Application for Resource Consent

Central Interceptor Connection Works

Land use consent for minor works in a floodplain

Keith Hay Park, Mt Roskill

January 2021

Tonkin & Taylor Ltd

Member
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Watercare
An Auckland Council Organisation

Document Control

Title: Keith Hay Park- Central Interceptor Connection Works					
Date	Version	Description	Prepared by:	Reviewed by:	Authorised by:
January 2021	1.0	Final for lodgement	L Alkamil	J Carvill	K Baverstock

Distribution:

Watercare Services Limited	1 PDF copy
Tonkin & Taylor Ltd (FILE)	1 copy

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1 Introduction

1.1 Overview of proposed works

This Assessment of Effects on the Environment (AEE) report has been prepared on behalf of Watercare Services Limited (Watercare) to support a resource consent application to authorise wastewater infrastructure in a floodplain as part of the Central Inceptor (CI) project at Keith Hay Park in Mt Roskill. As described below, the CI works are authorised under a designation and regional and district resource consents. This AEE is limited to an assessment of minor works in a floodplain which are located outside of the existing designation.

This report has been prepared in fulfilment of section 88 of the Resource Management Act 1991 (RMA), and in accordance with Tonkin & Taylor Ltd's (T+T) letter of engagement dated 17 December 2020.

1.2 Background

The CI is a fundamental part of Watercare's long-term strategy to effectively manage wastewater within the Auckland region, to protect public health and the environment, and to provide for growth. The CI is a 14.7-kilometre long and 4.5-metre wide tunnel that runs between Grey Lynn and the Māngere Wastewater Treatment Plant (MWTP), collecting and transferring wastewater for treatment and safe disposal. It will have permanent shafts for operational use and future access – these will collect and transfer wastewater from the existing network into the tunnel providing a more direct route to the MWTP.

Keith Hay Park is a main shaft site for the CI tunnel and is the third to begin construction. Construction at this site will include the building of the main shaft, control room and two pipeline connections which will feed into the local wastewater networks.

The shaft site at Keith Hay Park is designated by Watercare (ref. 9466) under the Auckland Unitary Plan Operative in Part (AUP) for the purpose of the construction, operation and maintenance of wastewater infrastructure[1]. In addition to this designation, existing regional and district resource consents authorise the wider site works associated with CI, including the removal of existing buildings on site, traffic management and the establishment of site construction areas and associated earthworks[2].

As part of the detailed design process, Watercare has identified a diversion chamber (approximately 7 m by 6 m by 4 m deep) and air, power and control ducts that are required as part of the wider CI works. These works are located approximately 10 m outside of Designation 9466 and are within a floodplain as identified in Auckland Council's GIS viewer. While the existing resource consents provide for the Mt Roskill Branch Sewer to connect to a manhole structure (rather than a chamber), Auckland Council (AC) has advised that a further resource consent is required in accordance with Rule E36.4.1 (A56) of the AUP due to the location of the works within a floodplain.

[1] Works in accordance with a designation do not require land use consent under section 9(3) of the Resource Management Act 1991 (RMA)

[2] R/LUC/2012/2846, R/LUC/2012/2846/1, PRC40962, PRC40963, 40834, 40835, 40836, 40837, 40838, 40839, 40840, 40841, 40842, 40843, 40844, 40845, 40846, 40848, 40849 and 40850

1.3 Applicant and property details

Table 1.1: Applicant and property details

Applicant	Watercare Services Ltd
Owner/occupier of application site	Auckland Council
Site address / map reference	53 Arundel Street, Mt Roskill (Keith Hay Park)
Site area	15.8 ha (approx. work area – 60 m^2)
Legal description	Allotment 77 Section 13 Suburbs of Auckland
Record of Title reference	NA8D/230
Council / Plans	Auckland Council Auckland Unitary Plan Operative in Part (AUP)
Address for service during consent processing	Tonkin + Taylor Ltd Attention: Laila Alkamil Phone: 09 352 2948 Email: LAlkamil@tonkintaylor.co.nz
Address for service during consent implementation and invoicing	Watercare Services Ltd Attention: Xenia Meier Phone: 021 574 585 Email: xenia.meier@water.co.nz

We attach copies of the relevant Record of Title in Appendix A and drawings in Appendix B.

1.4 Overview of resource consent requirements

AC has advised that resource consent is required under Rule E36.4.1 (A56) of the AUP as a restricted discretionary activity for infrastructure in the 1 percent annual exceedance probability (AEP) floodplain not otherwise provided for as a permitted activity.

Pursuant to section 125(1) of the RMA, a standard lapse date of 5 years is sought.

2 Site description

The site works are located at 53 Arundel Street, Mt Roskill within the Keith Hay Park grounds. Site establishment works as part of the wider CI works are currently underway at the site, as authorised under the existing designation and resource consents[3].

The site is adjacent to the Akarana Golf Club and is surrounded by residential development and two schools (Waikowhai Intermediate School and Hay Park School) to the south. It is zoned Open Space – Sport and Active Recreation under the AUP.

The site topography is relatively flat. The site is next to, and within, the surface catchment area of Oakley Creek, which is an urban stream that flows from Mt Roskill through the western suburbs of Central Auckland before entering Motu Manawa Marine Reserve in the Waitematā Harbour.

Most of the site is located within an identified 1 per cent annual exceedance probability (AEP) floodplain. In addition, an overland flow path runs through the eastern boundary of the site (see Figure 2.2 below).

As set out in the original application and AEE[4], there are no recorded archaeological or heritage sites within the construction area and there is little potential for discovery of unrecorded archaeological remains.

A previous ground contamination study found that potentially contaminating activities occurred on a small portion of the Keith Hay Park shaft construction site on the western fringes[5]. Works in the vicinity of trees is managed via the existing certified Tree Protection Management Plan. In any case, these matters and all other matters are addressed through the existing resource consents and associated conditions and do not form part of this application.

[3] R/LUC/2012/2846, R/LUC/2012/2846/1, PRC40962, PRC40963, 40834, 40835, 40836, 40837, 40838, 40839, 40840, 40841, 40842, 40843, 40844, 40845, 40846, 40848, 40849 and 40850.

[4] "*Central Interceptor Main Project Works: Resource Consent Applications and Assessment of Effects on the Environment"* prepared by Watercare Services Ltd, dated August 2012.

[5] "*Desk Study and Ground Contamination Assessment – Main Works Central Interceptor Project*", prepared by Tonkin + Taylor Ltd, dated July 2012.

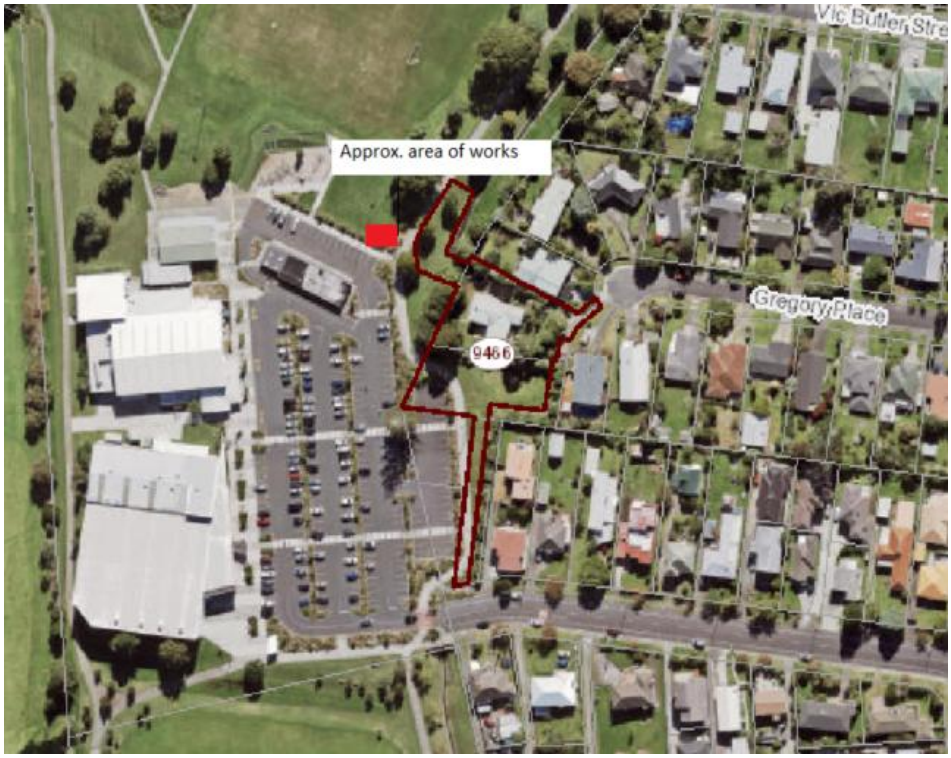

Figure 2.1 Site location plan (designation boundary shown in red). (Source: Auckland Council Geo Maps, 2020)

Figure 2.2: Proposed works in relation to floodplain (overlay in blue) and overland flow paths (blue line) (site boundary in light blue, approximate area of works outlined in red). (Source: Auckland Council GeoMaps, 2020).

3 Description of works

3.1 Consented CI works

The Keith Hay site is one of the main shaft sites for CI. Once construction work is complete on site, there will be a permanent shaft tunnel, control room and two pipeline connections into the nearby wastewater networks (see Figure 3.1 below).

Works are programmed to take place over a 15-month period, having commenced in January 2020 and finishing in April 2021. Once the shaft is complete, the tunnelling work is expected to commence in 2022, which will be followed by the permanent connection works to connect the shaft to the CI tunnel.

