view 03

Viewing Location	West of site, adjacent to Casula Powerhouse
Visual Adaptation	
Approximate Viewing Distance	1,000m to site boundary (approx.)
Prominence of the Development	This view location looks directly from the Western bank of the Georges River towards the proposed development. Both sides of the river are of lower elevation than the site. The development will be screened by large amounts of mature vegetation in the foreground, as well as industrial and infrastructure zoned land with existing buildings and vegetation in the background.
Landscape Compatability	In the foreground is Georges River. Along the river bank are large trees and vegetation which partially screen the landscape beyond. Directly beyond this is a large expanse of industrial and infrastructure zoned land. This land consists of open fields, existing buildings, and large amounts of existing vegetation. The proposed development is highly compatible with the existing landscape. This is due to the similar land use of both the industrial and infrastructure zoned land in the middle ground, and that of the proposed development.
Visual Sensitivity	The industrial land use beyond Georges River (Moorebank Southern Industrial precinct) creates a low visual sensitivity. Most of the views from this area will be from a location directly adjacent to Casula Powerhouse (also an industrial facility) hence creating an even lower visual sensitivity.
Visual Impact	There is no visibility of the proposed development from this view location. Natural elements dominate the view corridor to undeveloped industrial zoned land beyond Georges River leading to the proposed development site. There will be no visual impact.

view 04

Existing View

Simulated View

view 04

Viewing Location	West of site, Carrol Park, Casula
Visual Adaptation	
Approximate Viewing Distance	1,200m to site boundary (approx.)
Prominence of the Development	This view location is taken from a highly elevated point at Casual Park East looking down toward the Georges River and proposed SIMTA development site beyond. The proposed development will not be highly prominent from this location. The viewpoint is higher in elevation than that of the site with the ridgeline of some warehousing (mainly within the southern half of the site) slightly visible above the existing tree line. The majority of the development will be obscured by existing industrial development, infrastructure zoned land-use beyond along with existing vegetation.
Landscape Compatability	The existing landscape from this location comprises a rail line and powerhouse (Casula Powerhouse) in the foreground and an expanse of industrial and infrastructure zoned land-use beyond along with existing vegetation. The existing landscape is highly compatible with the proposed additional development. Therefore there will be little to no alteration within the landscape amenity.
Visual Sensitivity	Being a residential area the visual sensitivity will be relatively high. Several houses within the area and users of the park land will be subject to minimal views of the development, however the prominence of the proposed development within these views will be low. Most views will be of short duration therefore the visual amenity will be relatively unchanged.
Visual Impact	There will be limited visibility from this viewpoint east across the Georges river to the proposed development. The existing landscape amenity will have little to no change therefore suggesting that there will be relatively low to no visual impact.

view 05

Existing View

Simulated View

view 05

Viewing Location	West of site, Carrol Park, Casula
Visual Adaptation	
Approximate Viewing Distance	1,200m to site boundary (approx.)
Prominence of the Development	The proposed development, similar to the previous viewpoint will be only slightly visible from this location. The viewpoint is higher in elevation than that of the site with the ridgeline of some warehousing slightly visible above the existing tree line. The majority of the development will be obscured by existing industrial development, infrastructure and vegetation.
Landscape Compatability	The existing landscape from this location comprises a rail line and powerhouse (Casula Powerhouse) in the foreground and an expanse of industrial and infrastructure zoned land-use beyond along with existing vegetation. The existing landscape is highly compatible with the proposed additional development. Therefore there will be little to no alteration within the landscape amenity.
Visual Sensitivity	Being a residential area the visual sensitivity will be relatively high. Several houses within the area will be subject to minimal views of the development, however the prominence of the proposed development within these views will be low. Most views will be of short duration therefore the visual amenity will be relatively unchanged.
Visual Impact	There will be limited visibility from this viewpoint east across the Georges River to the proposed development. The existing landscape amenity will have little to no change therefore suggesting that there will be relatively low to no visual impact.

view 06

Existing View

Simulated View

view 06

Viewing Location	West of site, Buckland Road, Casula
Visual Adaptation	
Approximate Viewing Distance	1,200m to site boundary (approx.)
Prominence of the Development	This view location along Buckland Road is slightly elevated, however modelling suggests that the proposed SIMTA development will not be visible from this location. One and two storey residential dwellings are more prominent in the foreground of this moderately vegetated streetscape. Further east lies dense bushland which obscures a direct line of sight toward the proposed development.
Landscape Compatability	The existing landscape from this location comprises of residential dwellings. It is a residential zoned area. There are some trees in the foreground as well as large trees behind the residential dwellings that screen the proposed development.
Visual Sensitivity	Being a residential area the visual sensitivity will be relatively high. There are some expansive views from this area. The large amounts of vegetation in the background effectively screen the proposed development.
Visual Impact	There will be no change to the visual amenity at this location, therefore this will result in no visual impact.

view 07

Existing View

Simulated View

view 07

Viewing Location	North-west of site, adjacent to St Andrews Boulevard, Casula
Visual Adaptation	
Approximate Viewing Distance	1,000m to site boundary (approx.)
Prominence of the Development	This view location adjacent to St Andrews Boulevard is looking toward the proposed SIMTA development site. There is a highly vegetated area obscuring any direct view of the site. The proposed development will not be visible from this location. The Southern Sydney Freight Line in the foreground runs within close proximity to Georges River and is the more prominent built feature in this view corridor. The entire development will be screened by the large amounts of existing vegetation in the background.
Landscape Compatability	In the foreground is a railway line with its associated power lines above. Directly beyond is Georges River. On the other side of the Georges River is a large expanse of industrial and infrastructure zoned land that is currently heavily vegetated. This vegetation completely screens the proposed development.
Visual Sensitivity	The visual sensitivity in this location will be low to moderate. The view location is from a residential zoned area. Although the railway line in the foreground lowers the visual sensitivity.
Visual Impact	The development will not be visible from this location. Therefore there will be no visual impact.

view 08

Existing View

Simulated View

view 08

Viewing Location	North-West of site, Westchester Avenue, Casula
Visual Adaptation	
Approximate Viewing Distance	1,300m to site boundary (approx.)
Prominence of the Development	This view location is located along the lower point of Westchester Avenue looking up at a crest (approx. 50m) toward the site. The proposed development will not be visible from this location. Due to the lay of the land (the road slopes up to a crest) nothing beyond 100m (approx.) is visible. The view corridor includes a street lined with high trees and one and two storey residential dwellings.
Landscape Compatability	The existing landscape from this location comprises of residential dwellings with mature vegetation of varying scale lining either side of the street. The proposed development is not compatible with the existing landscape as there is no industrial related elements which appear in this view corridor.
Visual Sensitivity	Being a residential area the visual sensitivity will be relatively high. Most of the views from this area will be of a limited depth, and due to the lay of the land the proposed development will not be visible. Therefore the visual amenity will be unchanged.
Visual Impact	There will be no change to the visual amenity at this location; therefore this will result in no visual impact.

