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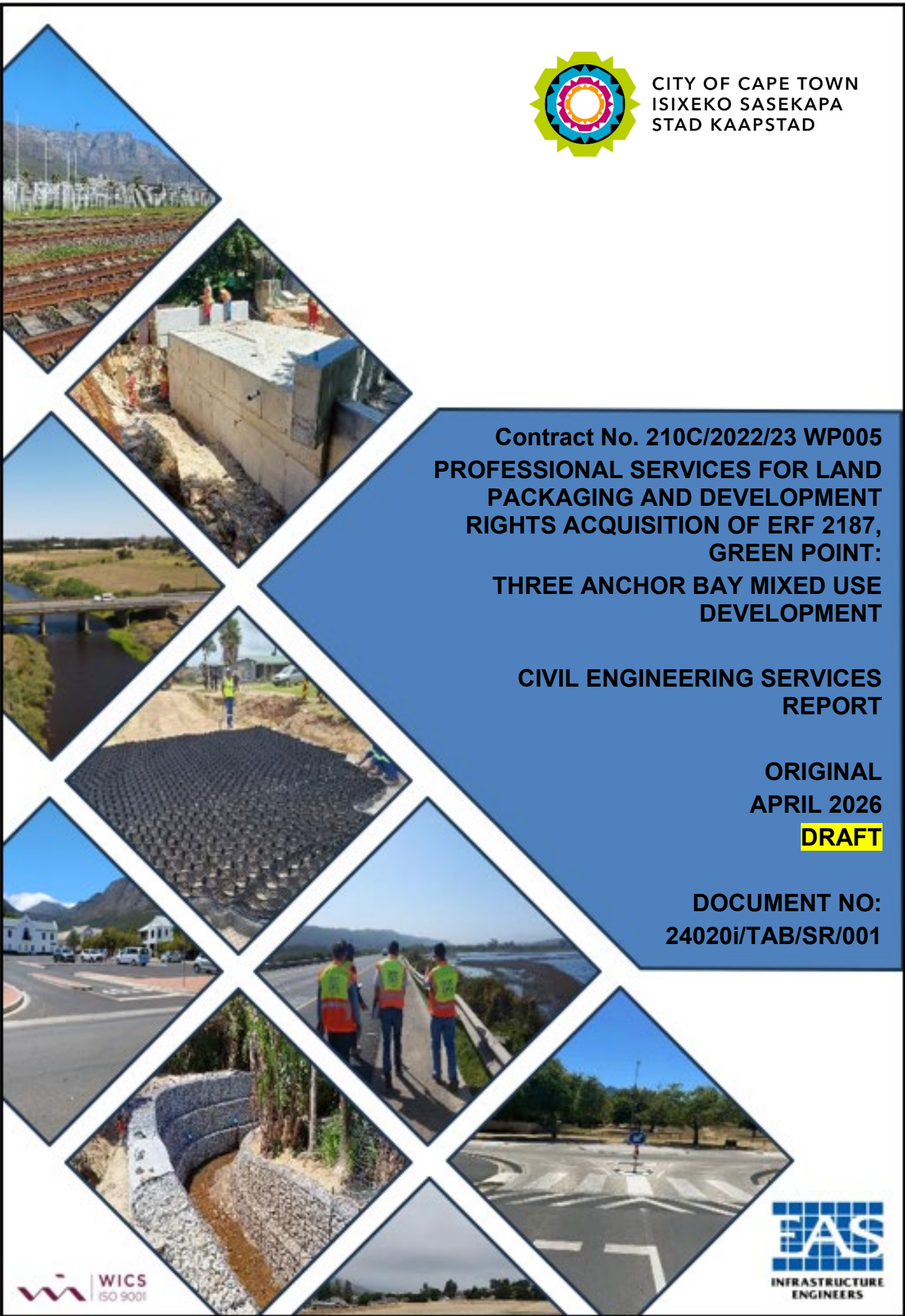
**Contract No. 210C/2022/23 WP005
PROFESSIONAL SERVICES FOR LAND
PACKAGING AND DEVELOPMENT
RIGHTS ACQUISITION OF ERF 2187,
GREEN POINT:
THREE ANCHOR BAY MIXED USE
DEVELOPMENT**

**CIVIL ENGINEERING SERVICES
REPORT**

**ORIGINAL
APRIL 2026**

DRAFT

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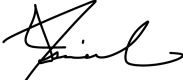


Project Name: Professional Services for Land Packaging and Development Rights Acquisition of Erf 2187, Green Point: Three Anchor Bay Mixed Use Development for Property Development Department of City of Cape Town


Contract No: 210C/2022/23 WP005

This document has gone through a line of checking procedure, which forms part of our Quality Management System.

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REVIEWED BY	Fareed Ismail	Director: Operations		08/06/2026

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1 INTRODUCTION

1.1 Project Proposal

The applicant, the City of Cape Town Property Development Department, is proposing a high-intensity mixed-use development on erf 2187 in Three Anchor Bay. The site is approximately 4.5 hectares in size, municipal-owned, and currently zoned as Public Open Space (OS2). The site is bounded by Sea Point Main Road (M61) to the south, Helen Suzman Boulevard and Beach Road (M6) to the north, and Three Anchor Bay Road to the west. These roads contribute to good connectivity in an east-west direction to and from the site. MyCiTi and Golden Arrow Bus Services are available within walking distance to the site.

Notwithstanding the site's prime location, the site is currently underutilized. The bowling clubs that used to occupy significant land on the site are no longer active and the club houses are now being leased for various other low-intensity community uses or are vacant. There are various sport and public recreational facilities in the vicinity of the site and the City's Spatial Development Framework earmarks the site for infill development that would ensure better utilization of this well-located land parcel close the City CBD and regional community and recreational facilities.

The intention is for the site to be disposed of via a competitive bidding process after the municipality's in principle approval to transfer is obtained, and statutory processes in terms of National Environmental Management Act 107 of 1998 (NEMA) and Municipal Planning By-Law, 2015 (MPBL) are concluded. The concept design includes residential, retail, commercial, civic and hotel development.

1.2 Existing Land uses to be retained

The proposed concept design retains the library, civic centre and hall and provision is also made to extend the library building, reconfigure internal spaces, accommodate other community and civic uses within the new additions and re-purposed spaces. The proposal includes a new building and outdoor space for a creche/ECD and the CPA parking on the site will be incorporated into the design. The electric substation will be moved to a different location to maximize the site's development potential.

1.3 Purpose of this report

The purpose of this Civil Engineering Services Report prepared by EAS Infrastructure Engineers is to assess the demand the proposed development will place on the existing water and sewer services infrastructure as well as outline the concepts proposed and interventions required to support the development.

This report is one of a series of technical reports which either gave input to or assessed the proposals for the redevelopment of the site. Refer to the section below for a list of specialists involved in the project, and the specialist reports that support this development proposal.

1.4 Project team and specialist reports

The following specialist investigations and assessments have been undertaken as part of preparing the project proposals.

Discipline	Company name	Assessment & Reports
Environment	Infinity	Basic Environmental Impact Assessment report
Heritage	Lize Malan & Cindy Postlethwayt	Heritage Impact Assessment report
Visual	David Gibbs	Visual Impact Assessment report
Architects and Urban Designers:	ACG Architects & Urban Design	Urban Design Concept, Urban Design report Urban Design guidelines
Socio-Economic Specialist:	Urban Econ	Socio-Economic Impact Assessment
Property Market	Urban Econ	Property Market Assessment report
Transport Engineers:	ITS	Transport Impact Assessment report
Civil Engineers:	EAS	Bulk Engineering Services Impact Assessment and Stormwater report
Electrical Engineers	BVI	Electricity Infrastructure Impact Assessment report
Town Planning	@Planning Town Planning	Town planning input & statutory application

2 SITE DESCRIPTION

The site's location is Erf 2187 in Green Point, Cape Town, which is shown in Figure 2.1 in the red highlighted area. The site has various infrastructure, including a library, Major and Minor Halls, roadways, parking, Glen Green Point sports center, Western Province Bridge Centre, Pinocchio Creche and a network of underground and overhead services.