As discussed in Section 1 above, the CI works are authorised under the designation and existing regional and district resource consents.

Figure 3.1: Keith Hay construction site. (Source: Watercare, 2020).

3.2 This application

For the purpose of this application, the works which require resource consent are limited to a chamber (MH-84A) and air, power, hydraulic and control ducts within the 1% AEP floodplain (see Figure 3.2 below). As outlined in Section 3.1, all other site works are authorised under Watercare's existing resource consent and hence this application relates to works within the floodplain only.

The chamber will be approximately 7 m x 6 m x 3.8 m deep[6] and is required in order to divert flows from the existing Mt Roskill Branch Sewer to the CI tunnel at Keith Hay Park. The chamber will be buried approximately 360 mm below the existing ground level. Six new access hatches will be constructed to allow for future maintenance access. These access hatches will be visible from the ground surface and will be flush with the existing ground level. The surface will be reinstated with topsoil and grass.

There is no proposed above ground infrastructure and there is no proposed change to the existing ground levels. The proposed access hatch level is 56.37 mRL, which is below both the 10-year and 100-year Maximum Probable Development flood levels.

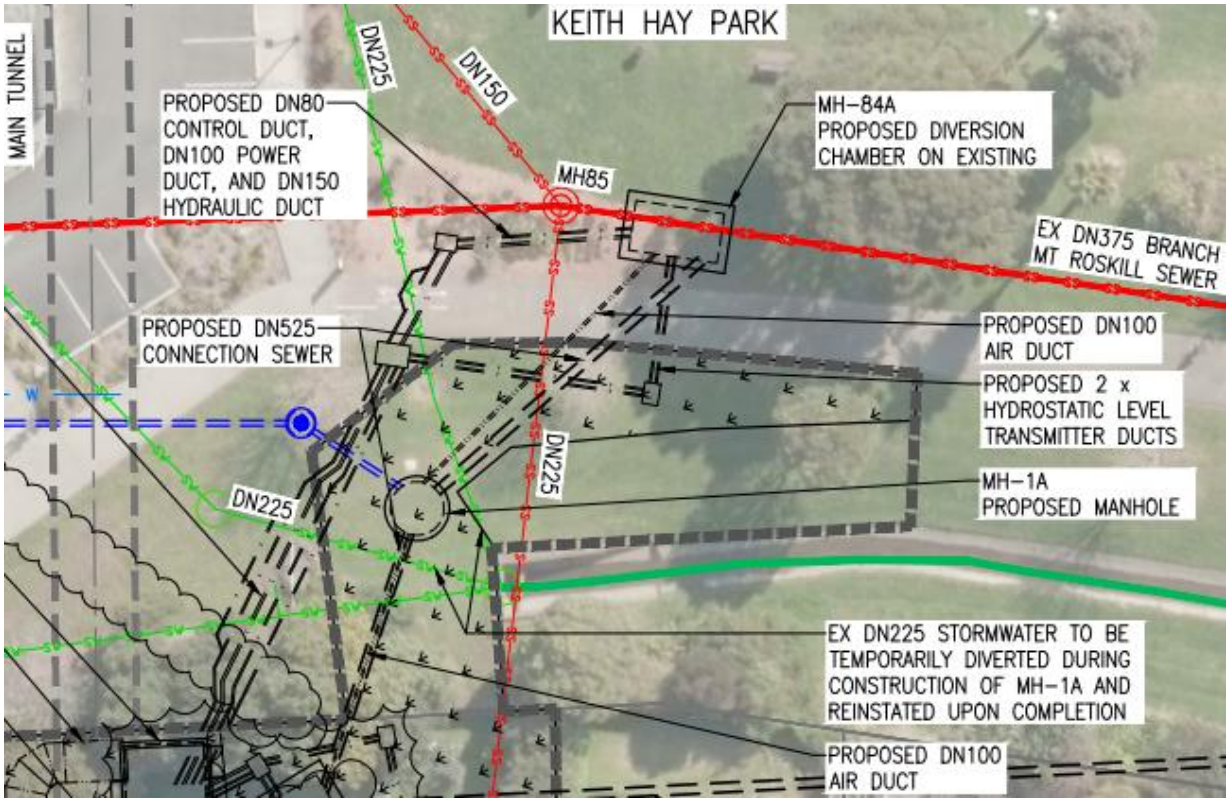

Figure 3.2: Proposed site works showing chamber MH-84A and services. (Source: Watercare, 2021).

[6] Note that design may change (+/- 20%) once construction commences due to unexpected ground conditions or to accommodate other underground services.

4 Resource consent requirements

4.1 Auckland Unitary Plan

The requirements for resource consents are determined by the rules in the AUP. The rules which apply are determined by the zoning of the site, any identified notations in the plan and the nature of the activities proposed. Zoning and planning notations which apply to the site are set out in Table 4.1 and resource consent requirements are identified in Table 4.2 below.

Table 4.1: Zoning and planning notations

Zoning/planning limitation	Comment
Open Space – Sport and Active Recreation Zone	Applies to Keith Hay Park
Designation 9466 – Construction, operation and maintenance of wastewater infrastructure, Watercare	This designation applies to the Keith Hay CI shaft construction site. Although the proposed works are consistent with the purpose of this designation, they are located outside the designation boundaries and therefore the designation cannot be relied upon for these works.
1 per cent annual exceedance probability (AEP) floodplain	Indicates areas predicted to be covered by flood water as a result of a rainstorm event of a scale that occurs on average once every hundred years. Applies across Keith Hay Park.
Overland flow path	Applies across eastern boundary of Keith Hay Park along Oakley Creek.

Table 4.2: Resource consents required

Proposed activity	Rule reference / description	Comment	Activity status
Construction of wastewater infrastructure chamber) within a floodplain	Infrastructure in the 1 per cent AEP floodplain and overland flow path Rule E36.4.1 (A56) – All other infrastructure in areas listed in heading above not otherwise provided for.	The proposed chamber exceeds the 10% increase in width and height of the consented manhole under permitted activity standard E36.6.1.13(i).	Restricted discretionary

Under Rule E36.8.1 (18) AC has restricted its discretion. These matters of discretion are addressed in Section 5 of this report.

AC has advised that consent is required as the chamber exceeds the permitted activity threshold for the upgrading of infrastructure (i.e. a 10% increase in size), despite the chamber being entirely underground and having no potential effects in terms of flooding.

It is also relevant to note that Rules E36.4.1 (A34) and (A35) of Chapter E36 of the AUP provide for a range of activities and structures located within a 1 percent annual exceedance probability (AEP) floodplain as permitted activities well beyond what is proposed in this application[7].

The consent requirement triggered for these proposed works is not a reflection of actual or potential effects (which are negligible - see Section 5), but rather a consequence of plan drafting and interpretation in that the activity is not specifically provided for in the plan provisions.

[7] Including fences and walls (A23), private roads and accessways (A27), and new buildings and structures with a gross floor area of up to 10m^2 (A34) or for flood tolerant activities up to 100m^2 (A35).

4.2 Permitted activities and existing resource consents

Chapter E26 of the AUP establishes a broad range of permitted activities in relation to infrastructure including underground pipelines (A49), manholes (A57) and associated earthworks (A100).

Notwithstanding this, as discussed in Section 1 above, existing designation and regional and district consents already authorise the works associated with CI. This includes wastewater infrastructure at the Keith Hay Park shaft construction site as well as traffic management and the establishment of site construction areas and associated earthworks. Therefore, the proposed works are already provided for under the existing regional and district consents. The consent requirement advised by AC is therefore limited specifically to the location of the chamber in a floodplain.

5 Assessment of effects on the environment

The following assessment identifies and assesses the types of effects that may arise from the proposed works. This assessment also outlines the measures that the applicant proposes to avoid, remedy or mitigate any potential adverse effects on the environment.

As set out in Section 3.2, the scope of this application is very narrow and is limited to the construction of a chamber within a floodplain. This is reflected in the assessment set out below.

5.1 Positive effects

The proposed works contribute to the wider CI project, which has significant numerous positive effects. These include providing network capacity for growth and development, addressing asset risk due to the ageing Western Interceptor and reducing overflows to the stream environment in the catchment it serves.

The CI main works will be integral to the ongoing operation of the wastewater network in Auckland over the next 50 years and beyond. The wastewater network enables the communities of Auckland to provide for their ongoing health and wellbeing and for continued economic growth and development across Auckland. The wastewater network is fundamental to the health and operation of Auckland.

5.2 Flooding effects

Under Rule E36.8.1 (18) of the AUP, AC has restricted its discretion to the matters assessed in Table 5.1 below. For further details regarding flood risk, refer to the Flood Risk Assessment in Appendix C.

Table 5.1: Assessment against matters of discretion

Matters of discretion		Assessment
a	the functional and/or operational need to locate within the hazard area	There is a functional and operational need for the chamber to be located within a floodplain in order to connect to the existing and future (CI) wastewater network.
b i	the risk of adverse effects to other people, property and the environment including all of the following: risk to public health and safety;	There is no change to the existing public health and safety risk from flooding as a consequence of the proposed works.
ii	impacts on landscape values and public access associated with the proposed activity including a need for hard protection structures to be required to protect the utility from the natural hazard;	The proposed works are not located within any notable landscapes or in proximity to any notable landscape features. There are no effects on landscape values. Public access arrangements will not be affected by the proposed works, other than the small area of works during construction.
iii	the management or regulation of other people and property required to mitigate natural hazard risks resulting from the location of the infrastructure;	The proposed works will have no adverse effect in terms of flood risk and therefore no management or regulation of other people or property is required to mitigate natural hazard risk.
iv	the storage or use of hazardous substances in relation to the activity;	Not applicable – storage of hazardous substances will not occur.

v	any exacerbation of an existing natural hazard or creation of a new natural hazard as a result of the structure;	The works proposed are very minor in nature and will involve the placement of a chamber which will be completely underground, with existing ground levels remaining unchanged. Therefore, there will be no exacerbation of an existing natural hazard.
vi	the use of non-structural solutions instead of hard engineering solutions; and	Not applicable to the proposed works.
vii	the ability to relocate or remove structures	The chamber is required as part of wider CI works. It cannot be relocated as it is required to be located on the existing Mt Roskill Branch Sewer.

