



## **LIGHT RAIL SERVICES REVIEW**

ROYAL RANDWICK RACECOURSE,  
AUSTRALIAN TURF CLUB

Confidential

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# 1 Introduction

## 1.1 General

The proposed new Light Rail project impacts on the Royal Randwick Racecourse in a number of key areas:

- Extensive RRR property and infrastructure will need to be demolished, relocated and re-supplied.
- Extensive relocation of the existing supply authority assets currently serving RRR, whilst ensuring a continuity of supply to the RRR.
- Apparent utilisation of the available local power capacity in the region.
- Restrictions on future reticulation routes imposed by the new rail construction.

## 1.2 Applicable Documents

The following document should be read in conjunction with this services review.

- Transport for New South Wales Environmental Impact Statement for CBD and South East Light Rail Project (Nov 2013)



## 1.3 Limitations

The review is based on the available documentation provided by the EIS, the ATC and visual inspections of the site.

## 1.4 Definitions

ATC – Australian Turf Club

CSELR – CBD and South East Light Rail

EIS – Environmental Impact Statement

RRR – Royal Randwick Racecourse

TfNSW – Transport for NSW

## 2 General

### 2.1 Electrical and Communications

#### 2.1.1 Current Development and Operation

Whilst the EIS identifies some of the possible impacts on the Royal Randwick Racecourse, it does not fully cover the extent of the issues and associated remedial actions.

The principal impacts on the electrical and communications infrastructure can be summarised as follows, with the listed items dealt with in more detail in the subsequent sections:

**Site Electrical Capacity** – Ausgrid currently assesses the RRR as a “Large Load Customer” that has reached its maximum demand capacity allocation on the local HV network on race or event days. The Australian Turf Club will be expected to fund all or part of the cost of any new HV feeder cables, most likely to be from the Clovelly Zone Substation. A short term policy of offsetting the load of any new development by the provision of permanent standby generators is the ATC’s only current alternative.

The CSELR is also identified as a “Large Load Customer”, however the 6MVA power requirement for the 3 No Substations located on RRR is obtained from the local HV network, with no new HV feeder required.

**Any future RRR additional load requirements (see Appendix 8C) will therefore require a new HV feeder, at an approximate cost of \$4M.**

**RRR’s Ausgrid Infrastructure** – The CSELR potential impact on the existing RRR Ausgrid infrastructure manifests itself in a number of ways, including:

- Impacts of the new kiosk substations.
- Impacts on the existing kiosk substations on the site.
- Potential impact on RRR’s existing HV feeders from the construction.
- Potential damage and supply interruptions during construction.

The EIS states that the full investigation into the Supply Authority infrastructure is yet to be completed and this only increases the uncertainty and increases the risk to RRR.

**RRR Comms Infrastructure** – The CSELR potential impact on the existing communications infrastructure includes the following:

- Impact on the existing incoming services from the new construction.
- Potential damage and supply interruptions during construction.

The EIS states that the full investigation into the Supply Authority infrastructure is yet to be completed and this only increases the uncertainty of the impact and the risk to RRR.

**Direct Impact from CSELR Construction** – The following risks are identified in the EIS without any detailed resolutions.

- Stray electrical currents and the subsequent electromagnetic interference.
- Adjacency of the overhead HV cabling to existing RRR structures.
- Spill / nuisance lighting from the rails and Light Rail Vehicle stops themselves.

- Restriction to future incoming electrical and communications incoming services due to the track construction. It is a fundamental requirement for CSELR to provide future utility access to the RRR site.

**RRR Internal Infrastructure** – The effects of the CSELR construction comprising of LRV stops, rails and LRV LRV Stabling Yard has both direct and indirect implications on RRR’s buildings and associated services. Relocations of the following systems will be necessary:

- Existing underground services and reticulation.
- Existing sub main distribution and associated switchgear.
- Existing LV supply feeders.
- Existing external lighting.
- Existing CCTV and Access Control systems, including the head end location.
- Existing communications services and reticulation, including outside broadcasting links..
- Existing electronic gate and access system.
- Existing external signage.
- Existing public address.
- Existing fire alarm systems.
- Satellite Dish relocation.

There is also the indirect impact on the highlighted services due to the relocation of existing ATC assets:

- Existing Heritage and Workshop buildings due to the LRV Stabling Yard LRV stabling yards.
- Reconfigured Horse Stable Blocks and entrances on Wansey St due to the High St LRV stop.

#### 2.1.2 Future Development and Operation

**Future Site Electrical Capacity:**

**RRR’s future construction developments and increased frequency of events will necessitate an increased maximum demand for the site, the implications of which are highlighted in Section 2.1.1. The apparent availability of up to 6MVA on the local supply HV network would meet a large proportion of the RRR future development requirements.**

**Incoming Services Constraints:**

The construction of the rail and LRV stops constrict future reticulation paths to the RRR site. Clear services zones, with conduits for future electrical and communications incoming cabling need to be establish and provided to guarantee the site’s future operations.

This needs to be established, agreed and provided as part of the CSELR construction.

## 2.3 Hydraulics and Fire

### 2.3.1 Current Development and Operation

The general strategy identified within the EIS appears to be for existing services to remain in situ or be lowered. Diversions and relocations will also be required but are not detailed at this stage. Hydrant ring main diversion works may be necessary, but not defined.

Risk of water / drainage services containing asbestos is high.

The deletion of existing water tank utilised for irrigation will impact current operations at the RRR. There is a significant capital cost to demolish the existing facilities, as part of the early works package, and provide new systems in order to achieve continuity of irrigation services.

Existing tanks, bores and associated equipment will require significant modification to support continuity of irrigation services and not limit future development opportunities.

