

20<sup>th</sup> October 2022

### TO: MINISTRY FOR THE ENVIRONMENT (MFE)

# RE: FAST-TRACK CONSENT UNDER COVID 19 RECOVERY (FAST-TRACK CONSENTING) FOR 30 & 40 SANDSPIT ROAD

## **CIVIL ENGINEERING MEMO**

DHC Consulting Group Ltd has been engaged by the client, Box Property Investments Ltd, to prepare this technical memo to provide comment on the Civil Engineering matters relevant to the Fast-Track Application for 30 & 40 Sandspit Road and 2 & 4 Reydon Place (the subject site). This letter presents comments on Scheme Plan, Site Access, Earthworks, Three-Waters Servicing and Utilities based on the architectural drawings prepared by + MAP Architects (2016) Ltd.

#### Scheme Plan

The proposed residential block (58 apartments) and 12 terrace dwellings (70 residential units in total) will be a proposed unit title. Relevant parking lots/spots within the basement and terrace housing parking area will be allocated to the proposed units. Minor public stormwater and wastewater drainage will be proposed within the site (no easements required). The rest of the internal drainage will be private. An easement in gross will be provided to relevant utility suppliers and cabling into the site. A body corporate will need to cover the water usage for the site.

### Site Access

The subject site currently has seven vehicle crossings in total to access the different properties (one for 2 & 4 Reydon Place, two for 40 Sandspit Road and four for 30 Sandspit Road). The proposed development will remove all existing vehicle crossings and provide two vehicle crossings to the site, one from Trelawn Place and one from Reydon Avenue. Additionally, two pedestrian accesses will be provided from Trelawn Place and Reydon Place. This is beneficial as it reduces the number of vehicle crossings to the public road.

The proposed vehicle crossings will be designed as per Auckland Transport standards, tying into the existing levels at the road reserve/footpath. A two-way ramp will be provided internally to access the basement/ carparking floor, complying with the required grades and vehicle turning.



Figure 1- Location of the Proposed Vehicle Crossing on Trelawn Place



# **Earthworks**

Preliminary earthworks modelling has been carried out for the site by DHC. The current earthworks estimation indicates that approximately 6,300m<sup>3</sup> of cut is required to achieve the proposed basement level (maximum cut of approximatly 3.5m). Retaining along Sandspit Road varies in height from around 1.0m – 3.5m and does extend back into Trelawn Place and Reydon Place, with retaining walls strategically placed around the basement structure to integrate with the existing topography.

Preliminary findings by the geotechnical engineer (2018) indicate that groundwater was encountered between 3.7m and 9.5m below existing ground level during monitoring rounds through the summer months, which will not be affected by the required cuts. However, further investigations are to be carried out to confirm this level. It is important to note that the site is located at the top of the natural hill.

Additionally, existing fill materials were encountered on the site, which would be unsuitable as a founding layer and would require undercut and replacement. Further investigations are to be carried out to confirm the extent of these materials.

## **Stormwater**

Based on Auckland GIS, the subject site has two existing public stormwater pipes running through it, a 300 dia. RCRRJ pipe running through the northern corner of 30 Sandspit Road and a 150 dia. uPVC pipe from the existing lower parking terrace to the rear boundary. It appears that 30 Sandspit Road is serviced by the existing 150 dia. uPVC pipe. 40 Sandspit Road and 2-4 Reydon Place currently have no direct connection to public stormwater system as per Auckland GIS information. DHC found from a site inspection that these sites have kerb discharge outlets, which will be removed for the proposed development.

There is another public 225mm dia. line within the public berm of Trelawn Place, which is suitable for connection as it is located downstream of the site and the proposed levels for stormwater would work with this.

Based on the existing public network within and in close vicinity to the site, the development has three diferent options for public stormwater discharge/connection, with option 1 being the preferred initial approach. Refer to Figure 2 for details.

The site is subject to *Flow 2 Stormwater Management Area (SMAF 2)* under the Auckland Unitary Plan (AUP). To meet AUP mitigation requirements, the proposed development will provide both detention and retention of stormwater runoff prior to discharging to the public network. A total of 51.0m<sup>3</sup> will be provided as per Preliminary *SMAF 2* calculations through underground detention and retention tanks. The required volumes will vary based on the final proposed impervious areas. At the time of this memo, the proposed impervious areas do not exceed the existing impervious areas. Therefore, in addition to the mitigation provided based on the *SMAF 2* requirements, any further stormwater mitigation for the 10-year and 100-year event is not required as the development is not increasing the impervious areas for the site (3,082m<sup>2</sup>, agreed with Auckland Council in 2021). Even though the overall stormwater flows are reduced, should they still be considered a risk, additional stormwater mitigation can be provided and further tanks can be accomodated within the site to add more detention volume and to control a slower release of the stormwater flows. There is no concern to achieve any required mitigation as there is sufficient space to install stormwater tanks.

We are confident that the site has viable public connections and the net effect on the environment in terms of flowrates will be less than existing (due to the proposed impervious areas and/or additional stormwater mitigation/tanks). This has been previously discussed and agreed with Auckland Council.





From Auckland Council Geomaps information, no floodplains or overland flowpaths are directly affecting the site. As such, there is no need to consider these for the development.