Table 5.2 contains an assessment of the proposed works against the relevant assessment criteria contained in the AUP.

Table 5.2: Assessment criteria

Relevant Criteria		Assessment
Rule E36.8.2 (17) – for the operation, maintenance, renewal, repair and minor infrastructure upgrading of infrastructure in the coastal erosion hazard area; or in the coastal storm inundation 1 percent annual exceedance probability (AEP) area; or in the coastal storm inundation 1 percent annual exceedance probability (AEP) plus 1m sea level rise area; or in the 1 percent annual exceedance probability (AEP) floodplain; or in overland flow paths; or on land which may be subject to land instability:		
a	the long-term management, maintenance and monitoring of any mechanisms associated with managing the risk of adverse effects resulting from the placement of infrastructure within a hazard area to other people, property and the environment including the management of hazardous substances;	The very minor nature of the works means that no particular long-term management or monitoring is required beyond Watercare's standard procedures. The chamber (MH-84A) will be buried completely underground. There will be no storage of hazardous substances.
b	the extent to which residual risks to people, property and the environment resulting from any mitigation measures implemented to manage the hazard;	There are no residual risks associated with a natural hazard.
c	the extent to which an existing hazard is exacerbated or a new hazard is created as a result of the structure;	MH-84A is buried completely below ground and existing ground levels will not change. The flood level, flows, velocities and overland flow path routes will not change as a consequence of constructing MH-84A and hence there where be no exacerbation of existing flood risk.
d	the extent to which the proposal includes non-structural solutions to protect infrastructure	Not applicable to this application.

Relevant Criteria		Assessment
	from the hazard and resulting adverse effects; and	
e	the extent to which landscape values and/ or public access are affected by the proposed structure or structures associated with the mitigation of the hazard.	The proposed works are not located within any notable landscapes or in proximity to any notable landscape features. There are no anticipated adverse effects on landscape values. Public access arrangement to the park will only be restricted around the small area of works during construction – there will be no long term effects on public access overall once construction is complete.

As discussed above and in the Flood Risk Assessment (Appendix C), the proposed works will not result in any change to existing ground level. Furthermore, there is no measurable increase in impermeable area which would result in additional flood flows. Hence, there are no flooding effects associated with the works (de minimis).

5.3 Conclusion

As is typical in relation to wastewater infrastructure, Watercare has taken into account the natural hazard (floodplain) in the design of the chamber. Watercare considers that the hazard will have no impact on the resilience of the infrastructure.

As discussed above, the proposed works will have no effects on flood risk and more broadly will have significant positive effects in relation to improving wastewater infrastructure in Auckland as part of the wider CI project.

6 Statutory assessment

6.1 RMA assessment

Section 104 of the RMA sets out the matters to which a consent authority must have regard to, subject to Part 2 of the RMA, when considering an application for resource consent. These include:

- Any actual and potential effects on the environment of allowing the activity (refer Section 5 above);
- Any relevant provisions of:
  - a national environmental standard;
  - a national policy statement;
  - the AUP; and
- Any other matter the consent authority considers relevant and reasonably necessary to determine the application.

6.1.1 Part 2 of the RMA

Part 2 of the RMA sets out the purpose and principles of the Act. The purpose of the RMA is to promote the sustainable management of natural and physical resources. The AUP has been prepared recently and is clear and directive, and clearly deals with Part 2 subject matter such that recourse to Part 2 is not likely to add anything to the assessment.

6.2 National Environmental Standards

The Resource Management (National Environmental Standards for Freshwater) Regulations 2020 regulates activities that pose risks to the health and freshwater and freshwater ecosystems. The standards relate to activities related to streamworks, intensive irrigation and the discharge of sediment to waterways. There are no applicable standards relevant to this application.

The requirements of the Resource Management (National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health) Regulations 2011 have previously been addressed through the CI resource consents and associated conditions.

6.3 National Policy Statements

The National Policy Statement for Freshwater Management 2020 (NPS-FM) provides guidance on how freshwater is to be managed in a manner that gives effect to Te Mana o te Wai.

As discussed in Section 5, the proposed works will contribute to the wider CI project, which will include positive effects such as reducing overflows to the stream environment. The proposed works are considered consistent with the overall objective of the NPS-FM, in terms of providing firstly for the health of freshwater ecosystems as well as the social, economic and cultural well-being of communities.

6.4 Auckland Unitary Plan policy assessment

An assessment against key relevant objectives and policies of the AUP is set out in Table 6.1 below.

Table 6.1: Objectives and policies assessment

Reference	Comment
Chapter B3 – Infrastructure, transport and energy	
B3.2.1 Objective (2) The benefits of infrastructure are recognised, including: a Providing essential services for the functioning of communities, businesses and industries within and beyond Auckland; ….. d Providing for public health, safety and the well-being of people and communities	The proposed works will contribute to the wider CI project – regionally significant infrastructure which will directly support the social, economic, environmental and cultural wellbeing of communities within Auckland.
B3.2.2 Policy (1) – Enable the efficient development, operation, maintenance and upgrading of infrastructure	The proposed works are required in order to provide a chamber as part of the CI wastewater infrastructure upgrade.
B3.2.2 Policy (9) – Ensure where there is a functional or operational need for infrastructure to be located in areas subject to natural hazards: …. b That risk that cannot be avoided by location or design should be mitigated to the extent possible	The proposed works have a functional and operational need to be located in the floodplain in order to connect to existing wastewater infrastructure. As discussed in Section 5, adverse effects on flood risk are considered to be de minimis (no effects).
Chapter E26 – Infrastructure	
E26.2.1 Objective (4) – Development, operation, maintenance, repair, replacement, renewal, upgrading and removal of infrastructure is enabled.	The proposed works are required in order to provide for wastewater infrastructure (specifically a chamber).
E26.2.1 Policy (2) – Provide for the development, operation, maintenance, repair, upgrade and removal of infrastructure throughout Auckland by recognising: a Functional and operational needs; b Location, route and design needs and constraints; c The complexity and interconnectedness of infrastructure services; d The benefits of infrastructure to communities within Auckland and beyond.	The proposed works have a functional and operational need to be located in a floodplain in order to connect to the wastewater network. The proposed works contribute to the wider CI project, which will have numerous benefits in terms of providing an improved wastewater network for the communities within Auckland.
Chapter E36 – Natural hazards and flooding	
E36.2 Objective (4) - Where infrastructure has a functional or operational need to locate in a natural hazard area, the risk of adverse effects to other people, property, and the environment shall be assessed and significant adverse effects are sought first to be avoided or, if avoidance is not able to be totally achieved, the residual effects are otherwise mitigated to the extent practicable.	The proposed works have a functional and operational need to be located in a floodplain, due to the location of the existing infrastructure. Adverse effects on flood risk have been assessed and are considered to be de minimis (no effects).

6.5 Non-notification assessment

Section 95A of the RMA is relevant when a consent authority is considering whether a consent application should be considered with or without public notification.

Section 95A identifies a four step process. In relation to these steps we note the following:

- The applicant does not request public notification of the application;
- There is no rule or national environmental standard that precludes or requires public notification of this application;
- An assessment of effects on the environment is provided in Section 5 of this AEE report. This assessment concludes that the adverse effects on the environment are less than minor; and
- No special circumstances are considered to exist in relation to the application.

Based on this assessment, we consider that this proposal meets the tests of the RMA to be processed without public notification.

For applications that are not publicly notified, under section 95B, the consent authority must determine whether to give limited notification of an application to any affected parties. Section 95B identifies a four step process. In relation to these steps we note the following:

- The application does not need to be notified to any parties under section 95B(4). The proposed change will not affect any customary rights;
- The proposed activity is not on or adjacent to, or does not affect, land that is the subject of a statutory acknowledgement;
- There are no applicable rules or national environmental standards precluding limited notification; and
- No special circumstances are considered to exist that warrant limited notification.

In terms of section 95E(1), the application is limited to the placement of an underground chamber within a floodplain. The chamber is a very minor component of the wider CI project which was publicly notified. This included works at Keith Hay Park including a connection to the existing manhole MH84 which is located outside of the designation in the location of the proposed chamber (refer Figures 3.1 and 3.2). The physical works, including earthworks outside of designation 9466, are already provided for under district and regional land use (earthworks) consents. As the chamber and associated services are located below ground level and there are no flooding-related effects, there are no adversely affected parties.

No person is considered to be adversely affected by the application and the proposal therefore meets the tests of the RMA to be processed without limited notification.

Following the steps set out in sections 95A and 95B, we consider that the application should be processed without public or limited notification.

7 Conclusion

This AEE report has been prepared on behalf of Watercare Services Ltd to accompany a resource consent application to AC to authorise wastewater infrastructure in a floodplain under Rule E36.4.1 (A56) of AUP.