### 2.3.2 Future Development and Operation

Existing utilities services, including gas, water services; storm water and sewer drainage located under the proposed CSELR alignment requires treatment / redirection as necessary

Risk of contaminants entering the storm water system, detention basin and aquifer from accidental spills, etc, will need to be reviewed as part of the process.

Concrete structures may affect existing storm water overland flow and reduce the amount of rainwater recharging the aquifer, resulting in lowered groundwater levels limiting or affecting existing bore water supply.

Review of current cold water distribution network is required to comply with current standards and codes required.

Review of current Fire Hydrant coverage required to comply with current standards and codes required.

Storm water and sewer drainage diversion network may be necessary.

The construction of the rail and LRV stops constrict future reticulation paths to the RRR site. Clear services zones, with provisioning for future cold water, drainage, gas and hydrant connections need to be established and provided to guarantee the site's future operations.

This needs to be established, agreed and provided as part of the CSELR construction.

## 2.4 Acoustics

### 2.4.1 Current Development and Operation

There are a number of issues identified in the following sections. Our primary concern is that the EIS has not provided any meaningful assessment of noise / vibration to address these issues. Further information should be sought from TfNSW with regards to addressing these issues directly.

Whilst the operational noise and vibration issues may be able to be suitably mitigated - our primary concern will remain the Construction noise and vibration to the existing Horse Stables on Upper High Street due to close proximity of the construction works to the stables.

It should be noted that in any discussions and agreement between the Australian Turf Club and TfNSW, the issues surrounding the noise and vibration impacts not only to humans are considered and assessed, but also the horses and the operations of the racecourse, including Stabling, Training and Race day impacts on where horses will be located on the site during various activities.

### 2.4.2 Future Development and Operation

There are a number of issues identified in the following sections. As a general overview – we would expect that noise and vibration impacts on future developments will be able to be suitably mitigated; however this may impact on the design and cost of these developments (for example, increased glazing specifications to mitigate noise intrusion from LRV stations, etc.).

It should be noted that in any discussions and agreement between the Australian Turf Club and TfNSW, the issues surrounding the noise and vibration impacts not only to humans are considered and assessed, such as the existing Admin Building, but also the horses and the operations of the racecourse, including Stabling, Training and Race day impacts on where horses will be located on the site during various activities. Particular attention is drawn to the LRV Stabling facility and its inherent 24 hour operations.

## 2.5 Environmental

### 2.5.1 Current Development and Operation

No comments identified at this stage.

### 2.5.2 Future Development and Operation

Climate change adaptation measures will need to be incorporated into the CSELR design in further detail i.e. drainage system designs, emergency management plans, etc.

Ongoing climate change assessments would also be required as part of the process.

Further detail is required on monitoring programs to confirm pollution control requirements are being met.

Consider if additional waste and recycling bins are required for Randwick and Wansey Road stops to maintain tidiness.

Water sensitive urban design approaches and flood mitigation measures developed by the PPP will need to be reviewed.

Air quality may be compromised during construction and potentially during operation. A quantitative assessment of air quality impacts needs to be undertaken as part of the CSELR process.

Cycle routes will be re-routed in some cases. Proposed options require review.

Detailed review of potential loss of habitat and ecology is required.

A detailed and thorough hazard and risks assessment would need to be completed as part of the CSELR, as to date only a high level assessment has been undertaken.

Hazards and risks identified will need to be mitigated to ensure the safety of ATC staff, visitors, neighbours and horses during construction.

Soil and water management plan to be reviewed.

Current views will be impacted by the CSELR, and will potentially have a 'high adverse visual impact'. Liaise with TfNSW to understand how views can be maintained/enhanced.

## 3 Stabling Yard



### 3.1 Electrical and Communications

#### 3.1.1 Current Development and Operation

##### Utilities Infrastructure:

- As stated in the EIS, detailed investigations of the existing supply authority infrastructure is yet to be carried out. This represents a potential risk to RRR from damage and potential supply interruptions during the CSELR construction. The existing substation located in Doncaster Avenue will require relocation due to the proposed CSELR LRV Stabling Yard. The implications to RRR are not defined within the EIS.
- HV cabling diversions will be required.
- Telstra fibre and copper runs along Alison Road will need to be relocated or diverted, with continuity of supply to be assured.
- The proposed new CSELR Randwick Depot Substation and its associated HV cabling will need to be co-ordinated with the existing Ausgrid infrastructure to ensure that there is no loss of supply during the construction stage.

##### RRR Internal Infrastructure:

- The Security Building is the principal centre for the RRR fire alarm, security and electronic gate and access systems. A new location will need to be established for all the associated control panels and head end equipment, services will need to be transferred in a phased sequence of works and reticulation realigned to the new location.
- There is little documentation on existing services within this area. Detailed surveys will need to be undertaken to establish the full scope of works for the underground services.
- External lighting will need to be removed.
- The existing satellite dish will need to be relocated, along with its field cabling.

##### Direct Impact from Tram Stabling Yard Construction:

- Demolition of the Heritage Office, Work Sheds, Tradesman Amenities, Security Building and amenities, storage areas and car parking for racecourse workers will require isolation and removal of the associated supply services and the building's electrical systems.
- Surveys identifying the existing electrical and communication services within each building will need to be conducted as the impacts are not detailed within the EIS.
- The extensive 750V DC services associated for the track power offers a large potential source for stray earth currents and EMI. No detailed study has been conducted by CSELR and no solutions have been identified to specific areas.

#### 3.1.2 Future Development and Operation

##### Future Impact of the Tram Stabling Yard:

- The relocation of the demolished buildings will have an impact on the RRR existing infrastructure.
- The 24 hour operation of the site will have increased impacts on RRR, namely:
  - Spill lighting from the yard itself will need to be considered, with suitable measures taken by CSELR.
  - Potential noise from the associated public address.