#### Figure 2- Options for Public Stormwater Connection

## <u>Wastewater</u>

As per Auckland GIS, the site is currently serviced via a 150mm dia. AC public wastewater pipe at the rear boundary of 40 Sandspit Road. A public manhole is located within 40 Sandspit Road with a 150mm dia. AC pipe crossing both 40 Sandspit Road and 2-4 Reydon Place and discharging northwards. The site is situated at the top of the catchment.

The proposed development will be connected to the existing public wastewater manhole (AC GIS ID 463332) at the east of 40 Sandspit Road, located within 3A Trelawn Place. This connection will require neighbour's approval. This approach is the most suitable solution for the Wastewater discharge from the development as the existing public network within the site is higher than the proposed levels. DHC have checked that there is sufficient fall to connect into this public network via a gravity fed connection and ensured that the design complies with the minimum fall of 1.2m between the Finished Floor Level of the Ground Floor and the soffit of the pipe servicing the development. If the required neighbour's approval was unable to be achieved, the following wastewater discharge options can be considered:

- 1. Raise the RL of the 12 terraced houses to an RL of 51.5 (by 2.8m) to enable a gravity system and connection into existing WWMH 479007 to be achieved.
- 2. Install a Wastewater pump and holding tank system to maintain current proposed terraced house RL's and pump wastewater into existing WWMH 479007, entirely within the site.
- 3. An alternative discharge option is to utilise the wastewater system to the western side of Sandspit Rd, connecting into manhole WWMH 499572, the merits of this option can be explored in detailed design as it will require pumps and tanks and road crossings.



A wastewater infrastructure assessment was completed for all the downstream wastewater network up to the next 300mm dia. pipe located down in Cockle Bay Domain. This assessment was based on Watercare Code of Practice and a basis of design flows from 58 apartments and 12 terrace houses (13 x 1-bedroom units, 21 x 2-bedroom units and 36 x 3-bedroom units), total flows from the development of 2.18 L/s.

According to this assessment, the downstream network has sufficient capacity and the development can discharge into this network. The downstream network will not require to be upgraded based on abovementioned capacity calculations, based on the Code of Practice. This has been coordinated and discussed with Watercare previously.

DHC has been advised by Watercare that there is a history of sewer blockages and overflow at the downstream network of the site. DHC met with Watercare in 2021 to discuss these issues and has also been provided with CCTV of this network commissioned by Watercare in different years (2018, 2019,2020). The final outcome from these meetings and the review of this CCTV footages confirmed suspicions, that the blockages and overflow of the network were due to the existing condition of this network, age and current damage and defects. Watercare has the responsibility to address faulty wastewater infrastructure, and this has been acknowledged by Watercare. Watercare does not require owner permission to undertake this kind of work; section 181(4) of the Local Government Act 2002 (in conjunction with Watercare's enabling legislation) allows Watercare to enter the land to inspect, alter, renew, repair, or clean any work constructed under this section or under the corresponding provision of a former Act.

In spite of the existing network issues and condition noted above, the proposed development will be able to connect to the existing public network with sufficient capacity as per Watercare standards without requiring the approval of any other person (other than Watercare, which is always the case).



Figure 3- Proposed Wastewater Layout



# Water Supply

There is an existing 150 & 180mm dia. PE line that runs along the public berm/footpath of Sandspit Road. Additionally, a 100mm dia. PE pipe runs along the berm of Trelawn Place. According to *Watercare Code of Practice for Land Development and Subdivision Table 6.2 Empirical guide for principal main sizing*, a 150mm dia. pipe has the capacity to provide up to 160 residential lots with supply and (based on testing results below) is expected to provide potable water use and Firefighting requirements.

Fire hydrant testing was carried out on 30<sup>th</sup> of August 2016 by Novaflowtec Services Ltd. The testing has identified that the existing mains have sufficient pressure to service the proposed development. These results have been previously presented to Auckland Council and Watercare with no issues noted.

In terms of Firefighting requirements for the site, *New Zealand Fire Service Firefighting Water Supplies Code of Practice SNZ 4509:2008 Section 4.4 Table 1&2* requires the first available hydrant to be <135m from the front door of every dwelling and a second available hydrant to be <270m from the front door of every dwelling. Based on AC GIS, there are two fire hydrants located in front of the site at Sandspit Road and Trelawn Place, which comply with the required distances.

In addition to this, the *NZ Building Code C/AS7 2.2.1b* requires a maximum hose run distance from the nearest truck parking point or hydrant to be 75m from the farthest point within the dwelling. Parking locations for trucks require a minimum 4.0m wide legal access. Suitable access for the truck will be assured through the design to comply with the relevant requirements.

## **Utilities**

Information about the existing utilities around the site has been obtained from B4uDig website in June 2020. The following infrastructure is shown in B4uDig plans:

- Chorus underground telecommunication cables along Trelawn Place and crossing Sandspit Road
- Vector 400V and 11,000V-6,600V power cables below ground along Sandspit Road berm
- Vector MP4 Gas mains along Trelawn Place and across Sandspit Road

All proposed utility connections will be coordinated with Vector and Chorus in due course and are proposed to remain underground.

Should you have any civil engineering questions in regards to this memo, please feel free to contact DHC civil engineer as per details below.

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