The works are very minor in nature and the scope of this application is limited only to the placement of a chamber within a floodplain. The works will have no effects in terms of flood risk and are consistent with the relevant objectives and policies of the AUP. As the structure is entirely below ground and will not result in any change to existing ground levels, there will be no change to the function of the floodplain or any overland flow paths.

Accordingly, we consider that this resource consent application should be granted on a non-notified basis, subject to fair and reasonable conditions.

8 Applicability

This report has been prepared for the exclusive use of our client Watercare Services Limited, with respect to the particular brief given to us and it may not be relied upon in other contexts or for any other purpose, or by any person other than our client, without our prior written agreement.

We understand and agree that this report will be submitted to Auckland Council in support of an application for resource consent for the works described herein, and that Auckland Council will rely on this report for the purpose of assessing that application.

Tonkin & Taylor Ltd

Environmental and Engineering Consultants

Report prepared by:	Authorised for Tonkin & Taylor Ltd by:
	
.....	.....
Laila Alkamil	Karen Baverstock
Planner	Project Director

11-Jan-21

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Appendix A: Record of Title

RECORD OF TITLE
UNDER LAND TRANSFER ACT 2017
FREEHOLD

Search Copy

R.W. Muir
Registrar-General
of Land

Part-Cancelled

Identifier	**NA8D/230**
Land Registration District	**North Auckland**
Date Issued	19 May 1966

Prior References
NA1644/26

Estate	Fee Simple
Area	15.7802 hectares more or less
Legal Description	Allotment 77 Section 13 Suburbs of Auckland
Purpose	Recreation reserve

Registered Owners
Auckland Council

Interests

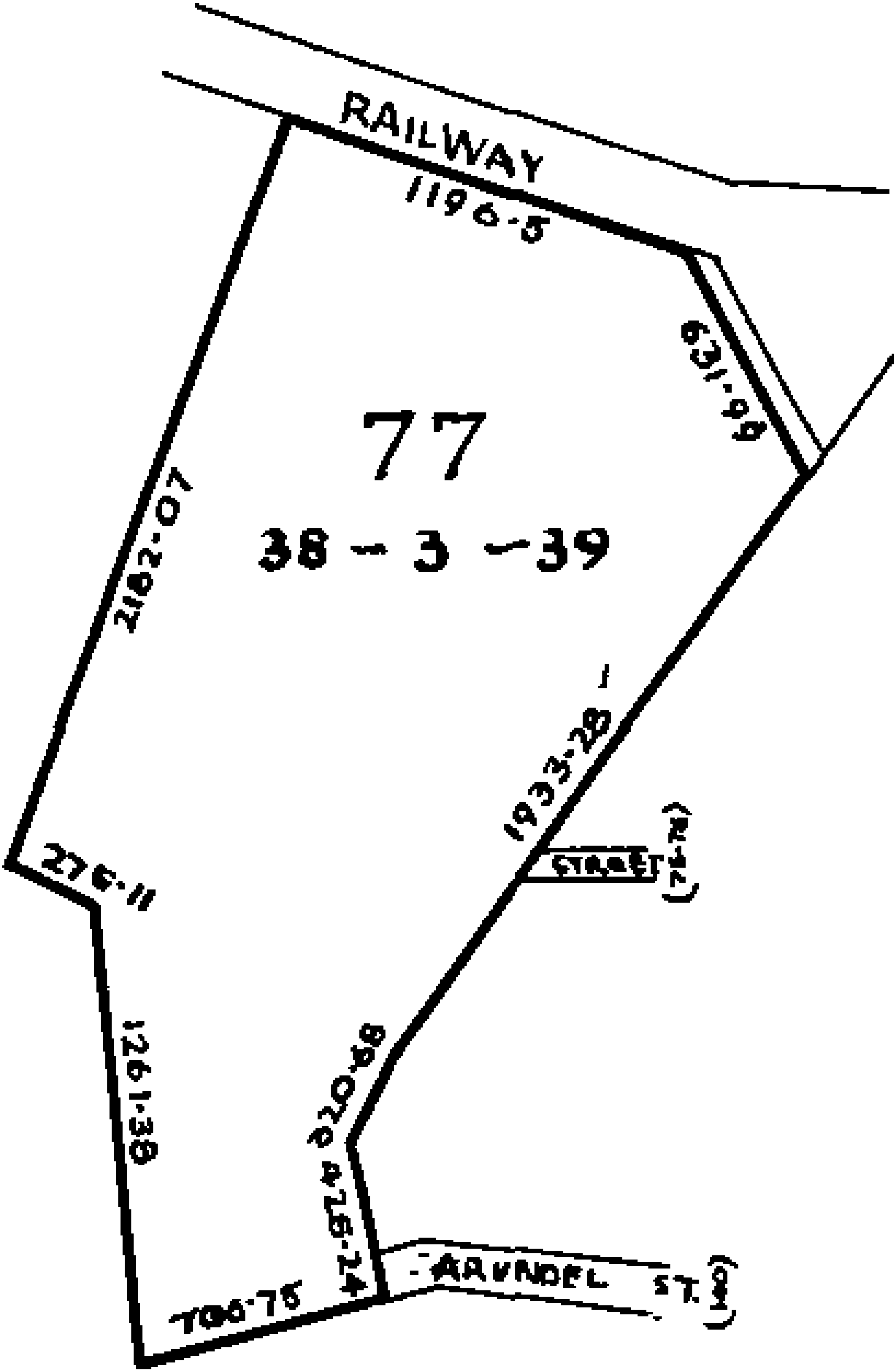
Subject to Section 59 Land Act 1948

SUBJECT TO THE RESERVES AND DOMAINS ACT 1953

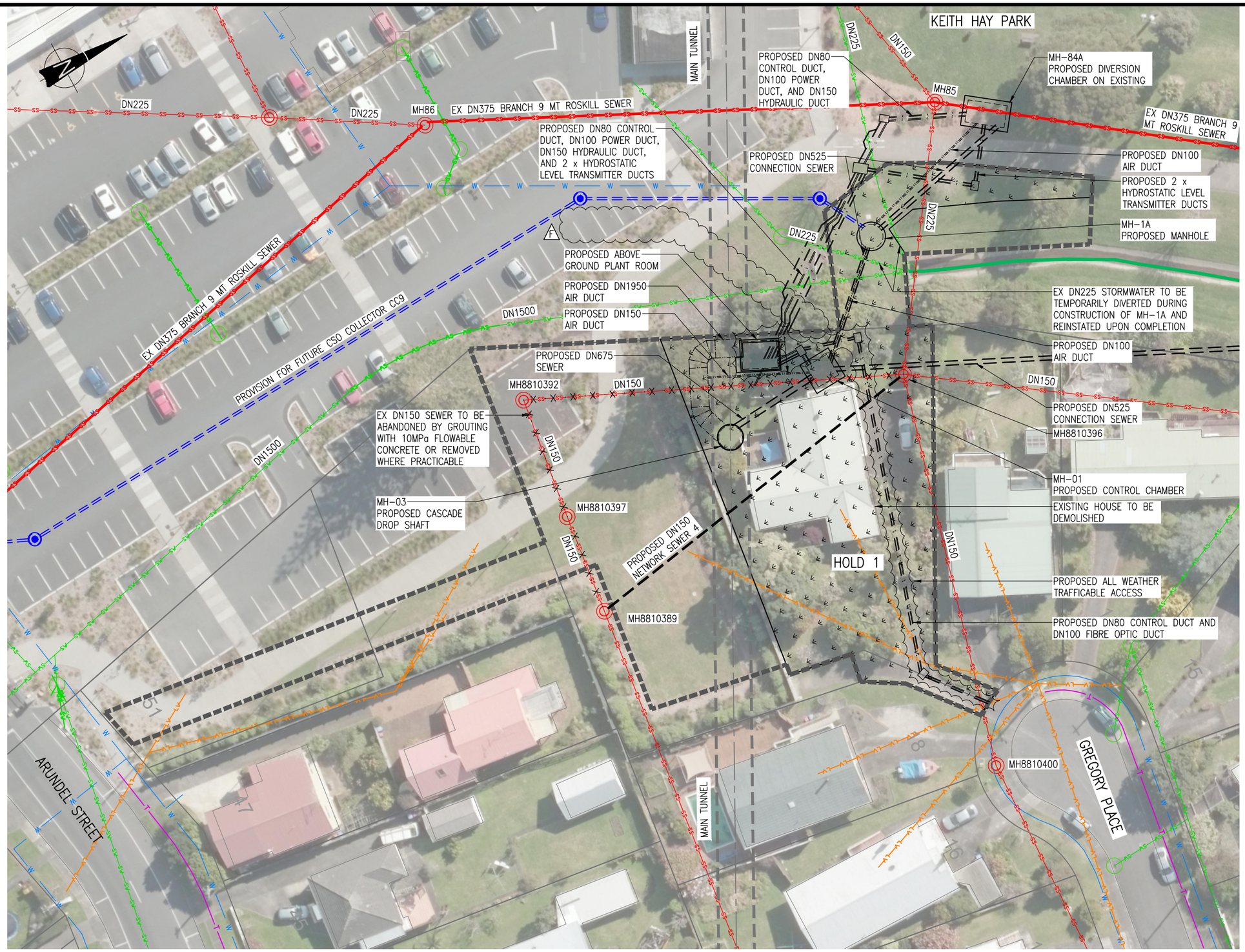
8618489.2 Gazette Notice (2010/2913) declaring part within land now know as Section 71 SO 421535 (7705m²) to be road, which pursuant to Section 5 Land Transport Management Act 2003, forms part of State Highway 20 and vests in Her Majesty The Queen - 20.10.2010 at 4:18 pm

Subject to a right (in gross) to convey electricity over parts marked A and B on DP 479126 in favour of Vector Limited created by Easement Instrument 10853240.1 - 4.10.2017 at 9:57 am

Subject to a right (in gross) to convey electricity over part marked A on DP 459146 in favour of Vector Limited created by Easement Instrument 10853194.1 - 21.9.2018 at 8:13 am


RAILWAY
1196·5
631·99
77
38 – 3 – 39
2182·07
1933·28
STREET
275·11
1261·38
820·68
475·24
700·75
ARUNDEL ST.