view 09

Existing View

Simulated View

view 09

Viewing Location	North-west of site, Phoenix Crescent, Casula
Visual Adaptation	
Approximate Viewing Distance	1,400m to site boundary (approx.)
Prominence of the Development	This view location is taken looking South-East down Phoenix Crescent approximately 400m to the street end. There is no indication that the proposed development will be at all visible from this location. Existing industrial buildings situated within reasonable proximity to the site are marginally visible within this view corridor. The streetscape is lined with large scaled vegetation and one and two storey residential dwellings which would obsucre any view toward the SIMTA site.
Landscape Compatability	The existing landscape from this location comprises of residential dwellings. The road is highly vegetated on either side. In the background is some heavy vegetation and some glimpses of existing buildings on industrial zoned land which is directly adjacent to the proposed development. The proposed development will not be compatible with this location.
Visual Sensitivity	Although this is a residential area, the visual sensitivity will be moderate. Most of the views from this area currently see glimpses of existing industrial facilities on the site adjacent to the proposed development. This lowers the visual sensitivity from this location. The residential dwellings in the foreground and the vegetation and existing buildings in the background completely screen the proposed development. Therefore the visual amenity will be unchanged.
Visual Impact	There will be no change to the visual amenity at this location, therefore this will result in no visual impact.

view 10

Existing View

Simulated View

view 10

Viewing Location	North-West of site, Corner of Congressional Drive and Lakewood Crescent, Casula
Visual Adaptation	
Approximate Viewing Distance	1,400m to site boundary (approx.)
Prominence of the Development	The proposed development will not be visible from this location. The entire development will be screened by the residential dwellings in the foreground, and the industrial facilities in the background.
Landscape Compatability	The existing landscape in the immediate area is residential. Beyond this is the M5 Motorway. In the background are existing large industrial facilities that are highly visible from this viewpoint. Further industrial elements in this landscape would potentially detract from its amenity but would not be entirely incompatible.
Visual Sensitivity	Although this is a residential area, the visual sensitivity will be moderate. Most of the views from this area currently include the industrial facilities on the site adjacent to the proposed development. This lowers the visual sensitivity from this location. The residential dwellings in the foreground and the industrial facilities in the background completely screen the proposed development. Therefore the visual amenity will be unchanged.
Visual Impact	There will be no change to the visual amenity at this location, therefore this will result in no visual impact.

view 11

Existing View

Simulated View

view 11

Viewing Location	North of site, Adjacent to Greenhills Avenue, Moorebank
Visual Adaptation	
Approximate Viewing Distance	1,400m to site boundary (approx.)
Prominence of the Development	The proposed development will not be visible from this location. The entire development will be screened by the carpark in the foreground, and the large amounts of vegetation in the background.
Landscape Compatability	The foreground consists of a carpark for an industrial facility. The surrounding area is zoned for industrial uses and is surrounded by large industrial facilities. Directly beyond the industrial facilities is the M5 Motorway. Along both sides of the motorway there are large trees which partially screen the industrial buildings beyond. The proposed development is further beyond these industrial buildings. The addition of new industrial elements to this landscape would be very compatible with this landscape.
Visual Sensitivity	The industrial land-use suggests a low visual sensitivity in this location. The proposed development will not be visible from this location, hence the visual amenity will be unchanged.
Visual Impact	There will be no change to the visual amenity at this location, therefore this will result in no visual impact.

view 12

Existing View

Simulated View

view 12

Viewing Location	North-East of site, Wombeyan Court
Visual Adaptation	
Approximate Viewing Distance	1,000m to site boundary (approx.)
Prominence of the Development	The proposed development will not be visible from this location. The entire development will be screened by the existing vegetation and the residential dwellings.
Landscape Compatability	The existing landscape from this location comprises of residential dwellings. There are trees in the foreground as well as large trees behind the residential dwellings. The addition of the proposed industrial facility is not compatible with this area. The proposed development is not visible from this location therefore there would be no impact to the existing landscape amenity.
Visual Sensitivity	Being a residential area the visual sensitivity will be relatively high. Most of the views from this area will be of a limited depth, and the residential dwellings and vegetation completely screen the proposed development. Therefore the visual amenity will be unchanged.
Visual Impact	There will be no change to the visual amenity at this location, therefore this will result in no visual impact.

view 13

Existing View

Simulated View

view 13

Viewing Location	North-East of site, Corner of Bundara Court and Warrego Court
Visual Adaptation	
Approximate Viewing Distance	1,200m to site boundary (approx.)
Prominence of the Development	The proposed development will not be visible from this location. The entire development will be screened by the existing vegetation and the residential dwellings.
Landscape Compatability	The existing landscape from this location comprises of residential dwellings. There are trees in the foreground as well as large trees behind the residential dwellings. The addition of the proposed industrial facility is not compatible with this area. The proposed development is not visible from this location therefore there would be no impact to the existing landscape amenity.
Visual Sensitivity	Being a residential area the visual sensitivity will be relatively high. Most of the views from this area will be of a limited depth, and both residential dwellings and vegetation would completely screen the proposed development. Therefore the visual amenity will be unchanged.
Visual Impact	There will be no change to the visual amenity at this location, therefore this will result in no visual impact.

view 14

Existing View

Simulated View

view 14

Viewing Location	North of site, Corner of Yulong Close and Anzac Road
Visual Adaptation	
Approximate Viewing Distance	500m to site boundary (approx.)
Prominence of the Development	There is a relatively unobstructed view from the corner of Anzac Rd and Yulong Close to the northern half of the proposed development. The warehousing and distribution facilities will be highly prominent but will not alter the existing visual amenity which has heavy industrialised elements within it.
Landscape Compatability	The addition of any new industrial development within this viewpoint will have little to no impact on the existing landscape amenity. There is little existing vegetation and the existing industrial elements sitting within the boundary of the proposed development are highly visible. It is proposed that there will be an extensive landscape treatment and buffer zone along the northern boundary which will help reduce any change to the existing landscape amenity and prominence of the development.
Visual Sensitivity	The industrial land-use at this location creates a low visual sensitivity (Moorebank Southern Industrial precinct). Most views from within this area looking south towards the proposed development will be from existing industrial areas or from commuters travelling along Anzac Road.
Visual Impact	The proposed development would be highly prominent at this location from Anzac Road looking South onto the site. There is little to no visual sensitivity from this viewpoint as the viewpoint is within an already established industrial zone. Therefore there will be a low visual impact from this viewpoint.

view 15

Existing View

Simulated View

view 15

Viewing Location	North of site, Corner of Greenhills Road and Anzac Road
Visual Adaptation	
Approximate Viewing Distance	500m to site boundary (approx.)
Prominence of the Development	The development will have little to no prominence from this particular location. Warehousing and other commercial buildings located within the northern half of the proposed development (Warehouse Distribution centre and Freight Village) will be slightly visible but both existing structures, namely the zone substation in the foreground and vegetation will be more prominent.
Landscape Compatability	This viewpoint is dominated by an industrial character. Any additional industrial development would be compatible with this landscape. It is unlikely that there would be a negative effect on the visual amenity at this location as the view corridor to the development will only be slightly altered.
Visual Sensitivity	There will be low visual sensitivity as this viewpoint is located in a zoned industrial area (Moorebank Southern Industrial precinct). Most views from within this area looking south towards the proposed development will be from already existing built up industrial areas therefore not changing in anyway the already existing landscape amenity.
Visual Impact	The landscape change from this viewpoint would be barely perceptible due to the viewing distance and the fact that new elements which would be potentially visible would be similar to the existing elements that they would replace in the view.

view 16

Existing View

Simulated View

view 16

Viewing Location	North-East of site, Anzac Road
Visual Adaptation	
Approximate Viewing Distance	700m to site boundary (approx.)
Prominence of the Development	Industrial elements within the north-eastern part of the proposed development (namely warehousing) will be visible from this viewpoint along Anzac Rd. The scale of the development can be seen in the simulated view opposite but there will be some form of landscape treatment along the eastern boundary that will help soften the prominence of the development from this viewpoint.
Landscape Compatability	There are glimpses of existing structures but the landscape is predominantly open and/or vegetated. The landscape character at this location comprises mainly open vegetated space and minor elements of infrastructure. Any inclusion of visible industrial elements would change the existing landscape amenity.
Visual Sensitivity	The visual sensitivity would be relatively high as the view location is sitting along Anzac Road within a low density residential zone (RE2). The existing landscape amenity would be changed as prominent glimpses of the development would be visible along this section of Anzac Road.
Visual Impact	The development would be relatively prominent at this location. The change in the landscape amenity coupled with the zoning in which the viewpoint is situated will make this visual impact moderate to high.

