



**ENGINEERING AND INFRASTRUCTURE REPORT  
TO SUPPORT A RESOURCE CONSENT APPLICATION  
FOR A UNIT TITLE SUBDIVISION (81 UNITS)  
AT 96 BEACH HAVEN ROAD/13 CRESTA AVENUE, BEACH HAVEN  
FOR BENTLEY STUDIOS LIMITED**

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**Document Prepared By:**

Airey Consultants Limited  
Level 1, Fountain Lane North, Botany Town Centre  
PO Box 39 101, Howick, Auckland 2145

**Client:**

Bentley Studios Ltd.  
PO Box 12 428  
Chartwell, Hamilton

**T** +64 9 534 6523

**E** [natalien@aireys.co.nz](mailto:natalien@aireys.co.nz) – Natalie Naidoo

**W** [www.aireys.co.nz](http://www.aireys.co.nz)

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# Executive Summary

This report addresses the civil engineering aspects and requirements for the infrastructure related to the Resource Consent Application for the unit title subdivision (81 units) at 96 Beach Haven Road/13 Cresta Avenue, Beach Haven. The proposed development will involve the development of 81 Residential units in four separate apartment blocks.

This report concludes that the development can be serviced by the existing and proposed infrastructure detailed within this report. The development will be provided with stormwater, wastewater and water supply service, and is able to be connected to the local power and telecommunications reticulation.

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## 1. INTRODUCTION

The infrastructure report covers the engineering aspects for resource consent application for the proposed unit title subdivision (81 units) at 96 Beach Haven Road and 13 Cresta Avenue, Beach Haven.

## 2. SITE DESCRIPTION

### 2.1 Location

The subject site comprises of the following two parcels of land totalling 7,147.00m<sup>2</sup>.

96 Beach Haven Road	Lot 1 DP 157383	Area = 2,251m <sup>2</sup>
13 Cresta Avenue	Lot 2 DP 157383	Area = 4,896m <sup>2</sup>



Figure 1. Aerial view of Subject Site – Council Geomaps

### 2.2 Titles / Zoning

The sites are currently situated within the Residential – Single Housing Zone.

### 2.3 Topography

The subject site slopes in a Northerly direction towards 29 Cresta Avenue, with gradients ranging from 4% in the central portion of the site, to approximately 6% towards the Northern section of the site

A 100-year overland Flowpath is present within the site currently flowing along a depression on the Western side of the site and thereafter existing into the property at 15 Cresta Avenue. According to GIS mapping, this overland flow path originates along the southern boundary of the site.

### **3. PROPOSED DEVELOPMENT**

The sites at 96 Beach Haven Road and 13 Cresta Avenue will be a unit title subdivision. The proposed development will involve the development of 81 Residential units in four separate apartment blocks.

#### **3.1 Access**

Access to the site will be via an upgraded vehicle crossing located at the entrance to 13 Cresta Avenue. The existing vehicle crossing located at 96 Beach Haven Road will be removed and reinstated to Auckland Transport's Standards, detail GD017A-1B.

#### **3.2 Flooding Considerations & Overland Flow Path**

##### 3.2.1 Flood plain and Flood Sensitive Areas

The site is not situated within the 100-year flood plain.

##### 3.2.2 Coastal Inundation

The site is not subject to coastal inundation.

##### 3.2.3 Overland Flow Paths

Council GIS Indicates that there is an overland flow path originating along the southern boundary of the site and traversing along the western boundary of 96 Beach Haven Road. Following a site visit and a desktop Flood Assessment, it is apparent the overland flow path is a local feature originating along the southern boundary of the site. It is concluded that the overland flow path can easily be accommodated down the western boundary within the proposed development. Please refer to Appendix D for Overland Flowpath Assessment Report.

### **3.3 Earthworks**

#### 3.3.1 Proposed Earthworks

Earthworks are required to construct the proposed building platforms and form the proposed accessway. Earthworks will involve cut to fill operations to achieve as near as possible to a cut/fill balance operation on site.

Due to the recontouring, retaining walls will be required generally around the perimeter of the site which will vary in height with a maximum around 1.80m. It is anticipated that the retaining walls will be timber pole cantilever type, however this will be confirmed at the Engineering Approval / Building consent stage.

