

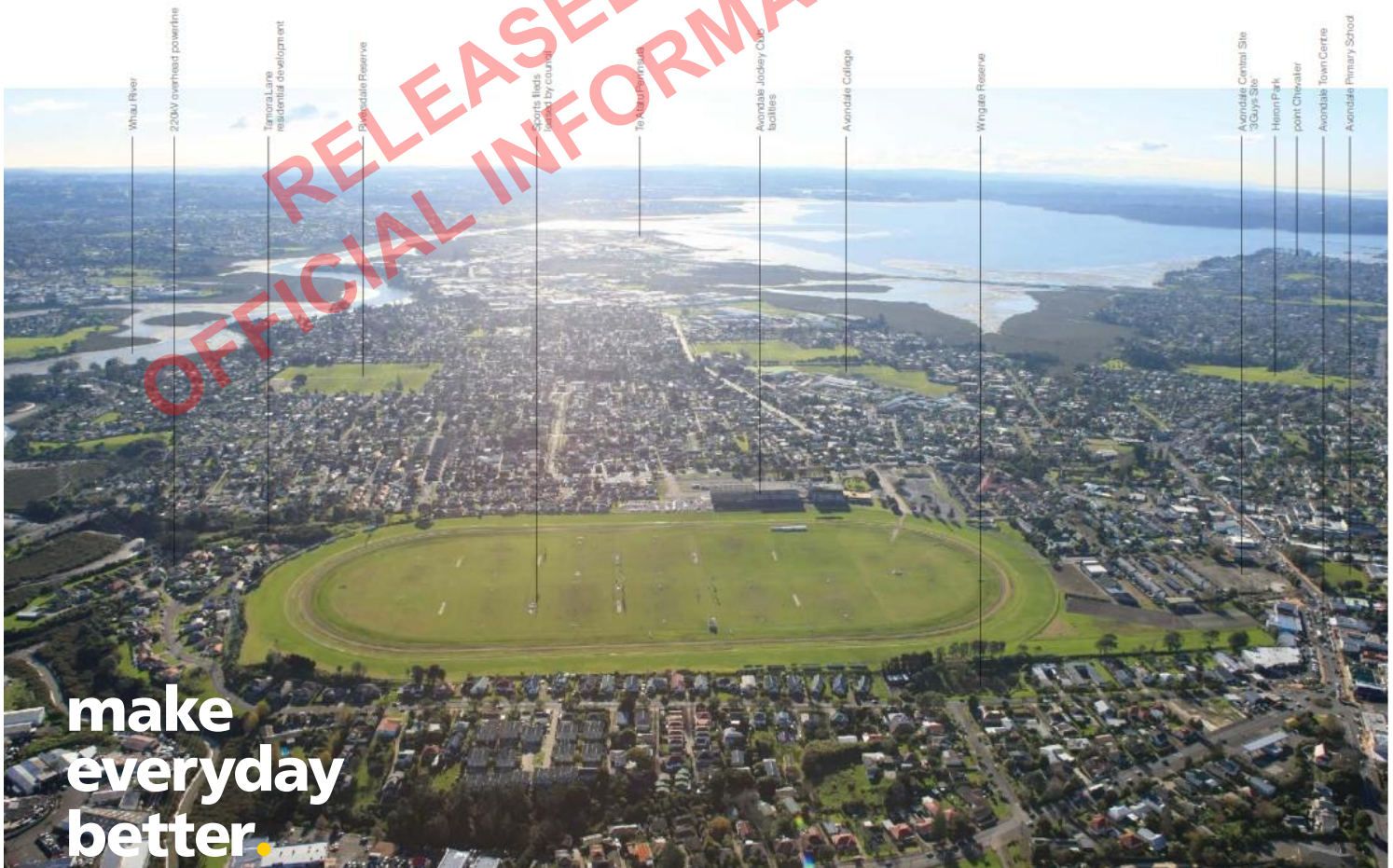
# Avondale Development Assessment

## Report

Prepared for Kāinga Ora – Homes and Communities

Prepared by Beca Limited

3 December 2020



## Revision History

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# Executive Summary

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## 1.1 Background

Kāinga Ora – Homes and Communities (“**Kāinga Ora**”) are investigating large development opportunities within the Auckland area to address current and future housing needs (state, affordable, market). The study area includes 37 individual Kāinga Ora land holdings and the Avondale Racecourse (“**ARC**”) within the Auckland suburb of Avondale. Together, these form the wider Avondale Strategic Development study area (“**Avondale Study Area**” or “**study area**”).

The authors of this document have been commissioned to complete a high-level analysis of the development potential of the Avondale Study Area.

## 1.2 Avondale Study Area

The Avondale Study Area is in the Auckland suburb of Avondale, to the south west of the city centre. The area is approximately 11km from the central city and adjoins a key transport arterial leading from the central city to New Lynn. The study area includes the ARC and 37 Kāinga Ora Land holdings sites across Avondale.

The 37 Kāinga Ora properties consist of clusters of single or contiguous residential lots scattered across the Avondale suburb - predominately to the north and east of the ARC. The ARC is 35.77ha and bound by suburban streets to the north and south, to the east is the Avondale shops and to the west is Whau Creek which runs into the Waitemata Harbour.

The ARC provides one of the key open spaces in the Avondale / New Lynn area. The infield is leased to Auckland Council as sports fields for local sports teams in both winter and summer which helps to address the shortage of sports fields in West Auckland. There are several pockets of green space within the study area and a green belt along the Whau Creek to the south west of the site.

## 1.3 Scope of report

This report provides an analysis of the site both in terms of existing parameters and future considerations for land development.

Technical specialists provide commentary on aspects of the site and considerations (including risks and opportunities) for future use as indicated in the concept plan this includes:

- **Yield Calculation** – description of the methodology adopted and potential density uplift.
- **Planning Assessment** – review of current and potential future planning frameworks for the study area.
- **Engineering and Infrastructure** – review of existing three waters services, as well as requirements to be considered as part of any future site development.
- **Geotechnical** – desktop review of available information as well as recommendations for consideration as part of any future site development.
- **Contaminated Land** - desktop review of available information as well as recommendations for consideration as part of any future site development.
- **Transport Planning** – review of the existing transport network servicing the site and surrounds, review of planned future transport network improvements and upgrades, as well as recommendations for consideration as part of any future site development.

## 1.4 Main Conclusions

### 1.4.1 Planning Assessment – Avondale Racecourse

#### a. Existing Zoning Framework

The ARC itself is subject a single Racecourse Precinct under the Auckland Unitary Plan. The Avondale Racecourse Precinct provides specific planning provisions for the use of the ARC as a horse racing facility. The precinct enables a range of activities compatible with, or accessory to, the primary activity of horse racing.

Compatible activities include utilisation of the space (when horse racing is not occurring) such as recreation, special events and markets. Development is enabled (at different consenting levels) where it facilitates these activities.

A plan change will be required to remove the existing precinct from this area. Consideration could then be given as to whether a revised / alternate precinct may be required – in order to achieve any site-specific design / layout / transport network outcomes which the general Auckland Unitary Plan zones (and their associated zone provisions) may not address or assist in achieving.

The underlying zone of the ARC is a Major Recreation facility Zone. The current provisions of the Major Recreation Facility zone would not support the establishment of residential activities on the site at present. Therefore, an amendment to the current zoning to provide for medium and high-density residential development on the site is an appropriate pathway to achieve the desired residential uplift.

#### b. Re-Zoning Options

The options which are available to progress the redevelopment of the ARC site by way of re-zoning to maximise development potential include:

- **Undertaking a Plan Change process to the Auckland Unitary Plan, in accordance with the RMA:**
  - This would involve progressing a private plan change, or potentially a Council-lead plan change, to seek to change the underlying zone for the site; potentially amend / delete existing Precinct provisions which apply to the site, as well as the potential to apply the ‘height variation control’ to parts of the site to enable additional development potential to that provided for through the underlying zones;
- **Progressing the Proposed Development through the Urban Development Act 2020 (UDA):**
  - This approach would involve utilising the suite of special regulatory powers afforded to Kāinga Ora through the UDA - enabling the planning and delivery of comprehensive residential development proposals ‘at pace’ (that is, through a streamlined and consolidated processes). Such a process will not require the full RMA Plan Change process, which is noted above.

### 1.4.2 Planning Assessment – Balance of the Avondale Study Area

The balance of the Avondale Study Area (that is, not the ARC) is primarily a mix of the following zones:

- Special Purpose – Major Recreation Facility Zone (Avondale Racecourse)
- Business – Town Centre Zone
- Residential – Terrace Housing and Apartment Building Zone (“**THAB**”)
- Business – Mixed Use Zone (“**MBU**”).

In general, the above business (Town Centre and Mixed Use) and residential zones can be used for residential development within the current provisions of the Unitary Plan.

The wider land to the east of the ARC falls within the Avondale 1 Precinct (which is then split into sub-precinct A & B). Land to the south east of the site but not owned by the racing club falls within the Avondale 2 Precinct (which is then split into sub-precinct A,B & C).s

a. Avondale Precinct 1

The Avondale 1 Precinct applies to the northern boundary edge of the Avondale Racecourse land that adjoins Ash Street, Avondale, and the north-eastern corner edge of the Avondale Racecourse land extending from Ash Street to Racecourse Parade.

Sub-precinct A prioritises commercial and office activities that do not diminish the role of Avondale Town Centre and its function. Residential activity is limited to those that are above businesses and which mitigate the effects of Ash Street's traffic function on resident health and amenity. Residential activities are a Discretionary activity.

Sub-precinct B is designed to enable more intensive residential activities which integrate well with the adjoining Avondale Racecourse precinct land and existing residential development immediately east of the sub-precinct. Limitations are placed on office and retail activities. The activity rules for residential dwellings for sub-precinct B are determined by the zone – which is terraced housing and apartment buildings (meaning residential use is Permitted, with all new development needing resource consent as a Restricted Discretionary Activity).

b. Avondale Precinct 2

The Avondale 2 Precinct applies to an area that is bounded by Racecourse Parade to the north, Great North Road to the east and a small area of Avondale Town Centre to the south-east.

The purpose of the precinct is to provide town centre type activities, with limited opportunity for larger retail activities. The precinct is divided into sub-precincts A, B and C. It allows for the intensification of commercial, residential, community and civic activities. It discourages dwellings at ground floor in sub-precincts A and B and enables dwellings above ground floor.

### 1.4.3 Engineering and Infrastructure – Avondale Study Area

Existing transportation, power, communications, gas, stormwater, water supply and wastewater networks generally have relatively good coverage and some additional capacity.

The study area is ideally located in terms of multi-modal transport options. It is not significantly constrained in terms of communications, gas and power with utility operators indicating that the upgrades to support growth are well understood and are expected to be relatively straightforward. While stormwater networks are under capacity, low flood risk and proximity to the coast mean local upgrades should be able to relieve constraint. Water supply and wastewater networks will require substantial upgrades to cater for growth (particularly the growth associated with redevelopment of the racecourse), however, the scale of those upgrades is not yet well understood and will require further collaboration with Watercare.

Geotechnical and land contamination desktop studies and consideration of the downstream receiving environment have highlighted that there are likely to be challenges with redeveloping the racecourse arising from historic uncontrolled fill placement. Minimisation of earthworks volumes will be particularly advantageous. Considering the engineering and infrastructure constraints together, applying a water sensitive design approach to the racecourse (applying principles such as working with existing contours, applying on-site runoff

management and considering the 3-waters as a whole) is recommended as a means of minimising effects and potentially infrastructure costs.

The following Table summarises the key infrastructure constraints anticipated for the Avondale Study Area.

Item No.	Constraint	Constraint Description	Level of certainty (H/M/L)
1	Wastewater Network Capacity (local)	High-level capacity checks of the network indicate that 33% of the network downstream of the Kāinga Ora sites will have insufficient capacity following the proposed Kāinga Ora development. The two existing pump stations on Ash and Wingate Street will also require upgrades to provide sufficient capacity to accommodate development flows.	<b>M</b> – Confirmation will be required from Watercare as to extent of any network upgrades. Further network modelling or capacity checks may be required
2	Wastewater Network Condition	76% of the pipework in this area may require renewal by 2040. Some pipe renewal works may be required.	<b>M</b> – Confirmation will be required from Watercare as to scope of network renewals required during design processes.
3	Wastewater Network Capacity (bulk)	A Watercare designation sits to the south east of the site (10 Larch Street) to allow for the construction of a pump station and pipeline associated with Watercare's wider Central Interceptor / Western Isthmus programme.	<b>H</b> – Designation is effective immediately. The timing and capacity for the connecting sewer has not yet been confirmed by Watercare.
4	Water Supply Network Capacity	No network capacity information was made available from Watercare at the time of the assessment. It is anticipated that many of the 100mm diameter water supply mains within the area will require upgrades to meet future demand requirements but confirmation with Watercare will be required.	<b>L</b> – No model information was made available from Watercare at time of assessment. Confirmation will be required on extent of upgrades required.
5	Water Supply Network Pressure	Water supply network pressure will require confirmation with Watercare but is anticipated to improve as Watercare is undertaking pressure management within the area. Hydrant pressure and flow testing will be required to inform design.	<b>L</b> – Confirmation of network pressures required from Watercare. Should pressures not be sufficient, network upgrades or booster pump may be required.



Item No.	Constraint	Constraint Description	Level of certainty (H/M/L)
6	Water Supply Network Condition	61% of the pipework in this area may require renewal by 2040. Some pipe renewals may be required.	<b>M</b> – Confirmation will be required from Watercare as to scope of network renewals required during design process.
7	Stormwater Network Capacity	Modelling shows that the existing stormwater network does not have capacity for the design event in the existing scenario, and management of increases in stormwater flows will likely be required.	<b>M</b> – Confirmation of site-specific works to manage stormwater quantity required.
8	Stormwater Network Condition	65% of pipework in this area may require renewal by 2040. Some upgrade works may be required.	<b>M</b> – Confirmation will be required from Healthy Waters as to specific scope of network renewals required during design process.
9	Power Network Capacity	Vector has indicated that an additional 11kV feed will be required from the Avondale substation to service the development within the recourse site.	<b>H</b> – Vector has confirmed scope of network upgrades required to facilitate the development.
10	Communications Network Coverage	Chorus fibre records indicate good coverage within the area. Confirmation is required from Chorus as to any constraints or upgrades required.	<b>M</b> – Confirmation of any upgrades within the network requires confirmation from Chorus.
11	Gas Network Coverage	Vector has provided records of the existing gas network in the area indicating good coverage. Confirmation of capacity will need to be confirmed during design once required gas connection numbers are known.	<b>M</b> – Should gas be required, confirmation of gas requirements for each block should be confirmed with Vector. They do not anticipate any major upgrades will be required.

#### 1.4.4 Geotechnical

##### a. Avondale Study Area Conditions

In summary, the main geological units across the sites have been identified as follows:

- **Topsoil and / or fill** – Highly variable in extent and nature;
- **Puketoka (Tauranga Group alluvium)** – Typically alluvial soils comprising moderate to high plasticity, silty clay and clayey silt interbedded with low organic silt and peat with wood fragments. The soil is typically moist, soft to firm with traces of fine sand.

- **East Coast Bays Formation (Waitemata Group)** – Weak to very weak interbedded sandstone/siltstone with variable weathering. The upper surface typically comprises a surficial layer of residual soil and becomes less weathered (and more competent) with depth.

b. Groundwater

Historic investigation logs show that the groundwater level varies between 0.5m and 3m below existing ground level across the Avondale Study Area. It should be noted that groundwater is variable both spatially and temporally and the depths recorded are likely to differ following periods of heavy or prolonged rainfall or drought.

c. Avondale Study Area - Kāinga Ora Land Holdings

Over a majority of the 37 Kāinga Ora sites investigated within the Avondale Study Area there is very little to no geotechnical information available. To better provide geotechnical assessment and confirm suitable foundation philosophy and design, site-specific investigations are required.

#### 1.4.5 Contaminated Land (Desktop Study)

Potential HAIL activities or contamination sources (primarily pesticides) have been identified across the Avondale Study Area (refer to 'Table 2 – Potential source areas within the study area' of the Contaminated Land Memorandum attached as **Appendix A** to this report) and the following off-site potential sources of contamination have been identified:

- § 9(2)(a) [REDACTED] (~20 m south of Site Areas 27 and 28, immediately west of the racecourse) – Unknown if remediation has taken place. Anecdotal information and previous investigations suggest that former 30 Sandy Lane was used for waste disposal
- § 9(2)(a) [REDACTED] – Z PFS (20 m north of the racecourse, and south of Site Areas 15 and 16).
- § 9(2)(a) [REDACTED] – Mobil PFS (50 m east of Site Area 35, 100 m south of the racecourse).
- § 9(2)(a) [REDACTED] – Former Petrol Filling Station (immediately south of Site Area 32, upgradient of the racecourse).
- § 9(2)(a) [REDACTED] – Former horticultural site; and
- § 9(2)(a) [REDACTED] – Former horticultural sites.

In addition, potential for contamination to exist within shallow soil and groundwater as well as typical housing sites that may have been impacted by contamination from asbestos (due to its use in buildings constructed between the 1920s and 2000) and lead from paint also requires consideration.

During redevelopment, any contaminated soil or water will need to be managed and disposed of (where necessary) or reused appropriately, to protect the health of construction workers and future site users.

Based on the desktop review:

- A PSI is recommended to provide further information on the potential sources and to determine the need for further investigation, as required by CLMG 1.
- Ground investigations is recommended at Avondale Racecourse to confirm the site's suitability for the intended land use. There is likely to be a significant cost associated with off-site disposal of surplus fill/topsoil if it cannot be re-used. Therefore, ground investigation and subsequent early engagement of AC and urban designers is recommended to explore solutions which will minimize off-site.

#### 1.4.6 Transport Planning – Avondale Study Area

Overall, this site is ideally located in terms of proximity to both multi-modal transport options and access to educational, community and retail services.

a. Opportunities:

- One of the key opportunities for this development site is its ability to potentially connect to multiple access points and provide linkages through the site for all modes of travel.
- There is also good potential for trips by bicycle with access to the Waterview cycleway and upcoming cycleway projects such as the New Lynn to Avondale shared path.

b. Constraints:

- Currently the site does have constraints in terms of possible access onto Ash Street as a result of the Auckland Unitary Plan (AUP) provisions restricting new access to this road that will need to be mitigated.
- In its current form the road network will not be able to accommodate the increase in traffic without significant upgrades. The degree of impact can be reduced by the way in which traffic is dispersed as well as utilisation of public transport modes.

#### 1.4.7 Auckland Unitary Plan Requirements

The development will trigger a requirement for an Integrated Transport Assessment under the Unitary Plan, particularly given that a Plan Change would be required to re-zone the site from its current Special Purpose zone to provide for residential activity. This would be necessary in advance of the subdivision consents being sought. As the ITA is to support a Plan Change, it is expected that the scope of the ITA would be broad, needing to address not only local transport matters, but also the safe and efficient operation of the adjacent arterial and strategic road connections. Network traffic modelling, to model the operation of the intersections, may be required to satisfy these requirements.

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## 2 Introduction

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### 2.1 Background

ARC has been identified as a potential land development site in relation to the findings of the Messara Report (30 August 2018) which was a government commissioned review of the New Zealand racing industry and provided recommendations on future directions for the industry. The findings highlighted the need for reform and made recommendations on asset management. Specifically, it recommended that of the 48 thoroughbred tracks that currently hold race meetings, 20 are recommended for closure, with their land being sold and the proceeds going towards bringing the remaining 28 courses to an acceptable standard. ARC is amongst the 20 racecourses recommended for closure.

### 2.2 General Site Description

Avondale Racecourse is located in the Auckland suburb of Avondale, approximately 10km south west of Auckland central business district. Avondale is part of the Whau ward which also includes the suburbs of New Lynn, Green Bay, Kelston, Rosebank, New Windsor and Blockhouse Bay. The Avondale Racecourse is situated next to the heart of the Avondale town centre.

