

Grant Sheldon  
6 Bellambi St  
Northbridge 2063  
mob: 0417 497034  
sheldon5@tpg.com.au

Thank you for another opportunity to comment on the lengthy EIS for the major road transport initiative of the proposed Northern Beaches Link.

I am submitting my **objection** to the Beaches Link, together with clear actionable initiatives I expect the Government will adopt to mitigate the impacts, should the project proceed.

I am a practicing Chartered Professional Engineer in the area of Civil Engineering with most of my 44 years' experience being in construction and maintenance of NSW Highways, Freeways and State Roads, and strategic infrastructure asset management. I have also lived at the above Northbridge address for 34 years and worked from this address for the last 20 years so I claim to have excellent knowledge of the area and particularly their transport and travel issues.

I am very conscious of the impacts from WestConnex and expect that the recommendations tabled by the NSW Parliament - Upper House Public, Accountability Committee are adopted with this Beaches Link to 'make life a little easier for those impacted'.

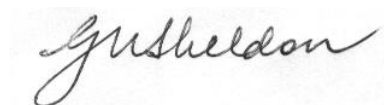
I fully endorse the submission made by the Northbridge Progress Association (NPA) and attach the NPA Recommendations (Section 6).

The Sections in my submission to the EIS are grouped as follows:

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Yours sincerely



Grant Sheldon CPEng  
1 March 2021

# I Sustainable Sydney Transport

I believe that different modes of Public Transport must be a dominant feature of projects that aim to address future accessibility around Sydney. The Beaches Link does not have dedicated bus lanes.

The metro extension from the newly established rail interchange at Chatswood should have been an alternative. The route from Dee Why (initially), via Roseville bridge, to Chatswood, appears a more sustainable environmental option for movement of people. This would potentially remove a significant number of peak hour cars from the Roseville and Spit corridors.

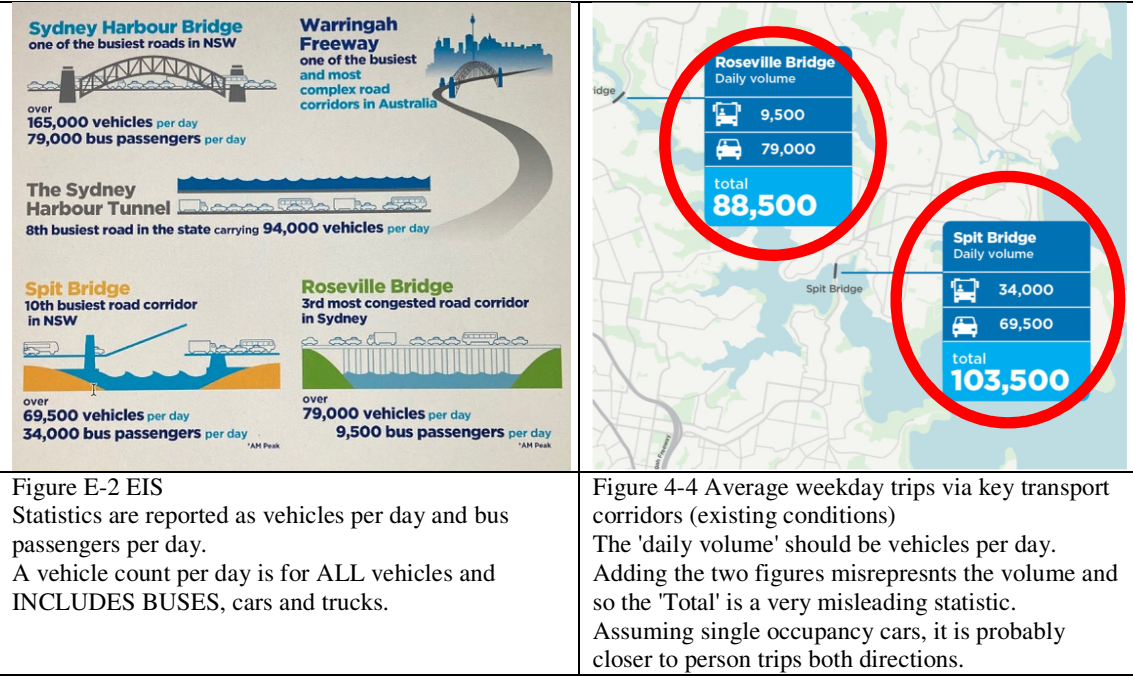
Buses are the most flexible way of transporting people located on peninsulas in Sydney. The B-Line double deckers have demonstrated this. The current Roseville Corridor has great potential to improve bus patronage thereby reducing car demand. Buses need to be no emission and electric-battery powered and they are now available.