Figure 2.1: Erf 2187 site location

3 TERRAIN DESCRIPTION

3.1 Topography and Climate

The site slopes naturally from South to North with the Main Road on the Southern side (Higher) and Helen Suzman Boulevard on the Northern side (Lower). According to The South African Weather Service (SAWS), the prevailing climate conditions for the development area within Cape Town is classified as a Mediterranean climate, characterized by warm, dry summers and mild, wet winters. The site experiences a significant amount of rainfall during the winter months (June-September). Annual precipitation is approximately 505mm for the site. The natural ground levels ranges from approximately 7 to 15 meters above mean sea level.

3.2 Geology and Geotechnical Conditions

A Geotechnical investigation was conducted in February 2017 by HHO Consulting Engineers titled: “*Geotechnical Report on Subsurface Investigations*”. According to this report, the site consists of fill materials, topsoil, transported soils and/or residual clay of various thicknesses and extents overlying phyllite rock of Malmesbury Group. Groundwater depths is varied between 2.0m and 3.1m below existing ground levels.

4 CITY OF CAPE TOWN DISCUSSIONS

Following engagements with the City of Cape Town departments regarding the existing water and sewer infrastructure on site, the following points were noted:

- Based on the capacity letter dated 17 June 2025, this development discharges into the Green Point Wastewater Treatment Plant, therefore the installation of an on-site wastewater treatment plant is not a requirement, as the wastewater treatment works has sufficient capacity to accommodate the anticipated wastewater from the development.
- The relocation of services will better serve the development, and the impact of this relocation must be assessed for service continuity and required pressure management during detail design stage.
- All services must be easily accessible and avoid placement of the services in the basement to prevent future maintenance challenges.
- Watermain materials in Green Point area was confirmed in May 2025 to be predominately cast iron (cement lined), steel and fibre cement. The network is pressure managed. Performance is monitored and generally stable. Pipe bursts occurred due to pressure differentials caused by Pressure Reducing Valves (PRVs) failures.
- The portion of land within Erf 2187 where the blue-gum trees are located will be zoned Open Space 3.

5 DESIGN GUIDELINES AND STANDARDS

This report have been planned and designed in accordance with the recommendations of the following publications:

- Guidelines for Human Settlements, Planning and Design (the “Red Book”), issued by CSIR.
- Standards and Guidelines for Roads and Stormwater V3, February 2022 by the City of Cape Town.

6 URBAN DESIGN DEVELOPMENT CONCEPT

ACG Architect’s draft Urban Design Report (6 March 2026) and the updated Site Plan dated (29 May 2026) refers.

The updated Site Development Concept is attached in **Annexure D**. The proposed redevelopment of Erf 2187 (approximately 4.5 hectares) emphasizes an integration with the surrounding movement networks, activation of the Main Road retail edge, enhancement of pedestrian and public space areas, and using key view corridors towards the ocean, Signal Hill and the city. The concept is structured around a podium-and-tower typology, with lower scale podium elements (generally up to 4 storeys, $\pm 13\text{m}$) and some taller tower elements rising to $\pm 30\text{m}$. The entire development incorporates a mix of residential, retail, commercial, hotel, and community uses.

The proposed development has been further refined through detailed Parcel 1 investigations undertaken in April and May 2026. Option 3A was identified as the preferred approach, which is a proposed three-storey addition above parts of the existing library. Based on this outcome, Parcel 1 will be incorporated into the overall development and will no longer be subdivided.

Key heritage resources includes the Colin Eglin Library, Sea Point Civic Centre, and associated forecourt, are to be retained. The eucalyptus trees are also to be preserved. The civic node is enhanced through expansion of the library (minimum $\pm 500\text{ m}^2$) and new childhood development facility. The development also includes green corridors as shown in the landscape layout attached **Annexure D**. The parking is also accommodated within a multi-level basement (generally three levels across the site). Figure 6.1 provides the concept plan broken up into three parcels used for the water and sewer demand calculations.

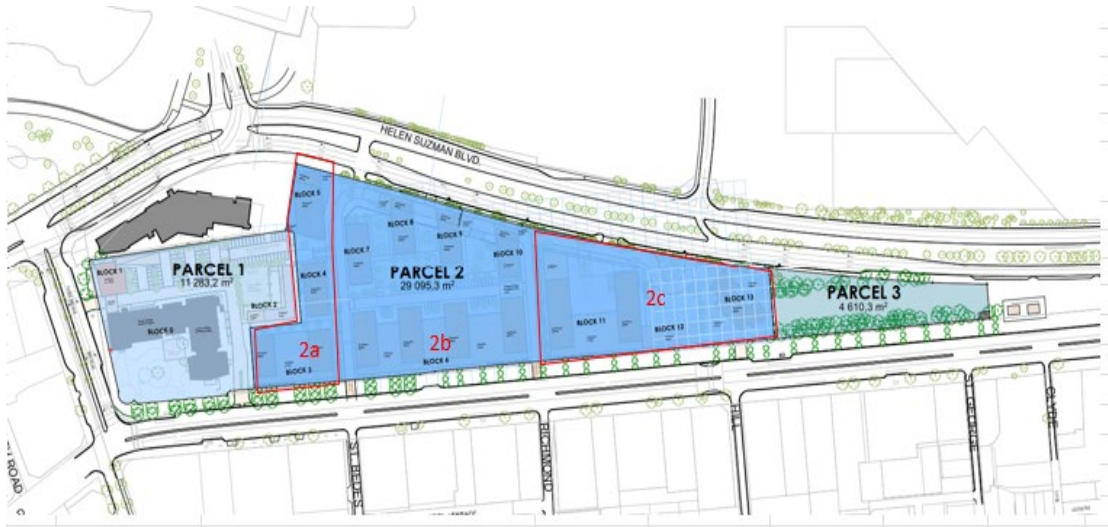


Figure 6.1: Urban Design Concept Plan Parcels

7 POTABLE WATER

The report prepared by EAS Infrastructure Engineers in June 2025 titled: “24020i/TAB/SQR/001 REV0C - Civil Engineering Services Status Quo Report” should be read in conjunction with this section.

7.1 Existing Infrastructure

The City of Cape Town wayleaves for the potable water is attached in **Annexure A**. The site falls within the Molteno Water Distribution Zone. Surrounding the site are the 600mm and 225mm diameter pipelines along Helen Suzman Boulevard. Another 225mm diameter pipeline crosses the site in the East.

7.2 Proposed Water Demand

The City of Cape Town’s Design guidelines and the Red Book standards was used as the basis to calculate the potable water demands. The detailed demand calculations are presented in **Annexure C**. The Town Planner (@planning) provided their development yield spreadsheet dated 10 December 2025. The development yields were provided in two scenarios (Scenario 1 is very limited office- only on Portion 1 and Scenario 2 is office in podium along Main Road only). The summary as per the Town

Planner's spreadsheet is shown in Table 1. An update to the development yields which includes the additional development onto parcel 1 is added to Table 1.

Table 7-1: Summary of development yields

Scenario	Retail GLA (m ²)	Office GLA (m ²)	Hotel GLA (m ²)	Hotel rooms	Community GLA (m ²)	Affordable units	Open- market units	Total residential units
Scenario 1A: High residential (High Studio/1Bed) and no office.	8379	926	5094	325	1583	249	996	1245
OPTION 1: 3A - High Residential - Office at Library only	8379	1403	5094	325	1355	261	1033	1294
Difference	0	+477	0	0	-228	+12	+37	+49
Scenario 1B: High residential (balanced mix) and no office.	8379	926	5094	325	1583	229	914	1143
OPTION 1: 3A - High Residential - Office at Library only	8379	1403	5094	325	1355	242	949	1191
Difference	0	+477	0	0	-228	+13	+35	+48
Scenario 1C: High residential (High 2&3 bed) and no office.	8379	926	5094	325	1583	221	881	1102
OPTION 1: 3A - High Residential - Office at Library only	8379	1403	5094	325	1355	230	915	1145
Difference	0	+477	0	0	-228	+9	+34	+43

Scenario 2A: Residential (High Studio/1Bed) and office	8379	13062	5094	325	1583	204	816	1020
OPTION 2: 3A – Residential + Office across site	8379	13063	5094	325	1355	214	862	1076
Difference	0	1	0	0	-228	+10	+46	+56
Scenario 2B: Residential (balanced mix) and office	8379	13062	5094	325	1583	186	751	937
OPTION 2: 3A – Residential + Office across site	8379	13063	5094	325	1355	193	801	994
Difference	0	1	0	0	-228	+7	+50	+57
Scenario 2C: Residential (High 2&3 bed) and office	8379	13062	5094	325	1583	182	722	904
OPTION 2: 3A – Residential + Office across site	8379	13063	5094	325	1355	183	772	955
Difference	0	1	0	0	-228	+1	+50	+51

The development has been considered high risk area due to the proposed buildings having four stories or more in height. A suitable firefighting allowance has been made shown in Table 2. **It should be noted that this is an assumption based on applicable Red Book standards and that the development's specific firefighting requirements needs to be confirmed at a later date with an appointed fire engineer.**

Table 7-2: Fire flow allowances

Provision of water for firefighting			
Risk Classification	Fire Flow (l/s)	Volume of water (l/s)	Volume of water (m ³ /s)
High Risk	100	2160000	2160

The Total AADD (Average Annual Daily Demand) for the two scenarios and for each portion within the development is presented in Table 3 and Table 4.