The Avondale Racecourse site is approximately 35.77ha and bounded by suburban streets to the north and south, to the east is the Avondale shops and to the west is Whau Creek which runs into the Waitemata Harbour. The site comprises a horse racing track and parade ring on a relatively flat platform which falls between RL16m and RL12.5m to the north-west corner. There is existing carparking areas and grandstands to the north of the site, which are also relatively flat (levels between RL16m and RL17m).

Avondale Racecourse provides one of the key open spaces in the Avondale / New Lynn area. The infield is leased to Auckland Council as sports fields for local sports teams in both winter and summer which helps to address the shortage of sports fields in West Auckland.

The Avondale Racecourse currently consists of:

- Horse Racing Track
- Parade Ring
- 3 Training Tracks
- 3 Car Parking Areas
- Public Sports Fields
- Public Grandstand
- Members Grandstand

The site is currently used for many different activities by different groups within the West Auckland community. As well as horse racing and associated activities, the main facilities bordering Ash Street are used for the Avondale Market and Avondale Antique Fair every Sunday. The infield area is utilised by Auckland Council as a public sports ground catering for cricket, kilikiti and touch rugby in summer and soccer, rugby and rugby league in winter.

Access to the site by both pedestrians and vehicles can be gained on three sides from Ash Street, Elm Street, Racecourse Parade and Wingate Street. Pedestrian access to the infield area can be gained across the track with vehicle access from the east of the Members Grandstand.

## 3 Yield Calculation Methodology

### 3.1 Avondale Yield Calculation Methodology

Below is an outline of the calculation methodology for the anticipated yield for the Avondale Study Area.

#### 3.1.1 Kāinga Ora landholding

The basics of the calculation are premised on an assumed density – dwellings per hectare, able to be achieved based on the building typologies enabled by Auckland Unitary Plan zone rules and / or the National Policy Statement on Urban Development 2020. The assumptions underpinning these scenarios are as follows:

##### Auckland Unitary Plan assumptions:

- MHU densities for sites 700m<sup>2</sup> or smaller is 40d/ha, sites between 701-1200m<sup>2</sup> is 60d/ha and 1200m<sup>2</sup> + are 90d/ha; and
- THAB densities for sites up to 1200m<sup>2</sup> is 90d/ha, anything larger 1200m<sup>2</sup> is assumed to be 125d/ha

Please refer to **Figure 1** below for a visual representation of the density uplift associated with these assumptions.

##### National Policy Statement on Urban Development (2020) assumptions:

- Sites located within 400m walking distance from the Avondale train station are anticipated to be 8 storeys – the equivalent of 187d/ha; and
- Sites located within 800m walking distance from the Avondale train station are anticipated to be 6 storeys – the equivalent of 150d/ha

Please refer to **Figure 2** below for a visual representation of the density uplift associated with these assumptions.

#### 3.1.2 Avondale Racecourse:

The Avondale Racecourse calculation is based on the same methodology. Unlike the sites with defined site area and zoning, the areas are broken down into either a defined area or percentage designated to a particular use. The following areas and percentages are used to determine the developable area and associated yield:

- Primary School = 15,000m<sup>2</sup>
- Street Network = 25%
- Open Space = 20%
- Remaining area is Net Developable Area – split into:
  - 8 Storey @5%
  - 6 Storey @45%
  - 5 Storey @50%

Once the net developable area is established, the split and density related to the particular zoning can be applied.

**Note:** All assumptions on d/ha and metrics are based on worked up examples within the Auckland Housing Programme areas.

### 3.1.3 Yield Assumptions for Infill (Non-Kāinga Ōra)

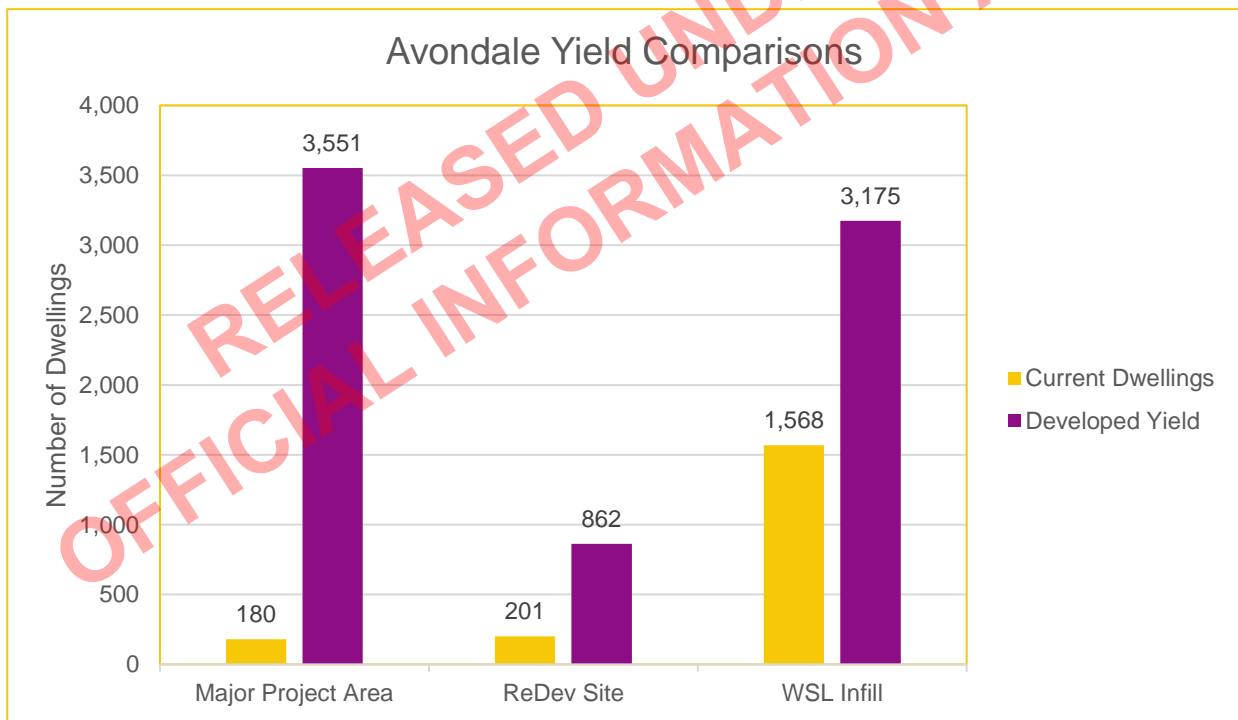
Other residentially zoned land used the 2018 WSL population model (i11.v3) high growth scenario prediction for the year 2068 population and an assumption of 3 residents per dwelling.

### 3.1.4 Outcome

**Note:** Major Project Areas yields summarise the following:

- Masterplanned Areas
- Crown Owned Land
- Unlock Avondale (Panuku)
- Avondale Racecourse (A)

Scenario	Infill	Major Project Areas	Kāinga Ora (Redevelopment Site)	Total
Existing	1568	180	201	1949
Future	3175	3551	862	7588



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## 4 Planning Assessment (Beca)

### 4.1 Existing Regulatory and Statutory Planning Framework

#### 4.1.1 National Policy Statement on Urban Development (2020)

The National Policy Statement on Urban Development 2020 (“**NPS-UD**”) was released in July 2020 and came into effect on 20th August 2020. This national direction seeks to specifically acknowledge that urban environments need to provide sufficient opportunities for the development of housing and business land to meet demand and provide for a range of dwelling types across different locations what will meet the needs of people and communities as well as future generations.

The policy intent of the NPS-UD is to enable growth by requiring local authorities to provide development capacity to meet the diverse demands of communities, address overly restrictive rules, and encourage quality, liveable urban environments. It also aims to provide for growth that is strategically planned and results in vibrant cities that contribute to the well-being of our communities by:

- Giving clear direction about planning for growth;
- Supporting local government to apply more responsive, effective planning and consenting processes; and
- Clarifying the intended outcomes for urban development within communities and neighbourhoods across New Zealand.

The geographic targeting of the NPS-UD policies uses a ‘three-tier’ static approach. The tiers are based on high, medium and low demand urban environments. The criteria used to classify the three tiers are population growth and size. The NPS-UD lists Councils that are Tier 1 or Tier 2, with all other urban environments with populations greater than 10,000 classified as Tier 3 (by default).

Tier 1 and 2 urban environments are identified because they account for over 60% of New Zealand’s population growth and the urban growth in these urban environments is putting pressure on existing housing markets. They also have a larger market demand for different housing typologies. Because of this, there are more directive policies that apply to Tier 1 and 2 urban environments.

Auckland Council is identified as a ‘Tier 1 local authority’ pursuant to the NPS-UD . The more directive policies applying to Tier 1 local authorities include:

- Intensification policies (Policy 3 and 4 and Sub-part 6);
- Future Development Strategy (“**FDS**”) preparation (Policy 2 and 10 and Sub-part 4);
- Housing and Business Development Capacity Assessment (“**HBA**”), monitoring provisions and housing bottom lines (Policy 7 and Sub-part 5); and
- Removing minimum car parking requirements (Policy 11 and Subpart 8).

The rationale for the ‘three-tier’ static approach is that the largest territorial authorities – such as Auckland Council – have the capability and capacity to implement all NPS-UD policies.

The intensification policies (Policy 3 and 4) seek to improve land flexibility in existing urban boundaries through enabling and providing for higher-density development in appropriate locations. This framework provides greater specificity in prescription provided to urban environments with clear evidence of benefit (being city and metropolitan centres and rapid transport nodes). Auckland is considered one such urban environment as signalled by virtue of the ‘Tier 1’ local authority status afforded to Auckland Council. The direction afforded to

the scale and spatial location of intensification in Auckland is therefore described through Clauses (a) - (d) of Policy 3.

Of relevance to the Avondale Racecourse site, Clause (c)(i) of Policy 3 directs that the scale of intensification located within a 'walkable catchment' of existing or planned rapid transport stops to be at least 6 storeys. Guidance on the implementation of the intensification provisions of the NPS-UD states that a "walkable catchment is determined either using a simple, radial pedshed analysis or a more detailed GIS (geographical information systems) network analysis"<sup>1</sup>. The majority of the Avondale Racecourse site is located within 800m radial pedshed to rapid transport stops (refer to section 6.4.2 of the Transport Section) and Avondale Railway Station. Therefore, under the NPD-UD, the opportunity for intensification of at least 6 storeys is anticipated on the Avondale Racecourse site given its proximity to both existing and planned rapid transport stops.

#### 4.1.2 Auckland Unitary Plan: Operative in Part (2016)

The Regional Policy Statement ("RPS") provides the broad strategic framework for guiding urban growth and development throughout the Auckland Region. The RPS is embedded within the Auckland Unitary Plan: Operative in Part ("AUP-OP"). The objectives and policies of the AUP-OP give effect to the RPS and provide the rule framework for development within Auckland.

Development that complies with the AUP-OP rule framework indicates it is consistent with the objectives and policies of the AUP-OP and, therefore, consistent with the urban growth envisaged by the RPS. Where compliance cannot be achieved with the rule framework of the AUP-OP, an assessment of the proposed development against the relevant objectives and policies of the AUP-OP is required to determine whether it is consistent with the strategic direction of the RPS. If the development is not consistent with the AUP-OP objectives and policies (and therefore the RPS), it is highly unlikely that development will be approved.

For the purposes of the planning assessment, only the planning controls<sup>2</sup> under the AUP-OP have been investigated. We are not aware of any current or mooted plan changes identified that affect the site(s).

## 4.2 Auckland Unitary Plan Framework Review

### 4.2.1 Current AUP-OP Site Zones

The subject site currently has nine different zones under the AUP-OP, the five primary zones are as follows:

1. Special Purpose – Major Recreation Facility Zone
2. Business – Town Centre Zone
3. Residential – Terrace Housing and Apartment Building Zone
4. Business – Mixed Use Zone
5. Residential – Single House Zone

In addition, small areas within the site are zoned as follows:

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<sup>1</sup> 'Understanding and Implementing intensification provisions for the National Policy Statement on Urban Development' (2020). Ministry for the Environment. Section 5.5, pg. 20

<sup>2</sup> None of the rules reported on in this document are subject to appeal. Therefore, the provisions of the underlying legacy plans do not need to be considered as part of this assessment.

- 6. Open Space – Sport and Active Recreation Zone;
- 7. Open Space – Civic Spaces Zone
- 8. Open Space – Community Zone
- 9. Open Space – Informal Recreation Zone

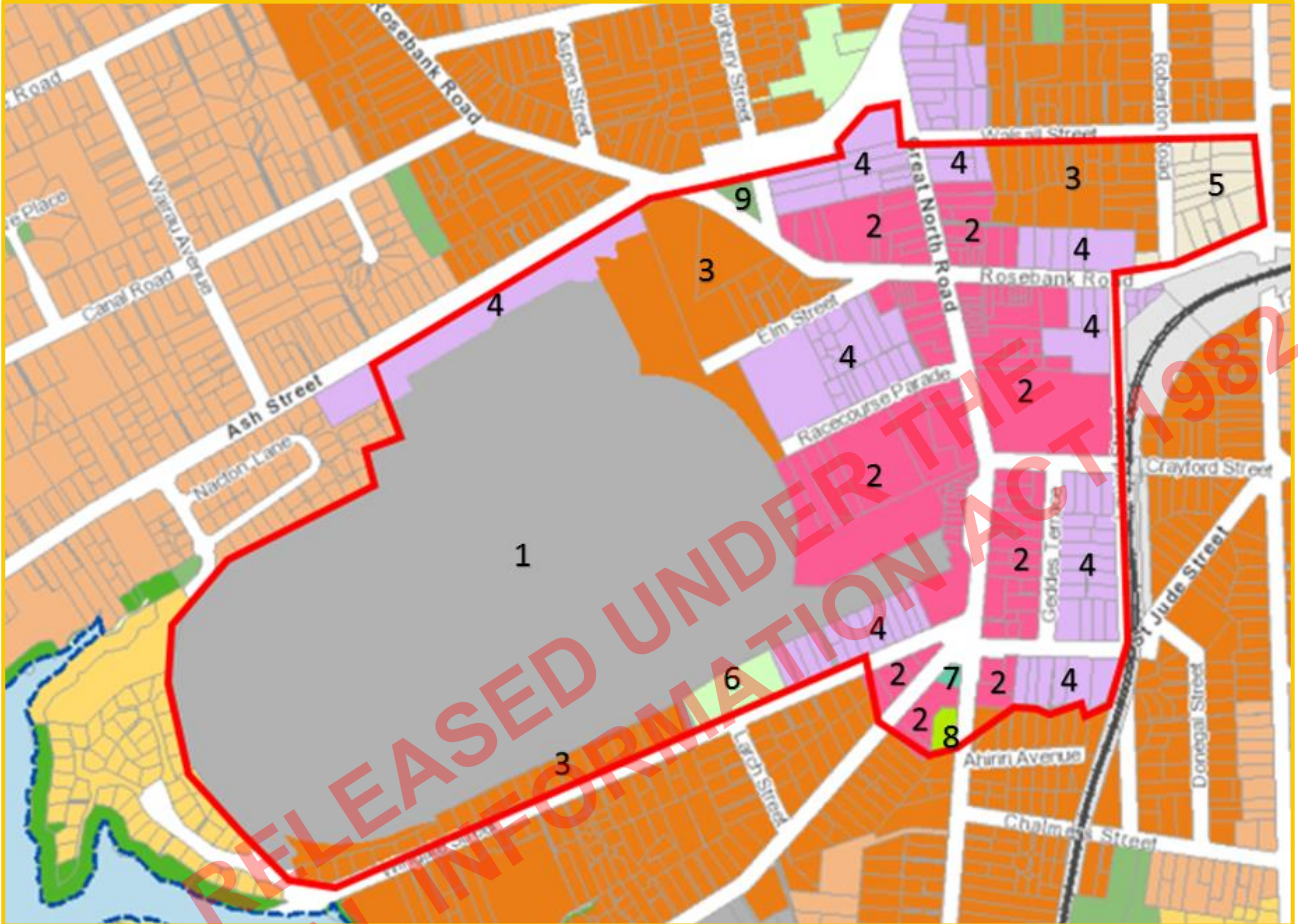


Figure 3: AUP-OP Zoning Pattern. Source: Auckland Council GeoMaps

#### 4.2.2 Current AUP-OP Controls

Table 1: AUP-OP Site Summary

<b>Zone</b>	<ul style="list-style-type: none"> <li>• Special Purpose – Major Recreation Facility Zone</li> <li>• Business – Town Centre Zone</li> <li>• Residential – Terrace Housing and Apartment Building Zone</li> <li>• Business – Mixed Use Zone</li> <li>• Residential – Single House Zone</li> <li>• Open Space – Sport and Active Recreation Zone;</li> <li>• Open Space – Civic Spaces Zone</li> <li>• Open Space – Community Zone</li> <li>• Open Space – Informal Recreation Zone</li> </ul>
<b>Designations</b>	<ul style="list-style-type: none"> <li>• Designations: Designations - 9459, Wingate Street Pump Station, Designations, Watercare Services Ltd</li> </ul>

<b>Precincts</b>	<ul style="list-style-type: none"> <li>• Avondale 1 sub-precinct B, Sub-precinct</li> <li>• Avondale 1 sub-precinct A, Sub-precinct</li> <li>• Avondale Racecourse, Sub-precinct</li> </ul>
<b>Overlays</b>	<ul style="list-style-type: none"> <li>• Infrastructure: National Grid Corridor Overlay - National Grid Yard Compromised</li> <li>• Infrastructure: National Grid Corridor Overlay - National Grid Yard Uncompromised</li> <li>• Infrastructure: National Grid Corridor Overlay - National Grid Subdivision Corridor</li> </ul>
<b>Controls</b>	<ul style="list-style-type: none"> <li>• Controls: Vehicle Access Restriction Control - General</li> <li>• Controls: Height Variation Control - Avondale, 21m</li> <li>• Controls: Macroinvertebrate Community Index - Urban</li> </ul>
<b>AUP Modification</b>	<ul style="list-style-type: none"> <li>• Notice of Requirements 7: Proposed Northern Runway, Airspace Restriction Designations – notified 15/02/2018</li> </ul>

A Watercare designation (9459, Wingate Street Pump Station, Designations, Watercare Services Ltd) sits to the south east of the site at 10 Larch Street and is designated by Watercare in relation to wastewater purposes, specifically to allow for the construction of a pump station for the Central Interceptor; a combined sewer overflow, collector sewers (see **Figure 4** below).

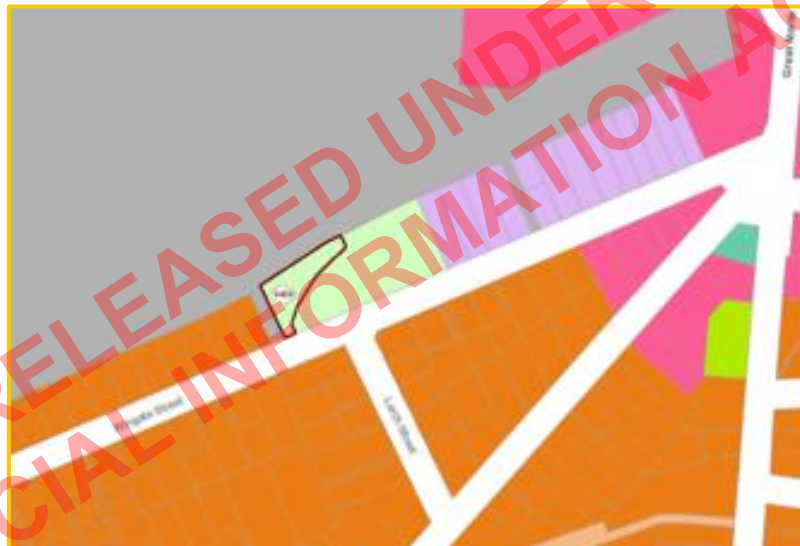


Figure 4: Current Designation and Land Source: Auckland Council GeoMaps

#### 4.2.3 Precincts

The Racecourse itself has the single Racecourse Precinct, the wider land to the east owned by the racing club then falls within the Avondale 1 Precinct (which is then split into sub-precinct A & B). Land to the south east of

the site but not owned by the racing club falls within the Avondale 2 Precinct (which is then split into sub-precinct A, B & C).