view 17

Existing View

Simulated View

view 17

Viewing Location	North-East of site, Castlerock Court, Wattle Grove
Visual Adaptation	
Approximate Viewing Distance	700m to site boundary (approx.)
Prominence of the Development	Industrial elements within the north-eastern part of the proposed development (namely warehousing) will be visible from this viewpoint along Anzac Road.
Landscape Compatability	The landscape character at this location comprises mainly open vegetated space and minor elements of infrastructure. Any inclusion of visible industrial elements would change the existing landscape amenity.
Visual Sensitivity	The visual sensitivity would be relatively high as the view location is within a low density residential zone. The existing landscape amenity would be changed as prominent glimpses of the development would be visible from this location.
Visual Impact	The development would be relatively prominent at this location. The change in the landscape amenity together with the zoning in which the viewpoint is situated will make this visual impact moderate to high.

view 18

Existing View

Simulated View

view 18

Viewing Location	East of site, Martindale Court, Wattle Grove
Visual Adaptation	
Approximate Viewing Distance	800m to site boundary (approx.)
Prominence of the Development	Industrial elements within the north-eastern part of the proposed development (namely warehousing) will be visible from this viewpoint along Anzac Road. There will be some form of landscape treatment that will help soften the prominence of the development from this viewpoint. Also the existing vegetation partially screens the proposed development.
Landscape Compatability	There are glimpses of existing structures but the landscape is predominantly open and/or vegetated. The landscape character at this location comprises mainly open vegetated space and minor elements of infrastructure. Any inclusion of visible industrial elements would change the existing landscape amenity.
Visual Sensitivity	The visual sensitivity would be relatively high as the view location is within a low density residential zone (RE2). The existing landscape amenity would be changed as prominent glimpses of the development would be visible from this location.
Visual Impact	The proposed development would be relatively prominent at this location. The change in the landscape amenity coupled with the zoning in which the viewpoint is situated will make this visual impact moderate to high.

view 19

Existing View

Simulated View

view 19

Viewing Location	East of site, Corner of Woodlake Court and Wattle Grove Drive, Wattle Grove
Visual Adaptation	
Approximate Viewing Distance	1,300m to site boundary (approx.)
Prominence of the Development	The proposed development will not be visible from this location. The entire development will be screened by the existing vegetation and the residential dwellings.
Landscape Compatability	The existing landscape from this location comprises of residential dwellings with trees lining the street on each side. The addition of the proposed industrial facility is not compatible with this area, although because the proposed development is not visible from this location there would be no impact to the landscape amenity.
Visual Sensitivity	Being a residential area the visual sensitivity will be relatively high. Most of the views from this area will be of a limited depth, and the residential dwellings and vegetation completely screen the proposed development. Therefore the visual amenity will be unchanged.
Visual Impact	There will be no change to the visual amenity at this location, therefore this will result in no visual impact.

view 20

Existing View

Simulated View

view 20

Viewing Location	East of site, Gracemere Court, Wattle Grove
Visual Adaptation	
Approximate Viewing Distance	800m to site boundary (approx.)
Prominence of the Development	The proposed development will not be visible from this location. The proposed development is entirely screened by the vast amount of heavy vegetation.
Landscape Compatability	The existing landscape directly in front of this location comprises of infrastructure zoned land that is heavily vegetated. The proposed development is beyond this infrastructure zoned land. The immediate landscape directly behind the viewing location is residential zoned land comprising of residential dwellings.
Visual Sensitivity	The infrastructure zoned land suggests a low sensitivity in this location. The proposed development from this location will not be visible, therefore the visual amenity will be unchanged.
Visual Impact	There will be no change to the visual amenity at this location, therefore this will result in no visual impact.

view 21

Existing View

Simulated View

view 21

Viewing Location	East of site, Merryville Court, Wattle Grove
Visual Adaptation	
Approximate Viewing Distance	1,200m to site boundary (approx.)
Prominence of the Development	The proposed development will not be visible from this location. The entire development will be screened by the existing vegetation and the residential dwellings.
Landscape Compatability	The existing landscape from this location comprises of residential dwellings with trees lining the street on each side. The addition of the proposed industrial facility is not compatible with this area, although because the proposed development is not visible from this location there would be no impact to the landscape amenity.
Visual Sensitivity	Being a residential area the visual sensitivity will be relatively high. Most of the views from this area will be of a limited depth, and the residential dwellings and vegetation completely screen the proposed development. Therefore the visual amenity will be unchanged.
Visual Impact	There will be no change to the visual amenity at this location, therefore this will result in no visual impact.

view 22

Existing View

Simulated View

view 22

Viewing Location	East of site, Merryville Court, Wattle Grove
Visual Adaptation	
Approximate Viewing Distance	1,200m to site boundary (approx.)
Prominence of the Development	The proposed development will not be visible from this location. The proposed development is entirely screened by the vast amount of heavy vegetation.
Landscape Compatability	The existing landscape directly in front of this location comprises of infrastructure zoned land that is heavily vegetated. The proposed development is beyond this infrastructure zoned land. The immediate landscape directly behind the viewing location is residential zoned land comprising of residential dwellings.
Visual Sensitivity	The infrastructure zoned land suggests a low sensitivity in this location. The proposed development from this location will not be visible, therefore the visual amenity will be unchanged.
Visual Impact	There will be no change to the visual amenity at this location, therefore this will result in no visual impact.

view 23

Existing View

Simulated View

view 23

Viewing Location	East of site, adjacent to Corryton Court, Wattle Grove
Visual Adaptation	
Approximate Viewing Distance	700m to site boundary (approx.)
Prominence of the Development	The proposed development will not be visible from this location. The proposed development is entirely screened by the vast amount of heavy vegetation.
Landscape Compatability	The existing landscape directly in front of this location comprises of infrastructure zoned land that is heavily vegetated. In the foreground is Anzac Creek. The proposed development is beyond this infrastructure zoned land. The immediate landscape directly behind the viewing location is residential zoned land comprising of residential dwellings.
Visual Sensitivity	The infrastructure zoned land suggests a low sensitivity in this location. The proposed development from this location will not be visible, therefore the visual amenity will be unchanged.
Visual Impact	There will be no change to the visual amenity at this location, therefore this will result in no visual impact.

view 24

Existing View

Simulated View

view 24

Viewing Location	East of site, Australis Park, Wattle Grove
Visual Adaptation	
Approximate Viewing Distance	1,100m to site boundary (approx.)
Prominence of the Development	The proposed development will not be visible from this location. The entire development will be screened by the existing vegetation and Wattle Grove Public School.
Landscape Compatability	The viewing location is from Australis Park. Directly in the foreground is Wattle Grove Public School. Wattle Grove Public School is a series of two storey dwellings that completely screen the proposed development.
Visual Sensitivity	Being a residential area the visual sensitivity will be relatively high. Wattle Grove Public School and the vegetation completely screen the proposed development. Therefore the visual amenity will be unchanged.
Visual Impact	There will be no change to the visual amenity at this location, therefore this will result in no visual impact.