An Earthworks consent application is currently being processed for this site under BUN60384511.

#### 3.3.2 Erosion & Sediment Control

An Earthworks consent has been applied for separately of this resource Consent application, and is currently being processed under BUN60384511. By way of a summary, prior to earthworks commencing, the site sediment controls in accordance with the requirements of Erosion and Sediment Control Guide for Land Disturbing Activities in the Auckland Region GD05 (legacy ARC TP90) will be established. The proposed erosion and sediment control plans and details are included in Appendix A Dwg. Nos. 207 & 208. The erosion and sediment control measures to be used will generally include the following:

- Silt fences installed along the western and southern boundaries to prevent uncontrolled sediment loaded runoff from discharging/ exiting from the site.
- Stabilised construction entrance – the existing entrance will be utilised as a stabilised entry for the construction works, preventing uncontrolled sediment and dust from traffic into and off site and, further limiting the traffic to a single ingress and egress point.
- Pro-active construction methodologies to allow the filling of the site in the vicinity of the overland flow path.

All proposed sediment controls shall be maintained and monitored during the duration of works and may be varied through construction (for reinstatement and stabilisation). Sediment controls will be erected in accordance with the requirements of Auckland Council's GD05 (GD05) Documentation (Legacy Auckland Regional Council Technical Publication 90) and the conditions of the Resource Consent.

The scale of proposed earthworks is relatively small and readily able to be undertaken within a single construction season. It is anticipated that the earthworks will be completed within 3-4 weeks and is best actively managed throughout an appropriate weather window. Earthworks will not be staged.

Other controls in accordance with the requirement of Erosion and Sediment Control Guide for Land Disturbing Activities in the Auckland Region (GD05) may be carried out as instructed by the engineer or Council’s development engineer.

Based on adherence to the erosion and sediment control methodology described above, we consider that the effects of the earthworks will be less than minor.

### 3.4 Stormwater

#### 3.4.1 Existing Stormwater

According to a topographical survey prepared by Easdale Surveyors and Auckland Council Geomaps, there is an existing 300mmØ public stormwater line running along the southern boundary and the Western boundary of the site. This line connects to an existing 750mmØ public stormwater line running in a North-westerly direction through 13 Cresta Avenue. Table of Public Stormwater Manholes and Lines traversing the Proposed Development boundary as follows:

Asset Type	Legacy Asset ID	Size
Stormwater Line	Null	300mmØ
Stormwater Manhole	Null	1050mmØ
Stormwater Line	Null	300mmØ
Stormwater Manhole	Null	1500mmØ
Stormwater Line	NSC_483772	750mmØ
Stormwater Manhole	Null	-
Stormwater Line	NSC_483770	750mmØ