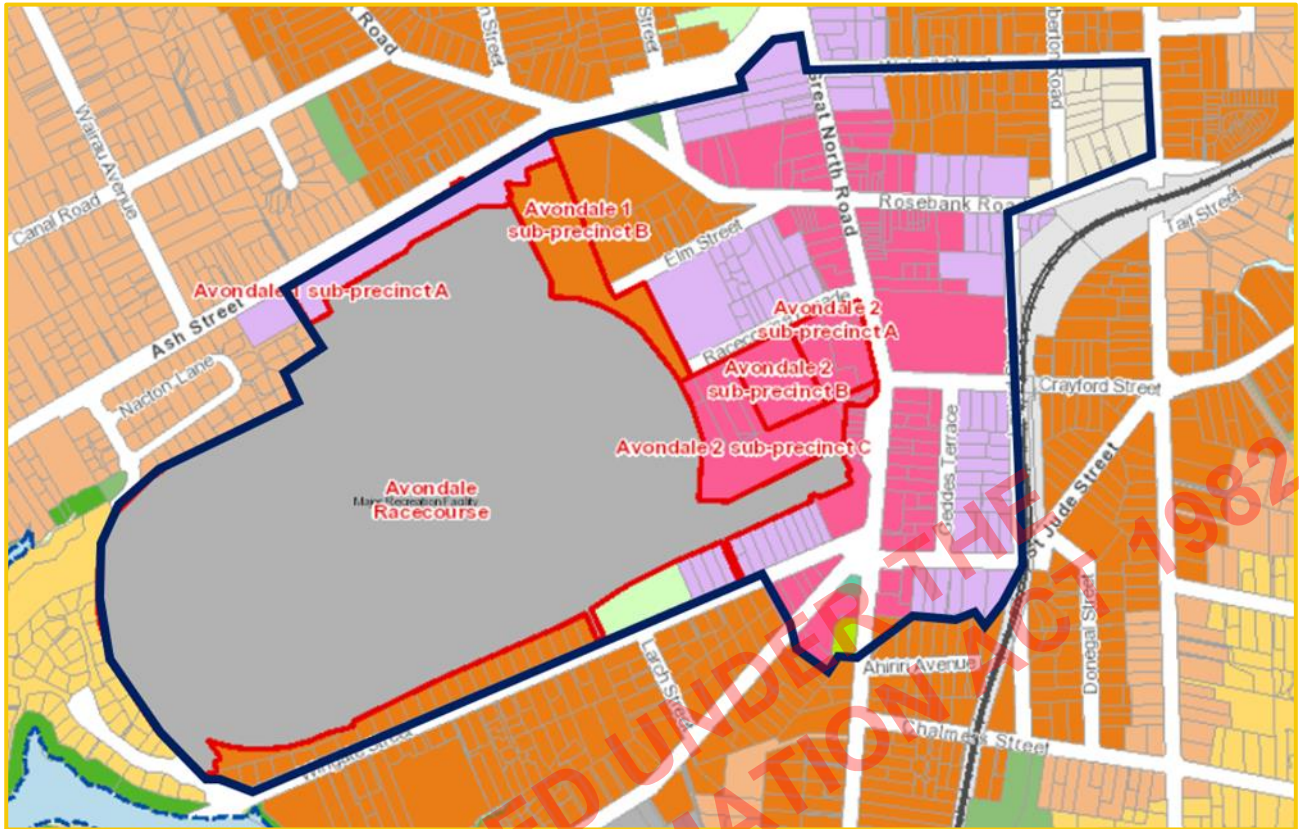


Figure 5: AUP-OP Precincts Source: Auckland Council GeoMaps

a. Avondale Racecourse

The Avondale Racecourse Precinct provides specific planning provisions for the use of the Avondale Racecourse as a horse racing facility. The precinct enables a range of activities compatible with, or accessory to, the primary activity of horse racing.

Compatible activities include utilisation of the space (when horse racing is not occurring) such as recreation, special events and markets. Development is enabled (at different consenting levels) where it facilitates these activities.

A plan change will be required to remove the existing precinct from this area. Consideration could then be given as to whether a revised / alternate precinct may be required – in order to achieve any site-specific design / layout / transport network outcomes which the general Unitary Plan zones (and their associated zone provisions) may not address or assist in achieving.

b. Avondale Precinct 1

The Avondale 1 Precinct applies to the northern boundary edge of the Avondale Racecourse land that adjoins Ash Street, Avondale, and the north-eastern corner edge of the Avondale Racecourse land extending from Ash Street to Racecourse Parade.

Sub-precinct A prioritises commercial and office activities that do not diminish the role of Avondale Town Centre and its function. Residential activity is limited to those that are above businesses and which mitigate

the effects of Ash Street's traffic function on resident health and amenity. Residential activities are a Discretionary activity.

Sub-precinct B is designed to enable more intensive residential activities which integrate well with the adjoining Avondale Racecourse precinct land and existing residential development immediately east of the sub-precinct. Limitations are placed on office and retail activities. The activity rules for residential dwellings for sub-precinct B are determined by the zone – which is terraced housing and apartment buildings (meaning residential use is Permitted, with all new development needing resource consent as a Restricted Discretionary Activity).

c. Avondale Precinct 2

The Avondale 2 Precinct applies to an area that is bounded by Racecourse Parade to the north, Great North Road to the east and a small area of Avondale Town Centre to the south-east.

The purpose of the precinct is to provide town centre type activities, with limited opportunity for larger retail activities. The precinct is divided into sub-precincts A, B and C. It allows for the intensification of commercial, residential, community and civic activities. It discourages dwellings at ground floor in sub-precincts A and B and enables dwellings above ground floor.

4.2.4 Controls

a. Height Variation Control

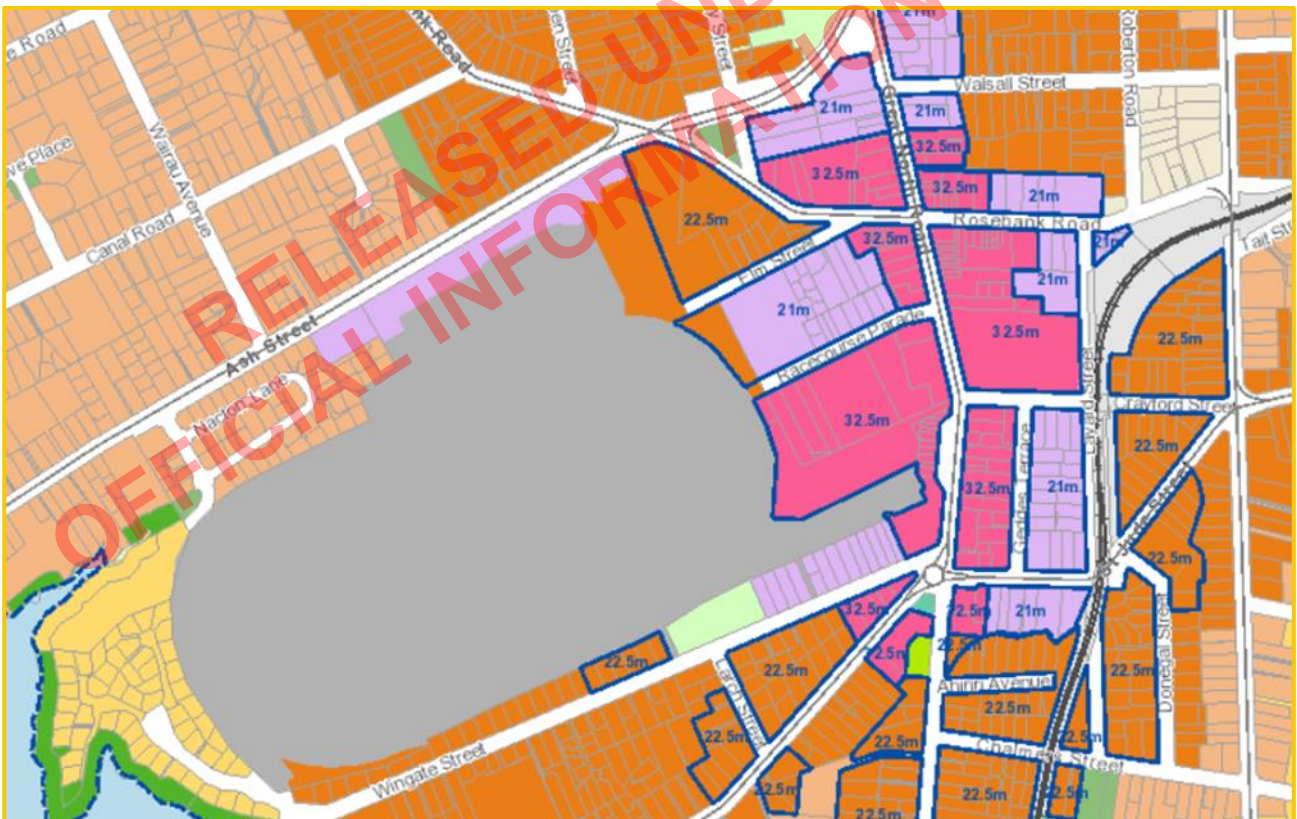


Figure 6: AUP-OP Height Variation Controls Source: Auckland Council GeoMaps

Identifies variations to the height controls as set out in the policy frameworks of Business and Residential zones.

The height variation controls (in blue in **Figure 6** above) provide the maximum height a building must not exceed in this area. This control enables additional building height to that which is already provided for through the underlying zones. Of note is the existing area of ‘height variation control’ along the northern side of Wingate Street, which may set a precedent for proposing the utilisation of the ‘height variation control’ method for the proposed THAB zoned superblocks within the eastern half of the racecourse site, particularly in the south-eastern section of the site.

b. Building Frontage and Vehicle Access Restriction Controls

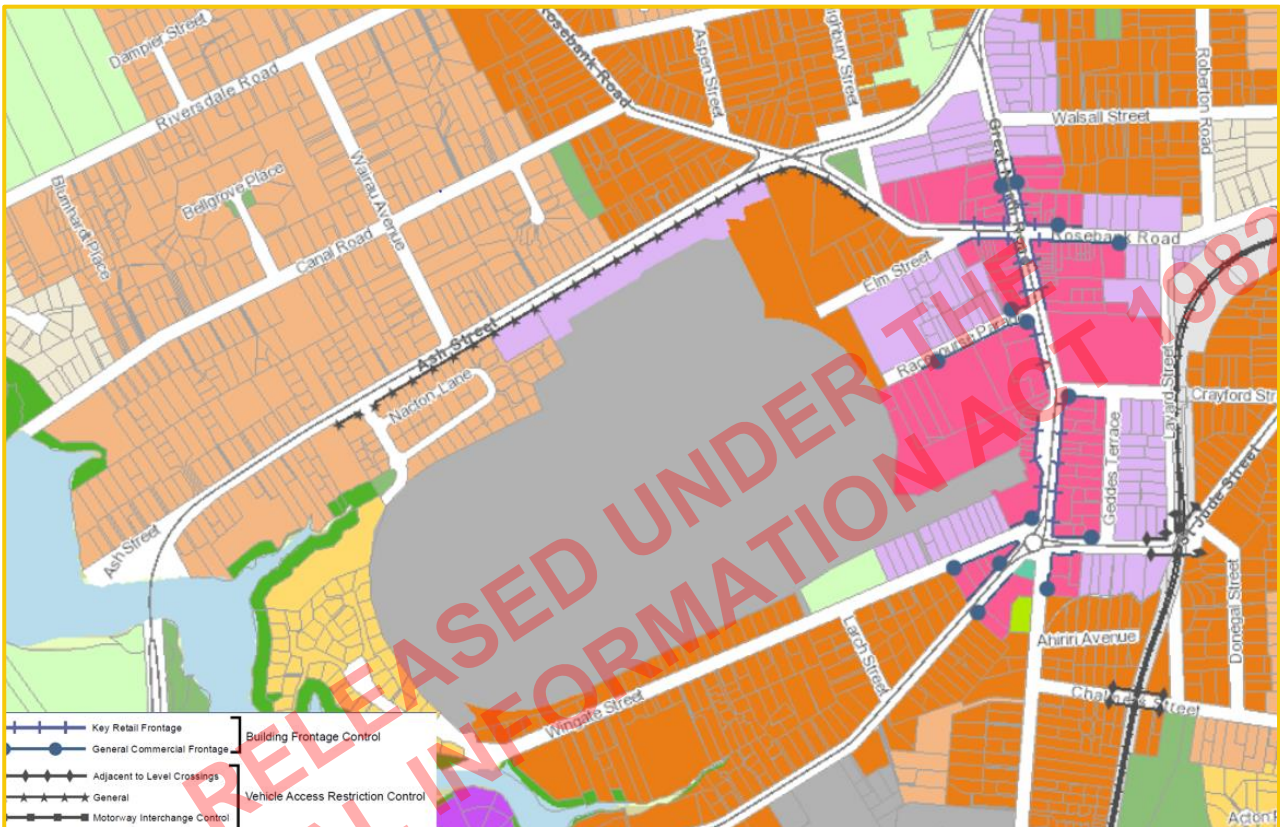


Figure 7: AUP-OP Building Frontage Controls and Vehicle Access Restrictions Source: Auckland Council GeoMaps

c. Building Frontage Control

Within the town centre area primarily along Great North Road (and into Wingate and Rosebank Road – see **Figure 7** above), ‘General Commercial Frontage’ and ‘Key Retail Frontage’ controls are in place. These controls are in place within the Business Town Centre zone, focussing on pedestrian activity within key retail streets and a support role for general commercial streets.

Both these controls require those frontages of buildings, subject to these controls, to maximise and/or achieve street activation, building continuity along the street front, pedestrian amenity and safety and visual quality.

d. Vehicle Access Restriction Control

Arterial roads are indicated by a line in the middle of the street in the figure above, this is addition to the Vehicle Access Restriction control restricts and/or manages vehicles access to and from sites.

Redevelopment along Ash Street (between Sandy Lane and Community Lane) is subject to a vehicle access restriction control. This general control provides for continuity of building frontage and associated activities at the street level. The relevant rules are found within the transport chapter (E27). Use of an existing vehicle access (subject to standards) is a permitted activity, beyond these standards any construction of new vehicle crossings in this area requires resource consent as a Restricted Discretionary activity. Vehicles crossings which are not provided for in the provisions of Chapter E27 in relation to the 'Vehicle Access Restriction' are assessed as a Non-Complying activity.

Changes to, including any proposal to remove, this 'vehicle access restriction' control along the Ash Street frontage would also necessitate a Plan Change.

#### 4.2.5 Existing Resource Consents

A review of the existing consents and property file in 2019 (as part of the initial Avondale Racecourse – Site Analysis) revealed that the Avondale Racecourse site is in part subject to land instability (weak/filled soil), flooding and contaminated land (from industrial site history). Commentary on these issues including the use of section 88 when these matters have not been addressed and deferring or declining applications have also occurred. Any future application will need to adequately address these matters. Prior Land Use Consents have included commercial activities such as car fair, pop-up retail, public bar/bistro, and cricket club bar. Infrastructure such as telecommunications and electricity have consents to establish, operate and be maintained within the site. In general, the remainder of consents have been for the purpose of subdivision of land.

##### a. Auckland Council Network Discharge Consent

The Auckland Council Network Discharge Consent ("**NDC**") is a single, regionwide consent that requires best practice to manage all public stormwater discharges across Auckland region to protect the environment, people and property – and improve water quality. The NDC was granted in April 2019 however appealed shortly afterwards. Following mediation with different groups, the Environment Court issued the consent order in October 2019.

Auckland Council's Healthy Waters department is the consent holder of the NDC and are therefore ultimately responsible for compliance with the NDC and the discharge from the stormwater network. The NDC applies to the following:

- Existing diversions and discharges of stormwater from the public network;
- New or modified diversions and discharges resulting from the upgrading of the stormwater network; and
- Future diversions and discharges resulting from the extension of the public network to service intensification and greenfield growth.

The NDC provides clear processes and requirements for stormwater discharges throughout the Auckland region. Developers who wish to have the stormwater and discharge associated with their proposal authorised by the NDC will need to demonstrate, through a Stormwater Management Plan ("**SMP**"), that they meet the performance requirements in Schedule 4 of the NDC (noting there are difference performance requirements for different development scenarios). Once the SMP has been approved by the Healthy Waters department, it will be adopted into the NDC which will authorise the discharges from the proposed development – avoiding the need to obtain a private discharge consent.

Auckland Council's Healthy Waters department can work closely with developers seeking to utilise the NDC (regarding how to best provide stormwater management for their development).



The NDC will need to be considered as part of the proposed redevelopment of the Racecourse when discharging into the existing reticulated stormwater system.

For the development of any new stormwater infrastructure that does not discharge into the existing reticulated stormwater system (such as stormwater discharges directly into the Coastal Marine Area – Whau River - to the west of the site), an assessment will need to be undertaken against the AUP stormwater discharge provisions and the appropriate consent/s sought. It is noted a marine reserve is located within Whau river and therefore careful consideration should be had to the quality of any proposed discharges into the Coastal Marine Area. A detailed analysis will need to be undertaken against the AUP once the quantity and quality of any proposed stormwater discharge that is not proposed under the NDC is known.

b. Subdivision

The general strategy of Auckland Jockey Club has been to apply for the subdivision, but not the development, of land seeking approval to defer the installation of services and addressing remediation required to a future purchaser / developer of the specified lot. A review of the consents revealed that the general pattern has been to dispose of land assets around the perimeter of the racecourse. Below is an illustration of how this has occurred over time (note some may not be accounted for in Figure 9 below if information was not available in the property file).