Should this project proceed, it must have dedicated Public Transport Bus Lanes operating in each direction 24/7.

There also lacks consideration of new intermodal transport interchanges within this projects. Either transfer from car or bus route to bus or to/from rail/metro/light rail. One of these transport interchanges should occur near Artarmon where Gore Hill Freeway and this project intersects the North Shore Rail Line.

I recognise that it will potentially benefit freight connectivity between Manly Vale and Brookvale if the tunnels are suitable for 4.6 M height and can accommodate high productivity freight vehicles.

However, I take issue with the misleading information reported in the EIS regarding current traffic movements. This is a fundamental piece of information that has exaggerated the current levels and basic need for a solution.



This information should have been corrected in the EIS.

What is evident from these 2 figures is that the Roseville Bridge corridor has much less bus patronage relative to the Spit. The Sydney's Bus Future (2013) strategy for Bus Rapid Transit for this corridor should be a priority that would alleviate trips demand from Northern Beaches.

## **2 Construction Phase**

### **2.1 Dredging Middle Harbour**

The proposed dredging of this section of Middle Harbour will disturb sediment that apparently contains toxic chemicals and heavy metals.

Unacceptable would be a plume of disturbed sediment polluting the surrounding Middle Harbour waterways for while the tunnel is constructed. The popular Northbridge Baths would be impacted if water quality is reduced.

The habitat of the sea-bed will be destroyed by the dredging and rock rap ballast over the tunnel sections. Beds of Pinnidae (Razor Clams) are known to exist as I have collected their dead shells from Clive Park foreshores. The deep holes are home to large fish, such as kingfish, that travel into the harbour.

A major effort must be put into the prevention of sediment escaping from the immediate construction area and releasing toxins into the water and food chain.

In order to ensure that the process of dredging is carried out without any debilitating effects, it is important to use the best dredgers. For example, the hopper dredgers that suction out the deposits are considered to be a major cause for turbidity.

I strongly support that dredgers, which present a chance for pollution and extensive contamination, be prevented from operating and only dredgers with the most safe methodology, which achieve Best Practice Environmental Management (BPEM), be allowed to be used.

Noise from dredging and IMT construction obviously needs to be closely controlled.

### **2.2 Clive Park Aboriginal Site**

I am concerned that the aboriginal middens, overhanging aboriginal shelter cave and aboriginal whale rock outline at Clive Park may be destabilised and collapse during construction ground vibration.

There are similar caves adjacent that have collapsed in the past 100 years.

These need to be protected.

### **2.3 Flat Rock Reserve Dive Site**

In the Northbridge/Naremburn area the construction phase will have a very large impact for several years and beyond.

The selected Dive Site is an old growth forest area as well as an old tip sites known to be contaminated by asbestos, other unknown demolition and rubbish and used to discharge methane gas.

Flat Rock has been regenerated and restored by the Bush Care Group over 20 years to make it again a crucial part of the environmental green corridor for fauna from Artarmon to Tunks Park and harbour foreshores of Clive Park, Castlecrag, Middle Cove, Castle Cove and Roseville.

Its use as the Dive Site will severely disrupt this environmental corridor.