### 3.2 Hydraulics and Fire

#### 3.2.1 Current Development and Operation

Due to the demolition of security office and amenities the Fire Indicator Panel (FIP) will need to be relocated along with all associated links to the site's sub panels.

Old buildings / structures - i.e. Heritage Office, Work Sheds, tradesman amenities, security office and amenities, storage areas present a high risk of the hydraulic services containing asbestos.

Existing utility services will need to be identified within the Heritage Office, Work Sheds, tradesman amenities, security office and storage areas to ensure continuity of services (storm water, gas, water, sewer, hydrant services) during early works and light rail construction.

#### 3.2.2 Future Development and Operation

Existing utilities services, including gas, water services, storm water and sewer drainage located under the proposed CSELR alignment requires to be treated / redirected as necessary.

The construction of the rail and LRV Station Yard will constrict future reticulation paths to the RRR site. Clear services zones, with provisioning for future cold water, drainage, gas and hydrant connections need to be established and provided to guarantee the site's future operations.

This needs to be established, agreed and provided as part of the CSELR construction.

### 3.3 Acoustics

#### 3.3.1 Current Development and Operation

Possible noise impacts from both Construction and Operation of Stabling Yard on:

- Parade Ring – noise and potential vibration impacts on amenity of space (human and horse). Vibration concerns relate to Construction phase only.
- Circulation / Recreation Landscaped Zone – noise impacts on amenity of space (human)

#### 3.3.2 Future Development and Operation

Possible noise impacts from both Construction and Operation of Stabling Yard on:

- Convention Centre and Overflow Grandstand - – noise impacts on amenity of space (human)
- Overland / Residential development above – noise impacts from Stabling Yard to development above and

surrounding areas.

- 20,000m<sup>2</sup> ATC Commercial and Clubs Building – noise and potential vibration impacts on amenity of space (human). Depending on phasing of works, vibration from construction of the Light Rail may have structural impacts on this area (if the future development is there prior to the Light Rail)

### 3.4 Environmental

#### 3.4.1 Current Development and Operation

Existing buildings may have asbestos (and paint may contain lead), therefore a hazardous survey should be carried out to quantify the early works package.

#### 3.4.2 Future Development and Operation

Construction waste will be produced through the demolition of existing buildings and needs to be managed appropriately. Waste management plans will need to be developed.

Accidental spills or leakage from stabling and maintenance activities at the proposed Randwick stabling facility have the potential to contaminate the Botany Sands aquifer and surrounds. A robust management plan needs to ensure contamination is avoided. TfNSW will need to detail risk mitigation plans.

There are a number of trees within the proposed Randwick stabling facility temporary construction compound, including a large Moreton Bay Fig at the Western end of the site.

More detail is provided around how the temporary construction compound will be configured.

## 4 Alison Road, Commercial



### 4.1 Electrical and Communications

#### 4.1.1 Current Development and Operation

##### Utilities Infrastructure:

- The existing Ausgrid HV feeder traverses Alison Rd opposite Darley Rd and enters the Racecourse adjacent to the existing toilet blocks. No current proposal is identified within the EIS for possible relocations of said services or the associated phasing and enabling works necessary.
- The 2 No. Existing kiosk substations located adjacent to the toilet block do not appear to be directly affected by the proposed works; however this needs to be confirmed.

- Existing Telstra fibre and copper network services currently run parallel to the CSELR tracks. There is no specific resolution proposed within the EIS. This represents a significant risk to RRR current operational requirements.
- The proposed new CSELR track and LRV stop installation will need to be co-ordinated to ensure no supply interruptions to either power or comms during the construction phase.

##### RRR Infrastructure:

- The main server room for the RRR development is located within the main Admin Building on Allison Rd. Site comms services are reticulated from this point. An existing comms conduit network emanates from here serving a number of RRR systems. The run along the Alison Rd frontage will be impacted by the proposed new LRV stop and diversions, relocations and enabling work will be necessary to all ATC services, including:
  - IT and communications.
  - Infield Sign Services.
  - Public Address.
  - MATV
  - Outside Broadcast.
  - Main Entry Gates.

##### Direct Impact from the CSELR Construction:

- The extensive 750V DC services associated for the track overhead power offers a large potential source for stray earth currents and EMI. No detailed study has been conducted by CSELR and no solutions have been identified for specific areas, and as such is a risk to RRR.

##### Direct Impact from LRV Tram Stop Construction:

- The proposed new stop will impact on the existing services located in the current main entrance area. The levelling of services will disrupt the existing infrastructure (See 4.1.1).
- The current main public area has extensive services that will need to be relocated to suit the new landscaping for the area. These include:
  - Public area lighting.
  - Public Address system.
  - Extensive CCTV
  - Incoming supplies to the Swab and adjacent buildings.
  - Main Gates

#### 4.1.2 Future Development and Operation

##### ATC Hotel:

A proposed new hotel development is earmarked, with a load requirement of 700kVA. The development's incoming services and kiosk substation will require provision as part of the CSELR construction. The location of the kiosk and future conduits will need to be provided to ensure future connectivity to the supply authority infrastructure. Conduit, pipework and culverts where required should be coordinated and installed by CSELR for future use.

##### Future Commercial Development:

A future mixed development of 20,000m<sup>2</sup> has been allocated, requiring a potential 2-3MVA electrical supply and incoming comms services. As above, supply infrastructure and a secured future conduit path will be required as part of the CSELR construction to ensure future connectivity to the relevant supply authority infrastructure. Conduit, pipework and culverts where required should be coordinate and installed by CSELR for future use.

#### Future Swab Building:

Should the Old SWAB Building be relocated the DA Approved Swab Building will also require a future infrastructure corridor as part of the CSELR construction. Conduit, pipework and culverts where required should be coordinate and installed by CSELR for future use.