view 25

Existing View

Simulated View

view 25

Viewing Location	South-East of site, Yallum Court, Wattle Grove
Visual Adaptation	
Approximate Viewing Distance	600m to site boundary (approx.)
Prominence of the Development	The proposed development will not be visible from this location. The proposed development is entirely screened by the vast amount of heavy vegetation.
Landscape Compatability	The existing landscape directly in front of this location comprises of infrastructure zoned land that is heavily vegetated. The proposed development is beyond this infrastructure zoned land. The immediate landscape directly behind the viewing location is residential zoned land comprising of residential dwellings.
Visual Sensitivity	The infrastructure zoned land suggests a low sensitivity in this location. The proposed development from this location will not be visible, therefore the visual amenity will be unchanged.
Visual Impact	There will be no change to the visual amenity at this location, therefore this will result in no visual impact.

view 26

Existing View

Simulated View

view 26

Viewing Location	South-East of Site, Evandale Court, Wattle Grove
Visual Adaptation	
Approximate Viewing Distance	1,200m to site boundary (approx.)
Prominence of the Development	The proposed development will not be visible from this location. The entire development will be screened by the existing vegetation and the residential dwellings.
Landscape Compatability	The existing landscape from this location comprises of residential dwellings with trees lining the street on each side. In the background there are glimpses of large trees that are on the infrastructure zoned land located south-east of the proposed development. The addition of the proposed industrial facility is not compatible with this area, although because the proposed development is not visible from this location there would be no impact to the landscape amenity.
Visual Sensitivity	Being a residential area the visual sensitivity will be relatively high. Most of the views from this area will be of a limited depth, and the residential dwellings and vegetation completely screen the proposed development. Therefore the visual amenity will be unchanged.
Visual Impact	There will be no change to the visual amenity at this location, therefore this will result in no visual impact.

view 27

Existing View

Simulated View

view 27

Viewing Location	South-East of site, Tusculum Court, Wattle Grove
Visual Adaptation	
Approximate Viewing Distance	1,100m to site boundary (approx.)
Prominence of the Development	The proposed development will not be visible from this location. The entire development will be screened by the existing vegetation and the residential dwellings.
Landscape Compatability	The existing landscape from this location comprises of residential dwellings with trees lining the street on each side. The addition of the proposed industrial facility is not compatible with this area, although because the proposed development is not visible from this location there would be no impact to the landscape amenity.
Visual Sensitivity	Being a residential area the visual sensitivity will be relatively high. Most of the views from this area will be of a limited depth, and the residential dwellings and vegetation completely screen the proposed development. Therefore the visual amenity will be unchanged.
Visual Impact	There will be no change to the visual amenity at this location, therefore this will result in no visual impact.

view 28

Existing View

Simulated View

view 28

Viewing Location	South-East of site, Somercotes Court, Wattle Grove
Visual Adaptation	
Approximate Viewing Distance	700m to site boundary (approx.)
Prominence of the Development	The proposed development will not be visible from this location. The proposed development is entirely screened by the vast amount of heavy vegetation.
Landscape Compatability	The existing landscape directly in front of this location comprises of infrastructure zoned land that is heavily vegetated. The proposed development is beyond this infrastructure zoned land. The immediate landscape directly behind the viewing location is residential zoned land comprising of residential dwellings.
Visual Sensitivity	The infrastructure zoned land suggests a low sensitivity in this location. The proposed development from this location will not be visible, therefore the visual amenity will be unchanged.
Visual Impact	There will be no change to the visual amenity at this location, therefore this will result in no visual impact.

view 29

Existing View

Simulated View

view 29

Viewing Location	South of site, Moorebank Avenue
Visual Adaptation	
Approximate Viewing Distance	750m to site boundary (approx.)
Prominence of the Development	The proposed development will not be visible from this location. The proposed development is entirely screened by the heavy vegetation.
Landscape Compatability	The landscape on this part of Moorebank Avenue comprises of infrastructure zoned land that is heavily vegetated on either side of the road. The proposed development is further down Moorebank Avenue, but it is not visible from this location because of the bend in the road and the large trees that screen the proposed development.
Visual Sensitivity	The infrastructure zoned land suggests a low sensitivity in this location. The proposed development from this location will not be visible, therefore the visual amenity will be unchanged.
Visual Impact	There will be no change to the visual amenity at this location, therefore this will result in no visual impact.

view 30

Existing View

Simulated View

view 30

Viewing Location	South of site, Moorebank Avenue
Visual Adaptation	
Approximate Viewing Distance	250m to site boundary (approx.)
Prominence of the Development	There is a relatively unobstructed view from this portion of Moorebank Avenue to the south-western corner of the proposed development. Warehousing from within the proposed Intermodal terminal facility as well as the container yard with associated gantry cranes will be highly prominent.
Landscape Compatability	The addition of any new industrial development within this viewpoint will have a small impact on the existing landscape amenity. There is little existing vegetation and the existing industrial elements sitting within the boundary of the proposed development are highly visible. The proposed buildings and container yard will be of a larger scale than the existing industrial buildings. There will be an 18m landscape buffer zone and estate entry point with built form elements to provide visual interest which will help reduce any change to the existing landscape amenity and prominence of the development.
Visual Sensitivity	The industrial land-use at this location creates a low visual sensitivity (Moorebank Southern Industrial precinct). Most views from within this area looking north towards the proposed development will be from existing industrial areas or from commuters travelling along Moorebank Avenue.
Visual Impact	The proposed development would be highly prominent at this location. There is little to no visual sensitivity from this viewpoint as the viewpoint is within an already established industrial zone. Therefore there will be a low visual impact from this viewpoint.

view 31

Existing View

Simulated View

view 31

Viewing Location	South of site, Moorebank Avenue
Visual Adaptation	
Approximate Viewing Distance	50m to site boundary (approx.)
Prominence of the Development	There is a relatively unobstructed view from this portion of Moorebank Avenue to the south-western corner of the proposed development. Warehousing from within the proposed Intermodal terminal facility as well as the container yard with associated gantry cranes will be highly prominent.
Landscape Compatability	The addition of any new industrial development within this viewpoint will have a small impact on the existing landscape amenity. There is little existing vegetation and the existing industrial elements sitting within the boundary of the proposed development are highly visible. The proposed buildings and container yard will be of a larger scale than the existing industrial buildings. There will be an 18m landscape buffer zone and estate entry point with built form elements to provide visual interest which will help reduce any change to the existing landscape amenity and prominence of the development.
Visual Sensitivity	The industrial land-use at this location creates a low visual sensitivity (Moorebank Southern Industrial precinct). Most views from within this area looking north towards the proposed development will be from existing industrial areas or from commuters travelling along Moorebank Avenue.
Visual Impact	The proposed development would be highly prominent at this location. There is little to no visual sensitivity from this viewpoint as the viewpoint is within an already established industrial zone. Therefore there will be a low visual impact from this viewpoint.

view 32

Existing View

Simulated View

view 32

Viewing Location	West of site, Moorebank Avenue
Visual Adaptation	
Approximate Viewing Distance	20m to site boundary (approx.)
Prominence of the Development	There is a relatively unobstructed view from this portion of Moorebank Avenue to the south-western corner of the proposed development. Warehousing from within the proposed Intermodal terminal facility as well as the container yard with associated gantry cranes will be highly prominent. For the purposes of creating a realistic assessment of the potential visual impact of the container yard and operating equipment, container heights have been staggered generally at maximum stacking height.
Landscape Compatability	The addition of any new industrial development within this viewpoint will have a small impact on the existing landscape amenity. There is little existing vegetation and the existing industrial elements sitting within the boundary of the proposed development are highly visible. The proposed buildings and container yard will be of a larger scale than the existing industrial buildings. There will be an 18m landscape buffer zone and estate entry point with built form elements to provide visual interest which will help reduce any change to the existing landscape amenity and prominence of the development.
Visual Sensitivity	The industrial land-use at this location creates a low visual sensitivity (Moorebank Southern Industrial precinct). Most views from within this area looking north towards the proposed development will be from existing industrial areas or from commuters travelling along Moorebank Avenue.
Visual Impact	The proposed development would be highly prominent at this location. There is little to no visual sensitivity from this viewpoint as the viewpoint is within an already established industrial zone. Therefore there will be a low visual impact from this viewpoint.