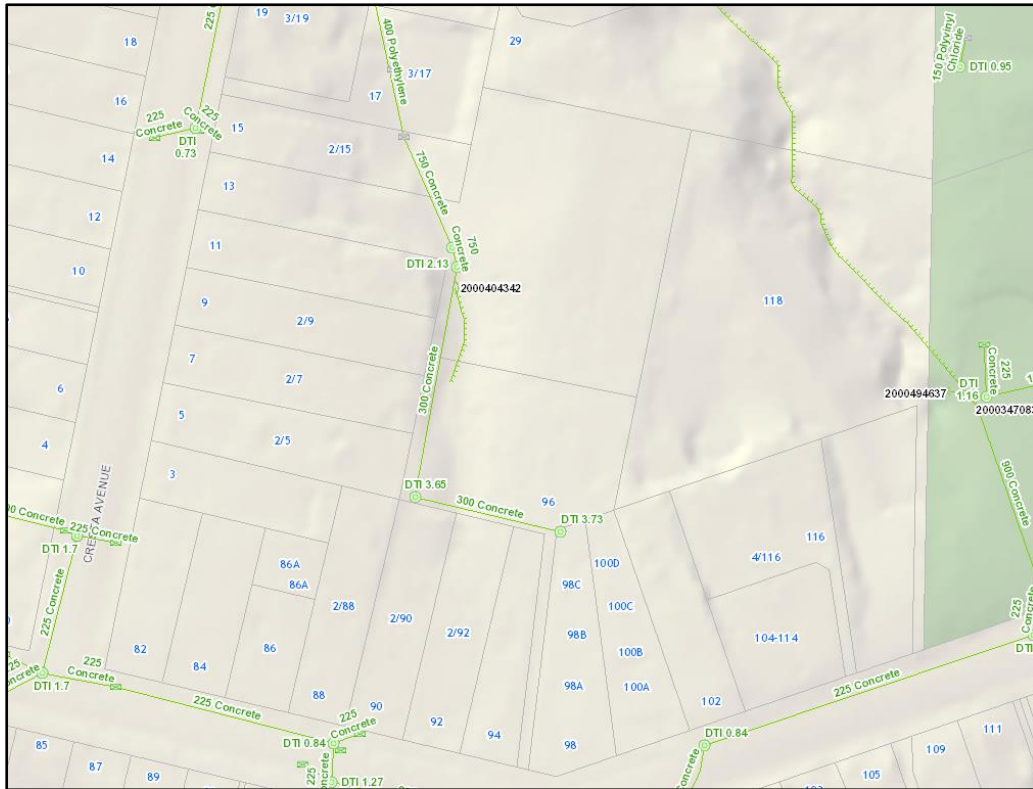


Figure 4. Existing Public Stormwater Network (Auckland Council Geomaps)

### 3.4.2 Proposed Stormwater

The proposal is for a Unit title development which will be provided with a single public Stormwater Connection to the existing Stormwater Manhole located within 13 Crest Ave.

As per the Auckland Unitary Plan, the subject site is not situated within the areas of Stormwater Management Areas, SMAF 1 or SMAF 2.

Discharge of Stormwater from the Proposed Development will not require resource consent as this is considered a permitted activity per the AUP: OP, Section E8.4.1 Item A1 – *Diversion of stormwater runoff from lawfully established impervious areas directed into an authorised stormwater network or a combined sewer network that complies with Standard E8.6.2.1.*

The proposed future development of the site will increase the impervious area Stormwater attenuation will be provided by installing Detention tanks with a throttle discharge to attenuate the Stormwater discharge from the post development flows back to the pre development flows.

This design has also been carried out in accordance with the Auckland Unitary Plan stormwater mitigation requirements, providing detention of the 10% AEP storm event, incorporating 2.1°C climate change.

The Stormwater attenuation design is detailed further in our Stormwater Management Design Report appended.

### 3.4.3 Water Quality

The downstream receiving environment is located within a Significant Ecological Area (SEA) under the Auckland Unitary Plan, Section D9.

Stormwater quality treatment is not required to the roofed areas as the construction does not involve any high contaminant yielding roofing, spouting, cladding material or architectural features. Inert Building Materials are proposed for the new dwellings, including colour steel roofing, plastic guttering and downpipes etc.

Stormwater treatment will be provided to runoff from all paved impervious surfaces by an Auckland Council Approved stormwater treatment device designed in accordance with Auckland Council Guideline Document GD01 2017/001 (GD01) along with the requirements of Schedule 4 of the Networks Discharge Consent for Large Brownfield Areas.

## **3.5 Wastewater**

### 3.5.1 Existing Wastewater

According to a topographical survey prepared by Easdale Surveyors and Watercare GIS maps there is an existing 150mmØ public wastewater line traversing the bottom right corner, on the Eastern section of the site at 96 Beach Haven Road.

Also indicated on Watercare GIS is the presence of an existing 150mmØ public wastewater line traversing through the centre of the site at 13 Cresta Avenue. Two 100mmØ wastewater connections are currently servicing each site.

Table of Wastewater Manholes and Lines traversing the Proposed Development boundary as follows:

Asset Type	Watercare GIS ID	Size
Wastewater Line	904512	150mmØ
Wastewater Manhole	404261	1050mmØ
Wastewater Line	938048	150mmØ
Wastewater Manhole	418424	1050mmØ
Wastewater Line	938053	150mmØ
Wastewater Line	575424	100mmØ
Wastewater Line	587346	100mmØ



Figure 5. Existing Public Wastewater Network (Watercare GIS)

### 3.5.3 Proposed Wastewater

It is proposed to upgrade the existing 100mmØ Public Wastewater connection located at the North East corner of the site, to a 150mmØ connection to service the proposed development. The proposed connection will discharge into the existing 150mmØ gravity line located within the property of 29 Cresta Avenue.