The EIS assumes that haulage will be via Flat Rock Drive to the Gore Hill Motorway. There is haulage each way via Secondary Roads of Alpha Rd/Brook St to access the Motorway and eventual tip sites. The reported 70 trucks/day for 5 to 6 years will seriously impact traffic in this area. Cars and trucks will either battle to use Alpha Road or divert to an already congested Strathallen Ave through Cammeray to avoid the trucks. These regular truck movements of spoil will be noisy and disruptive to surrounding areas especially at night.

I request that the Construction Contractor investigate the option of progressing the tunnel link to Artarmon so that it can be used to transport spoil from the tunnels with direct access west along the Motorway. This would lessen the duration of the Flat Rock Drive heavy haulage disruption and laden trucks heading south across the Harbour and then west.

The idea of traffic signals to allow trucks to gain entry poses a great road safety hazard. While the road is signposted 60 km/hr – previously it was sign posted 80 km/hr – the typical speed remains 80 km/hr owing to the steep gradient that will make stopping at lights dangerous and create a crash site.

A slip lane northbound for unladen trucks to enter the Dive site and a slip lane southbound for laden trucks to depart should be considered. Trucks could pass under the existing overbridge.

These slip lanes would remain post construction as an efficient way to access Willoughby Leisure Centre, the Netball Courts and Bicentennial Reserve without using many narrow local roads.



## **3 Operational Concerns**

### **3.1 Air Quality**

The air quality within the tunnels, at the portals or exhausted through the stacks are major sources of concern if the project becomes operational.

The effect of tunnel emission need to be considered when combined with uncontrollable bushfire smoke, burn-off smoke or air borne dust storms as they will tend to be the most hazardous for health.

Obviously fire in the tunnel needs to be dealt with for the safety of those in the tunnel but also those in the path of the exhausted fumes.

I am not impressed with standards that measure averages as this statistic hides unacceptable high exceedences that occur over a short period. It is short-term exposure that can trigger severe asthma and respiratory issues as well as length exposure.

A large number of independent air quality monitoring stations is required to measure and report in real time quarter hourly figures. This data must be openly accessible and reported. Their location must include hospitals, aged care facilities, preschools, schools, playing fields as well as areas where noxious fumes may tend to gather, such as during a temperature inversion.

Health warnings need to be broadcast immediately if air quality has potential to impact anyone with respiratory or other conditions.

Private tunnel operators apparently turn off systems that consume power to save money. This includes tunnel exhaust systems and filtration systems. Such potentially hazardous practice that impacts air quality needs to be closely monitored through these air quality sites.

I understand that World Best Practice for long road tunnels, such as the Beaches Link and built in the last 10 years, is to install filtration. The extra cost for filtration would be minor in the scheme of the overall project cost. The air flow at the portals could be modified to have a higher proportion exit via the stacks rather than via the portal.

At the end of life for the filtration units, typically 10 years, their ongoing need could be re-assessed based on actual measurements instead of modelling. Community involvement in their ongoing use would be a priority but based on actual historical measurements.

### **3.2 Access to Northbridge**

There appears to be reduced access to Northbridge following completion because some existing exits are made inaccessible.

Heading Northbound, either from Sydney Harbour Bridge or the Harbour Tunnel, the Cammeray/Miller Street or Flat Rock Drive exits are the most efficient means of entering Northbridge. A loss of both these of these would increase the trip and push vehicles onto local roads.

### **3.3 Access from Northbridge to Northern Beaches**

The entry points appear to be by driving to North Sydney or to Artarmon from Northbridge and so the Beaches Link does not provide any improved accessibility for Northbridge residents.

## **4 Remediation and restoration**

### **4.1 Middle Harbour**

Middle Harbour is the most beautiful and relatively unspoilt stretch of Sydney Harbour.

The remediation of the middle harbour floor and recreating the marine environment is a critical requirement.