Appendix B: Drawings



NOTES:

1. CO-ORDINATES ARE IN NZTM AND LEVELS ARE TO AUCKLAND L&S 1946 DATUM.
2. LOCATION OF EXISTING SERVICES HAVE BEEN EXTRACTED FROM AUCKLAND COUNCIL GIS AND UTILITIES PLANS AND ARE INDICATIVE. PHYSICAL LOCATION OF AFFECTED SERVICES WILL BE REQUIRED PRIOR TO CONSTRUCTION. ALL AFFECTED SERVICES SHALL BE PROTECTED DURING CONSTRUCTION.
3. THIS SET OF DRAWINGS IS TO BE READ IN CONJUNCTION WITH DRAWING SERIES 2011825 AND 2011816.

LEGEND

- PROPOSED MAIN TUNNEL
- PROPOSED LINK SEWER
- FUTURE CSO COLLECTOR SEWER AND MANHOLE
- PROPOSED SEWERAGE
- PROPOSED STORMWATER
- PROPOSED POWER/CONTROL DUCT
- SW — EXISTING STORMWATER
- EXISTING STORMWATER STREAM
- SS — EXISTING NETWORK WASTEWATER
- SS SS SS — EXISTING TRANSMISSION WASTEWATER
- W — EXISTING WATERMAIN
- LV — LV POWER CABLE
- HV — HV POWER CABLE
- MV — MV POWER CABLE
- FIBRE OPTIC CABLE
- TRANSPOWER LINE
- VECTOR TRANSMISSION LINE
- COMM CABLES
- T — TELECOM
- GAS — GAS LINE
- X X X — TO BE ABANDONED
- EXISTING SEWER PREVIOUSLY ABANDONED
- DESIGNATION BOUNDARY
- PROPOSED ALL WEATHER TRAFFICABLE ACCESS
- PROPOSED AIR DUCT

HOLDS:

1. SCOPE OF PLANT ROOM AND CONNECTING DUCTS TO BE CONFIRMED BY THE EMPLOYER.
2. DELETED.

PLAN
SCALE. 1:250 (A1)

SCALE 1:250 (A1) 0 5 10 15 20 25m

CONSTRUCTION ISSUE

JACOBS AECOM McMILLEN JACOBS ASSOCIATES

ISSUE	DATE	AMENDMENT	BY	APPD.
F	23.10.20	IFC – ASSET TAG NUMBERS UPDATED	WIS	CW
E	29.05.20	REVISED CONSTRUCTION ISSUE	SS	CW
D	15.05.20	REVISED CONSTRUCTION ISSUE	SS	CW
C	28.04.20	REVISED CONSTRUCTION ISSUE	SS	EB
B	06.11.19	REVISED CONSTRUCTION ISSUE	SS	EB
A	07.06.19	CONSTRUCTION ISSUE	PMF	EB

DESIGNED	CW	12.15
DES. CHECKED	DJK	12.15
DRAWN	AP	04.15
DWG. CHECKED	CW	12.15
PROJECT LEADER	NK	08.17
INFRAST'R APP'D	SG	08.17
	BY	DATE

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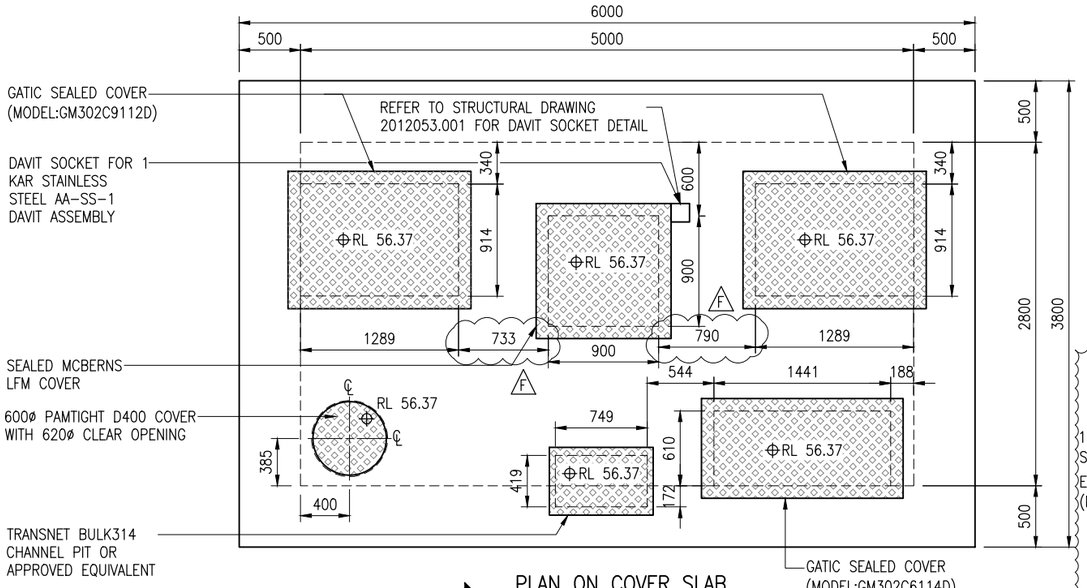
KEITH HAY PARK – CENTRAL INTERCEPTOR (DSCIN)
00 SITE GENERAL
PROPOSED SITE LAYOUT – SHEET 1 OF 2

CAD FILE 2011805.005	DATE 23.10.20
ORIGINAL SCALE A1 AS SHOWN	CONTRACT No. 6661
REF. No. CI-CIVIL	ISSUE
DWG. No. 2011805 .005	F

Plot Date: Nov 13, 2020 - 12:16pm C:\users\pfan\appdata\local\projectwise\watercare_ltd_projects\dms52389\ 2011805.005.dwg



PLAN ON COVER SLAB
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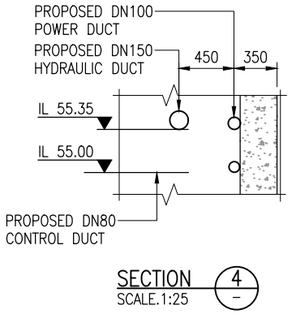
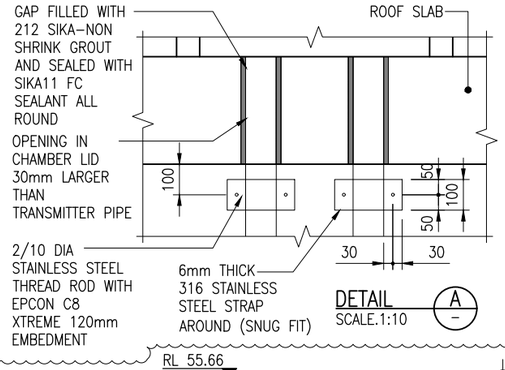
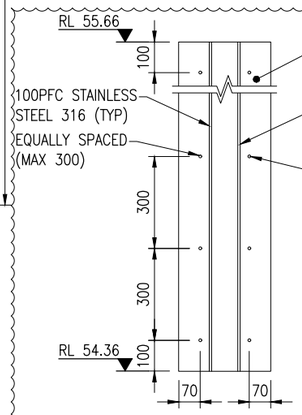


SECTION 4
SCALE.1:25



DETAIL A
SCALE.1:10



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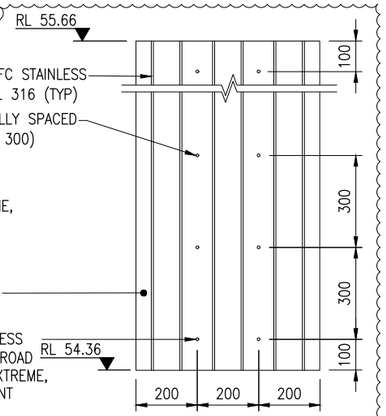