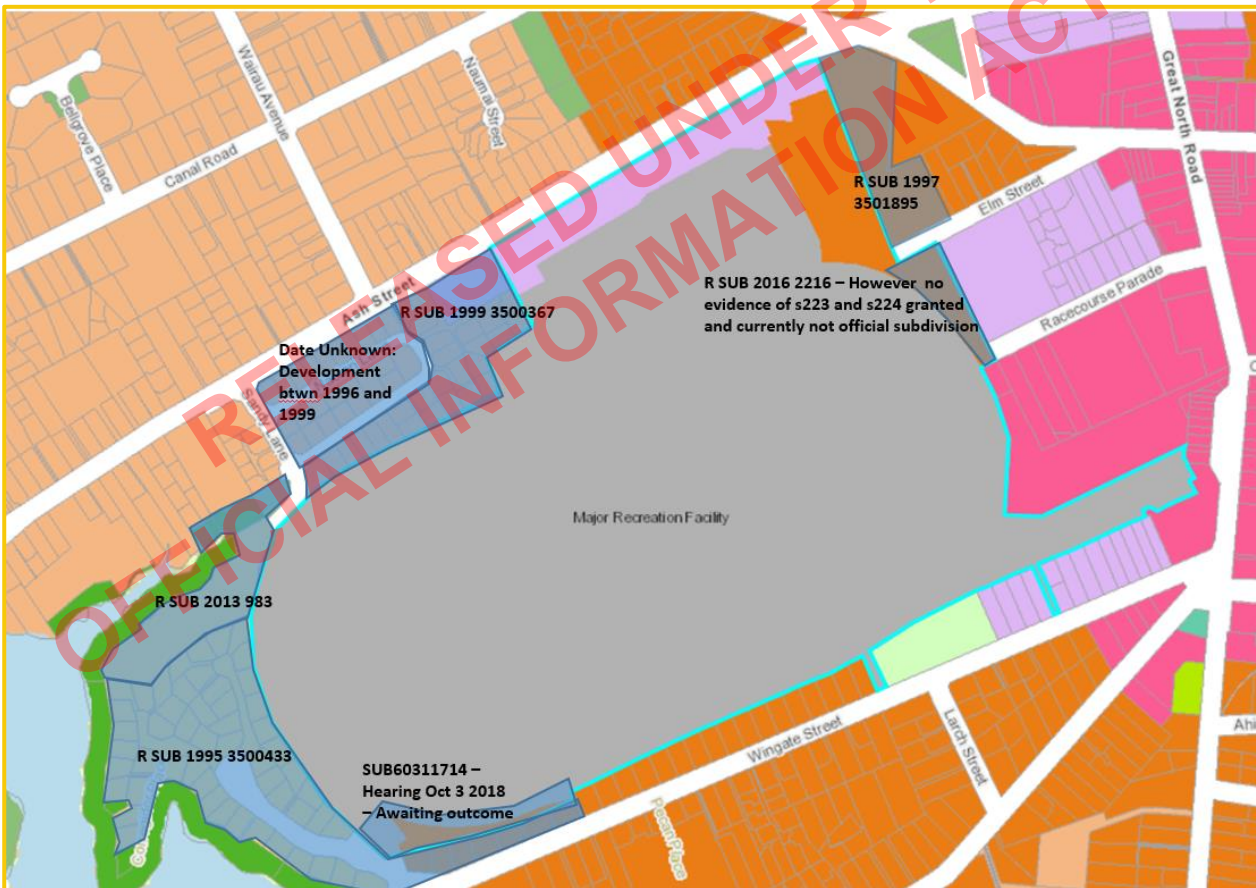


Figure 8: Existing Subdivision Consents

A summary of these consents is provided in the Table 2 below:

Table 2: Review of Subdivision Consents

Consent	Description	Comments
R SUB 1995 3500433	Subdivision consent to subdivide the western stables area (5ha.south west of the main racetrack) of the Jockey Club from their racecourse title.	Reference to land within the entire site being rezoned to residential in the operative plan. It notes that the Jockey Club have been actively disposing of their surplus land, including the sale of sites for Shell Service Station and Golf Driving Range in Ash Street and the Wingate Mews residential development in Wingate Street.
R SUB 1997 3501895	The site is comprised n Pt CT 105B/322 and forms the northern most area of the Jockey Club's holdings. Total area of the land in the application is 1.0636 ha. This is to create two residential allotments with frontage to that extension.	Lot 1 is intended to be disposed of by the Jockey Club to lessen their financial liabilities (Elm Street).
R_SUB_1999_3500367	Subdivision of LOT 1 DP 470450 (a subdivision of LOT 1 DP 199964) 14 October 2013.	No proposed development at the time so services not addressed. Future use of site must address: <ul style="list-style-type: none"> <li>• Infrastructure</li> <li>• Access</li> <li>• Flooding and geotechnical stability hazards</li> <li>• Contamination</li> </ul>
R_SUB_2014_5064 and R_SUB_2016_2216	Subdivision of Lot 2 DP 470450 creating a 3,267m <sup>2</sup> lot and a balance parent site at the Avondale Racecourse.	§ 9(2)(a) [REDACTED] Avondale subdivision creating a 3267m <sup>2</sup> lot granted November 2016 No evidence of s223 and s224 being granted. Zoned THAB but not officially subdivided. Of concern was the provision of access and transport (multi modal) including congestion. Went to a hearing as council opposed application based on: <ul style="list-style-type: none"> <li>• Contrary to objectives and policies for the precinct in the PAUP</li> <li>• Potential adverse effects on transport network</li> </ul>

		<ul style="list-style-type: none"> <li>• Not representing and integrated use of land</li> </ul>
R/SUB/2013/983	For a three-lot subdivision including esplanade reserve Oct 2013	
SUB60311714	To subdivide a portion of land within the Avondale Race Course to enable future development. The land proposed for subdivision is situated between Wingate Street and the race course itself, creating a proposed lot of 4,570m <sup>2</sup> and resulting in a balance lot area of 353,181m <sup>2</sup>	<p>Alongside this a submission was lodged to Proposed Plan Change 4 to seek that the THAB zone be extended to cover the full extent of the 4570m<sup>2</sup> area. This zone change request was declined.</p> <p>The consent application was recommended for approval but went to hearing due to the following key concerns identified by council:</p> <ul style="list-style-type: none"> <li>• Preclusion of future roading connection from Wingate Street into the AJC site if the racecourse were ever closed and land redeveloped</li> <li>• Subdividing prior to a plan change (resulting in a lot with split zoning).</li> <li>• Use of 'consent notices' for the provision of services rather than including these in the subdivision</li> </ul>

#### 4.2.6 Iwi and Heritage

The Auckland Council Geomaps identifies 12 Iwi with interest in the site and surrounding area. These Iwi are listed below:

- Ngāti Whātua o Kaipara;
- Te Rūnanga o Ngāti Whātua;
- Te Ākitai Waiohūa;
- Ngāi Tai ki Tāmaki;
- Te Ahiwaru – Waiohūa
- Ngāti Paoa;
- Te Kawerau Ā Maki;
- Ngāti Whātua Ōrākei;
- Ngāti Tamaterā;

- Ngāti Te Ata;
- Ngāti Maru; and
- Waikato - Tainui

Consultation with identified iwi groups will likely be required for any future land development proposal.

The Council's cultural heritage inventory indicates that there is a former military camp from WW1 (#201215) within the racecourse site. Further to this there are several sites listed under this inventory and/or the Archaeological Site Recoding Scheme New Zealand ("**ArchSite**") that are within a block of this site, which include a midden and several different types of historical structures including stables, brickworks and churches.

Although there is no cultural or heritage overlays within the Unitary Plan pertaining to Avondale Racecourse, there is evidence of historical activity and further clarification from an Archaeologist would help clarify any potential requirements for earthworks.

### 4.3 Plan Change Option Summary

The subject sites are primarily a mix of the following zones:

- Special Purpose – Major Recreation Facility Zone (Avondale Racecourse)
- Business – Town Centre Zone
- Residential – Terrace Housing and Apartment Building Zone ("**THAB**")
- Business – Mixed Use Zone ("**MBU**").

In general, the above business (Town Centre and Mixed Use) and residential zones can be used for residential development within the current provisions of the Unitary Plan. The primary area where residential activities are currently not provided for is the zone that encompasses the Avondale Racecourse itself (Major Recreation Facility Zone). We consider that it may be possible, through a Plan Change process, to amend the current zoning to provide for medium and high-density residential development on the site. It is noted that a Plan Change would be required to achieve a potential comprehensive residential and / or mixed use development on the site, as the current provisions of the Major Recreation Facility zone would not support the establishment of residential activities on the site at present.

There is the option to re-zone the area currently occupied by Avondale Racecourse with variations offered in the arrangement of traffic connections / network through and around the site.

Recommended rezoning principles based on the site and surrounds are as follows:

- A commercial link:
  - Establishing multiple connections from the Racecourse to Avondale Town Centre.
- North-South permeability / Street Grid Pattern:
  - Improving the accessibility and permeability of the site between Ash Street to the North and Wingate Street / Great North Road to the South through the establishment of a neighbourhood structure based on a grid of streets, lanes and open spaces.
- A Central Park / Open Spaces:
  - Providing accessible and well-integrated open spaces for active and passive recreation as well as promoting permeability / connectivity between the Racecourse and the immediate environs.
- Multi-modal connections:

- Utilising the sites proximity to Avondale Railway Station, the various bus stops along both Rosebank Road and Great North Road, the Te Whau Cycleway and the proposed New Lynn Shared Path.
- Memory of the racecourse:
  - Integrating components of the racecourse into the design (through open space and / or architecture design).
- Education Hub:
  - Opportunity to allocate an area of the site to a school / education hub.

Adopting such principles would:

- Enable and provide for an appropriate relationship to the immediately adjoining residential zoned properties to both the south and north-east (existing area of adjoining THAB zoning) and the west / south-west – with opportunities to create consistency in the potential built form outcomes along these site boundary / zone interfaces with immediately adjoining residential properties;
- Enable and provide for areas of open space zoning to create a ‘civic heart’ for the site while retaining an aspect of the current recreational provision which the site offers; and
- Promote the efficient use of land and infrastructure by enabling a higher intensity of development in proximity to a town centre, community services / amenities and in proximity to strategic transport corridors and active modes of transport (being the existing and proposed cycleways / shared path).

The options which are available to progress the Plan Change process include:

- **Undertaking a Plan Change process to the Auckland Unitary Plan, in accordance with the RMA:**
  - This would involve progressing a private plan change, or potentially a Council-lead plan change, to seek to change the underlying zone for the site; potentially amend / delete existing Precinct provisions which apply to the site, as well as the potential to apply the ‘height variation control’ to parts of the site to enable additional development potential to that provided for through the underlying zones;
- **Progressing the Proposed Development through the Urban Development Act 2020 (UDA):**
  - This approach would involve utilising the suite of special regulatory powers afforded to Kāinga Ora through the UDA - enabling the planning and delivery of comprehensive residential development proposals ‘at pace’ (that is, through a streamlined and consolidated processes). Such a process will not require the full RMA Plan Change process, which is noted above.

## 4.4 Plan Change Zone Types

### 4.4.1 Residential – Mixed Housing Urban (“MHU”) Zone

The MHU Zone is a reasonably high-intensity zone. Developments are anticipated to be up to three storeys in a variety of sizes and forms, with a mixture of detached dwellings, terrace housing and low-rise apartments. Up to three dwellings are permitted as of right subject to compliance with the standards.

The zoning aspires to have an outcome that increases the capacity and choice of housing within neighbourhoods as well as promoting walkable neighbourhoods, fostering a sense of community and increasing the vitality of centres.

The AUP-OP rules, objectives and policies for this zone put an emphasis on high quality on-site living environments, specifically with large scale developments. Visual amenity, privacy and access to daylight and sunlight are key design matters.

#### 4.4.2 Residential – Terrace Housing and Apartment Buildings (“THAB”) Zone

The THAB is a high-intensity zone which provides for urban residential living in the form of terrace housing and apartments. Development in the zone is intended to make efficient use of land and infrastructure, increase the capacity of housing and enable residents to have convenient access to services, employment, education facilities, retail and entertainment opportunities, public open space and public transport. The zone provides for the greatest density, height and scale of development of all the residential zones. There are no density rules in this zone and buildings are permitted up to 16m in height.

#### 4.4.3 Business – Mixed Use Zone

This zoning is typically located around commercial/town centres and along corridors served by public transport. The AUP-OP rules, objectives and policies for this zoning aspire for new development to be designed to a high standard to enhance residential activity whilst delivering a compatible mix of residential and employment activities.

Areas with this zoning aim to provide for smaller scale commercial activity that does not cumulatively affect the function, role and amenity of centres, and provides a transition area, in terms of both scale and activity, between residential areas and the Business – City Centre Zone, Business – Metropolitan Centre Zone and Business – Town Centre Zones.

There is a range of possible building heights depending on the context with a general four / five storey threshold, with greater heights potentially provided for on sites located in proximity to the city centre, metropolitan centres and larger town centres.

#### 4.4.4 Open Space – Sport and Active Recreation Zone

This zoning facilitates the use of Open Space for indoor and outdoor organised sports, active recreation and community activities. It includes the ancillary buildings and structures associated with these activities (i.e. grandstands, changing facilities and clubrooms). Usually these spaces have dual purpose and are used for informal recreation purposes when not in use.

The zoning also allows for commercial activities within this space that are an accessory to sport and active recreation activities.

Of consideration is the impact of this zoning on the surrounding THAB area, in particular it is noted within the guidelines of this zoning that more intensive use of these open spaces can attract large numbers of people which can generate high levels of traffic, noise, glare and other adverse effects that will need to be managed.

#### 4.4.5 Open Space – Informal Recreation Zone

The use of areas zoned as Open Space – Informal Recreation Zone varies, it can include outdoor informal recreation activities and community uses, such as walking, running, cycling, relaxing and socialising, picnics, playing and enjoying the environment.

The use of this zoning allows for links to the coastal area and provides a key role in providing access from the Avondale town centre to this area. It has the potential to form an important part of Auckland's walkway and cycleway network.

## 5 Engineering and Infrastructure

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### 5.1 Introduction

#### 5.1.1 Scope

The assessment includes desktop review of available information on the existing infrastructure and initial consultation with relevant Council Controlled Organisations (“**CCO**”) and Network Utility Operator’s (“**NUO**”) to discuss network constraints.

The following sections provide an overview of the existing and proposed infrastructure requirements for the development of the Avondale Racecourse site taken and summarised from the ‘*Avondale Strategic Development Civil and Infrastructure Assessment*’ appended as **Appendix A** to this report.

### 5.2 Wastewater

#### 5.2.1 Existing Infrastructure

The Watercare GIS demonstrates that the majority of the study area drains through gravity branches towards a 450-525mm diameter trunk main, refer **Figure 9** below. The 450mm diameter main travels along the eastern boundary of the Avondale Racecourse site, north along Highbury Street, before increasing in diameter to 525mm near the intersection of Holly Street and Victor Street. Ultimately, this wastewater is conveyed to the Mangere Treatment plant located to the south-west of the site.

Two wastewater pump stations are located within the study area downstream of the Kāinga Ora sites. The Wingate Street pump station is located behind 6 Wingate Street adjacent to the Whau River. The contributing catchment for this pump station includes properties from Tamora Lane and the western Portion of Wingate Street. From this pump station, the associated rising main discharges to the gravity network on Wingate Street (a tributary to the 450mm diameter trunk main).

A second pump station is located at the western end of Ash Street. The catchment for this pump station includes Ash Street west of Rosebank Road, Sandy Lane, Nacton Lane and Canal Road west of Wairau Avenue (excluding Bellgrove Place). The Watercare GIS indicates that this pump station pumps via a rising main to the gravity network located within 96 Riversdale Road.

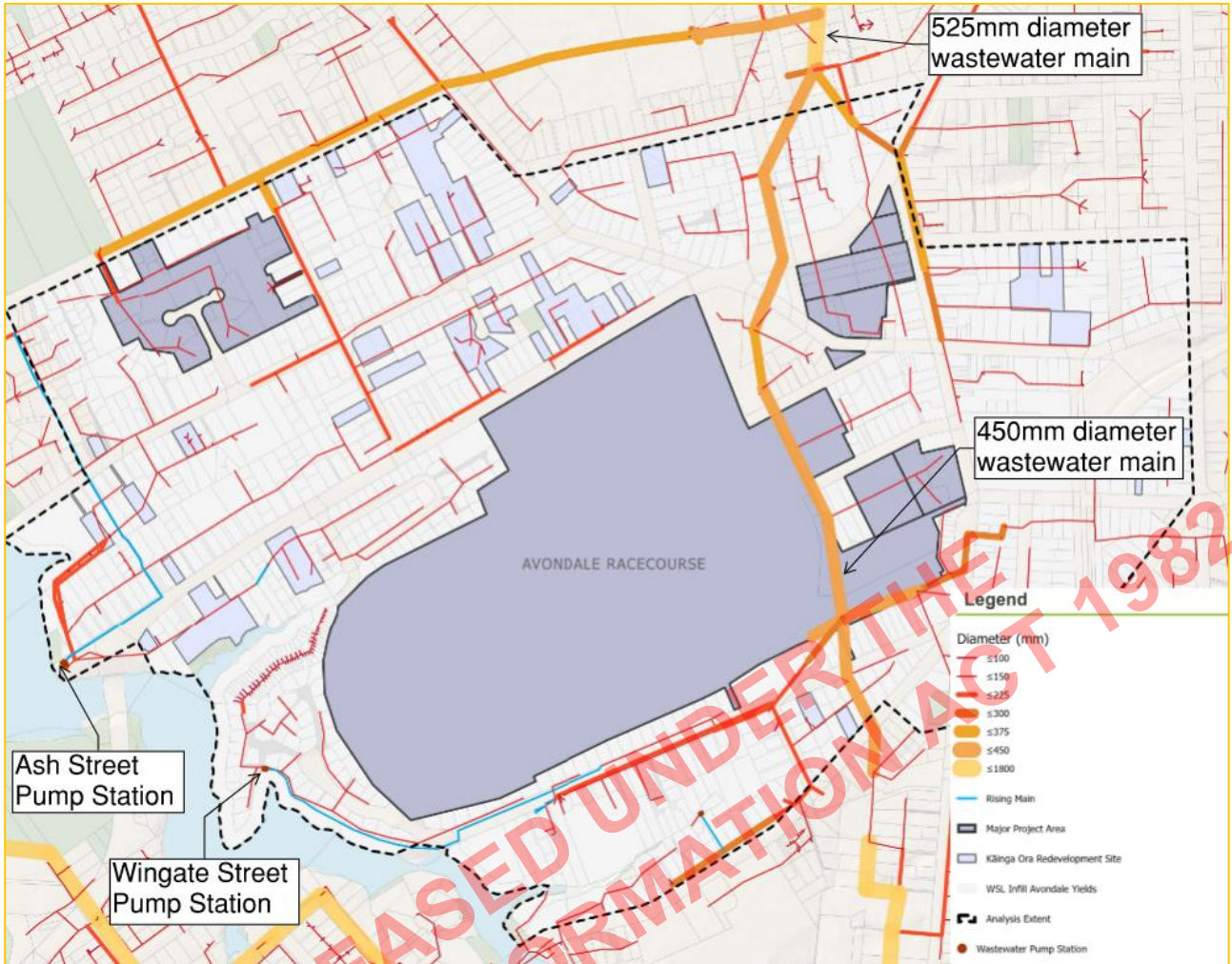


Figure 9: Wastewater network within study area (Pipe network source: Watercare GIS, November 2020)

Within the study area, the wastewater drainage network comprises 21.6km of gravity drains and 1.2km of pressurised rising mains. There are approximately 440 manhole structures within the study area. The diameter of the gravity mains is predominately 150mm diameter (72%) and 225mm diameter (11%), with the remainder of the network within the area ranging between 100mm to 450mm diameter.

Based on the Watercare GIS database, it is understood that the wastewater network within the study area was primarily constructed within the 1960s (76%). Over this period, it appears that the wastewater network was mainly constructed of vitrified clay (“VC”) or asbestos cement (“AC”). Trunk mains were primarily constructed of concrete (“CONC”). Newer sections of wastewater drains have subsequently been installed in the last three decades with predominately from polyethylene (“PE”), polyvinyl chloride (“PVC-U”) or vitrified clay materials. Refer to **Figure 10** below for a breakdown of pipe age and material of the wastewater network in the precinct area.