Essentially the tubes will modify the harbour floor and foreshores, which has developed over thousands of years. The tunnels and rock will reduce the depth of water and substantially change the tidal currents. These will modify the existing harbour foreshore – changed sand deposition areas, loss of marine weed beds, undercutting the foreshores.

This needs to be modelled and impacts should have been reported in the EIS.

### **4.2 Flat Rock Drive**

The area must be restored to 'wild' bushland and creek with walking tracks using revegetation of native species and remediation of any contaminated land.

I am totally against the mention in the EIS that this site could be made into more recreation playing fields or facilities.

## **5 Communications**

Inevitably in a project of this complexity, there will be numerous issues that arise that cause Exceedents that must be mitigated.

The Community must be advised quicker than 24 hours afterwards. Work that apparently caused the exceedant must be promptly stopped until a satisfactory mitigation action is approved.

## **6 Summary of Recommendations**

The summary of concerns and recommendation submitted by the Northbridge Progress Association are fully endorsed by me and are attached as a separate document.



## Northbridge Progress Association submission to Transport NSW regarding Beaches Link Tunnel EIS - Concerns and Recommendations

1 March 2021

| Risk identified in EIS   | EIS<br>unmitigated<br>risk rating | EIS<br>residual<br>risk rating | NPA Concerns   | NPA Recommendations   |
|--|-----------------------------------|--------------------------------|--|---|
| <b>Traffic and Transport</b>   |                                   |                                |  |   |
| <ul style="list-style-type: none"> <li>Construction traffic impacts on road network performance</li> <li>Local road and parking impacts</li> </ul> | High                              | Medium                         | Flat Rock Drive is a major transport corridor for commuters and local schools. Despite the traffic projections showing minor impacts on local roads in and around Northbridge with mitigation measures in place, we are concerned that the additional traffic light on Flat Rock Gully, significant number of daily construction truck traffic movements and local parking by construction staff will lead to traffic and parking spillovers on local streets. | <p>That NSW Government require:</p> <ul style="list-style-type: none"> <li>Monitoring agreed pre-determined criteria for traffic flow efficiency on Brook Street/Flat Rock Drive/Sailors Bay Road/Alpha Road, breaches of which will trigger consideration of mitigation actions in consultation with the community</li> <li>Demonstration to the community of safe pedestrian and cyclist access around Flat Rock Gully and Willoughby Leisure Centre</li> <li>Consultation with the community prior to finalising the Construction Parking and Access Strategy</li> <li>That construction vehicles are prohibited from access to the Middle Harbour construction site from Sailors Bay Road</li> <li>Commitments for timely response to community complaints regarding</li> </ul> |

| Risk identified in EIS  | EIS<br>unmitigated<br>risk rating | EIS<br>residual<br>risk rating | NPA Concerns  | NPA Recommendations   |
|---|-----------------------------------|--------------------------------|---|---|
|   |                                   |                                |   | <p>traffic and parking during construction</p> <ul style="list-style-type: none"> <li>Timely monthly publication and/or sharing with the NPA of the number of complaints received regarding traffic and parking and how these are being addressed</li> </ul>  |
| <ul style="list-style-type: none"> <li>Temporary maritime traffic impacts to recreational users, community groups and clubs, commercial and government operations.</li> </ul> | High                              | Medium                         | <p>Barge traffic, restrictions on Middle Harbour navigation and the potential for water contamination will adversely affect operation of Northbridge Sailing Club, Northbridge Sea Scouts and potentially Northbridge Baths and the Northbridge Amateur Swimming Club. These are valued community-run organisations and their viability may be threatened as a result of the project.</p> | <ul style="list-style-type: none"> <li>That the NSW Government implement the recommendations put forward in submissions of the Northbridge Sailing Club and Northbridge Sea Scouts including a commitment to funding for compensation for loss of access</li> <li>A condition of approval to liaise with the Northbridge Sailing Club, Northbridge Sea Scouts and Northbridge Amateur Swimming Club before and throughout the project to address concerns about water quality, safety and continued recreational use of Middle Harbour.</li> <li>That that the NSW Government provide a commitment to compensation for the Northbridge Amateur Swimming Club in the event it needs to cease operations due to contamination or other obstruction caused by the Beaches Link project.</li> </ul> |