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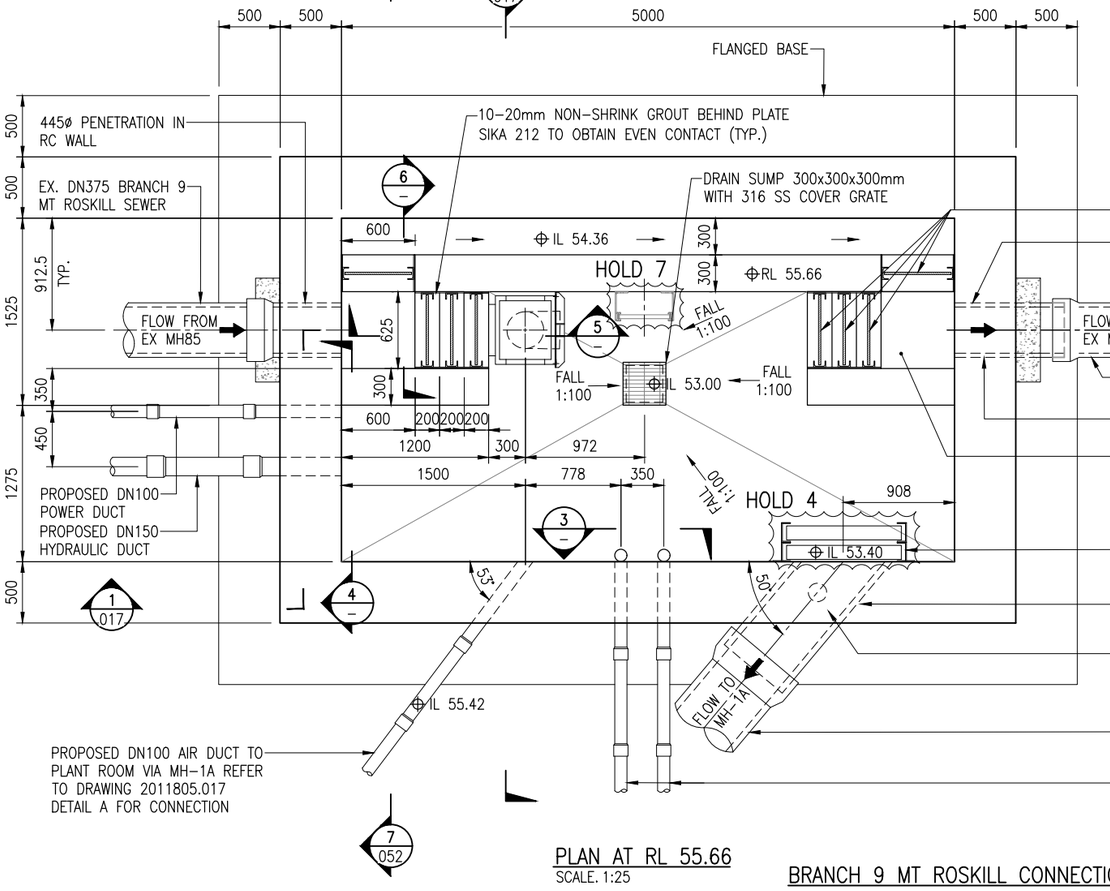
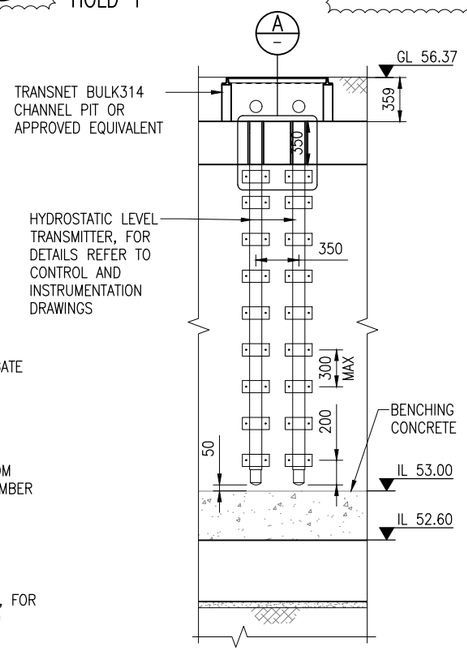
HOLD 1



PLAN AT RL 55.66
SCALE. 1:25



SECTION 3
SCALE.1:25

BRANCH 9 MT ROSKILL CONNECTION SEWER A

NOTES:

1. ALL LEVELS ARE IN METRES AND DIMENSIONS IN MILLIMETRES UNLESS OTHERWISE STATED.
2. CONCRETE COVER SLAB ON MANHOLES AND CHAMBERS SHALL BE HN-HO-72 RATED.
3. REFER TO WATERCARE STANDARD DRAWING 2000244.003 FOR DETAILS OF GALVANISED STEEL ACCESS LADDER.
4. DELETED.
5. BENCHING FALL SHALL BE 1:12 UNLESS OTHERWISE STATED.
6. DELETED.
7. ALL INTERNAL AND EXTERNAL CONCRETE ANGLES SHALL HAVE 25mm CHAMFERS OR FILLETS UNLESS OTHERWISE STATED.
8. REFER TO WATERCARE STANDARD DRAWINGS 2000244.001 TO 2000244.044 FOR GENERAL MANHOLE DETAILS.
9. REFER TO WATERCARE STANDARD DRAWING 2000244.014 FOR PIPE CONNECTION DETAILS AND DRAWING 2011805.033 FOR ROCKER PIPE DETAILS.
10. STOP LOG RAILS TO EXTEND TO UNDERSIDE OF COVER SLAB.
11. ALL FIXINGS TO BE 316 STAINLESS STEEL AND INSTALLED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS UNLESS OTHERWISE STATED.
12. ALL WELDED STEEL WORK TO BE 316 STAINLESS STEEL UNLESS OTHERWISE STATED.
13. ALL COVERS TO BE BOLT-DOWN TYPE WITH IN-BUILT SAFETY GRILLE FEATURE.

HOLDS:

1. STOP LOG DIMENSIONS AND INSTALLATION DETAILS TO BE CONFIRMED BY CONTRACTOR DURING PROCUREMENT AND DESIGN OF STOP LOGS.
2. GATE DIMENSIONS AND INSTALLATION DETAILS TO BE CONFIRMED BY CONTRACTOR DURING PROCUREMENT AND DESIGN OF GATE.
3. PVC DUCT SIZES TO BE CONFIRMED UPON SELECTION OF GATE TYPE.
4. ALL GATE DIMENSIONS ARE BASED ON FONTAINE FABRICATED STAINLESS SLIDE GATES FOR DESIGN PURPOSES. FINAL GATE IS SUBJECT TO ENGINEER'S ACCEPTANCE.
5. FINAL SIZE OF COVERS AND FRAMES FOR STOP LOGS AND CONTROL GATES SUBJECT TO CONFIRMATION OF STOP LOG AND CONTROL GATE DIMENSIONS.
6. DELETED.
7. PORTABLE LADDER AND FIXING DETAIL TO BE CONFIRMED BY THE EMPLOYER.

SCALE 1:5 (A1) 0 100 200 300 400 500mm
100 50
SCALE 1:25 (A1) 0 500 1000 1500 2000 2500mm
500

CONSTRUCTION ISSUE

JACOBS AECOM McMILLEN JACOBS ASSOCIATES

ISSUE	DATE	AMENDMENT	BY	APPD.
F	02.12.20	IFC – COVER SLAB DIMENSIONS ADDED, AS INDICATED	PMF	DJK
E	23.10.20	IFC – ASSET TAG NUMBERS UPDATED, REVISED AS SHOWN	WIS	CW
D	29.05.20	REVISED CONSTRUCTION ISSUE	SS	CW
C	15.05.20	REVISED CONSTRUCTION ISSUE	SS	CW
B	28.04.20	REVISED CONSTRUCTION ISSUE	SS	EB
A	25.10.19	CONSTRUCTION ISSUE	SK	EB

DESIGNED	CW	12.15	
DES. CHECKED	DJK	12.15	
DRAWN	RLH	09.15	
DWG. CHECKED	CW	12.15	
PROJECT LEADER	NK	08.17	
INFRAST'R APP'D	SG	08.17	
	BY	DATE	

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KEITH HAY PARK – BRANCH 9 MT. ROSKILL (DSB09) 82 GRAVITY SEWER INCLUDING MANHOLES

MH-84A DIVERSION CHAMBER – PLANS AND DETAILS – SHEET 1 OF 2

CAD FILE 2011805.016	DATE 02.12.20
ORIGINAL SCALE A1 AS SHOWN	CONTRACT No. 6661
REF. No. CI-CIVIL	ISSUE
DWG. No. 2011805 .016	F

Plot Date: Dec 02, 2020 - 9:33am

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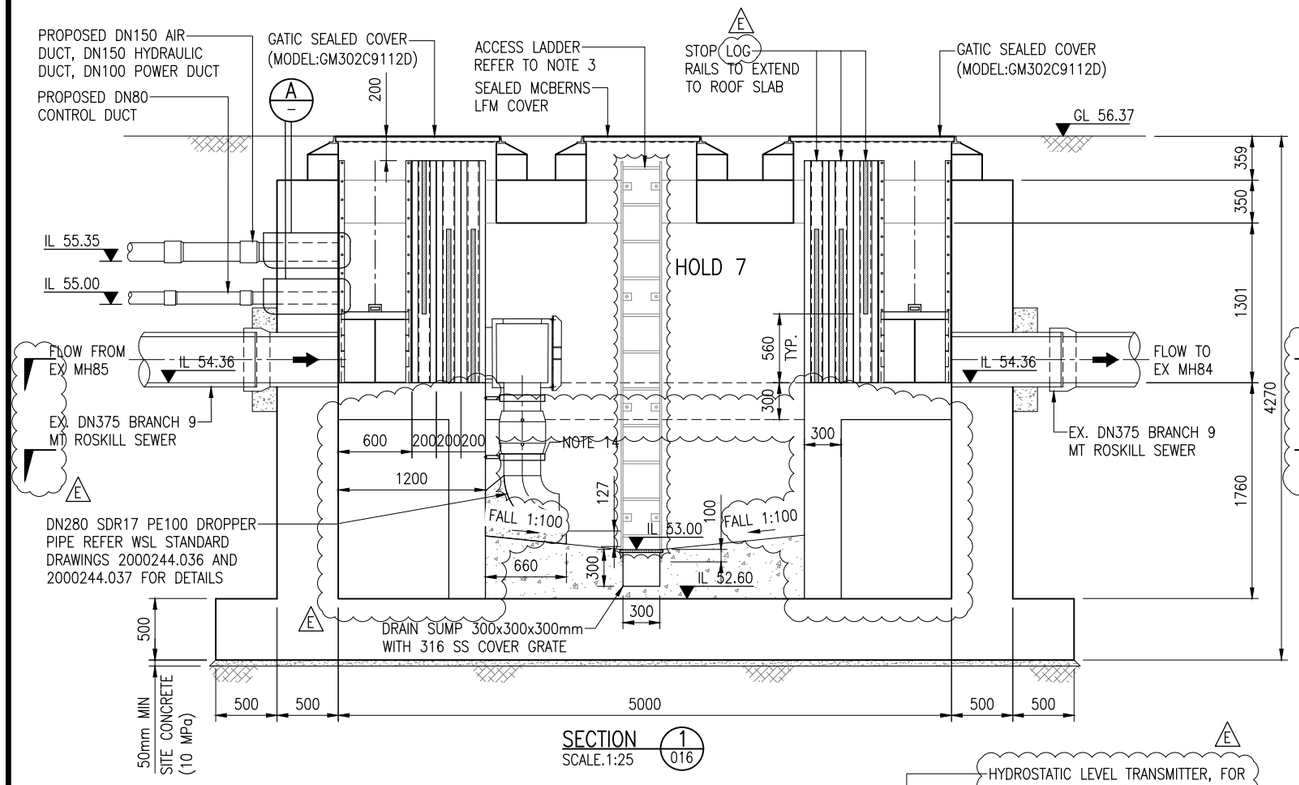