Table 7-3: Scenario 1 AADD calculations

SCENARIO 1			
Development Portions	Scenario 1A, AADD per portion (kl/day)	Scenario 1B, AADD per portion (kl/day)	Scenario 1C, AADD per portion (kl/day)
Portion 1	12	12	12
Portion 2a	243	230	225
Portion 2b	558	513	495
Portion 2c	233	219	213
Total AADD (kl/day)	1045	974	945

Table 7-4: Scenario 2 AADD calculations

SCENARIO 2			
Development Portions	Scenario 2A, AADD per portion (kl/day)	Scenario 2B, AADD per portion (kl/day)	Scenario 2C, AADD per portion (kl/day)
Portion 1	12	12	12
Portion 2a	223	213	209
Portion 2b	518	479	463
Portion 2c	183	175	172

Total AADD (kl/day)	936	878	855
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The Total AADD for the residential was divided into affordable units and open-market units shown in Table 5.

Table 7-5: Total AADD for affordable and open-market residential units

Scenario	Affordable units	Open-market units	Total residential units	Affordable units AADD (kl/day)	Open-market units AADD (kl/day)	Total Residential AADD (kl/day)	Total Residential AADD (l/day)	Total Residential AADD (l/s)
1A	249	996	1245	174.3	697.2	871.5	871500	10.09
1B	229	914	1143	160.3	639.8	800.1	800100	9.26
1C	221	881	1102	154.7	616.7	771.4	771400	8.93
2A	204	816	1020	142.8	571.2	714	714000	8.26
2B	186	751	937	130.2	525.7	655.9	655900	7.59
2C	182	722	904	127.4	505.4	632.8	632800	7.32

The highest AADD is within Scenario 1A which is 1045kl/day because it has the highest residential yield. Scenario 1A was chosen for City of Cape Town's capacity check. The peak instantaneous daily demand for this scenario is 18l/s and when considering the firefighting flow total peak demand increases and is calculated as 118l/s.

7.3 Confirmation of Capacity

The Technical Services – Water and Sanitation Department at the City of Cape Town provided high-level preliminary modelled results based on an initial analysis undertaken on 13 May 2026 and the capacity letter dated 8 June 2026 refers.

The capacity letter and modelled results are attached in **Annexure E**. This analysis was undertaken to assess the capacity of the existing network with the additional

demand from the development. At the time of writing, the proposed concept design, which includes the relocation of potable water pipelines, was not included in this analysis. This assessment will determine whether the existing network can accommodate both the relocated pipelines and the new water infrastructure required for the development. However, no issues are anticipated regarding the proposed water infrastructure or its connection points to the existing network, including the relocated infrastructure. Accordingly, the formal capacity letter received on 8 June 2026 confirms the following:

- Bulk water supply system has sufficient capacity available to accommodate the development demand of approximately 1045kl/day.
- The reticulation network has sufficient pressure and flow capacity to supply the development
- The nearby 225 mm reticulation main operates within acceptable hydraulic limits
- The 600 mm diameter bulk main must not be directly connected to.

The updated development yields, including the additional development on Parcel 1, result in an approximate 3-4% increase in AADD which is discussed in detail in Section 9. This increase is considered minor and does not materially affect the conclusions of the preliminary capacity assessment.

Accordingly, no bulk water upgrades are required to accommodate the development.

7.4 Proposed Supply Infrastructure

7.4.1 Bulk Infrastructure

The bulk water infrastructure has sufficient capacity to support the proposed development. The proposed 600mm diameter pipeline is proposed to be relocated to Helen Suzman Boulevard. It should be noted that at the time of writing this report the existing local connections to the 600mm diameter pipeline if any are unknown. Therefore, due diligence during detailed design and construction stages should be done to ensure uninterrupted water supply during the relocation of the pipeline to Helen Suzman Boulevard.

7.4.2 Municipal and Development Link Infrastructure

Due to various sized pipelines crossing the site, it is proposed to relocate them to the road reserves as shown in **Annexure B**. The proposed pipelines to be relocated to Helen Suzman Boulevard are the 300mm and 600mm diameter pipelines. Another 225mm diameter pipeline needs relocation to tie into the existing 150mm on Three Anchor Bay Road reason being that there are proposed buildings on the existing pipelines. The new connection points for the proposed water pipeline relocation is also shown in these layouts. Furthermore, at this stage of the report the internal water connections on CoCT network for the existing CPOA building is unknown. Therefore, during construction, the contractor should verify the connection points when relocating the water infrastructure to ensure that the water supply to existing surrounding buildings is not disrupted. A section of the existing water infrastructure in the vicinity of the CPOA building, as shown in Figure 7.1, is assumed to include pipelines crossing over one another, although the exact configuration is currently unknown. Further detailed investigations will therefore be required to confirm the arrangement and to determine whether any cross-connections or vertical clearances exist between the 300 mm and 600 mm diameter pipelines prior to their proposed relocation to the road reserve.

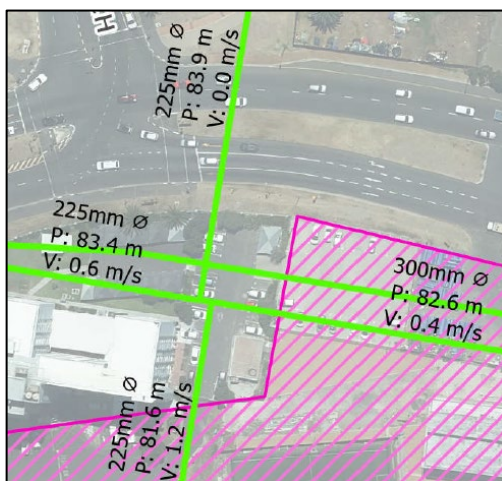


Figure 7.1: Existing water infrastructure near CPOA building.

The proposed water supply within the development has been designed in accordance with the City of Cape Town's Service Guidelines and Standards for Water & Sanitation (Version 3.3). The City's guidelines require that reticulation mains maintain 12-24 m

minimum. Hydraulic design criteria not explicitly defined in the City's standards are governed by the Neighbourhood Planning and Design Guide (Red Book), which sets the allowable velocity limits for water reticulation pipelines. The Red Book specifies that peak flow velocities must not exceed 1.5 m/s, with typical operational velocities between 0.6-1.2 m/s, to minimize head losses and protecting the network against water hammer. The proposed water supply for the development is summarized below:

- Parcel 1 and some parts of portion 2a will receive its water supply through the proposed relocated 225mm Upvc Class 12 supply pipe on Bowlers Way and will connect onto the existing 225mm diameter on Main Road and 150mm diameter on Three Anchor Bay Road.
- The rest of the development will receive its supply from the existing 300mm diameter pipeline along Helen Suzman Boulevard.

It should be noted that there are no proposed direct connections to the bulk water infrastructure.

A municipal standard metered connection will need to be installed at an appropriate location near the site entrance as selected by the City of Cape Town which will feed this potable water development. Individual meter connections including reading and billing may be managed by the body corporate. Regarding surge/water hammer considerations, appropriate thrust blocks must be provided at all tees, bends, reducers and hydrants, as per City of Cape Town standard drawings for thrust block design. All costs associated with providing the link infrastructure to the municipal network will be the responsibility of the developer.