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|---|-----------------------------------|--------------------------------|---|---|
|   |                                   |                                |   | <ul style="list-style-type: none"> <li>That the NSW Government together with Willoughby City Council consult with the Northbridge Amateur Swimming Club and the NPA and develop a plan regarding any need for potential closure or changes to the operation of Northbridge Baths during construction</li> </ul>   |
| <b>Noise and vibration</b>  |                                   |                                |   |   |
| <ul style="list-style-type: none"> <li>Ground-borne noise impacts during tunneling</li> <li>Airborne noise impacts from surface works during standard construction hours</li> <li>Construction vibration impacts during standard construction hours.</li> <li>Noise and vibration impacts outside of standard construction hours from surface works.</li> </ul> | High                              | Medium                         | <p>Our concerns are based on the high inherent risk rating including material impact on Northbridge residents from construction noise due to activities at Flat Rock Drive (BL2) and for residents exposed to noise from the Middle Harbour construction sites.</p> <p>We are concerned that given the nature of the construction activities, the mitigation measures may not be adequate, leading to significant negative impact on health and wellbeing of Northbridge residents.</p> | <p>That all relevant noise management, mitigation and consultation provisions in the Western Harbour Tunnel (WHT) approval are made conditions of approval for Beaches Link Tunnel.</p> <ul style="list-style-type: none"> <li>Consistent with the WHT approval, that a suitably qualified Acoustics Advisor must be nominated for the duration of the construction phase</li> <li>This expert should be employed by and report to an appropriate NSW Government body independently of the design and construction contractors</li> <li>The NPA and other community organisations should have direct access to the Acoustics Advisor for information and consultation on additional mitigation measures as needed.</li> </ul> |

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|--|-----------------------------------|--------------------------------|---|---|
|  |                                   |                                |   | <ul style="list-style-type: none"> <li>• The Acoustics Advisor to publish or provide the NPA with a monthly report on noise and vibration levels and any breaches</li> <li>• That the NSW Government formalise the process for responding to noise level excesses and complaints</li> <li>• That the NSW Government commit to timely publication on at least a monthly basis of summary statistics from the Complaints Register relating to noise level excesses</li> <li>• In order to undertake out-of-hours work, the contractor to identify appropriate respite periods in consultation with the community</li> </ul> |
| <b>Air quality</b>   |                                   |                                |   |   |
| <ul style="list-style-type: none"> <li>• Local air quality impacts due to dust generation</li> </ul> | High                              | Medium                         | We are concerned about potential material impact to local air quality, and in turn health and wellbeing of residents, due to dust generation, potential disturbance of asbestos or other airborne contaminants within the historical landfill site and odour impacts from construction activities at Flat Rock Drive (BL2) despite mitigation measures. | <p>That the NPA is represented on the Air Quality Community Consultative Committee (AQCCC)</p> <p>That the NSW Government include as a condition of approval:</p> <ul style="list-style-type: none"> <li>• Independent regular monitoring and reporting to the AQCCC of dust generation and dust levels at Flat Rock Gully</li> <li>• The nature and timing of external communication to the</li> </ul>   |