## 4.2 Hydraulics and Fire

### 4.2.1 Current Development and Operation

Existing utilities services, including gas, water services, storm water and sewer drainage located under the proposed CSELR alignment requires to be treated / redirected as necessary

### 4.2.2 Future Development and Operation

New Royal Randwick racecourse stop – The current fire hydrant booster location and designated Fire Truck area is impacted.

The reticulation of gas pipework is also impacted in the immediate area. In addition there is a risk in maintaining continuity of service to the site.

Hydrant network requires to be fully traced to ensure redundant hydrants being removed do not limit coverage and be replaced adequately.

The proposed rail route runs approximately one metre away from the Admin Building and will impact on the existing hydraulic services located in the area.

The construction of the rail will constrict future reticulation paths to the RRR site. Clear services zones, with provisioning for future cold water, drainage, gas and hydrant connections need to be established and provided to guarantee the site's future operations.

This needs to be established, agreed and provided as part of the CSELR construction.

## 4.3 Acoustics

### 4.3.1 Current Development and Operation

Noise and Vibration Impacts:

- From Construction of railway on Administration Building – Noise and vibration impacts both on amenity of spaces and structural concerns
- From Operation of LRVs passing very close to Administration building – Noise and vibration impacts on amenity of spaces
- Increased noise in Admin building due to removal of current wall between roadway and Admin building – Noise impacts on amenity of spaces

### 4.3.2 Future Development and Operation

Noise and Vibration Impacts:

- Future Hotel development – Noise and vibration impacts on amenity of spaces. Possible structural concerns from construction in close proximity.
- 20,000m<sup>2</sup> Commercial and Clubs – noise and potential vibration impacts on amenity of space. Depending on phasing of works, vibration from construction of the Light Rail may have structural impacts on this area (if the

future development is there prior to the Light Rail)

- Proposed SWAB Building – noise and potential vibration impacts on amenity of space. Depending on phasing of works, vibration from construction of the Light Rail may have structural impacts on this area (if the future development is there prior to the Light Rail)

## 4.4 Environmental

### 4.4.1 Current Development and Operation

See Chapter 2 General.

### 4.4.2 Future Development and Operation

See Chapter 2 General.

## 5 Alison Road to Wansey Road Intersection



### 5.1 Electrical and Communications

#### 5.1.1 Current Development and Operation

##### Utilities Infrastructure:

- As stated in the EIS, detailed investigations of the existing supply authority infrastructure is yet to be carried out. This represents a potential risk to RRR from damage and potential supply interruptions during the CSELR construction.

##### RRR Infrastructure:

- Whilst there are limited implications to the RRR infrastructure from the proposed CSELR track, local electrical services to starting towers and electronic gates will be disrupted.

##### Direct Impact from CSELR Construction:

- The extensive 750V DC services associated for the track overhead power offers a large potential source for stray earth currents and EMI. No detailed study has been conducted by CSELR and no solutions have been identified for specific areas, and as such is a risk to RRR.

#### 5.1.2 Future Development and Operation

##### Proposed new Track Crossover:

- The new overhead link to the racecourse will require future reticulation paths for the RRR services such as power, communications and data, gate control, etc.
- A secured future conduit path will be required as part of the CSELR construction to ensure future connectivity to the relevant supply authority infrastructure. Conduit, pipework and culverts where required should be co-ordinate and installed by CSELR for future use.

##### Track Lighting for Night Racing:

- Future night racing is proposed for the venue. Multiple secured future conduit paths will be required as part of the CSELR construction to ensure future connectivity to the relevant supply authority infrastructure.
- Conduit, pipework and culverts where required should be co-ordinate and installed by CSELR for future use.

### 5.2 Hydraulics and Fire

#### 5.2.1 Current Development and Operation

Existing utilities services, including gas, water services, and storm water and sewer drainage located under the proposed CSELR alignment requires to be treated / redirected as necessary

#### 5.2.2 Future Development and Operation

Flood Zones in and around Alison Road and Wansey Road will require mitigation and further investigation as part of the CSELR process.

Potential contaminants entering the storm water system during construction may impact the irrigation supplies.

Key plant and equipment will require protection against water damage.

The construction of the rail and LRV Station Yard will constrict future reticulation paths to the RRR site. Clear services zones, with provisioning for future cold water, drainage, gas and hydrant connections need to be established and provided to guarantee the site's future operations.

This needs to be established, agreed and provided as part of the CSELR construction.

### 5.3 Acoustics

#### 5.3.1 Current Development and Operation

- The projected loss of a high number of existing trees surrounding RRR will have potential impact on neighbouring residents during RRR event days. The CSELR will need to be cognisant of the fact.