view 33

Existing View

Simulated View

view 33

Viewing Location	North-West of site, Moorebank Avenue
Visual Adaptation	
Approximate Viewing Distance	30m to site boundary (approx.)
Prominence of the Development	There is a relatively unobstructed view from this portion of Moorebank Avenue to the South-Western corner of the proposed development. Warehousing from within the proposed Intermodal terminal facility as well as the container yard with associated gantry cranes will be highly prominent.
Landscape Compatability	The addition of any new industrial development within this viewpoint will have a small impact on the existing landscape amenity. There is little existing vegetation and the existing industrial elements sitting within the boundary of the proposed development are highly visible. The proposed buildings and container yard will be of a larger scale than the existing industrial buildings. There will be an 18m landscape buffer zone and estate entry point with built form elements to provide visual interest which will help reduce any change to the existing landscape amenity and prominence of the development.
Visual Sensitivity	The industrial land-use at this location creates a low visual sensitivity (Moorebank Southern Industrial precinct). Most views from within this area looking north towards the proposed development will be from existing industrial areas or from commuters travelling along Moorebank Avenue.
Visual Impact	The proposed development would be highly prominent at this location. There is little to no visual sensitivity from this viewpoint as the viewpoint is within an already established industrial zone. Therefore there will be a low visual impact from this viewpoint.

view 34

Existing View

Simulated View

view 34

Viewing Location	North of site, Corner of Moorebank Avenue and Anzac Road
Visual Adaptation	
Approximate Viewing Distance	500m to site boundary (approx.)
Prominence of the Development	This portion of Moorebank Avenue consists of industrial facilities on either side of the road. The road is lined with large trees on either side which entirely screen the proposed development.
Landscape Compatability	The addition of new industrial elements to this landscape would be very compatible with this landscape.
Visual Sensitivity	The industrial land-use suggests a low visual sensitivity in this location. The proposed development will not be visible from this location, hence the visual amenity will be unchanged.
Visual Impact	There will be no change to the visual amenity at this location, therefore this will result in no visual impact.

view 35

Existing View

Simulated View

view 35

Viewing Location	North of site, Moorebank Avenue
Visual Adaptation	
Approximate Viewing Distance	800m to site boundary (approx.)
Prominence of the Development	This portion of Moorebank Avenue consists of industrial facilities on either side of the road. The road is lined with large trees on either side which entirely screen the proposed development.
Landscape Compatability	The addition of new industrial elements to this landscape would be very compatible with this landscape.
Visual Sensitivity	The industrial land-use suggests a low visual sensitivity in this location. The proposed development will not be visible from this location, hence the visual amenity will be unchanged.
Visual Impact	There will be no change to the visual amenity at this location, therefore this will result in no visual impact.

view R1

Existing View

Simulated View

view R01

Viewing Location	South of site, Moorebank Avenue (rail overpass)
Visual Adaptation	
Approximate Viewing Distance	60m from viewpoint line of sight to proposed rail line (approx.)
Prominence of the Development	The Moorebank Avenue rail overpass is located 800m south of the proposed development. It has unobstructed elevated views of the existing city rail passenger railway line. The proposed freight railway line is directly adjacent to the existing railway line and would be highly prominent from this location. No other part of the development would be visible from this location.
Landscape Compatability	The landscape on either side of the railway lines (existing and proposed) is highly vegetated, consisting of large trees and shrubs. The addition of the proposed railway line will moderately detract from the existing landscape amenity.
Visual Sensitivity	Traffic that passes along this portion of Moorebank Avenue will have access to prominent views of the proposed railway line. However, due to the views being predominantly brief and the importance of amenity to the viewers not being great, the visual sensitivity at this location would be moderate.
Visual Impact	The addition of the proposed railway line is not a substantial change to the existing landscape amenity. The visual impact at this location will be moderate.

view R2

Existing View

Simulated View

view R02

Viewing Location	South of site, Moorebank Avenue (rail overpass)
Visual Adaptation	
Approximate Viewing Distance	50m from viewpoint line of sight to proposed rail line (approx.)
Prominence of the Development	The Moorebank Avenue rail overpass is located 650m south of the proposed development. It has unobstructed elevated views of the existing city rail passenger railway line. The proposed freight railway line is directly adjacent to the existing railway line and turns to Rail Corp land North to SIMTA site.
Landscape Compatability	The landscape on either side of the railway lines (existing and proposed) and existing rail to DNSDC are highly vegetated, consisting of large trees and shrubs. The addition of the proposed railway line will moderately detract from the existing landscape amenity.
Visual Sensitivity	Traffic that passes along this portion of Moorebank Avenue will have access to prominent views of the proposed railway line. However, due to the views being predominantly brief and the importance of amenity to the viewers not being great, the visual sensitivity at this location would be moderate.
Visual Impact	The addition of the proposed railway line is not a substantial change to the existing landscape amenity. The visual impact at this location will be moderate.

view R3

Existing View

Simulated View

view R03

Viewing Location	South-west of site, Corner of Canterbury Road and Cambridge Avenue
Visual Adaptation	
Approximate Viewing Distance	1,200m from viewpoint line of sight to proposed rail line (approx.)
Prominence of the Development	The proposed development is not visible from this location. The proposed railway line will be entirely screened by the heavy vegetation and existing dwellings.
Landscape Compatability	In the foreground is the intersection of Cambridge Avenue and Canterbury Road. The existing landscape comprises of some heavy vegetation. Amongst this vegetation are some existing dwellings.
Visual Sensitivity	The visual sensitivity in this location is low. The views will be from passing traffic through the intersection, and will be of short duration. Because the proposed development will not be visible, the visual amenity will be unchanged.
Visual Impact	There will be no change to the visual amenity at this location, therefore this will result in no visual impact.

view R4

Existing View

Simulated View

view R04

Viewing Location	South-west of site, Glenfield Road
Visual Adaptation	
Approximate Viewing Distance	1,000m from viewpoint line of sight to proposed rail line (approx.)
Prominence of the Development	The proposed railway line is not visible from this location.
Landscape Compatability	In the foreground is Leacock Regional Park. Beyond this park is the existing city rail passenger railway line. Further beyond the existing rail way line is some heavy vegetation that totally screens the proposed railway line.
Visual Sensitivity	The visual sensitivity in this location is low. Because the proposed development will not be visible, the visual amenity will be unchanged.
Visual Impact	There will be no change to the visual amenity at this location, therefore this will result in no visual impact.

view R5

Existing View

Simulated View

view R05

Viewing Location	South-West of site, Glenfield Road (within Leacock Regional Reserve)
Visual Adaptation	
Approximate Viewing Distance	1,000m from viewpoint line of sight to proposed rail line (approx.)
Prominence of the Development	The proposed railway line is not visible from this location.
Landscape Compatability	In the foreground is Leacock Regional Park. Beyond this park is the existing city rail passenger railway line. Further beyond the existing rail way line is some heavy vegetation that totally screens the proposed railway line.
Visual Sensitivity	The visual sensitivity in this location is low. Because the proposed development will not be visible, the visual amenity will be unchanged.
Visual Impact	There will be no change to the visual amenity at this location, therefore this will result in no visual impact.