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|--|-----------------------------------|--------------------------------|--|---|
|  |                                   |                                | Timely community notification of any air quality breaches including dust levels, along with clear action plans, is critical to protect vulnerable members of our community.  | <p>community should dust management plans be rated ineffective, with cessation of operations at BL2 until remedial measures have been planned and implemented</p> <ul style="list-style-type: none"> <li>Formalisation of, and ongoing monitoring/ reporting on commitments made in relation to Air Quality, Emissions Controls and other measures to the NSW Government and the AQCCC</li> </ul>   |
| <b>Aboriginal heritage</b>   |                                   |                                |  |   |
| <ul style="list-style-type: none"> <li>Indirect impacts to terrestrial Aboriginal heritage sites due to vibration and settlement.</li> </ul> | Low                               | Low                            | The Clive Park cave site is unique and fragile and we are concerned that the risk assessment may not adequately reflect the potential for damage due to vibration or inadvertent interference with the site during construction. | <p>That an aboriginal heritage specialist make recommendations for protection and preservation of the Clive Park aboriginal site</p> <ul style="list-style-type: none"> <li>Resulting recommendations made a condition of approval</li> <li>Archival recording to be made of all significant artefacts</li> </ul> <p>A condition of approval that no construction equipment, vehicles or project staff are to be placed on, access or enter Clive Park Reserve from land or water other than in emergency</p> |
| <b>Geology, soils and groundwater</b>  |                                   |                                |  |   |

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|--|-----------------------------------|--------------------------------|--|---|
| <ul style="list-style-type: none"> <li>Disturbance of contaminated land or groundwater contamination during construction works</li> <li>Marine contamination during dredging activities</li> </ul> | High                              | Medium                         | <p>The Northbridge community is very concerned about the potential for harmful contaminants from the historical landfill site at and adjacent to BL2 site and in Middle Harbour sediment to contaminate the creek and waterways, potentially affecting health and safety for residents and in particular those using Northbridge Baths, Willoughby Leisure Centre recreational facilities and Flat Rock Creek paths.</p> <p>The EIS notes the high likelihood of encountering groundwater contamination at the Flat Rock Gully area as well as potential for landfill gas from the historical landfill materials. We are concerned the project will exacerbate existing contamination problems whereas this project should be an opportunity to put in place a long-term remediation plan.</p> | <p>That the NSW Government working with Willoughby City Council commit to developing a long-term plan for remediation of contaminants at the historical landfill site as well as improving containment of stormwater run-off and associated rubbish accumulation at Flat Rock Gully</p> <p>That the NSW Government make a condition of approval:</p> <ul style="list-style-type: none"> <li>Storage of any contaminated spoil sites away from community recreational spaces and living areas</li> <li>Community awareness as early as possible in the construction process as to the extent and nature of disturbed contamination and potential impacts on users of adjacent facilities</li> <li>Monitored controls to prevent the likelihood of runoff into streams and waterways to be included as conditions of approval</li> <li>Ongoing testing of water in Flat Rock Creek for contaminants and timely community notification of any breaches</li> <li>Preparation of a Remediation Action Plan by appropriately qualified</li> </ul> |

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|--|-----------------------------------|--------------------------------|---|--|
|  |                                   |                                |   | experts for the landfill site at Flat Rock Gully to be shared with NPA   |
| <b>Hydrodynamics and water quality</b>   |                                   |                                |   |  |
| <ul style="list-style-type: none"> <li>Marine water quality impacts from increased turbidity and sedimentation from dredging</li> </ul>  | High                              | Low                            | The NPA is concerned about release of toxic chemicals and heavy metals into Middle Harbour waterways, affecting our ability to safely use community facilities such as Northbridge Baths and potentially harming marine life  | <p>That the conditions of approval include:</p> <ul style="list-style-type: none"> <li>At least weekly testing and reporting of contaminant levels in Middle Harbour, in particular around Northbridge Baths and Clive Park Reserve</li> <li>Timely community notification of any breaches of acceptable contaminant level</li> </ul>  |
| <b>Biodiversity</b>  |                                   |                                |   |  |
| <ul style="list-style-type: none"> <li>Impact on native vegetation, groundwater dependent ecosystems and threatened ecological communities.</li> <li>Impacts to fauna habitat, including aquatic and marine habitats</li> <li>Impacts on threatened fauna species and endangered populations.</li> </ul> | High                              | Medium                         | <p>The Northbridge community has spent decades on volunteer bush regeneration activities in the Flat Rock Gully area, which now provides immense natural amenity to local residents and visitors as well as forming part of the local green corridor for wildlife habitat and movements.</p> <p>We are concerned this beautiful area and its flora and fauna will be permanently affected by the construction project and we do not</p> | <p>That the NSW Government make a condition of approval that Flat Rock Gully construction site BL2 be rehabilitated to an enhanced bushland state post-construction</p> <ul style="list-style-type: none"> <li>That this rehabilitation be undertaken working together with organisations such as Bushcare Australia and Birdlife Australia to enhance the habitat for Powerful Owls and improve biodiversity.</li> </ul> <p>Consistent with the WHT approval,</p> |