7.4.3 Internal Infrastructure

The proposed roadways within the development will act as services roads. Due to the development's configuration comprising of an extensive super-basement structures supporting multiple buildings, the water supply infrastructure will need to be installed in a dedicated utility floor for easy maintenance access and within the roadways as per typical CoCT's road cross-section below.

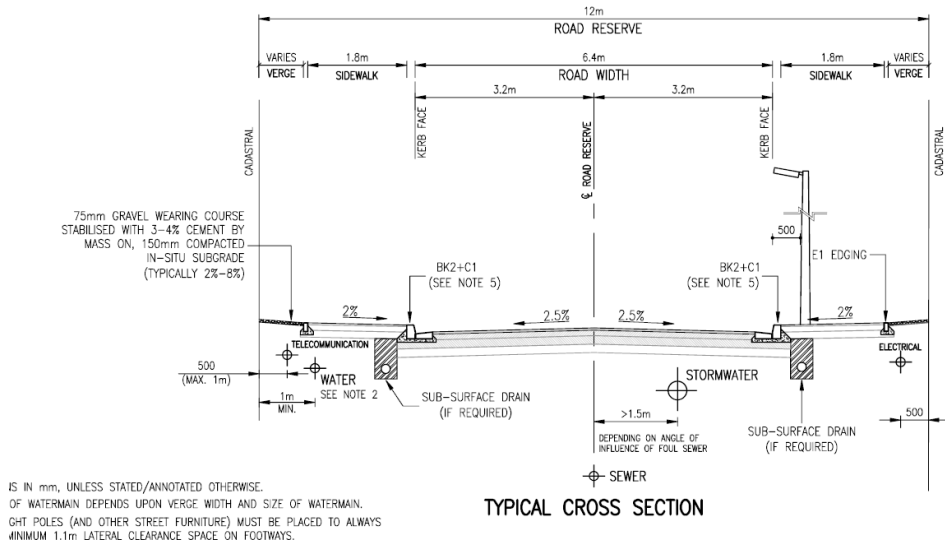


Figure 7.2: Typical Class 5b road cross-section

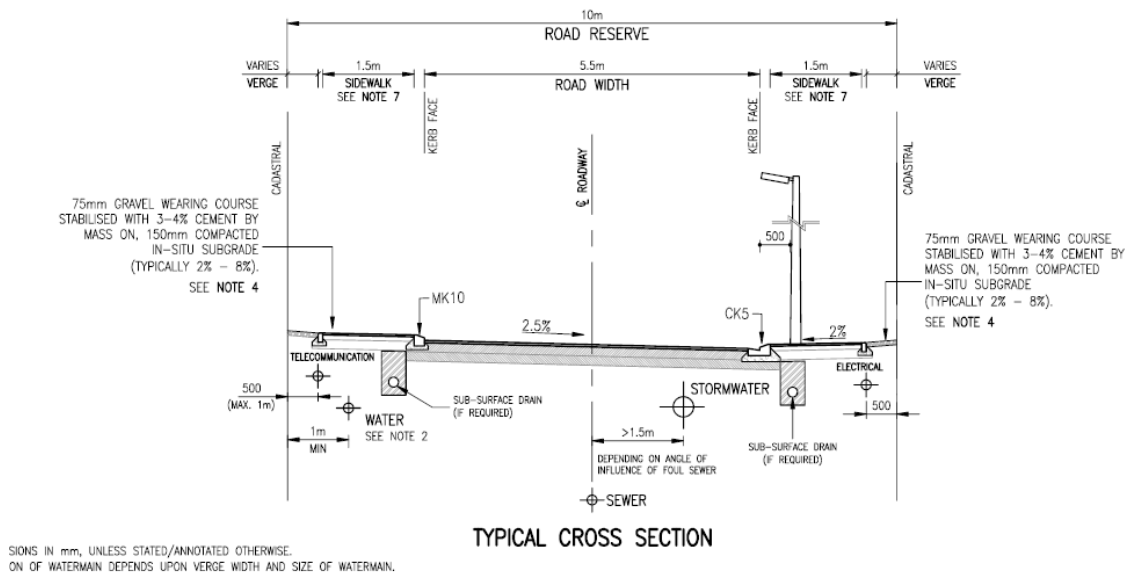


Figure 7.3: Typical Class 5c road cross-section

All pipes including pipe material, fittings and specials will be in accordance with the CoCT Water and Sanitation policy (20 June 2019 Version 3.3) which states that the working pressure of all pipes shall be 1.2MPa, PVC or HDPE which complies with SANS 1223. The cost of the internal infrastructure will be at the Developer's expense.

7.5 Water Re-use Strategies

Water re-use should align with CoCT's standards and national best practices for sustainable, water-sensitive developments. The CoCT Guidelines for Alternative Water

Installations sets requirements for safe installation, management, and protection of municipal and alternative water systems, as well as critical backflow prevention standards. Incorporating District Metering Areas (DMAs) within the development can improve better monitoring of the water supply system and leak detection as well. Water management may also include native vegetation which uses minimal irrigation needs. Installing high-efficiency fixtures in new buildings is another valuable strategy for conserving water. Rainwater Harvesting can be captured from roof surface and stored for landscape irrigation, toilet flushing, non-potable cleaning and cooling systems. All installations must comply with the CoCT's standards to prevent contamination of the potable network.

8 SEWER

The report prepared by EAS Infrastructure Engineers in June 2025 titled: "24020i/TAB/SQR/001 REV0C - Civil Engineering Services Status Quo Report" should be read in conjunction with this section.

8.1 Existing Infrastructure

The City of Cape Town wayleaves for the sewer is attached in **Annexure A**. The sewage in the site's immediate vicinity gravitates to the Green Point Marine Outfall. Various pipelines are located within and surrounding the site (250mm, 300mm, 150mm and 225mm diameter pipes). The 150mm diameter pipeline traversing the northern edge of the site serves only Erf 2187 as confirmed by City of Cape Town.

8.2 Proposed Sewer Demand

As mentioned in Section 6 of this report. The sewer demand is calculated using the latest development yields and the detailed calculation is presented in **Annexure C**. The CoCT design standard to determine the sewer demand is listed as follows:

- Residential ADWF (Average Dry Weather Flow) = 160 l/person/day x 5.5 persons/dwelling = 880 l/dwelling/day
- This development has various scenarios with varying residential units therefore the number of persons per dwelling was refined based on unit typology (studio,

1-bedroom, 2-bedroom, and 3-bedroom units). This will provide a more realistic representation of expected occupancy and prevents the overall demand from being overstated.

- Scenario 1A/2A: High Studio/1-bed unit mix = 2 persons/dwelling
- Scenario 1B/2B: Balanced unit mix = 3 persons/dwelling
- Scenario 1C/2C: High 2&3-bed unit mix = 4 persons/dwelling
- Office, retail, hotel, and community = 3.3 l/m²/day (33 kl/ha/day)
- Peaking factor: Harmon peaking factor formula used = $1 + \frac{14}{4 + \sqrt{P}}$

The summary of the sewer demand for each scenario is in Table 6.

Table 8-1: Summary of sewer demand calculations

Scenario	Total Residential demand (kl/day)	Total Non-Residential demand (kl/day)	Total ADWF (kl/day)	Total ADWF (l/s)	Peak Dry Weather Flow, PDWF (l/s)	Infiltration 15%	Peak Wet Weather Flow, PWWF (l/s)
1A	398	53	451	5.22	18.33	0.15	21.08
1B	549	53	601	6.96	23.61	0.15	27.15
1C	705	53	758	8.77	28.91	0.15	33.25
2A	326	93	419	4.85	17.36	0.15	19.97
2B	450	93	543	6.28	21.77	0.15	25.03
2C	579	93	671	7.77	26.20	0.15	30.13

The highest ADWF for the development is Scenario 1C which is estimated at 758 kl/day. The PDWF is estimated at 28.91l/s and when considering an infiltration rate of 15% the PWWF is 33.25l/s. However, CoCT’s standard generally base the sewer flow on 80% of the AADD as per the Water and Sanitation Tariff Policy, however based on the capacity letter received the Total Sewer Flow was based on 95% AADD for commercial sewer flow and 95% AADD for residential sewer flow. Therefore, the anticipated Sewer flow used for the proposed development is 949.94kl/day.

8.3 Confirmation of Capacity

The Technical Services – Water and Sanitation Department at the City of Cape Town provided high-level preliminary modelled results based on an initial analysis undertaken on 13 May 2026 and the capacity letter dated 8 June 2026 refers.