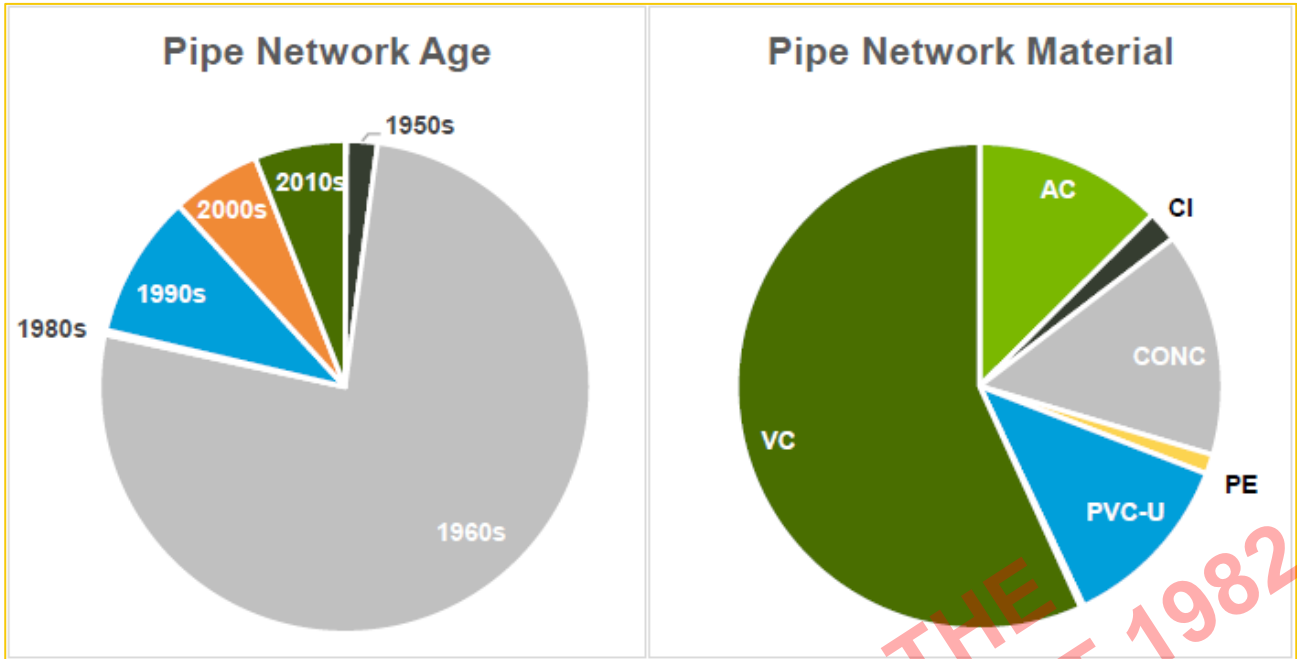


Figure 10: Wastewater Network Installation Decade and Pipe Materials

### 5.2.2 Network Constraints

The key wastewater network constraints identified through Aurecon's assessment are summarised below:

- Based on the material and age information available within the Watercare GIS, it is estimated that a high portion of wastewater network within the study area (76%) do not have sufficient useful remaining life. It is therefore anticipated that renewals of affected pipes may be required to service the development, the extent of which to be agreed with Watercare.
- It is estimated that should the Kāinga Ora development be progressed, 33% of the downstream network will have insufficient capacity to accommodate the associated flows. This will further worsen with additional infill development that is projected to 2068. Upgrades of the downstream existing network are hence likely to be required in order to facilitate the development.
- It is estimated that 3.4km of existing wastewater pipes are located within Kāinga Ora sites. These wastewater mains will need to be protected or diverted during construction. Works over permits may be required and if building over, specific foundation design will be required to protect the pipe.
- The Ash Street and Wingate Street pump stations have been identified to have insufficient capacity to accommodate the development. Pump station upgrades are therefore likely to be required. Although not assessed, it is also anticipated that the associated rising mains may also require upgrading to meet the peak flow requirements.
- It is noted that the capacity of the downstream 525mm diameter trunk main has not be included as part of the assessment. Any constraints downstream of this point will require confirmation from Watercare.

## 5.3 Water Supply

### 5.3.1 Existing Infrastructure

As shown within the Watercare GIS, the study area is serviced through a series of pressurised local water supply mains ranging between 15mm and 250mm. These networks are fed off a 250mm diameter water supply main that is located along Great North Road east of the racecourse site and north of the site along Ash Street and Rosebank Road. A 700mm diameter mild steel transmission main is also located along Great North Road. The nearest water supply reservoir to the site is the Mt Albert Reservoir located approximately 2km from Great North Road and the Avondale Racecourse site.

Aurecon have requested information about the nearest bulk supply points from Watercare but were not provided at the time of this assessment.

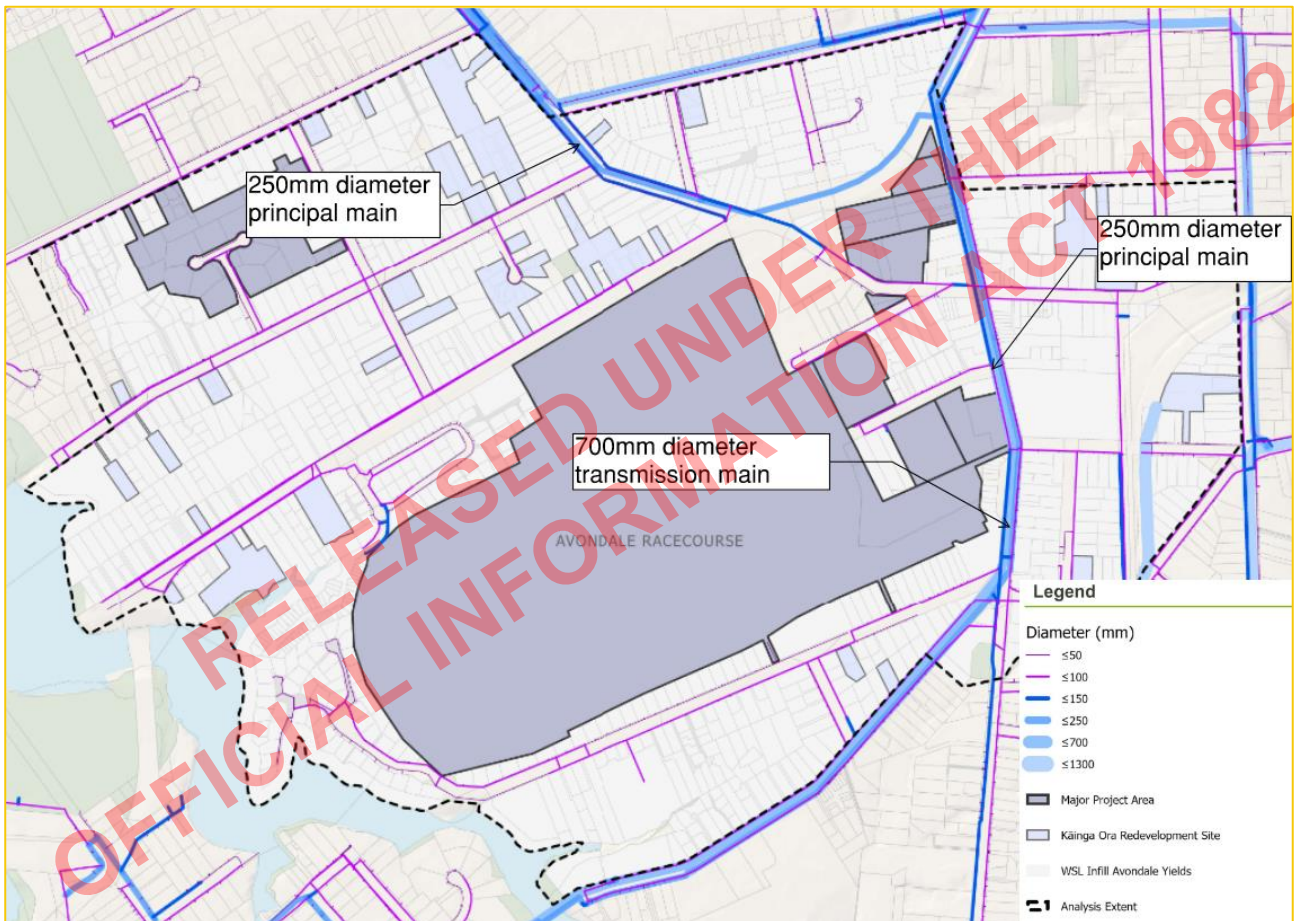


Figure 11: Water Supply Network within the Study Area (Pipe Network Source: Watercare GIS, November 2020)

The Watercare GIS identifies the distribution of principal mains and rider mains within the study area. The water supply network comprises 21km of principal mains and 4.4km of rider mains. Within the study area there is a total of 28.7km of water supply mains that includes property connections and transmission mains. The diameter of the principal mains is predominately 100mm diameter (66%), with the remainder of the principal mains within the area ranging between 40mm to 250mm diameter. The diameters of the rider mains ranges between 15mm to 100mm diameter, with the majority either 50mm diameter (56%) or 100mm diameter (37%).

Based on the Watercare GIS, it has been identified that a large portion of the water supply network within the study area was constructed within the 1960s (43%). Refer to **Figure 12** below. Over this time, the water supply

mains were primarily constructed of cast iron (“CI”) and asbestos cement (“AC”). Another 41% of the network was installed within the 1990s and 2000s. These mains have primarily been constructed out of cast iron, polyethylene (“PE”) and polyvinyl chloride (“PVC-U”).

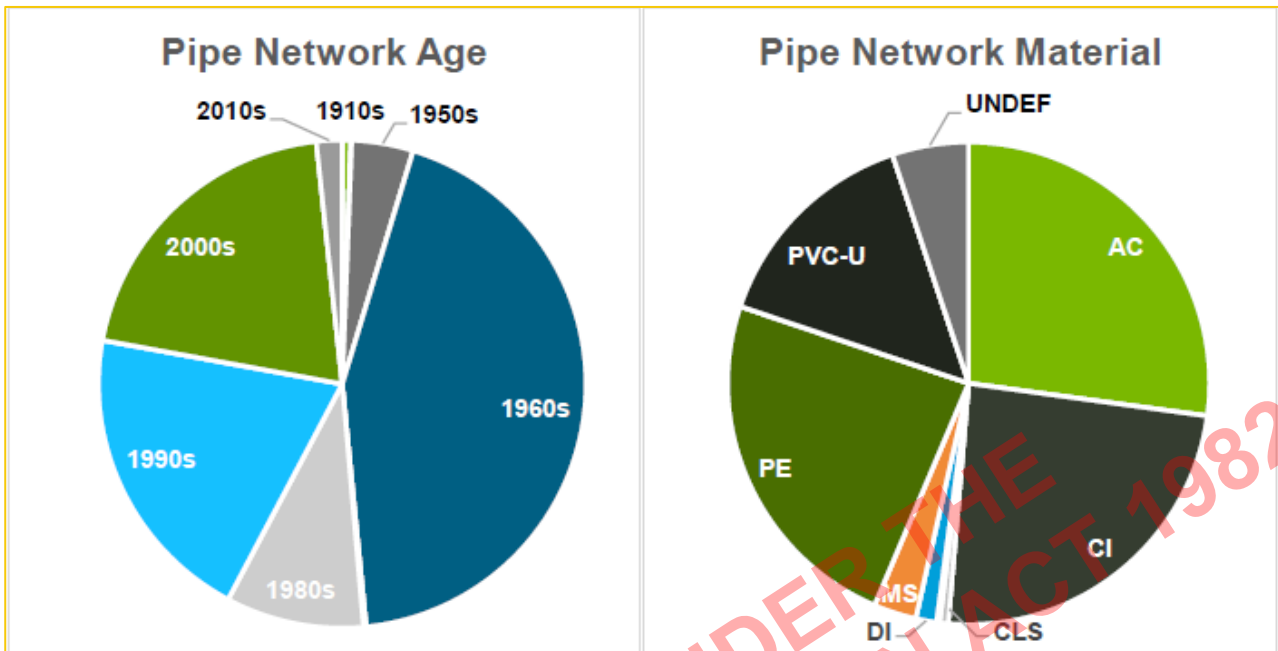


Figure 12: Water Supply Network Installation Decade and Pipe Materials

### 5.3.2 Network Constraints

The key water supply network constraints identified through Aurecon’s assessment include:

- Based on the material and age information available within the Watercare GIS, it is estimated that a high portion (61%) of water supply network located within the study area do not have sufficient useful remaining life. It is therefore anticipated that renewals of affected pipes may be required to service the development, the extent of which to be agreed with Watercare.
- Although no model information was provided by Watercare at the time of assessment, it is estimated that many of the existing 100mm diameter mains servicing the area will be undersized. Hence upgrades of the existing water supply network are hence likely to be required in order to facilitate the development, especially where buildings require fire water sprinkler connections.
- No information was made available from Watercare on the pressure within the existing network at the time of this assessment. Watercare has commented that they are undertaking works in the area to manage existing pressure and reduce non-revenue water. It is therefore anticipated that network pressures will increase. Hydrant pressure and flow testing will likely be required to inform any development design in accordance with Watercare requirements. Network upgrades including the installation of booster pumps may be required should the pressure within the network be deemed inadequate.
- Further consultation with Watercare will be required to assess any additional constraints within the Water Supply network.
- Confirmation of the water supply network transmission lines and bulk supply will require confirmation from Watercare.

## 5.4 Stormwater

### 5.4.1 Existing Infrastructure

The Avondale area drains by gravity through a number of discrete networks towards the Whau River at the south west of the site. The area to the North of Rosebank Rd flows to the North towards the harbour. Generally, there are limited open channels within the site area, with the exception of the small tributary alongside the recent subdivision off Sandy Lane and Ash St, as well as between Wingate St and Great North Rd. These remaining open channels are reported to be at capacity, and experience issues with erosion due to high velocity and adjacent development. The Whau River itself discharges into the Waitemata Harbour within the Motu Manawa-Pollen Island Marine Reserve.

In the existing arrangement, the study area drains to 15 discrete stormwater networks, 12 are considered internal networks where the majority of the catchment area is within the study area and 3 are wider catchments that a small number of Kāinga Ora catchments are connected. Internal catchments range in size from 0.2ha to 25ha.

**Figure 13** below shows the layout of stormwater infrastructure in the project area along with the sizes of some of the larger key networks.

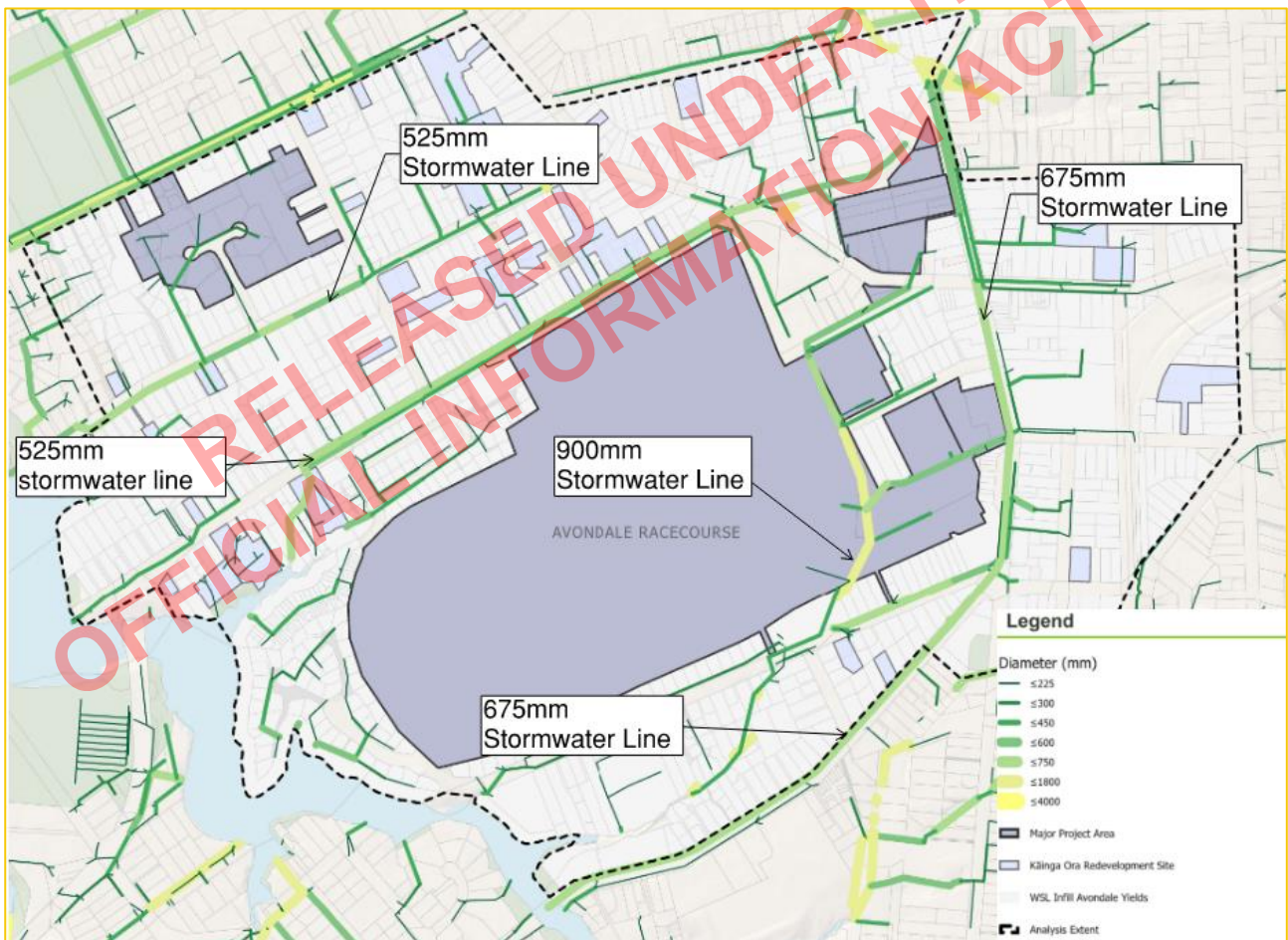


Figure 13: Stormwater Network within Study Area (Pipe Network Source: Auckland Council GeoMaps, November 2020)

Within the study area, the stormwater network collection system comprises 17.7km of pipeline, 450 manhole structures and 330 recorded sumps. Sizes of the network range from 100mm to 1800mm and are made of a range of materials.

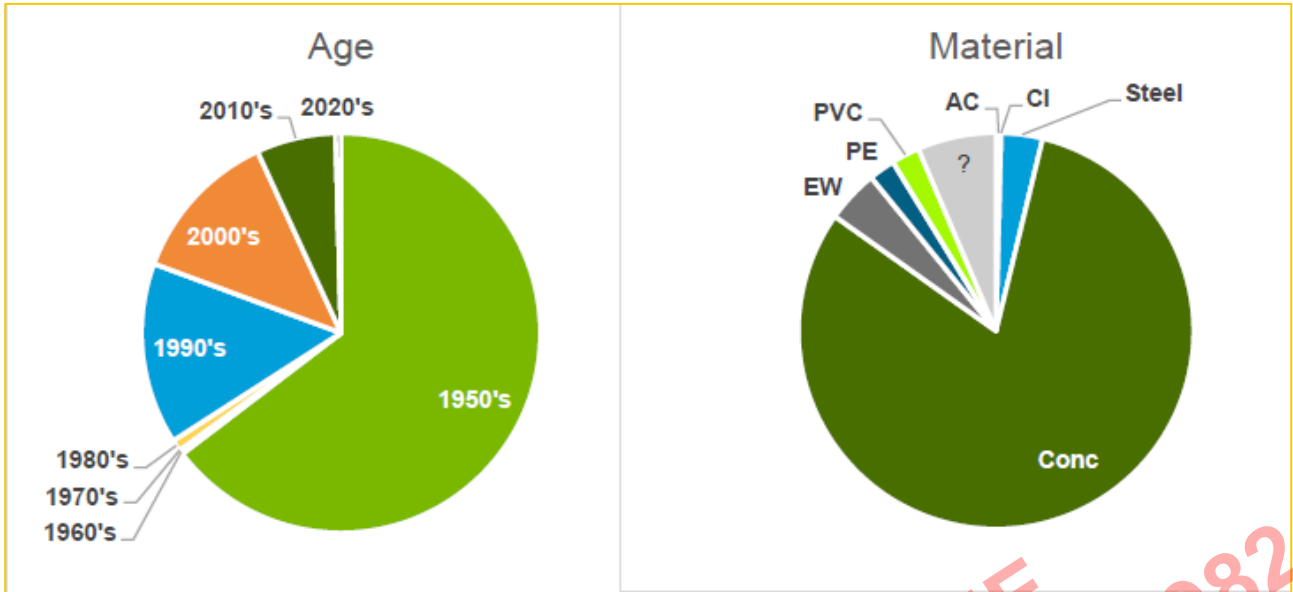


Figure 14: Stormwater Pipe Age (left), Stormwater Pipe Material (right)

The vast majority of the network is constructed in concrete pipe (81%) with some earthenware, PVC, PE and Steel Pipes. 6% of the network is made of unknown materials.

65% of the network was installed in the 1950's and the rest of the pipe network has been installed in the last three decades. The length of pipe installed in each of these decades varies from 1km in recent times to 2.6km in the 1990's.