SECTION 1 / 016
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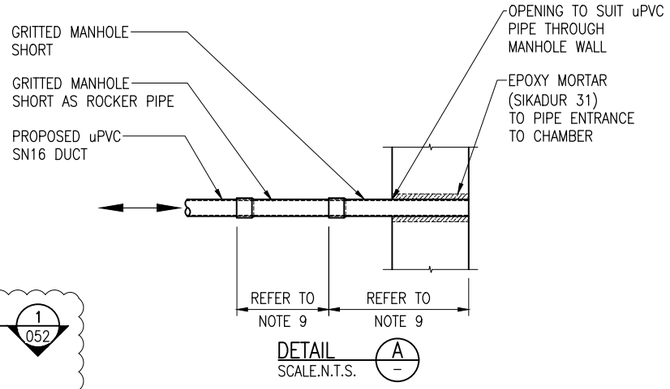
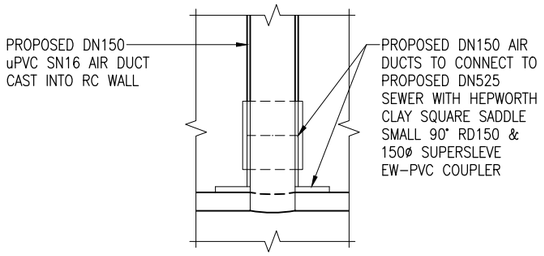


DETAIL A / – SCALE.N.T.S.

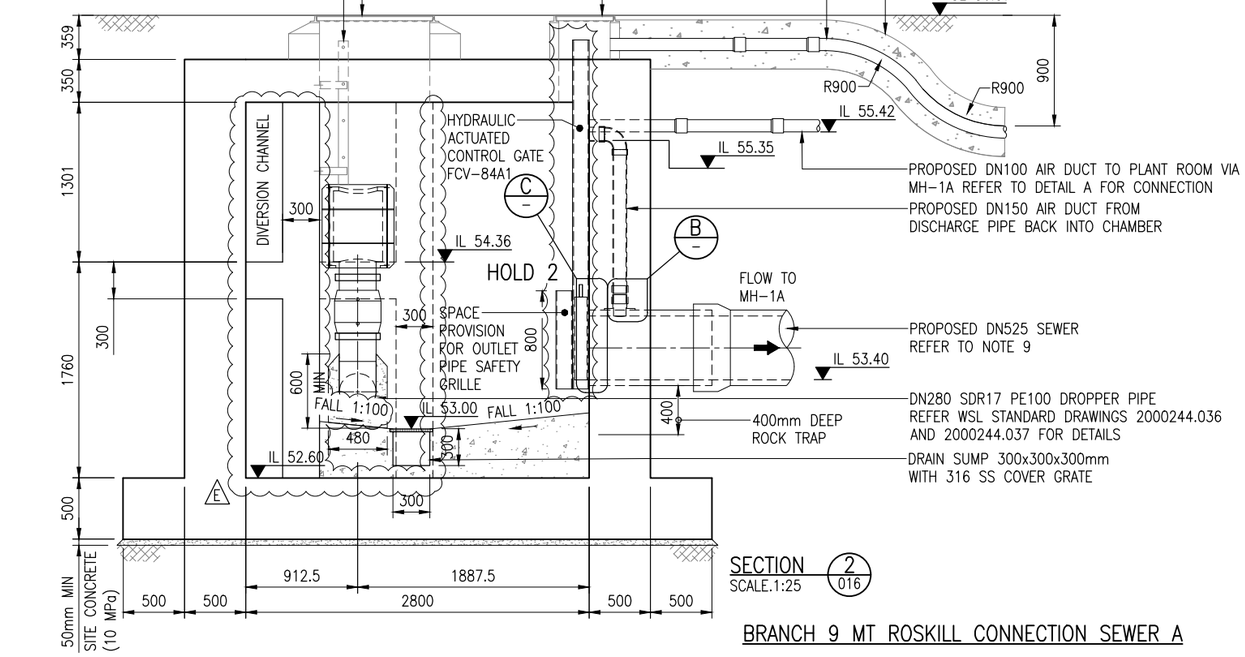
TYPICAL uPVC DUCT CONNECTION



DETAIL B / – SCALE.1:10

NOTES:

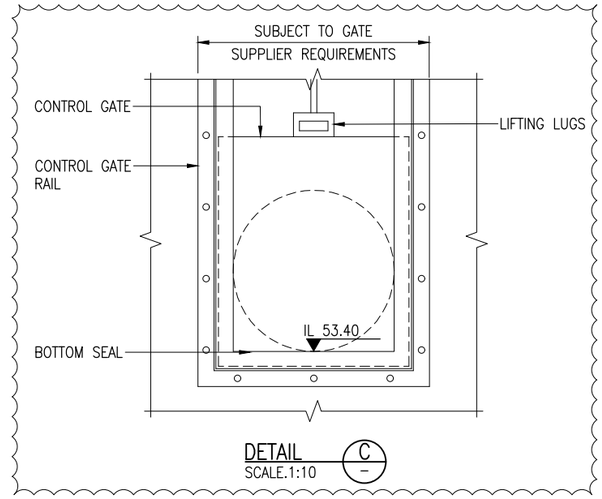
1. ALL LEVELS ARE IN METRES AND DIMENSIONS IN MILLIMETRES UNLESS OTHERWISE STATED.
2. CONCRETE COVER SLAB ON MANHOLES AND CHAMBERS SHALL BE HN-HO-72 RATED.
3. REFER TO WATERCARE STANDARD DRAWING 2000244.003 FOR DETAILS OF GALVANISED STEEL ACCESS LADDER.
4. DELETED. E
5. BENCHING FALL SHALL BE 1:12 UNLESS OTHERWISE STATED.
6. DELETED.
7. ALL INTERNAL AND EXTERNAL CONCRETE ANGLES SHALL HAVE 25mm CHAMFERS OR FILLETS UNLESS OTHERWISE STATED.
8. REFER TO WATERCARE STANDARD DRAWINGS 2000244.001 TO 2000244.044 FOR GENERAL MANHOLE DETAILS.
9. REFER TO WATERCARE STANDARD DRAWING 2000244.014 FOR PIPE CONNECTION DETAILS AND DRAWING 2011805.033 FOR ROCKER PIPE DETAILS.
10. STOP LOG RAILS TO EXTEND TO UNDERSIDE OF COVER SLAB. E
11. ALL FIXINGS TO BE 316 STAINLESS STEEL AND INSTALLED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS UNLESS OTHERWISE STATED.
12. ALL WELDED STEEL WORK TO BE 316 STAINLESS STEEL UNLESS OTHERWISE STATED.
13. ALL COVERS TO BE BOLT-DOWN TYPE WITH IN-BUILT SAFETY GRILLE FEATURE. E
14. 100mm DEEP 316 SS PLATE 10mm THICK AT 1000mm CENTRES CONNECTED TO MANHOLE WALL WITH 2x12DIA. HIT-Z-R HILTI BOLTS, 80mm EMBEDMENT DEPTH, 14mm DRILL BIT, HILTI-HIT RE 500.



SECTION 2 / 016
SCALE.1:25

BRANCH 9 MT ROSKILL CONNECTION SEWER A

HOLD 4



DETAIL C / – SCALE.1:10

HOLDS:

1. STOP LOG DIMENSIONS AND INSTALLATION DETAILS TO BE CONFIRMED BY CONTRACTOR DURING PROCUREMENT AND DESIGN OF STOP LOGS. E
2. GATE DIMENSIONS AND INSTALLATION DETAILS TO BE CONFIRMED BY CONTRACTOR DURING PROCUREMENT AND DESIGN OF GATE.
3. PVC DUCT SIZES TO BE CONFIRMED UPON SELECTION OF GATE TYPE.
4. ALL GATE DIMENSIONS ARE BASED ON FONTAINE FABRICATED STAINLESS SLIDE GATES FOR DESIGN PURPOSES. FINAL GATE IS SUBJECT TO ENGINEER'S ACCEPTANCE.
5. FINAL SIZE OF COVERS AND FRAMES FOR STOP LOGS E AND CONTROL GATES SUBJECT TO CONFIRMATION OF STOP LOG E AND CONTROL GATE DIMENSIONS.
6. DELETED.
7. PORTABLE LADDER AND FIXING DETAIL TO BE CONFIRMED BY THE EMPLOYER.