#### 5.3.2 Future Development and Operation

- Limited Impact

### 5.4 Environmental

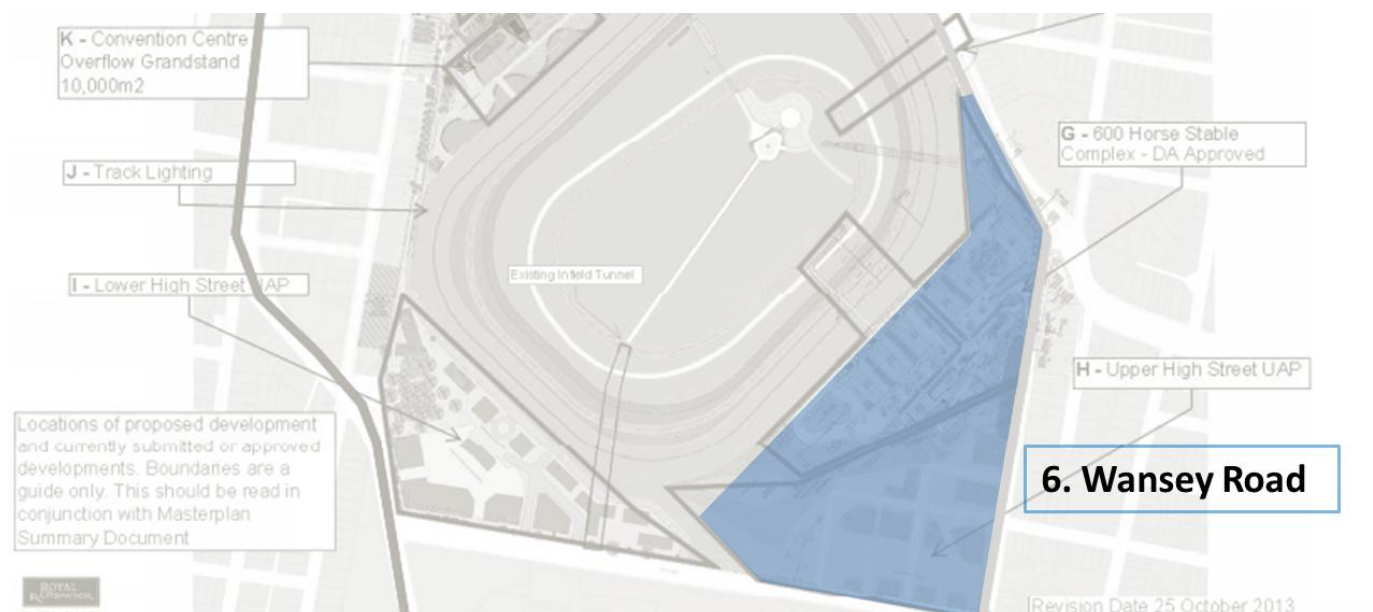
#### 5.4.1 Current Development and Operation

See Chapter 2 General.

#### 5.4.2 Future Development and Operation

See Chapter 2 General.

## 6 Wansey Road



### 6.1 Electrical and Communications

#### 6.1.1 Current Development and Operation

##### Utilities Infrastructure:

- As stated in the EIS, detailed investigations of the existing supply authority infrastructure is yet to be carried out. This represents a potential risk to RRR from damage and potential supply interruptions during the CSELR construction. The existing substation located in Wansey Rd will require relocation due to the proposed CSELR track and LRV stop. The implications to RRR are not defined within the EIS.
- The proposed new CSELR Randwick Racecourse Substation and its associated HV cabling will need to be co-ordinated with the existing Ausgrid infrastructure to ensure that there is no loss of supply during the construction stage and to ensure that there is no impact on the RRR access arrangements.

##### RRR Infrastructure – Direct Impact from LRV Stop Construction

- Wansey Rd LRV Stop - Whilst there are limited implications to the RRR infrastructure from the proposed CSELR track, local electrical services to the current Stabling Blocks and Main Electronic gates will be disrupted.
- The existing LV service pole located at Gate 10 will need to be relocated and its associated services re-fed.
- High St LRV Stop – The proposed new LRV stop has some major impacts on the current RRR infrastructure for the existing Stable Blocks. Demolition of the Stabling Blocks and the Water Tower will require isolation and removal of the associated supply services and the building's electrical systems.
- Surveys identifying the existing electrical and communication services within each building will need to be conducted as the impacts are not detailed within the EIS. These will include but are not restricted to:
  - Underground electrical, comms and fire alarm incoming services to the Stable Blocks.
  - External lighting.
  - Main Gates.

##### RRR - Direct Impact from CSELR Construction:

- The construction of an extensive retaining wall arrangement will impact miscellaneous RRR services, including external lighting and the electronic main gates.

- The extensive 750V DC services associated for the track overhead power offers a large potential source for stray earth currents and EMI. No detailed study has been conducted by CSELR and no solutions have been identified for specific areas, and as such is a risk to RRR.

#### 6.1.2 Future Development and Operation

##### Horse Stabling Complex (DA Approved).

- The proposed new development's incoming services and kiosk substation will require provision as part of the CSELR construction. The location of the kiosk and future conduits will need to be provided to ensure future connectivity to the supply authority infrastructure for electrical and comms services. Conduit, pipework and culverts where required should be coordinate and installed by CSELR for future use.

##### Upper High St UAP:

- The proposed new development's incoming services and kiosk substation will require provision as part of the CSELR construction. The location of the kiosk and future conduits will need to be provided to ensure future connectivity to the supply authority infrastructure electrical and comms services. Conduit, pipework and culverts where required should be coordinate and installed by CSELR for future use. This will involve extensive co-ordination to ascertain the development protocols.

##### Future Impact of the LRV Stops:

- The operation of the site will have potential impacts on RRR, namely:
  - Spill lighting from the LRT stop itself will need to be considered, with suitable measures taken by CSELR.
  - Potential noise from the associated public address.

### 6.2 Hydraulics and Fire

#### 6.2.1 Current Development and Operation

Flood Zones in and around Alison Road and Wansey Road will require mitigation and further investigation as part of the CSELR process.

Potential contaminants entering the storm water system during construction may impact the irrigation supplies.

Key plant and equipment will require protection against water damage.

The deletion of existing water tank utilised for irrigation will impact current operations at the RRR. There is a significant capital cost to demolish the existing facilities, as part of the early works package, and provide new systems in order to achieve continuity of irrigation services.

Major hydraulic and storm water flow paths exist in this location. Any changes or impacts imposed by the CSELR should not exacerbate the current situation (refer to Civil engineering report for detail).

#### 6.2.2 Future Development and Operation

Existing storm water culvert collects storm water from upper Alison Road discharges to the detention basin located to the east of the existing infield tunnel and will require redirecting.