#### 5.4.2 Flood risks

##### a. Overland Flow Paths

The general fall of the site is from the ridge along Rosebank Road, towards the Whau River. Auckland Council have identified the indicative overland flow paths ("OLFP") through the area, and a number are located within or adjacent to the properties considered in this assessment.

These existing overland flow paths will need to be managed during the development of these properties. In cases where the overland flow path travels through private property downstream, increases in flows during the 100-year ARI event will need to be managed to prevent worsening of downstream flooding due to development.

A large number of the properties considered in this assessment contain overland flow paths with 26 of the 38 sites intersecting with an overland flow path. Of these sites, 20 contain OLFP's which may require diversion or specific design to suit the development. **Figure 15** below shows the OLFP's identified by Healthy Waters, sourced from Auckland Council in November 2020, based on modelling completed in 2016 to the MPD scenario. Aerial imagery used does not reflect recent development in the area. This information is also captured in **Appendix B** of Aurecon's 'Avondale Strategic Development Civil and Infrastructure Assessment' appended as **Appendix A** to this report. Flood plains identified relate to the 1% AEP event, and flood prone areas or those that may be susceptible to flooding due to blockage in the network.



Figure 15: Flood Risks (Source: Auckland Council, November 2020)

b. Key Areas of Flood Risk

Healthy Waters identifies both flood prone areas and areas considered a flood plain. See **Figure 15** above for the location of these areas relative to each project area.

The key areas of flooding within the site area are largely within the racecourse. There are also areas of flooding at Riversdale Rd near the intersection with Rosebank Rd and to the north of Rosebank Rd between Victor & Aspen Streets. Healthy Waters also noted that the open stream to the south of the racecourse between Wingate St and Great North Rd is at full capacity and any additional flows will cause flooding. Overland flow from Ash St to a small tributary stream causes flooding through a number of the sites.

Additionally, flood model results from the Whau Framework model are reported in **Figure 16** and **Figure 17** below. It is noted that only areas contributing to the pipe networks assessed were included in this model. Key areas missing from assessment are portions of the racecourse, southern stream and the town centre.

These maps do not directly correspond to overland flow paths and flood layers in GeoMaps as these have been assessed through a separate Rapid Flood Hazard Mapping Assessment which assumes that most pipe networks are fully blocked (except for key crossings), and historic Integrated Catchment Modelling completed in 2005.



Figure 16: Modelled Flood Depths, 10-year Event (Source: Healthy Waters, November 2020)

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Figure 17: Modelled Flood Depths, 100-year Event (Source: Healthy Waters, November 2020)

#### c. Building Floor Levels

The Whau Framework model reporting identifies areas with buildings that may be at risk of flooding. This information is unable to be presented by Aurecon due to low resolution, however, high risk areas with large numbers of affected properties with buildings at risk exist between Ash and Canal St's. There are a number of Kāinga Ora properties in this area. Flood modelling results above would indicate that these heights are likely to be less than 500mm.

#### 5.4.3 Network Constraints

The key stormwater constraints identified include:

- Based on the material and age information available within the Auckland Council GIS, it is estimated that a high portion of stormwater network within the study area (59%) does not have sufficient useful remaining life. It is therefore anticipated that renewals of affected pipes may be required to service the development, the extent of which to be agreed with Healthy Waters.
- The networks in the area do not have capacity for the primary stormwater event in the current development scenario. This will further worsen with additional infill development that is projected to 2068. Upgrades of the downstream existing network or management of stormwater flows may be required in order to facilitate the development. In some areas, new networks and outlets to the Whau River to facilitate large development areas may be most appropriate.



- The area is not located in the Auckland Unitary Plan Stormwater Management Area (“**SMAF**”) area, however management of peak flows to predevelopment levels is likely required due to lack of capacity of pipe networks.
- It is estimated that 2.7km of existing stormwater pipes are located within Kāinga Ora sites. These stormwater mains will need to be protected or diverted during construction. Works over permits may be required and if building over, specific foundation design will be required to protect the pipe.
- Development in areas of flooding will need to raise floor levels a suitable level to meet building code requirements.
- Development in and upstream of flood risks areas will need to manage effects of intensification in the 100-year event to prevent additional flooding risk to at risk properties.
- Treatment of all new or redeveloped roads is expected by Healthy Waters.

## 5.5 Power Telecommunications

Review of Vector power records indicate good coverage through the Avondale study area. Through consultation, Vector has indicated that the existing feeders in Ash Street and Racecourse Road have some capacity to supply new load. However, the overhead supply along Wingate Street is too small hence a new 11kV feeder will be required. Vector has advised that the new feeder will need to be installed from Avondale substation to the proposed Avondale Racecourse site. This is shown within **Figure 18** below, with arrows indicating where existing feeders can be extended to supply new housing. Vector has noted that the cable route is indicative only and would need to be confirmed once the road layout through the racecourse is established.

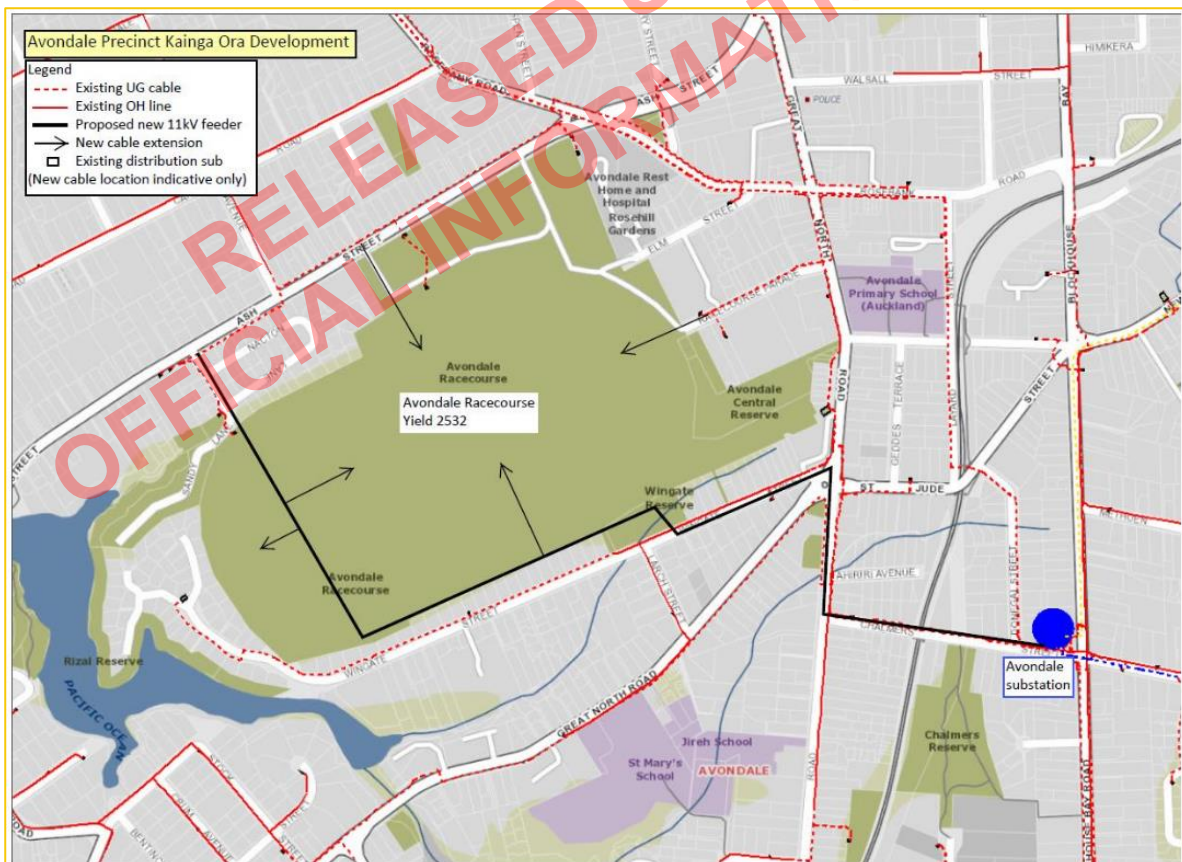


Figure 18: Proposed new 11kV electrical feed (Source: Vector, November 2020)

During consultation, Vector also noted that they are anticipating load growth on the network in the future as a result of major developments within the Avondale town centre and surrounding areas. It is anticipated that with time this will trigger the requirement to upgrade capacity within the Avondale substation. Vector intends to monitor this load growth and carry out the required reinforcement projects when required.

## 5.6 Communications

Review of Chorus layout plans confirmed good coverage of communications networks within the area. Review of Vector plans have also shown fibre located within the roadway of Ash Street, Great North Road, Blockhouse Bay Road and Rosebank Road. Aurecon has not received information from Chorus to confirm anticipated constraints within the network, however Aurecon anticipates that connection to the existing network will be a straightforward process with Chorus generally undertaking design internally.

## 5.7 Gas

Review of Vector's gas records indicates that there is good coverage of gas mains within the site study area. This is shown in **Figure 19** below, with green lines representing low pressure assets (4 bar residential PE) and blue lines representing high pressure assets (<20 bar steel). Confirmation of gas servicing will need to be confirmed during design based on Kāinga Ora building requirements. It is understood that gas is generally not required for Kāinga Ora properties, but may be desirable for any market properties.

Vector has not identified any immediate servicing constraints within the network, but this will be dependent on the uptake of gas required. Hence, confirmation of network constraints will need to be confirmed with Vector once the specific buildings requiring gas connections are known.



Figure 19: Vector gas records (Source: Vector, November 2020)

## 6 Geotechnical

### 6.1 Scope of Works

The Geotechnical scope of works undertaken comprises:

- Review of published geological and geotechnical information, and relevant investigation data held in Aurecon archives, the New Zealand Geotechnical Database, and information supplied by Kāinga Ora.
- High-level review of the proposed development and preliminary assessment of geotechnical risks.
- Preparation of this preliminary geotechnical desktop report with comments and recommendations for the proposed redevelopment.

### 6.2 Historic Investigation Data

A review of the available information from geotechnical investigations was carried out within close proximity to the proposed Avondale Precinct development. A summary of the reviewed information is presented in the table below:

Geological Zone	Report or Source	Summary of Report
1	New Zealand Geotechnical Database (“NZGD”)	Four boreholes to a maximum depth of 7.5m and 11 hand augers to a maximum depth of 5m. Data has poor coverage across this zone as it is concentrated near Site 1. The logs indicate that very soft silts, clays and peat were encountered with isolated pockets of sand.
2	NZGD	One borehole to 9.4m depth and six hand augers. Data has poor coverage across this zone as it is concentrated near Site 1. The logs indicate that very soft silts, clays and peat (Puketoka Formation) overlying weathered insitu rock at relatively shallow depth. Very low investigation coverage in this area.
3	NZGD, Tonkin & Taylor (1998), Geoconsult (2017)	These reports outline the general subsurface geology comprises topsoil/fill overlying clays, silts and peat (Puketoka formation) and insitu rock (East Coast Bays formation). Investigation data is very sporadic, and no information is present within the racecourse ring.
4	NZGD	Several boreholes to a maximum depth of 100m were undertaken along the eastern extent of the precinct development. The logs indicate a shallow fill layer overlying residual East Coast Bays Formation. Some logs suggest a layer of Puketoka formation at the surface.

### 6.3 Site Conditions

#### 6.3.1 Subsurface Conditions

The regional and site geology is described in some detail in the Geotechnical Memorandum prepared by Aurecon and appended to this report as **Appendix A**. Given the large extent and the lack of information, the site has been split into four geological zones in Aurecon's Memorandum to assist in characterising groups of sites at a high-level. Local variations within units and lateral extent will occur, therefore the following profiles are general in nature to create a better understanding of the site and to assist with recommendations for the redevelopment of the Avondale Precinct. In summary, the main geological units across the sites are:

- **Topsoil and / or fill** – highly variable in extent and nature;
- **Puketoka (Tauranga Group alluvium)** – typically alluvial soils comprising moderate to high plasticity, silty clay and clayey silt interbedded with low organic silt and peat with wood fragments. The soil is typically moist, soft to firm with traces of fine sand.
- **East Coast Bays Formation (Waitemata Group)** – weak to very weak interbedded sandstone/siltstone with variable weathering. The upper surface typically comprises a surficial layer of residual soil and becomes less weathered (and more competent) with depth.

### 6.3.2 Groundwater

Historic investigation logs show that the groundwater level varies between 0.5m and 3m below existing ground level across the Avondale Precinct. It should be noted that groundwater is variable both spatially and temporally and the depths recorded are likely to differ following periods of heavy or prolonged rainfall or drought.

## 6.4 Engineering Considerations

Preliminary Geotechnical considerations for the proposed Avondale Precinct development are discussed in detail in the Geotechnical Memorandum appended to this report as **Appendix A**. These considerations for future planning, programming and the safe construction of the Avondale Precinct development include:

- Foundation types and recommendations
- Slope stability
- Expansive soils
- Site subsoil classification in accordance with NZS1170.5:2004 – Structural Design Actions Part 5 – Earthquake (including amendments).

The report recommends that site-specific geotechnical investigations be carried out to further refine geotechnical risks in the precinct and assist with specific engineered design or suitability with NZS 3604 where appropriate.

It should be noted that the comments and recommendations on these considerations with Aurecon's Memorandum are based on regional geological information and historical investigations and should be treated as preliminary in nature

### 6.4.1 Recommendations

The report's recommendations for the Avondale Precinct development are as follows:

- Over a majority of the 38 sites there is very little to no geotechnical information available. To better provide geotechnical assessment and confirm suitable foundation philosophy and design, site-specific investigations are required. These investigations should comprise boreholes, Cone Penetration Tests (CPT) and hand augers with Scala probes and shear vane tests. Soil samples should be collected for geotechnical laboratory testing. We note the final scope of investigation should be determined after preliminary planning at each site has occurred so the tests can be targeted to a specific design.

- A detailed, site-specific liquefaction assessment should be undertaken upon completion of a site-specific investigation.
- Changes in moisture content due to seasonal variations could result in shrinkage/swelling in alluvial soils (Puketoka formation) which could result in ground settlements or heave. Laboratory testing should include Atterberg Limits, Linear Shrinkage and Shrink/Swell testing to assess the soil expansivity.
- Any proposed temporary or permanent retaining structures should be designed in consultation with the geotechnical engineer and lateral movement of the wall should be limited as not to cause excessive deformations or cracks in the adjacent buildings/pavements.
- Subgrade strength should be assessed for driveways and parking areas to provide for vehicular loading. It is anticipated that the subgrade CBR will be in the order of 1% to 2%, depending on founding conditions and depth. It is likely that flexible pavement will be the best option due to better performance with settlement in the soft subgrade.
- A suitably qualified and experienced geotechnical engineer should be consulted in both the detailed design and construction stages. The Geotechnical engineer should verify soil strength at the founding level, undertake pile inspections and assess slope stability issues, etc.

## 6.5 Safe in Design (SiD) Considerations

Specific geotechnical considerations identified for Safe Design include (but not limited to) the following:

- **Excavations** – Should the proposed development require excavations. Care should be taken to stabilise excavations to prevent personnel from falling from one level to another (i.e. temporary barriers, signage).
- **Stable Working Platform** – The construction of larger apartments (i.e. 6 to 8 storey) may require piling plant to be mobilised to site. Care should be taken to provide for adequate bearing of the existing asphalted road surface and the construction of additional reinforced working platforms, if required.
- **Bored Pile Installation** – The construction methodology for bored piles should be developed considering groundwater, pile hole stability and movement of piling plant around the site. We recommend the pile holes be protected with either temporary barriers or extended casings a minimum 1.0m above the working platform. Proof drilling of the pile holes, prior to construction, will confirm the adequacy of the founding rock above and below the pile toe, including presence of any voids within the pile length and below the pile toe that may impact the foundation design.
- **Screw Pile Installation** – Should a screw pile foundation be adopted, the size and length of screw piles will need to be considered with respect to transportation to site, movement around site, plant required to install the screw piles and equipment required to carry out load testing.
- **Construction Induced Liquefaction or soil softening** – Liquefaction or soil softening can be triggered by non-earthquake related events, where shear stress in the soils is able to develop. This can occur through excessive vibrations through piling, vibro-installation of pile casings or movement of heavy vehicles.
- **Asbestos Survey** – An asbestos survey should be undertaken in the existing units before demolition.
- **Adjacent Foundations** – All excavations adjacent to existing foundations should be assessed with respect to their foundation stability.

## 7 Contaminated Land Assessment

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### 7.1 Scope of Works

The contaminated land scope of works undertaken comprises:

- Desktop review of historical information;
- Review of the Property File, Auckland Council (“AC”) Site Contamination Enquiry and other records for Avondale Racecourse;
- Review of AC GIS layers; and
- Racecourse walk-over (2018) to document current site conditions.

### 7.2 Summary of Development History

#### 7.2.1 Avondale Racecourse

The racecourse was constructed circa. 1888. It is considered likely that cutting and filling occurred to create a level platform for the racecourse. Previous investigations have generally identified this fill to be between 300 mm and 2.8 m deep, and to comprise non-engineered fill such as reworked clays and silts, likely sourced from the levelling of local topography in close proximity to the site. It is possible that some industry waste (e.g. from the brickworks) and or refuse has been buried beneath the racecourse.

Historical aerials show the racecourse itself has remained in the same configuration since 1940. The area to the north of the racecourse has been extended or redeveloped for supporting infrastructure (grandstands, maintenance areas, car park) over time, as such there may be some buried construction waste, and / or impact to shallow ground from degraded building materials (asbestos and lead). The fire in 1985 may have added to this as it was common practice at this time to bury fire damaged structures. The race fields have been used as sports fields over time and may have been treated with pesticides. According to AC some dangerous goods storage may have occurred, the location of which is unknown. During the walkover, the property at 2 Ash Street was observed to be used for storage of maintenance and grounds-keeping equipment, and as such may store hazardous liquids and or fuels. Anecdotal information suggests that the racecourse may have been historically used as a motor vehicle racecourse, temporary hospital and army barracks.

Previous reporting (Auckland Council Memo, 2015) suggested that unidentified filling, stockpiling and rubbish burning has occurred at 22 Elm Street and may have occurred elsewhere. Geotechnical investigation by Geoconsult in 2018 identified fill to a thickness of 300 mm. Previous reporting (Focus Environmental, 2012) at 30 Sandy Lane, adjacent to the west of the site, identified uncertified fill and quoted that illegal dumping activities had occurred here.

#### 7.2.2 Wider Avondale Area (State Ownership State Areas 1 to 37)

**Note:** The ‘wider Avondale area’ consists of 37 clusters of single or contiguous residential lots scattered across the suburb, predominantly to the north and east of the racecourse.

Originally the area is likely to have been covered with dense native scrub, with a rolling landscape due to the proximity of the Te Whau river and the coast. Given the proximity of the river for transportation, industries were established in wider Avondale including brickyards. Avondale was known to have numerous market gardens /

horticulture, especially on the Rosebank Peninsula. In addition to this, landfilling is known to have occurred along the riverbanks.

In the earliest aerials (1940s), the Avondale area around the racecourse was a mixture of coastal / riparian land (to the west), horticulture / market gardens (to the north) and residential / commercial lots (to the south and east). The railway track is present in the east of the study area from the earliest aerials.

From the 1950s-1960s the area east of the racecourse was developed into a mixture of residential and commercial, whilst the areas north, south and west of the racecourse were subdivided for residential purposes. Investigations of lots adjacent to the Site Areas have reported elevated DDT and heavy metals in shallow soils, contamination indicative of a horticultural legacy. Although not within the study area, several commercial land uses are occurring / have occurred upgradient and within 100 m the study area including three PFS and automobile workshops.