The capacity letter and modelled results are attached in **Annexure E**. At the time of writing this report, the proposed concept design, which includes the relocation of sewer pipelines, was not included in this analysis. This assessment will evaluate whether the existing network can accommodate the relocated pipelines and new sewer infrastructure for the development. No issues are anticipated with the proposed infrastructure or its connection to the existing network, including the relocated sewer pipelines. Accordingly, the formal capacity letter received on 8 June 2026 confirms the following:

- The Greenpoint Outfall has sufficient spare capacity to accommodate the development.
- The 900mm diameter sewer pipeline along Beach Road has sufficient capacity to support the development.
- The 150mm diameter sewer (feeding the 225mm diameter pipeline along Bay Road) has insufficient capacity to convey the full development sewer flow as shown in Figure 8.1.

However, capacity can be achieved either by upgrading the small 150mm pipeline to the 900mm system or distributing flows across two sewer connections, subject to City approval.

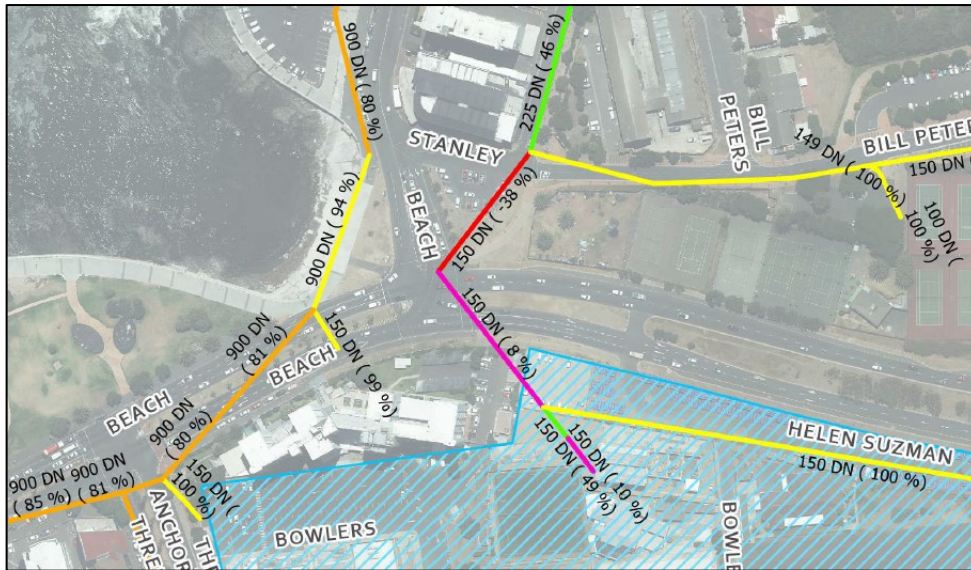


Figure 8.1: Capacity checks on existing sewer network

The updated development yields, including the additional development on Parcel 1, result in an approximate 3-4% increase in ADWF which is discussed in detail in Section 9. This increase is considered minor and does not materially affect the conclusions of the preliminary capacity assessment.

8.4 Proposed Supply Infrastructure

8.4.1 Bulk Infrastructure

At the time of writing this report, and based on the analysis outlined in Section 8.3, the existing 900mm diameter main along Beach Road is confirmed to have sufficient capacity to support the proposed development.

8.4.2 Internal Infrastructure

The concept design of the proposed sewer is attached in **Annexure B**. The 150mm diameter pipeline crossing the site was confirmed by water and sanitation department to only serve this development therefore it is proposed to relocate this pipe to the road reserve as shown in **Annexure B**. Based on the calculated total sewer demand, the 150mm diameter is proposed to be upgraded to a 225mm diameter pipeline upon relocation. This pipe will connect onto the existing 150mm diameter pipe crossing

Helen Suzman Boulevard. Based on CoCT capacity analysis this pipe will require an upgrade therefore it is proposed to upgrade it to a 225mm diameter pipe.

A 225mm diameter pipe is proposed in parcel 1 which will connect directly to the existing 900mm diameter pipe along Beach Road. This approach is adopted as a section of the existing 150mm pipeline, located beneath protected trees as shown in Figure 8.2, limits upgrading, therefore it is preferred to create a new connection on the 900mm pipeline along Three Anchor Bay Road. During construction, all proposed relocations and connections to the existing infrastructure network must be verified to ensure that the local connections of surrounding buildings to these pipelines are not adversely affected.

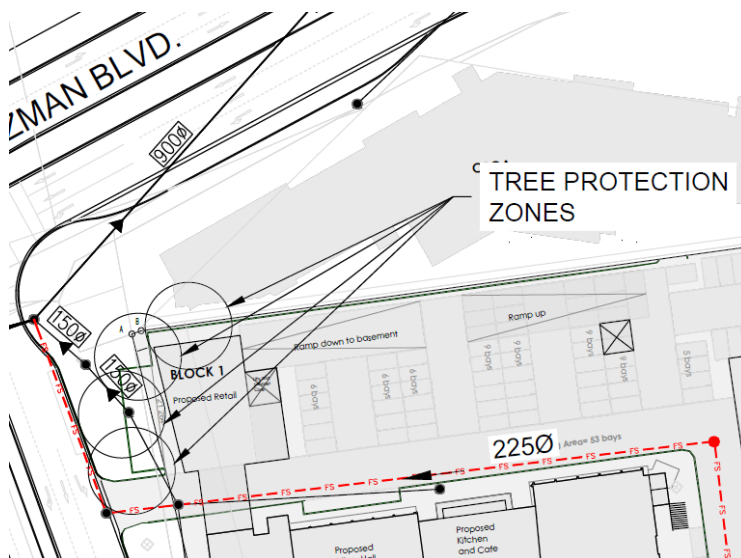


Figure 8.2: Proposed sewer infrastructure along Three Anchor Bay Road

The internal sewer network will be a gravity network within the proposed roads and will connect directly onto the relocated sewer pipeline along Helen Suzman Boulevard. The minimum size of sewer lines required to accommodate the flow within the development is a 110mm diameter (uPVC -heavy duty) at 1:60 grade. Due to the development's configuration comprising of an extensive super-basement structures supporting multiple buildings, the sewer infrastructure will need to be installed in the basement structure or a dedicated utility floor for easy maintenance access. All pipes including pipe material, fittings and specials will be in accordance to CoCT Water and Sanitation policy (20 June 2019 Version 3.3). The cost of the internal infrastructure will be at the Developer's expense.

9 OVERVIEW OF PROPOSED ADDITIONAL DEVELOPMENT ON PARCEL 1

The updated demand calculations are attached to **Annexure C**. The updated development yields indicate that the total residential units have increased by approximately 4-6% across all the scenarios shown in Table 9-1.

From an infrastructure perspective, the additional yields from the development on Parcel 1 resulted in a slight increase in the service demands, with the demands rising by approximately 3-5% as shown in Table 9-3.

Originally Scenario 1A (1045kl/day) was adopted as the AADD for City of Cape Town to do their capacity checks. Following the inclusion of the additional development on Parcel 1, the updated Scenario demand increases to approximately 1080kl/day. Similarly, the sewer demand based on 80% of the AADD in accordance with CoCT policy increased from 836kl/day to 864kl/day. The impact is incremental and from a capacity planning perspective, this variation is considered minor and does not materially alter the originally selected AADD for capacity evaluation. Accordingly, we do not anticipate that this update will alter the outcome of the anticipated capacity letter from City of Cape Town.

