, and requires workers to park a minimum of 100 metres from Oatley Station, and not within the town centre or commuter car park.
46.	<p>Road Safety Audit</p> <p>A Road Safety Audit shall be undertaken as part of the detailed design process. The Road Safety Audit shall include specific assessment of an area within 50m of the station entrances, and shall include:</p> <ul style="list-style-type: none"> (a) traffic counts (that reflect an assumed increase in traffic as a result of increased patronage of the station) (b) assessment of the safety of the Mulga Road/River Road intersection, and potential mitigation (c) assessment of the River Road/Oatley Parade intersection, and potential mitigation (d) specific advice on bicycle use of the River Road underbridge (e) assessment of the need for any additional kiss and ride and accessible parking provision (f) assessment of the need for any additional commuter parking. <p>The Road Safety Audit is to be submitted to TfNSW for review as part of the design assurance process.</p> <p>TfNSW would provide a copy of the report to Hurstville and Kogarah Councils. Consultation on the final design and location of any additional traffic management and/or pedestrian facilities outside the Project footprint would be undertaken, but would remain the responsibility of the Council/s.</p>

Urban design and landscaping	
47.	<p>Impacts to vegetation within or adjacent to the rail corridor and/or within Douglas Cross Gardens and/or Boongarra Reserve are to be minimised by measures including:</p> <ul style="list-style-type: none"> (a) Implementation of TfNSW's guidelines including: <ul style="list-style-type: none"> i. <i>Fauna Management Guideline – 3TP-SD-113</i> ii. <i>Vegetation Management Guidelines – 9TP-SD-111</i> iii. <i>Weed Management and Disposal Guideline – 3TP-SD-110</i> (b) Designing the footpath on the southern boundary of Douglas Cross Gardens to minimise impacts on the root zone of adjacent tree/s (c) Trees identified for retention are to be protected prior to construction and/or trimmed to avoid total removal.
48.	<p>Visual impacts are to be minimised by actions including:</p> <ul style="list-style-type: none"> (a) site compounds are to be suitably screened (i.e. hoarding, shade cloth or similar material) (b) rehabilitation planting is to be undertaken as early as practicable (c) disturbed embankments are to be landscaped to complement the existing visual character of the area (d) the extent of vegetation to be removed within the approved construction footprint on the southern edge of Douglas Cross Gardens is to be minimised as far as practicable.
49.	<p>Urban Design and Landscaping Plan</p> <p>Prior to the finalisation of the detailed design of the Project, the Contractor shall prepare an Urban Design and Landscaping Plan (UDLP). The objective of the UDLP is to:</p> <ul style="list-style-type: none"> (a) provide a high quality urban design outcome which is sympathetic to the amenity and character of the immediately surrounding area; and (b) minimise the visual impacts of the structure where reasonable and feasible. <p>The UDLP shall address the following matters:</p> <ul style="list-style-type: none"> i. provision of high quality materials and finishes that are complementary to the existing locality and landscape, and that minimise reflective surfaces with a preferred use of muted/less intrusive colours. <p>A detailed design report on the treatment/s proposed (including the overbridge sleeve design and treatment) is to be provided to TfNSW for acceptance, and is to detail how the façades mitigate visual impacts</p> <ul style="list-style-type: none"> ii. maintenance procedures (including graffiti control) for walls/structures iii. a palette of proposed colours iv. location and design of pedestrian access, street furniture including relocated bus and taxi facilities, bicycle storage telephones and lighting equipment v. integration of total water management principles into the design where appropriate vi. inclusion of design measures to meet TfNSW's Sustainable Design Guidelines Version 3.0 vii. identification of design and landscaping aspects that will be open for community input viii. provision of a terraced rock garden on the eastern (Oatley Parade) side of

	<p>the project, to capture the change of grade between the forecourt and the Douglas Cross Gardens</p> <ul style="list-style-type: none"> ix. introduction of low plantings in the commuter car park to soften hard surface treatments x. provision of a landscape plan for the western (Mulga Road) side of the rail corridor, particularly between the new structure and the underbridge. The intent is to provide some integration between the new structure and the underbridge xi. landscape treatments and tree planting to integrate with surrounding streetscape, in accordance with drawing TAP-1822-LA-0001 and TAP-1822-LA-0002, unless otherwise agreed with the PMEM xii. plantings to conform with CPTED xiii. ongoing vegetation maintenance agreement to be negotiated with the relevant Council/s xiv. total water management principles to be integrated into the design where considered appropriate xv. any other matters which the CoA requires the UDLP to address. <p>The UDLP shall be prepared in consultation with TfNSW's Design and Sustainability Review Panel, and Hurstville and Kogarah City Councils.</p> <p>The UDLP shall be submitted to the Principal Manager Urban Design as part of the design assurance process at least 21 days prior to the commencement of permanent built works unless otherwise agreed by the PMEM.</p>
<p>50.</p>	<p>Lighting scheme</p> <p>A lighting scheme for the construction and operation of the Project is to be developed by a suitably qualified lighting designer and prepared in accordance with AS 1158 "Road Lighting" and AS 4282 "Control of the Obtrusive Effect of Outdoor Lighting". The lighting scheme shall address the following:</p> <ul style="list-style-type: none"> (a) consideration of lighting demands of different areas (b) conformance with the maintenance requirements of the provider (e.g. Sydney Trains, Energy Australia, Council) (c) strategic placement of lighting fixtures to maximise ground coverage (d) use of LED lighting (e) minimising light spill from the rail corridor into adjacent visually sensitive properties by: <ul style="list-style-type: none"> i. sensitive placement and specification of lighting to minimise any potential increase in light pollution during both construction and operation ii. use of equipment that minimises the upward spread of light. Care is to be taken in selection of luminaries to ensure that appropriate units are chosen and that their location will reduce light spill and keep glare to a minimum (f) allowing the lighting system to use low light or switch-off light settings while meeting relevant lighting Standards requirements where appropriate, and (g) ensuring security and warning lighting is not directed at neighbouring properties. <p>The proposed lighting scheme is to be submitted as part of the design assurance process.</p>

Noise and Vibration measures	
51.	<p>Additional vibration monitoring is to be carried out when construction activities are at the nearest point to the heritage station building and to the heritage underbridge, as well as to commercial premises in Oatley Parade.</p> <p>The Contractor shall install a vibration warning device (i.e. a device that signals by way of a buzzer or flashing light) to indicate when levels approach/exceed the recommended limits for structural damage.</p>
52.	<p>As far as reasonably practicable, noise and vibration intensive Construction works in the vicinity of affected premises are to be minimised.</p> <p>The commercial premises adjacent to the rail corridor on the western side of Oatley Parade that may be affected by noise and/or vibration shall be consulted:</p> <ul style="list-style-type: none"> a) in relation to any proposed noise and vibration mitigation measures and/or b) to identify any noise and vibration sensitive periods when noise and vibration construction activities should be minimised.
53.	<p>In order to validate the predicted noise levels identified in the noise and vibration assessment, monitoring shall be undertaken for the commuter car park within three months of commencement of operation. This noise and vibration monitoring shall be undertaken to confirm compliance with the predicted noise and vibration levels for the commuter car park, or as modified by the reasonable and feasible review.</p> <p>Should the results of monitoring indicate that the predicted noise and vibration levels are exceeded, additional reasonable and feasible mitigation measures would be implemented in consultation with the affected property owners.</p>

END OF CONDITIONS

Transport Access Program

Oatley Station Upgrade

Review of Environmental Factors

APRIL 2014



Transport
for NSW

Oatley Station Accessibility Upgrade Review of Environmental Factors



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