### 7.3 Identification of Areas of Concern

Based on desktop review, the following areas have the potential for contamination that could impact building construction and/or design within the study area. Note that because of the AC GIS information did not specify what the identified HAIL activities were, Aurecon have referred to this as unknown HAIL:

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Avondale Racecourse	s 9(2)(a)	Possible storage of hazardous liquids / fuels and machinery maintenance. Possible former PFS.	Property File
		Areas that have been filled and / or had waste stockpiled. Fill has been encountered to a maximum thickness of 2.8 m in the south-western corner of the racecourse, made up of site-won, non-engineered fill such as reworked clays and silts.	Previous Reports
		Potential pesticide application to sports pitches. Contamination is likely to be limited to shallow soils within 1 m of current ground surface.	Property File
		Areas where previous buildings have been demolished, construction waste has been buried, and or buildings have degraded.	Historical aerial photography
1		Possible horticulture / Unknown HAIL	Historic aerial photography / AC GIS
2	Possible horticulture	Historic aerial photography	
3	Possible horticulture	Historic aerial photography	
4	Possible horticulture / Unknown HAIL	Historic aerial photography / AC GIS	

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5	s 9(2)(a)	Unknown HAIL	AC GIS
6		Unknown HAIL	AC GIS
9		Possible horticulture / Unknown HAIL	Historic aerial photography / AC GIS
10		Unknown HAIL	AC GIS
11		Unknown HAIL	AC GIS
12		Possible horticulture / Unknown HAIL	Historic aerial photography / AC GIS
16		Unknown HAIL	AC GIS
17		Unknown HAIL	AC GIS
18		Unknown HAIL	AC GIS
19		Unknown HAIL	AC GIS
20		Unknown HAIL	AC GIS
23		Unknown HAIL	AC GIS
25		Unknown HAIL	AC GIS
26		Unknown HAIL	AC GIS
27		Possible horticulture / Unknown HAIL	Historic aerial photography / AC GIS
28		Possible horticulture / Unknown HAIL	Historic aerial photography / AC GIS

31	s 9(2)(a)	Possible filling	Historic aerial photography
32		Possible horticulture / Unknown HAIL	Historic aerial photography / AC GIS
36		Possible commercial use	Historic aerial photography
37		Possible horticulture / Railway Activities / Unknown HAIL	Historic aerial photography / AC GIS

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In addition to the above, desktop assessment has identified the following off-site potential sources of contamination:

- § 9(2)(a) (~20 m south of Site Areas 27 and 28, immediately west of the racecourse) – Unknown if remediation has taken place. Anecdotal information and previous investigations suggest that former 30 Sandy Lane was used for waste disposal
- § 9(2)(a) – Z PFS (20 m north of the racecourse, and south of Site Areas 15 and 16).
- § 9(2)(a) – Mobil PFS (50 m east of Site Area 35, 100 m south of the racecourse).
- § 9(2)(a) – Former Petrol Filling Station (immediately south of Site Area 32, upgradient of the racecourse).
- § 9(2)(a) – Former horticultural site; and
- § 9(2)(a) – Former horticultural sites.

## 7.4 Future Considerations

The report identified the following to be considered when planning development activities:

### 7.4.1 Avondale Racecourse

- Ground investigation and environmental sampling completed as part of a Detailed Site Investigation (DSI) is recommended across the racecourse to determine the thickness of fill across the site and to characterise shallow soils and groundwater. A Conceptual Site Model will need to be developed to support the design of ground investigation.
- Formal pre-demolition asbestos surveys for all structures prior to redevelopment;
- Fill of unknown quality is anticipated to be present beneath the majority of the racecourse; the thickest of which is anticipated to be located in the southern and western part of the site. Given the anticipated presence of fill, there may be a requirement for localised management and / or remediation.
- Excavations associated with redevelopment works will likely require a soil management plan for shallow soils and fill material.
- Where off-site soil disposal is required soils will need to be disposed of to an appropriately licensed facility, which should be contacted for specific soil testing requirements. Surplus topsoil and fill containing waste materials may not conform to cleanfill requirements
- Shallow groundwater may be encountered in excavations. Excavation dewatering may require contamination management and testing to inform determine the quality for re-use and disposal purposes.

### 7.4.2 Wider Avondale Area (State Ownership State Areas 1 to 37)

- A PSI should be completed for the Site Areas (1-37), including review of the relevant property files and AC Site Contamination Enquiry for each of the lots to be redeveloped. The information obtained from the additional site-specific documentation will be able to form a conceptual site model (considers source-pathway-receptors linkages rather than just sources)
- Dependant on the outcome of the PSI, there may be a need for further ground investigation and sampling as part of a Detailed Site Investigation (DSI).

## 8 Transport Planning

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### 8.1 Purpose and Context

Beca has undertaken a high-level review of relevant transport planning considerations in relation to the site and surrounding area. The purpose of the high-level review is to identify key transport matters for consideration, when planning the proposed redevelopment of the identified sites.

In general terms, the sites are well located within the existing residential suburb of Avondale close to high frequency public transport, town centre facilities, as well as a range of education facilities. Within the surrounding residential suburb, the adjacent residential streets provide footpaths on both sides, assisting connections to the wider transport network, including bus services and the Avondale rail station.

The overall transport context for the development sites are illustrated in **Figure 8-1** and discussed in more detail below.

s 9(2)(a)



## 8.2 Transport Context

### 8.2.1 Road Network

The main site on the Avondale Racecourse has several existing access points to the surrounding road network. Some of these are for vehicles and others are pedestrian only. The following summarises the access points and their function:

- Racecourse Parade – Vehicle and pedestrian
- Elm Street – Vehicle only
- Two access off Ash Street – Vehicle and pedestrian
- s 9(2)(a) – Pedestrian only
- – Pedestrian only
- Opposite the Crayford Street West and Great North Road intersection – Vehicle and pedestrian.

The main site is currently a racecourse and sports ground, along with other local sporting club activities that occur in the main racecourse buildings on the site. The existing access onto Ash Street (Opposite No 45) is the main vehicular access to this site. The site is bounded by Ash Street to the north, and predominantly residential land uses on its northern boundary. Residential and commercial land uses are located along the eastern boundary. On the southern and western boundaries, the sites there are mainly residential land uses and public open space. Wingate Street, Ash Street, Racecourse Parade, Elm Street and Sandy Lane (as set out in **Table 3**) are adjacent to the site and could therefore be considered for access to/from the site, as part of re-development.

Under the Auckland Unitary Plan (AUP), Ash Street is identified as an Arterial Road, which means provision of new access driveways and intersections is a restricted activity requiring detailed assessment, particularly given the identified scale of redevelopment on the Racecourse site.

The other key road corridors in the wider redevelopment study area are Great North Road and Rosebank Road through Avondale town centre, with these corridors continuing to the north and connecting with the State Highway 16 (SH16) North Western motorway.

**Table 3** summarises the existing Auckland Transport (AT) classification and One Network Road Classification (ONRC), as well as the approximate traffic volumes on the roads within and surrounding the redevelopment study area.

Table 3: Surrounding Road Classifications

Road Name	AT Road Classification	ONRC Class	Approximate Daily Traffic	Footpaths
Ash Street	Primary Arterial	Arterial	35,000	Yes - both sides
Great North Road	Primary Arterial	Arterial	20,000	Yes - both sides
Rosebank Road	Secondary Arterial	Arterial	17,300	Yes - both sides
Blockhouse Bay Road	Secondary Arterial	Arterial	22,000	Yes - both sides
Wingate Street	Local Road	Secondary Collector	1,000	Yes - both sides (except for site frontage)
Racecourse Parade	Local Road	Access Road	250	Yes - both sides
Sandy Lane	Local Road	Low Volume Access Road	100	Yes - both sides
Elm Street	Local Road	Access Road	200	Yes - both sides

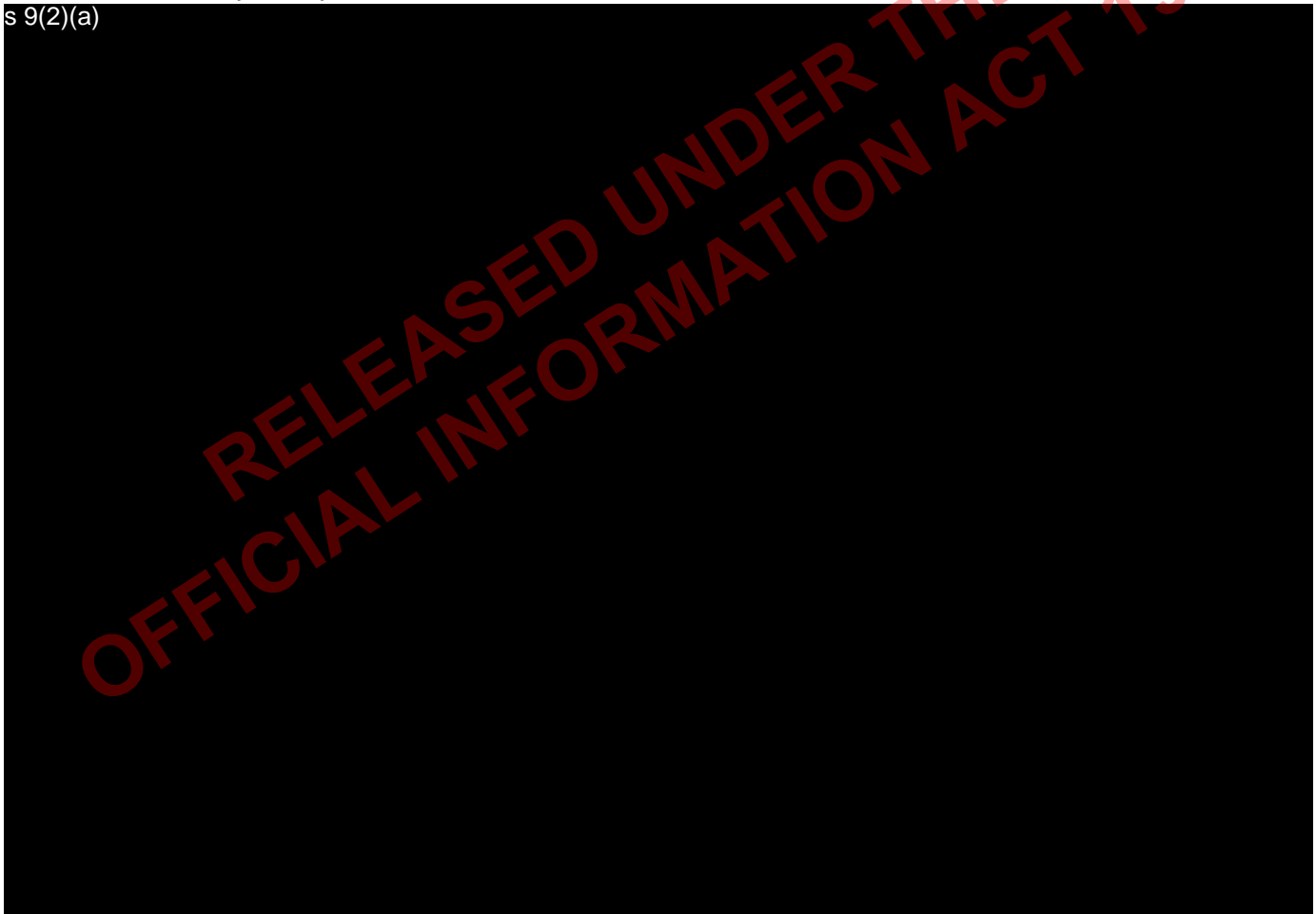
Road Name	AT Road Classification	ONRC Class	Approximate Daily Traffic	Footpaths
Canal Road	Local Road	Secondary Collector	2,000	Yes - both sides

### 8.2.2 Public Transport Network

There are several bus routes in the vicinity of the site, shown on **Figure 8-2**, shows the surrounding routes, which are as follows:

- Wingate Street/Great North Road – Service 18 is a frequent service which runs between New Lynn and City Centre, whilst Service 138 is a local/collector service which runs between New Lynn and Henderson
- Rosebank Road – Services 22A, 22N, 22R, 221X, 223X are frequent services which run from New Lynn and Avondale to City Centre
- Ash Street – Service 191 is a local / collector service which operates between New Lynn, Avondale, Blockhouse Bay and Lynfield.

s 9(2)(a)



The 'Frequent' bus services (shown above) provide services at least every 15 minutes throughout the day until late evening, seven days a week. During busy periods, such as the weekday mornings and afternoon commuting peaks, most of these 'Frequent' routes have buses every 5 to 10 minutes.

There are two frequent routes close to the site, this is the 18 and the '22' group of bus services which provide a north-south service between New Lynn and the City Centre (key supporting public transport services to the

Western rail line). Other services, are local / collector on lower frequencies or express services that operate non-stop between New Lynn and the CBD, i.e. without stops in the Avondale area.

The Avondale rail station is on the Western rail line, and is located around 1km east of the main racecourse site, accessed locally via Layard Street. Train services on this line operate between Swanson and Britomart, with a peak frequency every 10 minutes, and an off-peak frequency of 20 minutes. To the west, the rail line also provides access to the Metropolitan centres of New Lynn and Henderson, which are also likely destinations for future residents for work and recreational activities.

The Auckland Transport Alignment Project (ATAP) 2018, which sets out the direction of the planned future transport infrastructure projects over the next 30 years, has listed several projects that would benefit the development study area.

In addition to the completion of the City Rail Link (CRL), which will improve services frequencies, reliability and travel times for the Western line, ATAP 2018 identifies a future priority (as yet unfunded) project, over the medium to longer term, is the Cross Isthmus (New Lynn to Onehunga) rapid transit project.. This project is relatively undeveloped, but connects a number of major growth areas across the southern Isthmus: New Lynn, Avondale, Mt Roskill, Three Kings, Royal Oak and Onehunga. Developing this corridor further, with a particular focus on how it can support growth and integrate with the City-Airport corridor, is a key priority. **Figure 8-3** shows Future Rapid Transit Network.



Figure 8-3: Potential Future Rapid Transit Network

### 8.2.3 Cycle Network

Auckland Transport have identified cycle improvements in the area near the site for the future as can be seen from the extract in **Figure 8-4** as follows.

Of these cycling projects, the Te Whau River pathway project and New Lynn to Avondale shared path project, are the most advanced in terms of planning and construction. The Te Whau Pathway will follow the edge of the Whau River connecting communities in Green Bay, Avondale, New Lynn, Kelston Glenden and Te Atatu. The Te Whau project have completed some small sections and is planned to continue to obtain consents and construct the cycleway over the next 5 to 8 years. **Figure 8-5** below provides the details of the proposed routes.

Auckland Transport is proposing a walking and cycling route along the rail corridor between New Lynn and Avondale. The path will continuous shared path linking New Lynn Train Station, Avondale Train Station, Waterview Shared Path, the Northwestern cycleway, and city centre networks. It will also connect with the Te Whau Pathway, which follows the west side of the Whau River in Avondale, and other local walking and cycling routes. The path layout can be seen in **Figure 8-6** below. Construction of the shared path commenced in February 2020.



Figure 8-4: Auckland Urban Cycle Programme



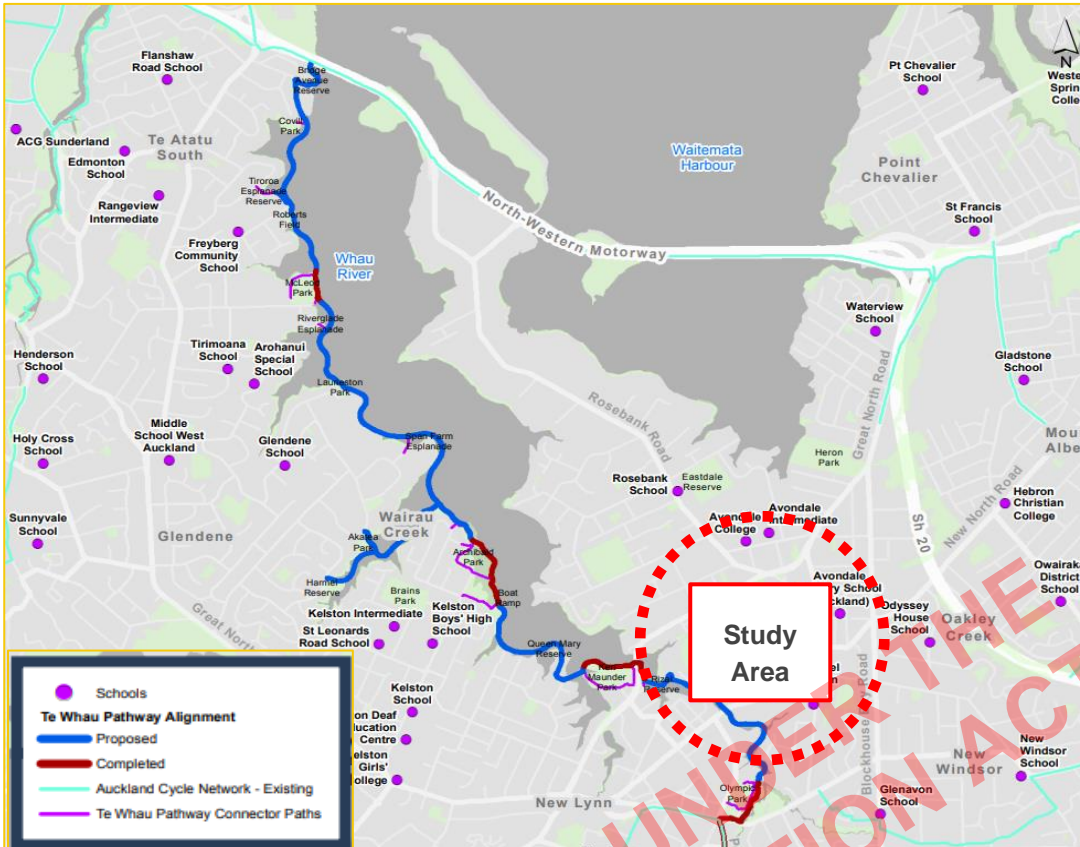


Figure 8-5: Te Whau Pathway



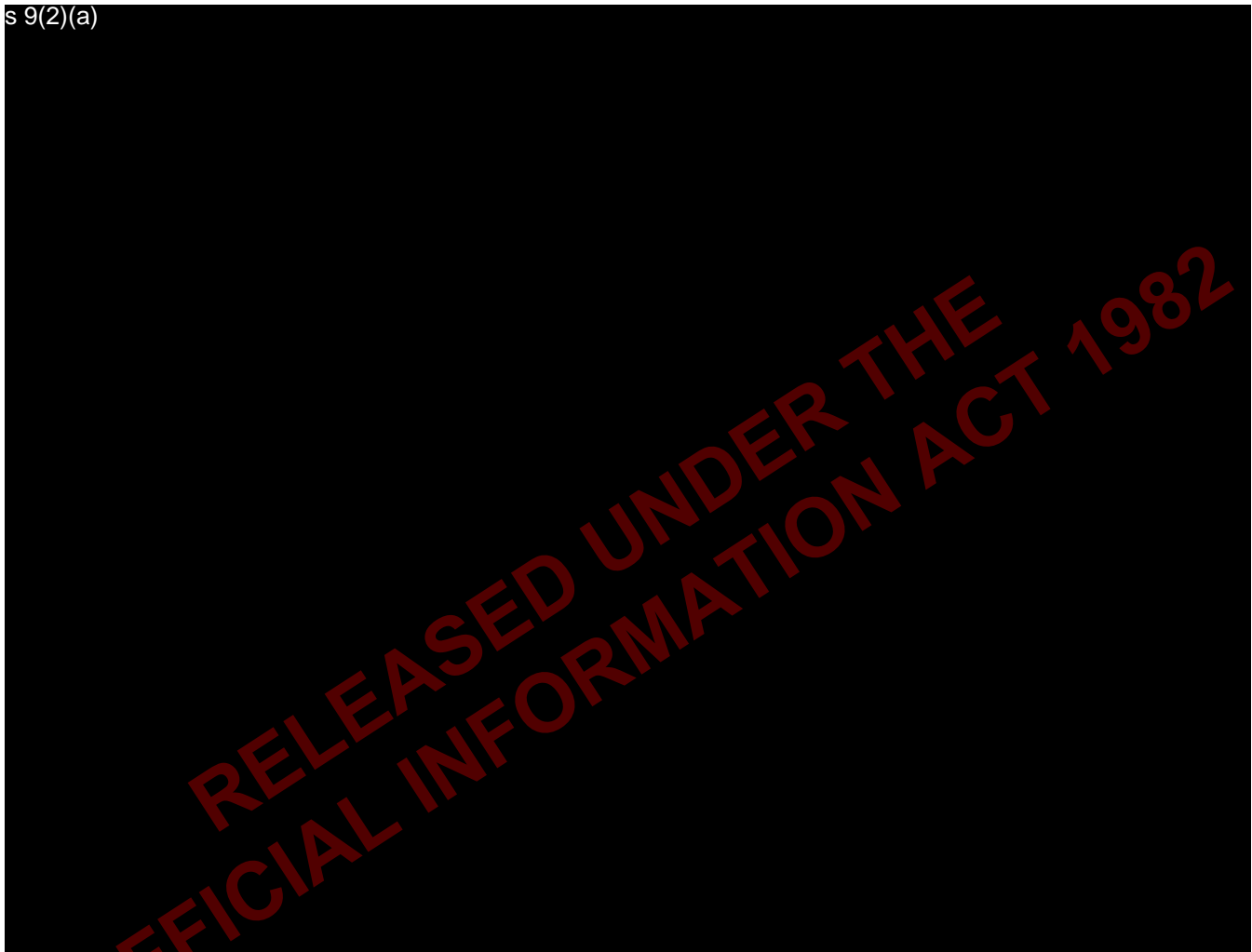
Figure 8-6: New Lynn to Avondale Shared Path

### 8.3 Key Opportunities

In considering the key opportunities and constraints for the redevelopment study area, the overall area has been split into the following two separate 'neighbourhoods, as illustrated on **Figure 8-7**:

1. Avondale Racecourse / town centre and surrounds
2. North of Ash Street

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#### 8.3.1 Neighbourhood 1

Neighbourhood 1 is very well located to benefit from the opportunities for access to the Western rail line, via the Avondale rail station, and the frequent bus services in the study area, which pass through the Avondale town centre. These services provide access both toward the City Centre and the central Isthmus, as well as west to New Lynn and Henderson. There is the opportunity for the Racecourse site to improve permeability and accessibility in this neighbourhood to the Avondale town centre and access to these services.