Table 9-1: Residential yield increase

Scenario	Original Units	Updated Units	Increase	% Change
1A	1245	1294	+49	+4%
1B	1143	1191	+48	+4%
1C	1102	1145	+43	+4%
2A	1020	1076	+56	+5%
2B	937	994	+57	+6%
2C	904	955	+51	+6%

Table 9-2: Non-residential yield changes

Land use	Change
Office (Option 1)	926 to 1403 (+52%)
Office (Option 2)	13062 to 13063 (unchanged)
Community	1583 to 1355 (-14%)
Retail and Hotel	No change

Table 9-3: Summary of change in services demand

Scenario	Original AADD (kl/day)	Updated AADD (kl/day)	Difference	Original ADWF (kl/day)	Updated ADWF (kl/day)	Difference
1A	1045	1080	+35	836	864	+28
1B	974	1008	+34	779.2	806.4	+27.2
1C	945	976	+31	756	780.8	+24.8
2A	936	974	+38	748.8	779.2	+30.4
2B	878	917	+39	702.4	733.6	+31.2
2C	855	890	+35	684	712	+28

9.1 EVALUATION OF FEASIBLE DEVELOPMENT SCENARIOS AGAINST CONFIRMED CAPACITY

The CoCT's assessment undertaken was based on Scenario 1A (1045kl/day). However, following further refinement of the development concept and feasibility assessments, the most likely development scenarios have been identified as:

- Scenario 1C under Option 1 (high residential mix with office at library only)
- Scenario 2C under Option 2 (residential with office across the site)

The water demand comparison is shown in Table 9-4.

Table 9-4: Comparison of potable water demand

Scenario	AADD (kl/day)
1A (tested)	1045
1C (feasible)	945
2C (feasible)	855

Scenario 1C results in approximate 10% reduction in demand relative to Scenario 1A. Scenario 2C results in approximate 18% reduction in demand. A similar reduction is observed for the sewer flows. The CoCT's capacity check was undertaken under a worst-case scenario and the most feasible scenarios generates significantly lower demands.

It should be noted that the most feasible scenarios (1C and 2C) have lower demands than scenario 1A, confirming sufficient available capacity.

10 COST OF PROPOSED WORKS

A cost estimate has been calculated for the proposed relocation of services and stormwater infrastructure which meets the specified standards, and this will need to be refined during detailed design stage.

Table 7 indicates the order of magnitude costing for the various components and makes provision for contingencies, excluding VAT. No allowance have been made for specialized services and professional fees as this will form part of the overall project costing performed by the Quantity Surveyor. Preliminary and General costs have been calculated at 20% of the works costs. Contingencies have been set at 10% to be used for any unforeseen circumstances during project construction. The estimate total Project Cost is estimated to be R39 487 833 excluding 15% VAT.

Table 10-1: Order of Magnitude costing

CONCEPT STAGE ORDER OF MAGNITUDE COST ESTIMATE: THREE ANCHOR BAY					
Section	Measured Item	Unit	Works Rate	Quantity	Amount
1	CIVIL INFRASTRUCTURE ESTIMATE				
	Site Clearance	ha	R70 000.00	0.5	R35 000.00
	Earthworks				
	Minor Earthworks - Cut to Spoil (Provisional)	m ³	R250.00	3200	R800 000.00
	Minor Earthworks - Import (Provisional)	m ³	R425.00	3670	R1 559 750.00
	Water Main Relocation [(Reticulation - 300diam.) and (Bulk -600diam)]				
	Water main (300diam) relocation	m	R6 000.00	360	R2 160 000.00
	Water main(600diam) relocation	m	R10 000.00	430	R4 300 000.00
	Sewer Gravity Main Relocation				
	Sewer main (150diam) relocation an upgrade to (200diam)	m	R6 000.00	400	R2 400 000.00
	Stormwater Services				

	Stormwater Ø300mm upgrade to Ø375mm and relocation	m	R6 000.00	140	R840 000.00
	Stormwater (Ø450mm) relocation	m	R7 000.00	130	R910 000.00
	Stormwater (Ø450mm) upgrade to Ø675mm (decommission Ø825mm crossing site and divert stormwater along Main Road)	m	R12 000.00	76	R912 000.00
	Stormwater (Ø750mm) relocation -Likely a Culvert	m	R15 000.00	430	R6 450 000.00
	Roadway reconstruction				
	Paved Surfaces / Roads	m ²	R800.00	3000	R2 400 000.00
	Surfaced Roads	m ²	R900.00	275	R247 500.00
	Unknown services/conflicts/risks/protection/relocation (20%)	Prov Sum	R4 602 850.00	1	R4 602 850.00
	Temporary service bypasses	Prov Sum	R2 297 925.00	1	R2 297 925.00
	Traffic Accommodation	Prov Sum	R2 301 425.00	1	R2 301 425.00
SUB-TOTAL					R29 915 025.00
2	ADDITIONAL CONSTRUCTION COSTS				
	Preliminary and General (20%)				R5 983 005.00
	Contingency (10%)				R3 589 803.00
	TOTAL ESTIMATED CIVIL CONSTRUCTION COST				R39 487 833.00

11 DEVELOPMENT CONTRIBUTIONS SUMMARY

The Development Contributions (DCs) as reflected in the DC's spreadsheet dated 9 February 2026 distributed by @Planning and the Feasibility Report dated April 2026 available at the time of writing this report, refers.

The detailed spreadsheet indicates that DC's comprise multiple infrastructure components, namely roads, transport, stormwater, sewage, water, and solid waste. The total DCs ranges between approximately R56.9 million and R60.4 million (excluding VAT), depending on the selected land use configuration and development options. In the context of the broader feasibility assessment, these DCs form part of the overall capital expenditure requirements. As confirmed in correspondence from the project team, the DCs have been calculated using the City of Cape Town's Development Charge calculator applicable to the 2025/2026 financial year and are subject to annual escalation in accordance with CPIX, which has been incorporated into the feasibility modelling. Furthermore, the payment of DCs is structured to occur upon submission and approval of the Site Development Plans, and accordingly, the

financial model and resultant land valuation take into account the developer's obligation to settle DCs following land acquisition, forming a key component of the overall development cost structure.

12 CONCLUSION AND RECOMMENDATION

12.1 Conclusion

Based on the formal capacity letter issued by the City of Cape Town (dated 8 June 2026), the proposed development is confirmed to be feasible from a water and sewer services perspective. The assessment confirms that:

- The water supply system has sufficient capacity in terms of resource availability, treatment, storage and conveyance to accommodate the estimated potable water demand of approximately 1045kl/day.
- The water reticulation network has adequate pressure and flow capacity to supply the development without requiring bulk upgrades.
- The wastewater treatment system (Green Point outfall) has sufficient spare capacity to accommodate the estimated sewer flows of approximately 950 kl/day ADWF.
- The 900 mm diameter bulk sewer system has sufficient capacity to convey the development flows.

Localized upgrades required in the existing 150mm diameter sewer reticulation pipeline however no bulk infrastructure upgrades are required. The development is considered feasible subject to compliance with the City's conditions as per the City's capacity letter attached in Annexure E, detailed design approvals, and implementation of the required service relocations.

12.2 Recommendations

- Approvals and Compliance
 - Proceed with the development subject to formal building plan approval and compliance with all conditions contained in the City of Cape Town capacity letter.
 - Ensure all designs comply with City of Cape Town standards, guidelines, and approval processes.