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|--|-----------------------------------|--------------------------------|---|--|
|  |                                   |                                | <p>view biodiversity offsets elsewhere as sufficient.</p> <p>We are concerned about removal of trees, impact to habitat of species such as the powerful owl and marine species in Middle Harbour.</p> | <p>a Flora and Fauna Environmental Management subplan and Dredging Monitoring Program to include:</p> <ul style="list-style-type: none"> <li>• Details for undertaking pre-clearing/demolition inspections for native fauna including threatened species by a suitably qualified ecologist</li> <li>• Methods and procedures for welfare and relocation of displaced fauna</li> <li>• The locations of sensitive marine habitats in the vicinity of dredging locations that are potentially sensitive to elevated suspended sediment concentrations and procedures for mitigating impacts</li> <li>• Specific measures to protect little Penguins and marine mammals near maritime construction sites</li> <li>• Specific measures to minimise disturbance to habitat associated with White's seahorse and Powerful Owl</li> </ul> |
| <b>Socio-economics</b>   |                                   |                                |   |  |
| <ul style="list-style-type: none"> <li>• Temporary impacts on social infrastructure and community values during construction</li> <li>• Impacts to businesses during construction (access, parking etc)</li> </ul> | High                              | Medium                         | As noted above, there will be significant adverse use and access impacts on the Northbridge Sailing Club, Sea Scouts and Northbridge Amateur Swimming Club.   | The NPA supports the submissions from the Northbridge Sailing Club and the Northbridge Sea Scouts and represents Northbridge Amateur Swimming Club in  |



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|--|-----------------------------------|--------------------------------|---|---|
| <ul style="list-style-type: none"> <li>Access and connectivity impacts during construction</li> </ul>                                    |                                   |                                | <p>Amenity for residents and visitors at Clive Park Reserve and the small beach and remnant tidal baths will be significantly reduced during construction due to noise and barge traffic.</p>               | <p>being compensated for any operating losses.</p> <p>That the NSW Government commit to funding compensation for any permanent damage, including contamination to; Clive Park Reserve, Northbridge Baths, the tidal baths or Flat Rock Gully through remediation and provision of commensurate public reserve enhancements such as improved pathways or facilities</p>  |
| <b>Hazard and risk</b>   |                                   |                                |   |   |
| <ul style="list-style-type: none"> <li>Ground movement (settlement) or geotechnical uncertainty causing damage to properties.</li> </ul> | Medium                            | Low                            | <p>We are aware that the potential for settlement and other property damage due to tunneling activity and uncertainty about final tunnel locations are creating unnecessary anxiety for local residents</p> | <p>That NSW Government include as a condition of approval that property damage assessments will be available for all Northbridge property owners, not only those in close proximity of the tunnel route</p> <ul style="list-style-type: none"> <li>At the owner's option, a damage assessment to be conducted by an assessor independent of the project contractors</li> <li>Damage remediation to be carried out by a contractor and to timelines acceptable to the owner</li> <li>The dispute resolution mechanism must consist of qualified experts who are independent of the project contractor</li> </ul> |