Assessment of the downstream wastewater system shows the existing 150mmØ public wastewater line (*Watercare GIS ID 938053*) has sufficient capacity to cater for the proposed development. Wastewater flow calculations are based on each household consisting of three people, in which each person produces a Peak Wet Weather Flow of 1,206 litres/person/day as specified within Watercare's Code of Practice.

Further assessment was undertaken of the downstream wastewater system shows the existing 300mmØ public transmission line wastewater line (*GIS ID 909646*) has sufficient capacity to cater for the proposed development together with the contributing upstream catchment. Wastewater flow calculations are based on each household consisting of three people, in which each person produces a Peak Wet Weather Flow of 1,206 litres/person/day as specified within Watercare's Code of Practice.

The total pipe capacity was calculated at 98 l/sec whereas the design flow was calculated at 96.31 l/sec, therefore resulting in sufficient capacity within the 300mmØ Transmission Line.

### **3.6 Water Supply**

#### **3.6.1 Existing Water Supply**

According to Watercare GIS there is an existing 150mmØ water pipe (*ID 4753274*) located along the site frontage of 96 Beach Haven Road and an existing 150mmØ (*ID 4753248*) located along the site frontage of 13 Cresta Avenue. The existing dwellings at 96 Beach Haven Road and 13 Cresta Avenue are currently serviced by an existing 20mm polyethylene service connection.

#### **3.6.2 Proposed Water Supply**

One bulk meter is proposed to be installed and connected to the existing 150mmØ water pipe (*ID 4753274*) located on Beach Haven Road to service the development. Assessment of this existing 150mmØ water pipe (*ID 4753274*) shows this existing 150mmØ public water line (*ID 4753274*) has sufficient capacity to cater for the proposed development. Please see engineering calculations in Appendix B.

#### **3.6.3 Water Supply Fire Fighting**

SNZ PAS 4509:2008: NZ Fire Service Firefighting Water Supplies Code of Practice states that the firefighting requirements for residential dwellings without sprinklers is classified as FW2. The Fire Water Classification FW2 requires a flow rate of 12.5 L/s within 135m and a further 12.5 L/s within

270m of the property, using a maximum of two hydrants. There are two fire hydrants located at the site frontages of 96 Beach Haven Road and 13 Cresta Avenue, within 135m of the site (Hydrant ID 4753247 & 1119963). This complies with SNZ PAS 4509:2008: NZ Fire Service Firefighting Water Supplies Code of Practice requirements.



Figure 6. Existing Water Supply Infrastructure – Watercare GIS

### 3.7 Utilities

#### 3.7.1 Power

There is an existing above ground power supply at the front of the site at 96 Beach Haven Road and an existing underground power supply at the site frontage of 13 Cresta Avenue, that is available to service the proposed development. The power requirement will be assessed by Vector/Northpower and upgraded accordingly within the road reserve.

#### 3.7.2 Telecommunications

There is an existing underground telecommunications supply at the front of the site at 96 Beach Haven Road and at the site frontage of 13 Cresta Avenue, that is available to service the proposed

development. The telecommunications requirement will be assessed by Chorus/Visionstream and upgraded accordingly within the road reserve.

#### 4. CONCLUSION

We have examined the infrastructure requirements for the proposed development at 96 Beach Haven Road and 13 Cresta Avenue and are satisfied that redevelopment of the site can be fully serviced by the existing and proposed infrastructure.

An overland Flowpath has been identified entering and exiting the site. Although there is a slight change to the flood depths, the effects in the surrounding area are considered minimal.

The proposed development is able to be adequately serviced with the provision of stormwater, wastewater, water supply service, connection to the local power and telecommunications reticulation, and access in accordance with relevant Unitary Plan requirements, Engineering Standards.

Report prepared by



**Natalie Naidoo**  
Senior Civil Engineer  
Airey Consultants Ltd

Reviewed and approved by



**Mike Williams**  
Director  
CPEng(NZ), CMEngNZ, IntPE(NZ), BE(Civil)  
Airey Consultants Ltd