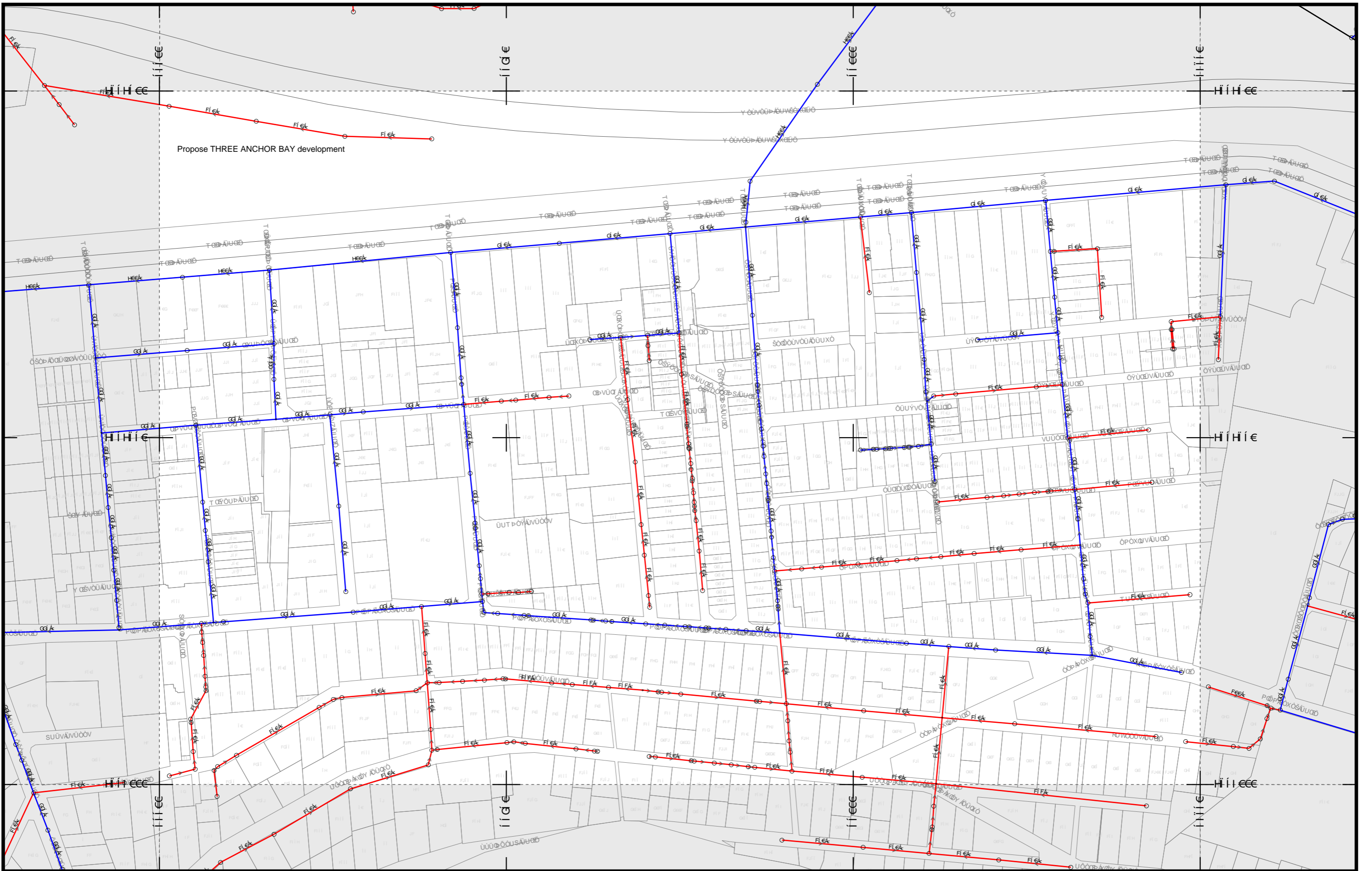
- Confirm and secure all required development contributions, to be quantified by the City.
- Detailed Design and Investigations
 - Undertake detailed design of the civil services incorporating confirmed service alignments and connection points.
 - Conduct GPR surveys and/or topographical to verify the exact location and connectivity of the existing infrastructure within and surrounding the development prior to construction.
 - Confirm firefighting requirements with an appointed Fire Engineer.
- Services Relocation
 - Develop a coordinated services relocation strategy aligned with the phased electrical infrastructure programme during construction.
 - Ensure that continuity of supply to existing buildings around the development is maintained during the relocation of services at construction stage.
- Construction and Risk Management
 - Groundwater control for basement and service installation works.
 - Provide temporary service bypasses where required to maintain uninterrupted services during construction.
 - All costs associated with service relocations, upgrades and new connections are to be borne by the developer.
 - Notify the City at least 72 hours prior to commencement of construction activities.
- Sustainability Measures
 - Incorporate water-sensitive design measures such as rainwater harvesting, water reuse, and efficient fixtures, to reduce demand on municipal systems.
 - Ensure compliance with City of Cape Town guidelines for alternative water installations and backflow prevention.
- Ongoing stakeholder engagement
 - Maintain continuous engagement with relevant City departments throughout the design and construction phases.

- Note that allocated capacity is not reserved beyond 5 years or the approved development period, and must be taken up within this timeframe.
- Provide indicative development phasing and timelines to the Wastewater Branch to support infrastructure planning when such information becomes available.

13 REFERENCES

- City of Cape Town Water & Sanitation Guidelines V 3.3
- HHO Consulting Engineers: *Geotechnical Report on Subsurface Investigations*, February 2017

ANNEXURE A: WAYLEAVES



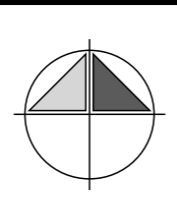
Propose THREE ANCHOR BAY development



CITY OF CAPE TOWN
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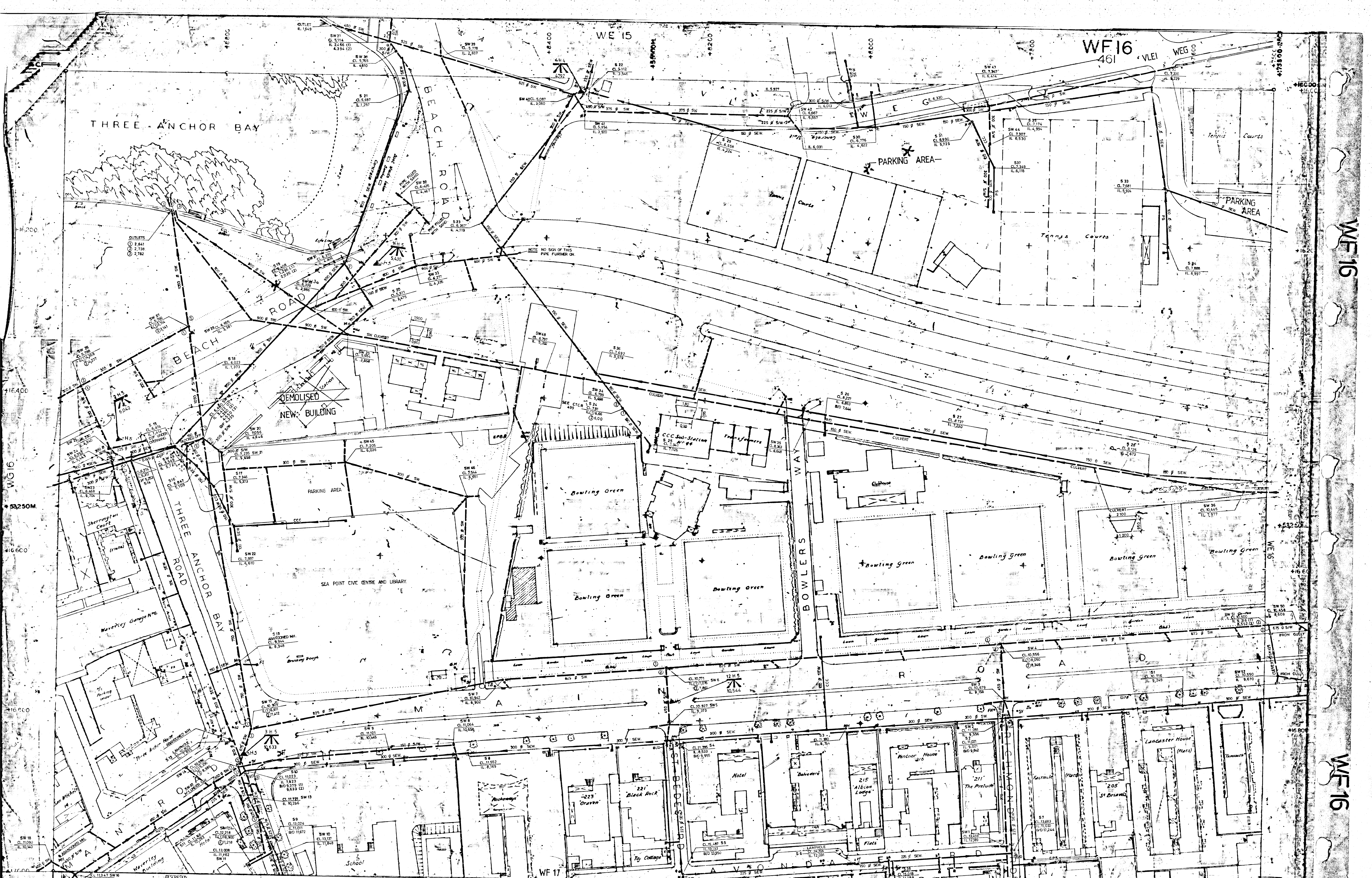
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ΚΑΛΩΣ



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 PRINT. ENG.
 EST. NO.

D. G. D. RILEY
 ASSISTANT CITY ENGINEER
 CITY ENGINEER

CITY OF CAPE TOWN
 CITY ENGINEERS DEPARTMENT
 SEWER AND STORMWATER RECORDS.