view R6

Existing View

Simulated View

view R06

Viewing Location	South-west of site, Leacocks Lane
Visual Adaptation	
Approximate Viewing Distance	600m from viewpoint line of sight to proposed rail line (approx.)
Prominence of the Development	The proposed railway line is not visible from this location.
Landscape Compatability	In the foreground is Leacock Regional Park. Beyond the park is some heavy vegetation that totally screens the proposed railway line and proposed development.
Visual Sensitivity	The visual sensitivity in this location is high. Because the proposed development will not be visible, the visual amenity will be unchanged.
Visual Impact	There will be no change to the visual amenity at this location, therefore this will result in no visual impact.

view R7

Existing View

Simulated View

view R07

Viewing Location	South-West of site, Leacocks Lane
Visual Adaptation	
Approximate Viewing Distance	600m from viewpoint line of sight to proposed rail line (approx.)
Prominence of the Development	The proposed railway line is not visible from this location.
Landscape Compatability	In the foreground is Leacock Regional Park. Beyond the park is some heavy vegetation that totally screens the proposed railway line and proposed development.
Visual Sensitivity	The visual sensitivity in this location is high. Because the proposed development will not be visible, the visual amenity will be unchanged.
Visual Impact	There will be no change to the visual amenity at this location, therefore this will result in no visual impact.

view R8

Existing View

Simulated View

view R08

Viewing Location	West of site, Leacocks Lane
Visual Adaptation	
Approximate Viewing Distance	470m from viewpoint line of sight to proposed rail line (approx.)
Prominence of the Development	The proposed railway line is not visible from this location.
Landscape Compatability	In the foreground is Leacock Regional Park. Beyond the park is some heavy vegetation that totally screens the proposed railway line and proposed development.
Visual Sensitivity	The visual sensitivity in this location is high. Because the proposed development will not be visible, the visual amenity will be unchanged.
Visual Impact	There will be no change to the visual amenity at this location, therefore this will result in no visual impact.

view R9

Existing View

Simulated View

view R09

Viewing Location	West of site, Leacocks Lane
Visual Adaptation	
Approximate Viewing Distance	600m from viewpoint line of sight to proposed rail line (approx.)
Prominence of the Development	The proposed railway line is not visible from this location.
Landscape Compatability	In the foreground is Leacock Regional Park. Beyond the park is some heavy vegetation that totally screens the proposed railway line and proposed development.
Visual Sensitivity	The visual sensitivity in this location is high. Because the proposed development will not be visible, the visual amenity will be unchanged.
Visual Impact	There will be no change to the visual amenity at this location, therefore this will result in no visual impact.

07.2 visual impacts during construction

The construction program for the SIMTA development is yet to be determined, however it is anticipated that the following indicative staging sequence is appropriate for consideration:

Stage 1: Construction of the rail link, terminal and sidings to accommodate trains of a length of approximately 650m (including locomotives).

Stage 2: Construction of warehouse and distribution facilities with ancillary offices with associated access, car parking, and landscaping works.

Stage 3: Construction of potential extension of the rail siding and further warehouse and distribution facilities with ancillary offices and associated access, car parking, landscaping and works to the completion of the overall development and Intermodal Facility.

During each of these stages, construction cranes are likely to be the most visible element during construction and would be potentially viewed from some of the key viewpoints discussed above, however given the low-rise nature of the proposed development it is unlikely these would be any more intrusive than the terminal operating equipment and would be highly localised.

Other sources of visual impact during construction, such as the establishment of hoardings and construction fencing would tend to create highly localised visual impacts primarily along Moorebank Avenue and Anzac Road.

08 light spill assessment

08.1 introduction and methodology

The Sydney Intermodal Terminal Alliance (SIMTA) is a joint venture between Stockland, Qube Logistics and QR National.

The SIMTA Moorebank Intermodal Terminal Facility (SIMTA proposal) is proposed to be located on the land parcel currently occupied by the Defence National Storage and Distribution Centre (DNSDC) on Moorebank Avenue, Moorebank, south-west of Sydney.

SIMTA proposes to develop the DNSDC site into an intermodal terminal facility and warehouse/distribution facility, which will offer container storage and warehousing solutions with direct rail access.

The SIMTA site is located in the Liverpool Local Government Area. It is 27 kilometres west of the Sydney CBD, 16 kilometres south of the Parramatta CBD, 5 kilometres east of the M5/M7 Interchange, 2 kilometres from the main north-south rail line and future Southern Sydney Freight Line, and 0.6 kilometres from the M5 motorway.

The SIMTA proposal will be undertaken as a staged development. An annual operating capacity of one million TEUs is anticipated in the ultimate stage, when fully developed.

Hyder has prepared this light spill study to examine the potential lighting requirements for the operation of the SIMTA site and investigate through the modelling of a concept lighting design, its compliance with the Australian Standard -

AS4282- 1997, ‘Control of Obtrusive Effects of Outdoor Lighting’.

The actual lighting design will be developed and detailed during ongoing design development of the stages of SIMTA. Each stage will require further analysis based upon the actual luminaires to be adopted to ensure their compliance with the above standard, and to mitigate any impact on the surrounding environment.

08.2 methodology

The scope of the light spill study is to predict:

- Spill light to residential boundaries in the form of a vertical Illuminance/intensity calculation grid on a vertical plane at a height of 1.5m within the specified area, derived in the specified manner.
- Special criteria operation such as local airfields or astronomical observatories that could be affected from spill light.

The results of the modelling which depicts the alignment of the limiting illuminance, is shown in Figure 9.

Software used for the illuminance modelling/calculation is the visual lighting design software AGi32: version 2.02 provided by light lab international (www.lsa.com.au) and (www.visuallightingsoftware.com).

The assessment methodology has generally not included the beneficial effect of buildings, trees and bushes and can thus be considered conservative.

The extent or scale of values likely to be affected as a result of the SIMTA proposal are outlined further within this report. The extent or scale refers to areas within the SIMTA site and rail link construction footprint. Design information regarding the location of the rail link within the rail corridor is not available at this time. As a result, potential impacts within the rail corridor may be reviewed once design and siting studies are completed for the project application stages.

08.3 australian standards for spill light

In accordance with Table 2.1 of Australian Standard AS4282-1997 'Control of the Obtrusive Effect of Outdoor Lighting', the following light levels have been adopted as the limiting values in the assessment of spill light:

Light Technical Parameter		Residential Areas	
		Light Surrounds	Dark Surrounds
Illuminance in Vertical Plane	Pre-curfew Hours	10 lx	10 lx
	Curfew Hours	2 lx	1 lx
Luminous Intensity Emitted by Luminaries	Pre-curfew Hours	100,000 cd (for a large area with Level 1 control)	100,000 cd (for a large area with Level 1 control)
	Curfew Hours	1,000 cd	500 cd

Table 1 - Light Limiting Values in accordance with Table 2.1 - AS4282 - 1997

A copy of Table 2.1 – AS4282 – 1997 is located in Appendix A

These limiting values are based upon the assumption that the criteria for curfew hours will apply, since the site lighting will be operational for 24 hours per day.

It should be noted that additional light spill can be accepted in an area where a lot of light already prevalent, whereas the same light spill will be seen as more obtrusive in dark residential areas.

08.4 design parameters and assumptions

site description

The site is divided into two main usages:

- The rail transfer and container loading area, which is located on the western (Moorebank Avenue frontage of the site).
- Warehousing area located on the eastern, Wattle Grove side of the site.