Irrigation water tank being omitted supplies irrigation network for entire site. Conduit, pipework and culverts where required should be coordinate and installed by CSELR for future use.

The construction of the rail and LRV Stop will constrict future reticulation paths to the RRR site. Clear services zones, with provisioning for future cold water, drainage, gas and hydrant connections need to be established and provided to guarantee the site's future operations.

This needs to be established, agreed and provided as part of the CSELR construction.

## **6.3 Acoustics**

### **6.3.1 Current Development and Operation**

Noise and Vibration Impacts:

- Construction and Operation on Barrier Stables – noise and potential vibration impacts on amenity of space (horse). Vibration concerns primarily relate to Construction phases only.
- Construction and Operation on Upper High Street Stables – noise and potential vibration impacts on amenity of space (horse).
- User and Station noise impacting on Upper High Street Stables – noise and potential vibration impacts on amenity of space (horse).

### **6.3.2 Future Development and Operation**

Noise and Vibration Impacts:

- Construction and Operation 600 Horse Stable (likely lower impact than on existing Upper High Street Stable) – noise and potential vibration impacts on amenity of space (horse). Vibration concerns relate to Construction phase only.
- Construction and Operation on Upper High Street UAP – Again, impacts likely less significant than on the existing Stables – noise and potential vibration impacts on amenity of space (human).

## **6.4 Environmental**

### **6.4.1 Current Development and Operation**

A review will be required of pesticides, herbicides, fertilisers, imported fill, solvents for polishing metals, etc. that may affect horse stables and their surrounds.

### **6.4.2 Future Development and Operation**

Large mature fig trees on both sides of Wansey Road may need to be removed prior to the construction of the CSELR.

## 7 High Street



### 7.1 Electrical and Communications

#### 7.1.1 Current Development and Operation

##### Supply Authority Infrastructure:

- The proposed new CSELR High St Substation and its associated HV cabling will need to be co-ordinated with the existing Ausgrid infrastructure to ensure that there is no loss of supply during the construction stage, particularly due to the proposed feed from the existing substation.

#### 7.1.2 Future Development and Operation

##### Lower High St UAP:

- The proposed new development's incoming services and kiosk substation will require provision as part of the CSELR construction. The location of the kiosk and future conduits will need to be provided to ensure future connectivity to the supply authority infrastructure electrical and comms services.

### 7.2 Hydraulics and Fire

#### 7.2.1 Current Development and Operation

There is a risk of contaminants entering the storm water system, detention basin and aquifer from accidental spills, etc.

Existing utilities services, including gas, water services, storm water and sewer drainage located under the proposed CSELR alignment requires to be treated / redirected as necessary

#### 7.2.2 Future Development and Operation

Concrete structures may affect existing storm water overland flow and reduce the amount of rainwater recharging the aquifer, resulting in lowered groundwater levels limiting or affecting existing bore water supply.

The bore pump near the maintenance shed to be removed, relocated and re-commissioned. The ATC will need to review irrigation options.

Existing tanks, bores and associated equipment will require significant modification to support continuity of irrigation services and not limit future development opportunities

### 7.3 Acoustics

#### 7.3.1 Current Development and Operation

Noise and Vibration Impacts:

- Construction and Operation on Lower High Street Stables – noise and potential vibration impacts on amenity of space (horse).

#### 7.3.2 Future Development and Operation

Noise and Vibration Impacts:

- Construction and Operation on Lower High Street UAP, impacts likely less significant than on the existing Stables – noise and potential vibration impacts on amenity of space (human).

### 7.4 Environmental

#### 7.4.1 Current Development and Operation

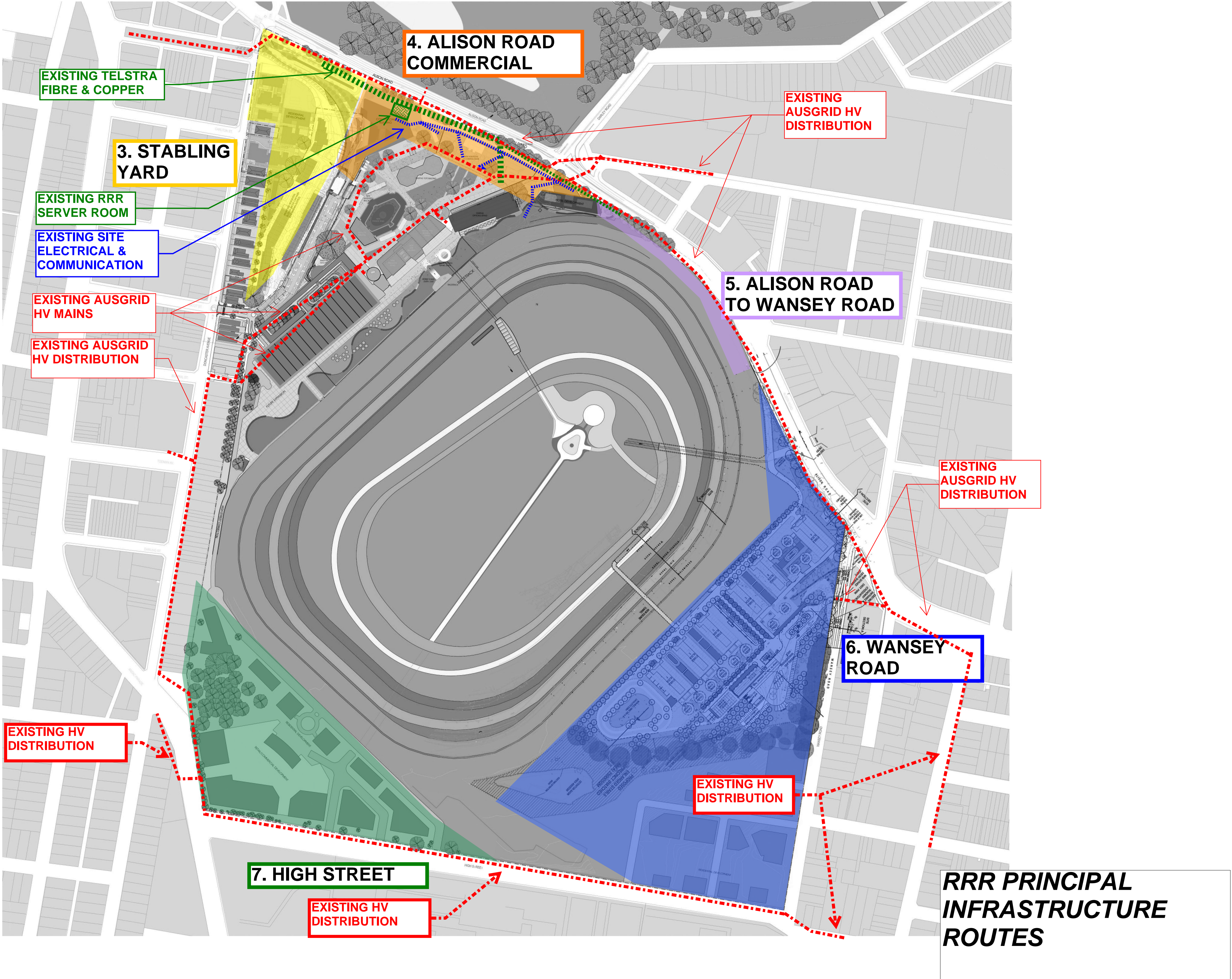
See Chapter 2 General.