SCALE 1:10 (A1) 0 200 400 600 800 1000mm
200 100

SCALE 1:25 (A1) 0 500 1000 1500 2000 2500mm
500

CONSTRUCTION ISSUE

JACOBS AECOM McMILLEN JACOBS ASSOCIATES

ISSUE	DATE	AMENDMENT	BY	APPD.
E	23.10.20	IFC – ASSET TAG NUMBERS UPDATED, REVISED AS SHOWN	WIS	CW
D	29.05.20	REVISED CONSTRUCTION ISSUE	SS	CW
C	15.05.20	REVISED CONSTRUCTION ISSUE	SS	CW
B	28.04.20	REVISED CONSTRUCTION ISSUE	SS	EB
A	25.10.19	CONSTRUCTION ISSUE	SK	EB

		BY	DATE
DESIGNED	CW		12.15
DES. CHECKED	DJK		12.15
DRAWN	AP		04.15
DWG. CHECKED	CW		12.15
PROJECT LEADER	NK		08.17
INFRAST'R APP'D	SG		08.17

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KEITH HAY PARK – BRANCH 9 MT. ROSKILL (DSB09) 82 GRAVITY SEWER INCLUDING MANHOLES

MH-84A E DIVERSION CHAMBER – SECTIONS

CAD FILE 2011805.017	DATE 23.10.20
ORIGINAL SCALE A1 AS SHOWN	CONTRACT No. 6661
REF. No. CI-CIVIL	ISSUE
DWG. No. 2011805 .017	E

Plot Date: Nov 04, 2020 - 12:03pm C:\users\cheesea\documents\working project-wise\dms52389\ 2011805.017.dwg

Appendix C: Flood Risk Assessment

Memorandum

To: Xenia Meier

From: Tess Gillham
Reviewed: Lucy Ferris

CC:

Subject: Central Interceptor Keith Hay Park MH-84A Flood Risk Assessment

Doc. Ref: JNZ-WSL-CIP-TM-0000043

Date: 18 December 2020

Introduction

As part of the Central Interceptor project, it is proposed to build a new chamber (MH-84A) to divert flows from the existing Mt Roskill Branch Sewer to the Central Interceptor tunnel at Keith Hay Park.

MH-84A is located within a large flood plain and is positioned near Oakley Creek.

Flooding and Overland Flow Path

The Central Interceptor Keith Hay Park site is located within the Oakley catchment. The flood mapping shown on Auckland Council Geomaps dates from 2016.

The modelled flood maps show cross section 54 passes next to MH-84A as shown on Figure 1.

The modelled Maximum Probable Development flood levels and flow rates for cross section 54 are summarised in Table 1.

Table 1 – Cross Section 54 Flood Levels and Flow Rates

100 yr. Flow Max	10 yr. Flow Max	100 yr. Water Level	10 yr. Water Level
m^3/s	m^3/s	mRL	mRL
35.9	37.4	56.9	56.5

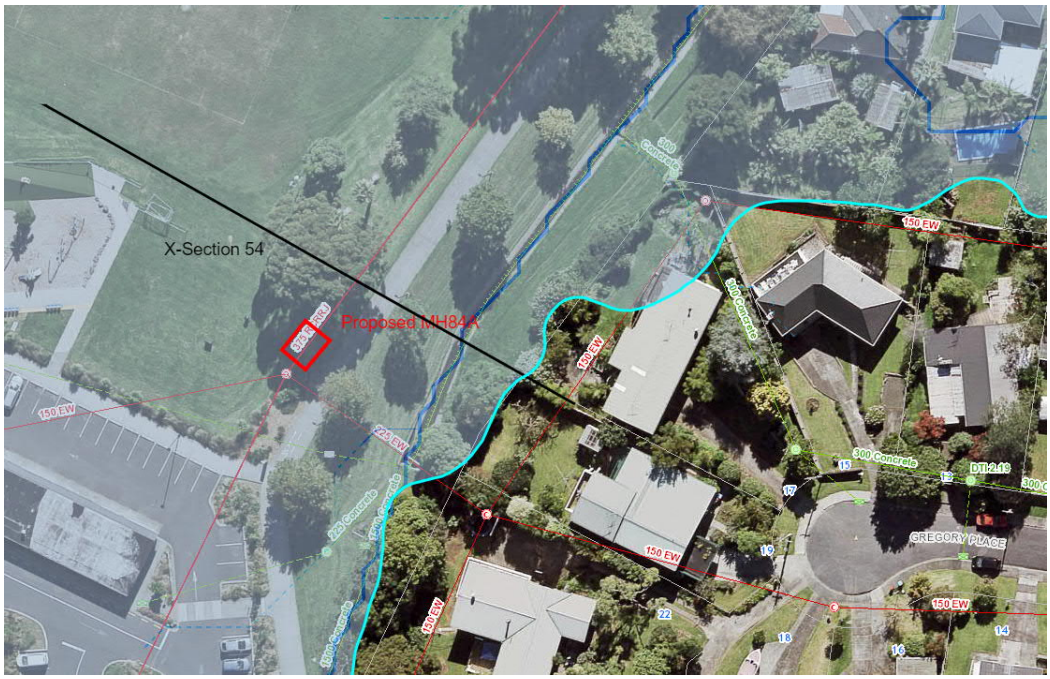

Figure 1 – Flood Extents

Proposed MH-84A

MH-84A is a new chamber that will be constructed over the existing Mt Roskill Branch Sewer. MH-84A will enable diversion of Mt Roskill Branch Sewer flows to the new Central Interceptor tunnel at Keith Hay Park. MH-84A will be located within Keith Hay Park.

MH-84A will be buried approximately 360mm below the existing ground level. Six new access hatches will be constructed to allow for future maintenance access. These access hatches will be visible from the ground surface and will be flush with the existing ground level. The surface will be reinstated with topsoil and grass.

There is no proposed above ground infrastructure and there is no proposed change to the existing ground levels.

The proposed access hatch level is 56.37mRL, which is below both the 10-year and 100-year Maximum Probable Development flood levels.

Risk Hazard Assessment

A risk assessment for constructing MH-84A within the flood plain is summarised below in Table 2.

Table 2 – Risk Mitigation

Risk	Mitigation Response
The risk of adverse effects to other people, property, and the environment	There is no increased adverse risk to other people, property, and the environment. MH-84A will be buried completely belowground and existing ground levels will not change. Hence the flood level, flows, and velocities will not change as a consequence of constructing MH-84A. MH-84A will only be accessed occasionally by Watercare maintenance workers. They will not attempt to gain access during a flood storm event.
The risk to public health and safety	There is no change to the existing public health and safety risk from flooding as a consequence of constructing MH-84A
The management or regulation of other people and property required to mitigate natural hazard risks resulting from the location of the infrastructure	There is no change to the flooding risk as a consequence of building MH-84A, hence no mitigation is required.
Any exacerbation of an existing natural hazard or creation of a new natural hazard as a result of the structure	MH-84A will be buried completely belowground and existing ground levels will not change. Hence the flood level, flows, and velocities will not change as a consequence of constructing MH-84A.
The ability to relocate or remove structures	Not applicable. MH-84A is located belowground, above the existing Mt Roskill Branch Sewer. MH-84A must be constructed in this location to allow diversion of Mt Roskill Branch Sewer flows to the Central Interceptor tunnel.
The long-term management, maintenance, and monitoring of any mechanisms associated with managing the risk of adverse effects resulting from the placement of infrastructure within a hazard area to other people, property, and the environment, including the management of hazardous substances	Not applicable. Storage of hazardous substances at MH-84A will not occur. MH-84A is completely belowground.
Subdivision, use, and development, including redevelopment, is managed to	MH-84A is buried completely belowground and existing ground levels

safely maintain the conveyance function of floodplains and overland flow paths	will not change. Hence the flood level, flows and velocities will not change as a consequence of constructing MH-84A.
Where infrastructure has a functional or operational need to be located in a natural hazard area, the risk of adverse effects to other people, property, and the environment shall be assessed and significant adverse effects are sought first to be avoided or, if avoidance is not able to be totally achieved, the residual effects are otherwise mitigated to the extent practicable.	MH-84A is located belowground, above the existing Mt Roskill Branch Sewer. MH-84A must be constructed in this location to allow diversion of Mt Roskill Branch Sewer flows to the Central Interceptor tunnel. MH-84A is buried completely belowground and existing ground levels will not change. Hence the flood level, flows, and velocities will not change as a consequence of constructing MH-84A.
Ensure all development in the 1 per cent annual exceedance probability (AEP) floodplain does not increase adverse effects from flood hazards or increase flood depths and velocities to other properties upstream and downstream of the site	MH-84A is buried completely belowground and existing ground levels will not change. Six new access hatches will be constructed to allow for future maintenance access. There is no measurable increase in impermeable area which would result in additional flood flows. Hence the flood level, flows, and velocities will not change as a consequence of constructing MH-84A.
Maintain the function of overland flow paths to convey stormwater runoff safely from a site to the receiving environment	There are no changes to the function of the floodplain or overland flow paths
Require changes to overland flow paths to retain their capacity to pass stormwater flows safely without causing damage to property or the environment	There are no changes to the function of the floodplain or overland flow paths.

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