It is considered the location with the most potential for light spill is the rail transfer and container loading area.

The rail transfer and container loading area is an open area which will be lit by luminaires on high standards (assumed for the purposes of the modelling only as 40m), so as to provide relatively high levels of light in both horizontal/vertical planes. The level of light is intended to safely support operations of the intermodal terminal such as:

- crane operations and positioning
- shared vehicular and pedestrian usage hazard
- container movement activities

The warehousing is located on the eastern boundary and should be similar in operation to any large warehouse complex. The warehouses are expected to have their front of house entries facing the eastern boundary of the site, with loading and unloading of the buildings along the northern and southern building faces.

operational lighting standards

There are no Australian standards which specifically address minimum standards of lighting for an exterior work area with this type of application. In these instances, the international standard *CIE 129-1998 Guide for lighting exterior work areas* is generally adopted.

The CIE standard specifies 50 lux for ‘rough works’ which includes continuous handling of large units and raw materials, loading and unloading of freight, lifting and deseeding location for cranes, open loading platforms.

The following design parameters have therefore been adopted for relevant calculations to analyse the effects of obtrusive light from the proposed lighting system;

- Maintained Average Horizontal Illuminance = 50 lux
- Light Loss Factor = 0.70
- Initial lamp output = 220,000 lumens/lamp
- Horizontal Illuminance based at ground level
- Calculation Grid Size over field = 5m x 5m

luminaire adopted for modelling

For the purposes of modelling to satisfy AS4282 – 1997, the following lighting luminaire and standard have been adopted:

- Philips Optivision floodlight luminaires with 2000 watt double ended short arc metal halide lamp
- 40 metre high standards, located at approximately 120 metre centres

The Phillips Optivision luminaire has been specifically chosen for a number of reasons:

- it is commonly available in Australia and commonly adopted in similar uses such as external industrial sites and sports facilities.
- the Optivision luminaire uses an asymmetric reflector of very high efficiency.

Asymmetric reflectors in luminaires are used for down lighting in open industrial or sporting fixtures specifically to control spill-light and limit glare and upward light leakage. Figure 7 shows how a light beam from an asymmetrical luminaire provides a more focussed light beam.

A brochure for the Optivision product is included in Appendix B and a copy of the lighting performance curves used for the modelling is shown in Figure 8.

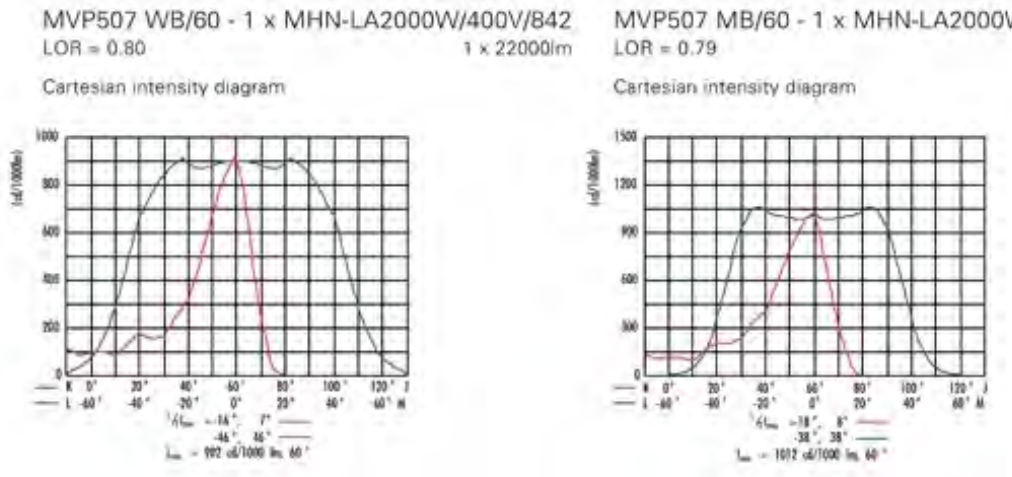
An asymmetric reflector means that the maximum beam intensity is emitted at an angle to the front of the glass so that spill is secured at a peak intensity at 60º and a sharp cut-off of light at 80º. The following photograph demonstrates the beam from an assymetrical reflector on a similar type of luminaire.

Figure 7 - Example of Light Beam from an Asummetric reflector

Standard luminaires with a symmetrical reflector need to be tilted to angles up to75^0 to be able to achieve the spread and intensity of a beam over a wide area, whereas an asymmetrical reflector can achieve the same level with only a tilt of just 100 thus reducing risk of light spill to adjoining properties.

A combination of wide beam and medium beam reflectors would be used in the fittings to contain the lighting to a specific area without creating significant bright spots on site.