There are high quality existing and planned cycle improvements in the study area around Neighbourhood 1. The planned Te Whau Pathway and New Lynn to Avondale Shared Path will provide strong connections for cyclists and also other forms of micro-mobility (such as e-bikes and scooters) to access the existing Waterview Shared Path.

In combination, this will enable connections to the City Centre and Henderson via the existing North Western Cycleway along the SH 16 motorway. There is a significant opportunity to connect the large scale redevelopment of the Racecourse site and surrounding development sites to these new cycle facilities.

### 8.3.2 Neighbourhood 2

Neighbourhood 2 benefits from its proximity to educational facilities such as Avondale College, Rosebank School, Avondale Kindergarten and Avondale Intermediate. There are potentially opportunities to improve connectivity and permeability for active modes and micro-mobility within this neighbourhood by utilising large superlots (or acquiring additional lots) between to existing road to make new active mode connections. This could reduce active mode travel times.

The redevelopment of the area, coupled with the redevelopment of the Racecourse site in Neighbourhood 1, also provides the opportunity to enhance connections across Ash Street toward Avondale town centre and the rail station for active modes. The provision of new intersections on Ash Street for the Racecourse transport network connections can provide crossing opportunities.

Intensification within this neighbourhood also provides the opportunity to discuss with Auckland Transport the provision of more frequent bus services to serve the increasing population of Neighbourhood 2. As discussed below, the lack of more frequent services in the area is potentially a constraint, but the overall scale of redevelopment in the study area, should involve liaison with Auckland Transport on how these scale of growth most effectively serviced by existing, re-routed or new services.

## 8.4 Key Constraints

The following key constraints are discussed further below in relation to Neighbourhoods 1 and 2:

- Access off Arterial Roads
- Public transport access, north of Ash Street
- Surrounding transport network congestion

### 8.4.1 Access off Arterial Roads

The Avondale Racecourse and several other sites have a constraint in terms of possible access onto arterial roads, such as Ash Street, Great North Road and Rosebank Road. The classification as arterials has been discussed in **Section 8.2.1** and is also noted in the Auckland Unitary Plan (Operative in Part) (AUP(OP)). Direct access to arterial roads is restricted in the AUP(OP) and requires more detailed assessment of the potential transport-related effects on the safe operation of the adjacent network.

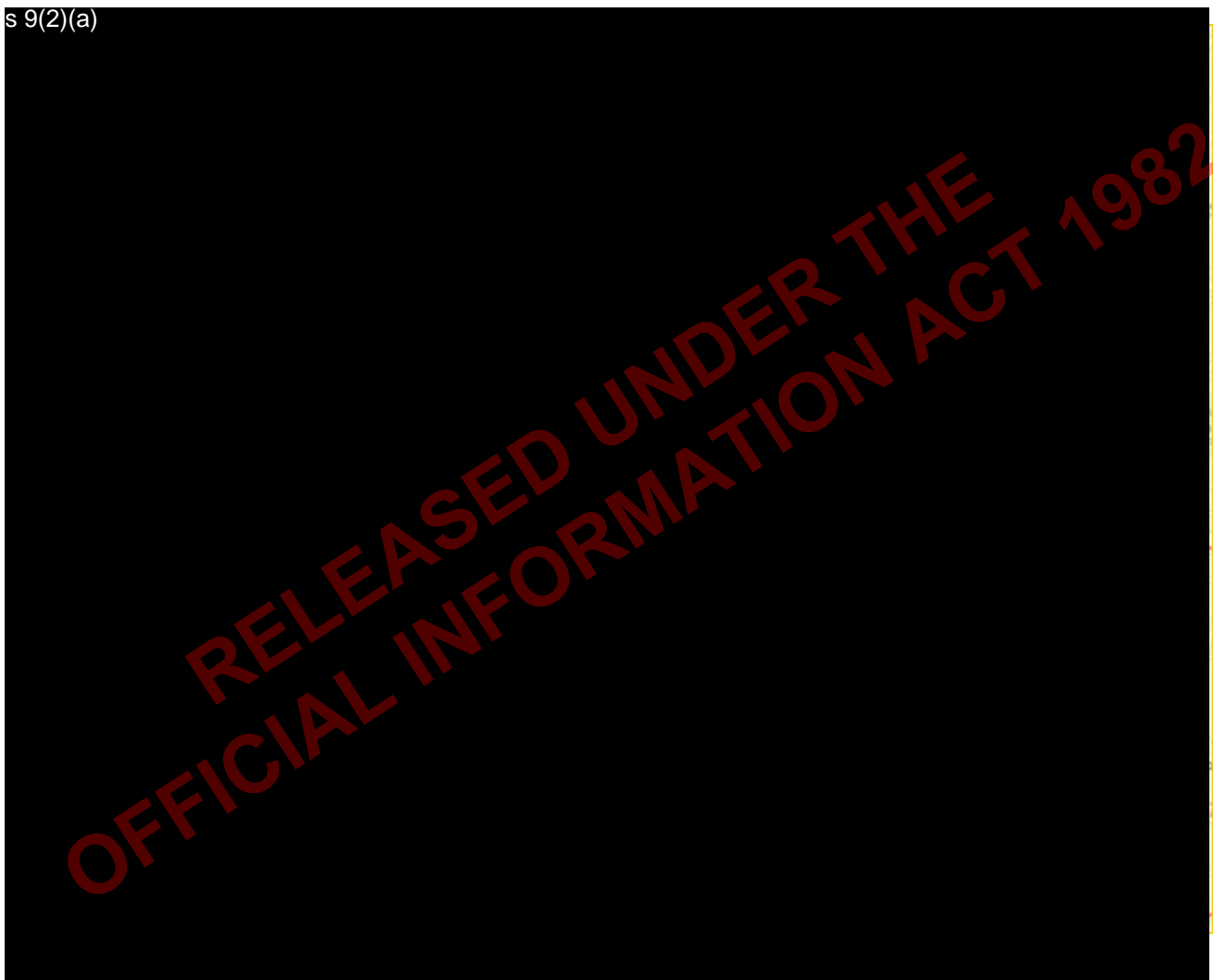
Given the scale of development within the Racecourse site, it is expected that a new street network (of public roads) will be developed, which will provide streets accessing Ash Street. This will also need to be subject to detailed assessment (given the current high traffic demands and congestion on this corridor at peak times, refer **Section 8.4.3**). There are other connection points to adjacent residential roads, which abut the site boundaries, that will give the opportunity for permeability and distribute traffic demands. Albeit, it is recommended that vehicle access on the eastern side of the Racecourse site (adjacent to Avondale town centre) is managed.

The restrictions associated with arterial road access will have more of an impact on larger superlots / subdivision sites fronting the Ash Street, Great North Road and Rosebank Road corridors in Neighbourhoods 1 and 2. Where possible, opportunities to provide access off adjacent (lower hierarchy) streets should be investigated.

### 8.4.2 Public Transport Access

Whilst generally the redevelopment study area is very well served by public transport, by the Western rail line and frequent bus services operating through the Avondale town centre, Neighbourhood 2 has less opportunity of access to public transport services, particularly frequent services.

As can be from **Figure 8-8**, Neighbourhood 2 and particularly the larger 'Belgrove' site, is outside both a 400m and 800m walk of the frequent bus services in the study area. This reduces the opportunity for residents in this area to access public transport services for work and other travel purposes, albeit local / collector services through this neighbourhood can provide 'transfer' services to the rail station and more frequent services. Access on foot or by bicycle from this Neighbourhood, is further impacted by the busy Ash Street corridor, which has high weekday peak period traffic volumes and limited opportunities to cross the corridor.



### 8.4.3 Transport Network Congestion

As mentioned previously, the key arterial roads surrounding the site are very busy, particularly during the weekday peak periods, and especially at the major road intersections around the site. This is illustrated at a high level in the extract from the 2018 Auckland Regional Land Transport Plan in **Figure 8-9** below.

This is further illustrated in more detail in **Figure 8-10** below, where the red circles indicate areas where there are the most severe existing congestion/capacity issues. As can be seen below, this includes in and around the area of the Avondale town centre and on route to the schools along Rosebank Road. As mentioned previously, it will be important for redevelopment of the main Racecourse site to, where possible avoid and limit vehicle access toward the town centre area, which would exacerbate these current issues and have adverse impacts for the vitality of the centre.



Figure 8-9: AM Peak (left) and PM Peak (right) Congestion Maps – March 2018<sup>3</sup>

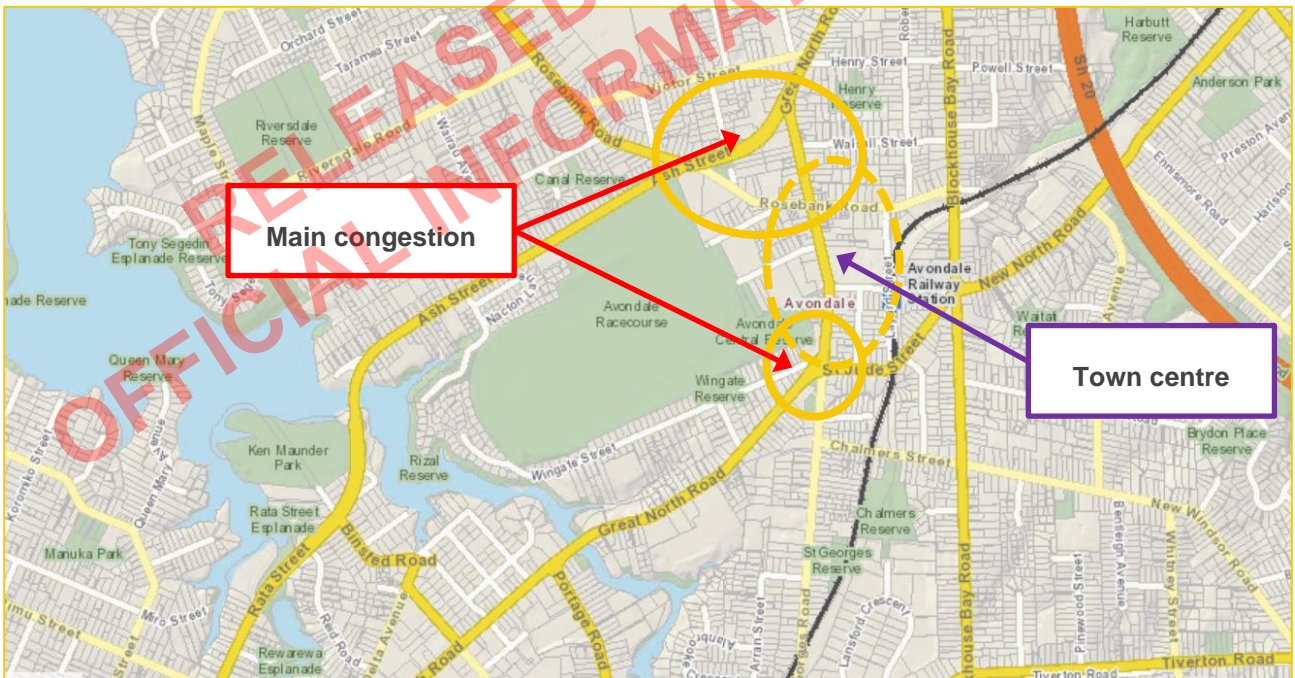


Figure 8-10: Key Road Network Capacity Constraints

<sup>3</sup> Source: Auckland Transport / Auckland Regional Land Transport Plan 2018-28

## 8.5 Key Transport Risks and Considerations


A key consideration for redevelopment of the Neighbourhood 1 will be the design of the masterplan for the main Racecourse site and ensuring that this results in positive transport outcomes for that site, as well as the existing and future surrounding communities.

Careful consideration will need to be given to the development of the transport access strategy for the Racecourse site, considering the following matters:

- Maximising the potential for high quality active modes / micro-mobility access to the Avondale town centre and rail station
- Considering public transport access adjacent or potentially through the Racecourse site
- Managing the risk for through traffic movement through the Racecourse site
- Preventing or limiting vehicle access from the Racecourse site toward the town centre and focussing vehicle access onto the parallel Ash Street and Great North Road corridors
- Improving access for active modes / micro-mobility toward New Lynn Metropolitan centre.

Another key consideration in the study area is the Ash Street and Great North Road corridors that separate Neighbourhoods 1 and 2, as illustrated on **Figure 8-11**. These corridors are very busy arterial roads that provide severance for the communities adjoining these corridors. In particular, the severance created by the corridor is likely to affect the attractiveness for the Neighbourhood 2 community to access the Avondale town centre by active modes / micro-mobility.

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It is understood this corridor forms part of Auckland Transport's Connected Communities project. An alliance team was formed to consider the Connected Communities projects in late 2019, but the current status of this project is not known. Further liaison with Auckland Transport would be necessary in this regard. Whilst this is a key consideration, the combination of the large scale redevelopment in the study area and Auckland Transport's consideration of this corridor presents an opportunity to consider and re-define the role of this corridor and enable improved transport outcomes for this corridor.

The other key consideration and potential constraint, as discussed in **Section 8.4.1**, is the arterial road corridors in the study area, namely Ash Street, Great North Road and Rosebank Road. There are several large superlots with direct access onto these arterial corridors. Direct access to these corridors is discouraged by the AUP (OP), particularly for large sites, so opportunities should be explored, where possible, to enable alternative access to lower order roads for some of these large superlots.

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## 9 Conclusion

The following sections sets out a summary of the potential risks and advantages associated with the potential future redevelopment of the Avondale Racecourse site.

### 9.1 Risks

#### Planning Assessment

- The primary risk in relation to planning relates to the potential success, and timely processing, of a future Plan Change process in order to re-zone the site from its current Special Purpose zoning, to a mix of 'urban' zones (for both residential and mixed use development).
  - It is considered a low risk that a Plan Change would not be able to be secured for the site. The site is well situated and is a significantly sized urban landholding which could make a valuable contribution to additional housing provisions within this part of the city (especially considering the direction of the NPS-UD 2020).
  - There is a risk associated with achieving all the desired outcomes identified through the Plan Change process, particularly where achieving said outcomes will require negotiation and input with multiple stakeholders, such as Auckland Council, Auckland Transport, Panuku Development Auckland (in relation to the Avondale Town Centre), as well as adjoining private landowners who may also be potentially affected by any future redevelopment proposal.

#### Engineering, Geotechnical and Contaminated Land

- A risk of flooding due to overland flow paths and flood plains that are located in the north west portion of the site. Further investigation and appropriate stormwater treatment and flood mitigation will be required to mitigate this risk.
- Required stormwater treatment and flood mitigation works may affect proposed site yields and finished floor level. This will need to be confirmed prior to development of the site.
- The large volume of earthworks required may result in increased construction costs. Further refinement of site layout may mitigate this, but the volume required is likely to remain high.
- The depth of the wastewater pipeline located beneath the eastern portion of the site may make it difficult to divert. Consultation with Watercare is required to confirm the ability to construct an above ground pipeline.
- The site has contaminated land, risks associated with this include increased construction costs and requirement of additional consents under the NESCS. A site investigation is recommended to confirm the level of contamination and identify any site contamination risks and remedial actions needed.
- Existing services within and adjacent to the site will need to be maintained throughout construction. Prior consideration of this will be needed to coordinate with affected providers and minimise disruption.

#### Transport Planning

- Connecting the development to multiple access points to the road network will result in increasing traffic flows in existing quiet residential roads, which may result in some potential resistance or perceived adverse effects from existing residents. However, in terms of transport impacts and connectivity, this is considered to be a significant benefit to existing and future residents in the area, as it will minimise the traffic impacts, as well as provide route choice and increase connectivity across all modes of travel.
- A possible risk with connecting networks, to create through roads, is 'rat running' of drivers, particularly during peak periods when the arterial road network is congested. This can be mitigated through appropriate road design, horizontal alignment, road connections and other speed reduction features that will make the route less attractive for through traffic.



- The proposed development is for residential, therefore all peak hour weekday traffic generated by the proposed development would be additional traffic. If the site is well connected to the transport network, this will help spread the traffic demand. However, it is expected that the road network, in its current form, will not be able to accommodate the increase in traffic without significant upgrades. The degree of impact can be reduced if traffic can be dispersed via the existing local and arterial road network rather than if accessed from Ash Street or another single access points alone.

## 9.2 Advantages

### Planning Assessment

- The Urban Development Act 2020 (“UDA”) provides an advantageous avenue to consider the future development of this site given the provision of additional regulatory functions and powers in relation to the fast-tracking of consent approval process, as well as the ability to potentially acquire land, which are not currently available under typical Plan Change processes under the Resource Management Act.
- The majority of the Avondale Racecourse site is located within 800m radial pedshed to rapid transport stops and Avondale Railway Station. Therefore, under the NPD-UD, the opportunity for intensification of at least 6 storeys is anticipated on the Avondale Racecourse site given its proximity to both existing and planned rapid transport stops.

### Engineering, Geotechnical and Contaminated Land

- Due to the relatively flat nature of the site, the grades of proposed roading layout within the Avondale Racecourse are likely to comply with Auckland Transport Code of Practice, and NZS4404 Land Development and Subdivision Infrastructure requirements of 10% or less without difficulty.
- If gas is required on the site, there are available connection points in surrounding residential areas to the north, east and south.

### Transport Planning

- To help mitigate the potential traffic demand, the site is ideally located to take advantage of the bus services close by on Ash Street and Great North Road and the train services at Avondale Station, and is well located for non-car trips in terms of education and local facilities, which should reduce the amount of private vehicle trips to and from the site. There is also good potential for trip by bicycle with access to the Waterview cycleway and upcoming cycleway projects such as the New Lynn to Avondale shared path. There may also be other strategies that could be considered to reduce car ownership and therefore reduce trip demand such removing parking completely or community carpooling schemes, as examples.

# 1

Appendix A – Aurecon Reports

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