#### 7.4.2 Future Development and Operation

See Chapter 2 General.

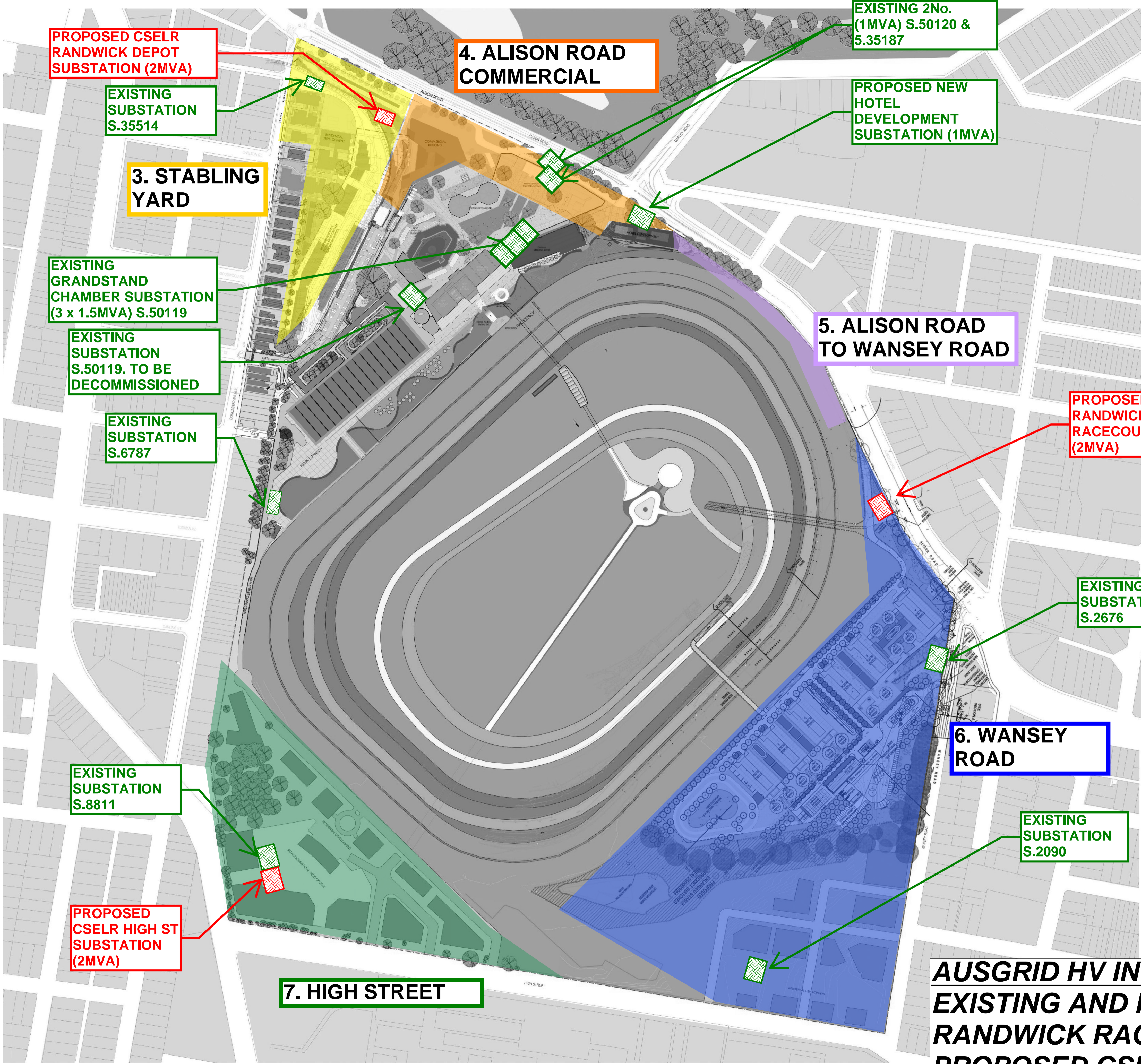
# 8 Appendix A – Hydraulic Services Schematic