Philips Optivision 2000 Watt Light Fitting



Photometric of the Light Fitting

Figure 8 - Lighting Performance Diagram for Philips Optivision 2000 watts

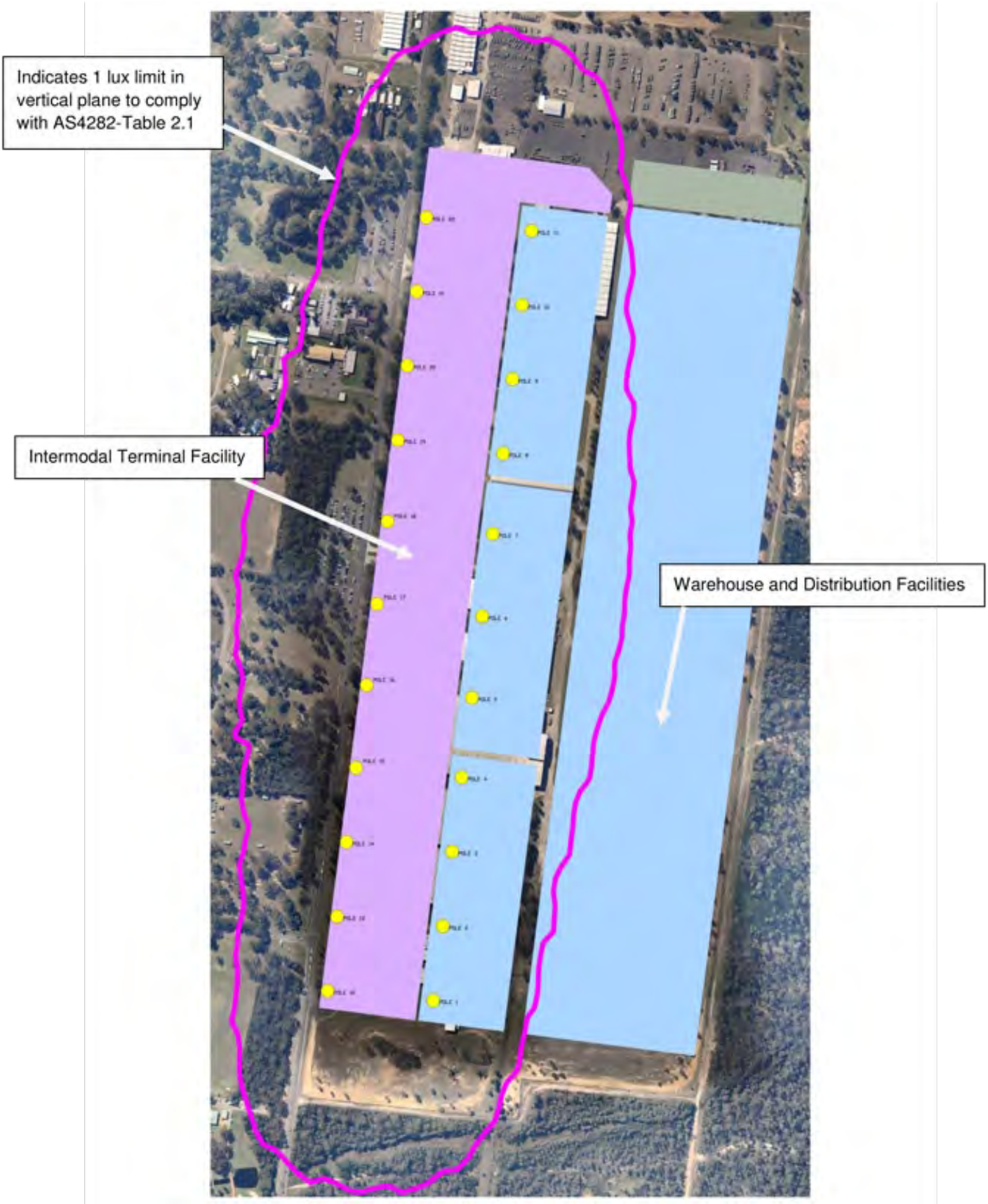


Figure 9 - Isolux result (Vertical Illuminance at 1.5m above ground)

08.4 results and conclusions

The results of the modelling using Philips Optivision 2000 watt luminaires mounted on 40m poles at approximately 120m centres are as follows:

- The most stringent requirement under Table 2.1 of AS4282 1997 of 1 lux in residential dark surrounds during curfew hours, is achieved approximately 150 metre from the light source as shown in Figure 9.

- Residential properties are approximately 400 metres from the eastern boundary and so will not be impacted by the light spill from the development.

- Along the eastern boundary where the uses are more consistent with a standard street in a commercial/ industrial area, the light level is expected to be equivalent to a standard street level of lighting as per AS1158.3.1 category P3. Note that the requirements set for P3 is minimum 0.3 lux and hence unlikely to impact on the nearest residences.

The results of the modelling are shown on drawing SKC041 located in Appendix C.

The modelling shows that the luminous intensity from lighting within the SIMTA site can be easily designed to be below the prescribed maximum value of 500 cd (for curfew hours: 11.00 pm to 6.00 am) at the nearest residences.

Therefore the impact of spill light to the residential properties will be well within the required criteria as specified in Australian Standard AS4282-1997 ‘Control of the Obtrusive Effect of Outdoor Lighting’.

09 conclusion

The proposed SIMTA Intermodal Terminal is to be developed on a site that has been occupied by the Department of Defence for many years and has been primarily utilised for warehouse and distribution/ logistics related activities. Many of the facilities on the existing site are old and have reached or are beyond their useful life.

Besides secure perimeter fencing there is very little landscaping or other visual screening to shield operations from the public view and that of surrounding developments.

The site is surrounded by expanisve areas of natural dense bushland and other lands owned and occupied by the Department of Defence for industrial and Military related uses.

The next closest developments to the site are also largely industrial, with the closest residential areas being Wattle Grove to the north and east, and Casula approximately 1km to the west across the Georges River.

The proposed development would generally be in keeping with the existing character of the area. Some relatively high and/or bulky structures/ equipment may however increase the visibility of the site beyond its current levels, with some limited and highly localised visual impacts.

The pattern of development surrounding the site described above will screen the development from much of the surrounding area. Potential views do occur along viewing corridors created by streets bounding the site (Moorebank Avenue and Anzac Road), and where topography provides some elevation above potential obstructions to views.

Visual impact has been assessed from locations with potential views of the development as identified through a digital viewshed analysis. The anticipated visual impact of each viewpoint has been analysed using a range and combination of qualitative criteria.

Given the nature of the proposed development and its consistency with general industry within the local area, higher visual impact locations would be primarily those in residential areas that have prominent views of site elements. This study found minimal visual impact to residential areas during daylight hours.

The limited visual impact to residential areas is mainly due to distance, existing visual barriers and undulating topography between the site and these residential zones.

The most prominent views of the development would occur at localised boundary points such as Moorebank Avenue and Anzac Road, as well as the residential boundary to the Wattle Grove residential areas, however these impacts are regarded as relatively low because of their existing and unobstructed views of the DNSDC operations which are resonably compatible with the proposed SIMTA development.

A number of visual impact mitigation measures have been proposed including significant and intensive landscaping, planting, built-form screening and mounding, that would reduce the visibility of the development and improve the overall visual amenity of the site and area generally.

The light spill from the site has been modelled based on a preliminary lighting concept and results suggest that 1 lux in residential dark surrounds during curfew hours is achieved approximately 150 metre from the light source (as shown in Figure 9). The nearest residential properties are approximately 400 metres away and hence the impact of spill light to the residential properties will be well within the required criteria as specified in Australian Standard AS4282-1997 ‘Control of the Obtrusive Effect of Outdoor Lighting’.

THIS PAGE HAS BEEN LEFT BLANK INTENTIONALLY

appendix A

Table 2.1 - AS4282 - 1997

TABLE 2.1

RECOMMENDED MAXIMUM VALUES OF LIGHT TECHNICAL PARAMETERS FOR THE CONTROL OF OBTRUSIVE LIGHT

(See Clause 2.7)

1	2	3	4	5
Light technical parameter	Application or calculation conditions (see also Figure 2.1 and Section 5)	Recommended maximum values		
		In commercial areas or at boundary of commercial and residential areas*	Residential areas	
			Light surrounds†	Dark surrounds‡
Illuminance in vertical plane (E_v)	*Pre-curfew*: Limits apply at relevant boundaries of nearby residential properties, in a vertical plane parallel to the relevant boundary, to a height commensurate with the height of the potentially affected dwellings. Values given are for the direct component of illuminance	25 lx	10 lx	10 lx
	Curfewed hours: Limits apply in the plane of the windows of habitable rooms of dwellings on nearby residential properties. In the absence of development (i.e. vacant allotment), the limits apply on the potentially affected property, in a vertical plane parallel to the relevant boundary, at the minimum setback permitted for a dwelling, to a height commensurate with land use zoning provisions. Values given are for the direct component of illuminance	4 lx	2 lx	1 lx
Luminous intensity emitted by luminaires (I)	*Pre-curfew*: Limits apply to each luminaire (irrespective of the number on a head frame) in the principal plane, for all angles at and above the control direction, when aimed in accordance with the installation design	Limits as determined from Table 2.2. Alternatively, the limits and method of assessment associated with curfewed hours may be applied, at the discretion of the designer (see Clauses 2.7.1 and 2.7.2)		
	Curfewed hours: Limits apply in directions where views of bright surfaces of luminaires are likely to be troublesome to residents, from positions where such views are likely to be maintained, i.e. not where momentary or short-term viewing is involved	2 500 cd	1 000 cd	500 cd
Threshold increment (TI)	Limits apply at all times where users of transport systems are subject to a reduction in the ability to see essential information. Values given are for relevant positions and viewing directions in the path of travel	20% based on adaptation luminance ($\bar{L}$) of 10 cd/m^2	20% based on adaptation luminance ($\bar{L}$) of 1 cd/m^2	20% based on adaptation luminance ($\bar{L}$) of 0.1 cd/m^2

* Applies to residential accommodation in commercial areas or at the boundary between commercial and residential areas. The term 'commercial' is used as a generic description for zoning which provides for urban uses other than residential.

† Where the affected property abuts roads that are lit to Category V5 or higher in accordance with AS/NZS 1158.1.1.

‡ Where the affected property abuts roads that are lit to Category B1 or lower in accordance with AS 1158.1, or where there is no lighting.