2. GENERAL



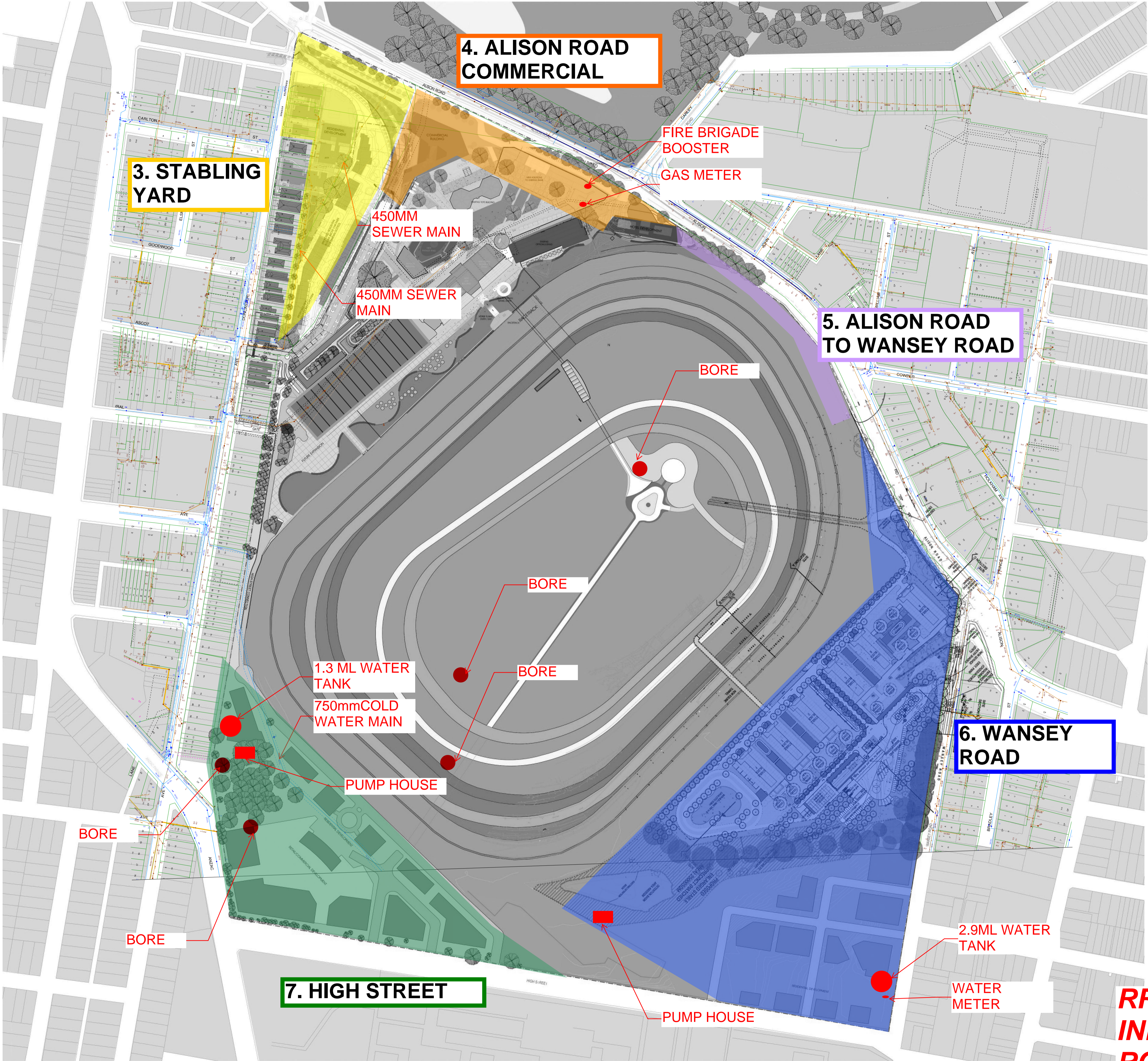
8 Appendix B – Electrical and Comms Principal  
Infrastructure Layouts

**2. GENERAL**



**AUSGRID HV INFRASTRUCTURE  
EXISTING AND PROPOSED ROYAL  
RANDWICK RACECOURSE AND  
PROPOSED CSELR SUBSTATION  
LAYOUT**

2. GENERAL



**RRR PRINCIPAL  
INFRASTRUCTURE  
ROUTES LAYOUT**

8 Appendix C – Royal Randwick Racecourse Future Loads

**ROYAL RANDICK RACECOURSE – FUTURE DEVELOPMENT LOAD REQUIREMENTS**

Stage	Programme	Load Centre	Est. Load (VA)	Comments
1	TBC	Adina Randwick Hotel	680	Ausgrid have informed that a new feeder will be required.
2	TBC	Horse Stabling Complex	500	Stabling Complex consisting of 6 barns (1570m <sup>2</sup> each), naturally ventilated, with two small offices and sleeping quarters each.
3	TBC	Track Lighting	4,250	2,279 light fittings on 88 poles for after dark events.
4	TBC	Car Park	200	Decked Car Park
5	TBC	Office Space	1,570	Centre of Excellence (20,000m <sup>2</sup> ) / Fitness Centre (3,500 <sup>2</sup> )
6	TBC	Exhibition Space	1,100	Convention / Exhibition centre with over 10,000m <sup>2</sup> of exhibition space.
7	TBC	Upper High St UAP	7,500	Retail / Residential (2,000m <sup>2</sup> / 138,000m <sup>2</sup> )
8	TBC	Lower High St UAP	7,500	Commercial / Residential (60,000m <sup>2</sup> / 80,000m <sup>2</sup> )
9	TBC	SWAB Building	TBC	
10	TBC	New Entry and Track Crossover	TBC	
11	TBC	Tram Stable Development	TBC	500 Apartments and Car Parking

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