GREEN POINT
 L¹ 19° X CONSTANT = 11904 000 00
 L² 19° X CONSTANT = 37 000 000 00 M

DRAWING NO. WF-16
 SCALE: AS SHOWN
 REVISIONS

PI:5/06/25 sewer services layout



CITY OF CAPE TOWN
ISIXEKO SASEKAPA
STAD KAAPSTAD

THIS MAP WAS GENERATED BY THE

Water and Sanitation Business Viewer

Water and Sanitation Department

LEGEND

- Sewer - Treatment Plant Footprint
- Sewer - Final Effluent Outfall

Sewer - Gravity Main

DIAMETER

- 999 - 0 (Unknown diameter)
- 1 - 160
- 161 - 300
- 301 - 600
- 601 - 999999

- Sewer - Pressurised Main

Sewer - Valve

- Isolation
- Air
- Scour
- Non-Return
- Other / Unknown valve
- Sewer - Pump Station
- Sewer - Pump Station (with generator)
- Sewer - Pump Station (Not in use/unknown)

Sewer - Treatment Plant

TREATMENT TYPE

- WWTW
- WW Facility
- Sea Outfall

Street Name Labels (Basemap)
White_Background



Author: SB

Date: 27 August 2025

Projection: Transverse Mercator
Central Meridian: 19° East
Ellipsoid: WGS84
Datum: Hartbeesthoek94

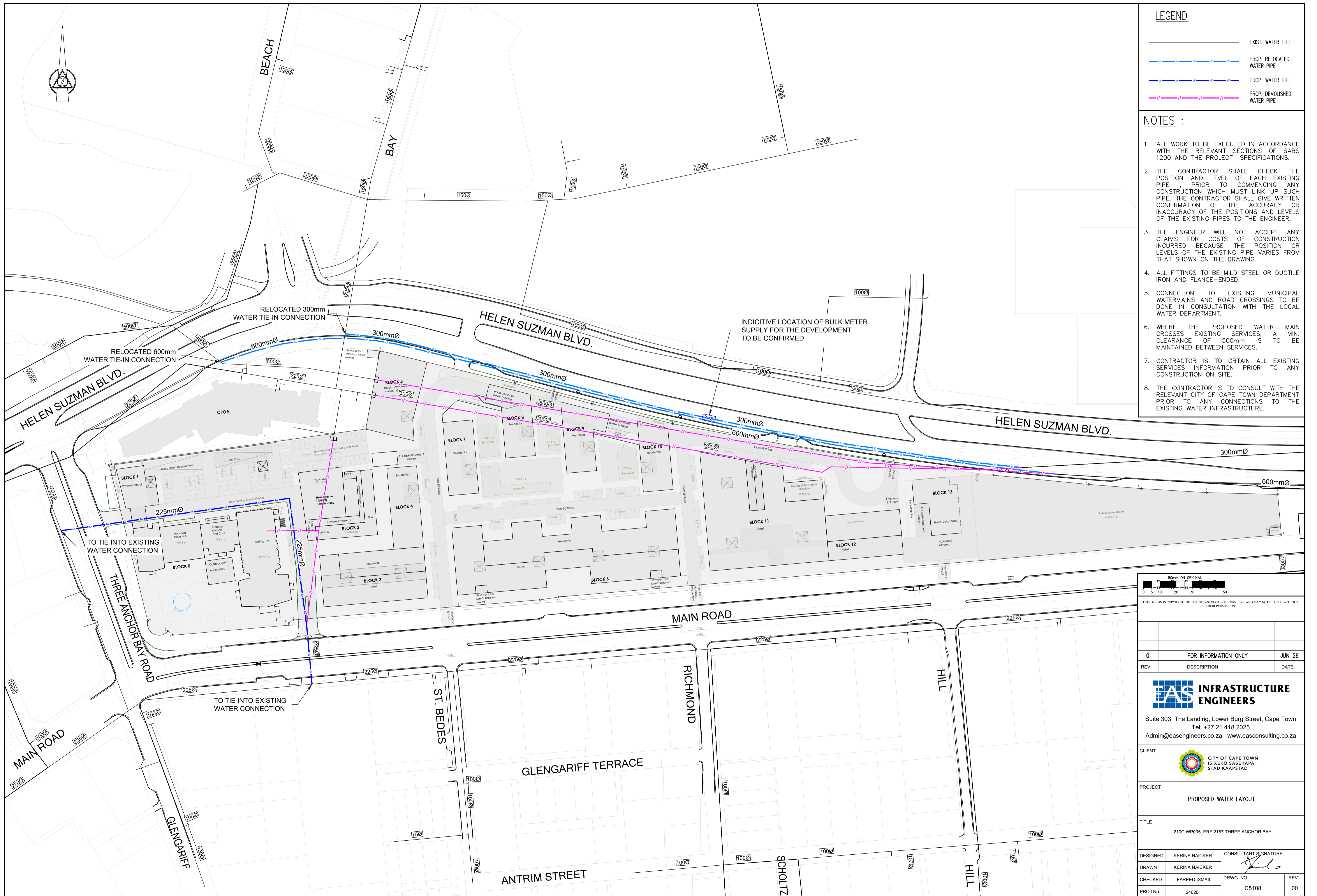
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PLEASE NOTE:

- Every effort has been made to ensure the accuracy of information in this map at the time of publication.
- The spatial data portrayed in this map is as current, accurate and complete as provided by the various line departments responsible for the maintenance of these datasets.
- The City of Cape Town accepts no responsibility for, and will not be liable for, any errors or omissions contained herein.



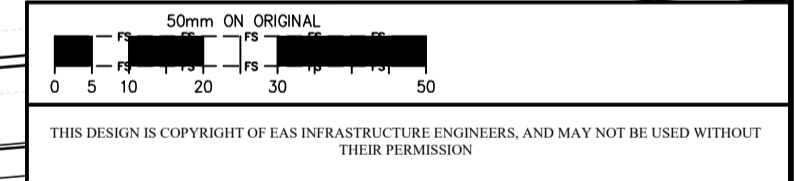
ANNEXURE B: SERVICE LAYOUTS



LEGEND

	EXIST. WATER PIPE
	PROP. RELOCATED WATER PIPE
	PROP. WATER PIPE
	PROP. DEMOLISHED WATER PIPE

- NOTES :**
1. ALL WORK TO BE EXECUTED IN ACCORDANCE WITH THE RELEVANT SECTIONS OF SABS 1200 AND THE PROJECT SPECIFICATIONS.
 2. THE CONTRACTOR SHALL CHECK THE POSITION AND LEVEL OF EACH EXISTING PIPE PRIOR TO COMMENCING ANY CONSTRUCTION WHICH MUST LINK UP SUCH PIPE. THE CONTRACTOR SHALL GIVE WRITTEN CONFIRMATION OF THE ACCURACY OR INACCURACY OF THE POSITIONS AND LEVELS OF THE EXISTING PIPES TO THE ENGINEER.
 3. THE ENGINEER WILL NOT ACCEPT ANY CLAIMS FOR COSTS OF CONSTRUCTION INCURRED BECAUSE THE POSITION OR LEVELS OF THE EXISTING PIPE VARIES FROM THAT SHOWN ON THE DRAWING.
 4. ALL FITTINGS TO BE MILD STEEL OR DUCTILE IRON AND FLANGE-ENDED.
 5. CONNECTION TO EXISTING MUNICIPAL WATERMANS AND ROAD CROSSINGS TO BE DONE IN CONSULTATION WITH THE LOCAL WATER DEPARTMENT.
 6. WHERE THE PROPOSED WATER MAIN CROSSES EXISTING SERVICES, A MIN. CLEARANCE OF 500mm IS TO BE MAINTAINED BETWEEN SERVICES.
 7. CONTRACTOR IS TO OBTAIN ALL EXISTING SERVICES INFORMATION PRIOR TO ANY CONSTRUCTION ON SITE.
 8. THE CONTRACTOR IS TO CONSULT WITH THE RELEVANT CITY OF CAPE TOWN DEPARTMENT PRIOR TO ANY CONNECTIONS TO THE EXISTING WATER INFRASTRUCTURE.



0	FOR INFORMATION ONLY	JUN 26
REV	DESCRIPTION	DATE

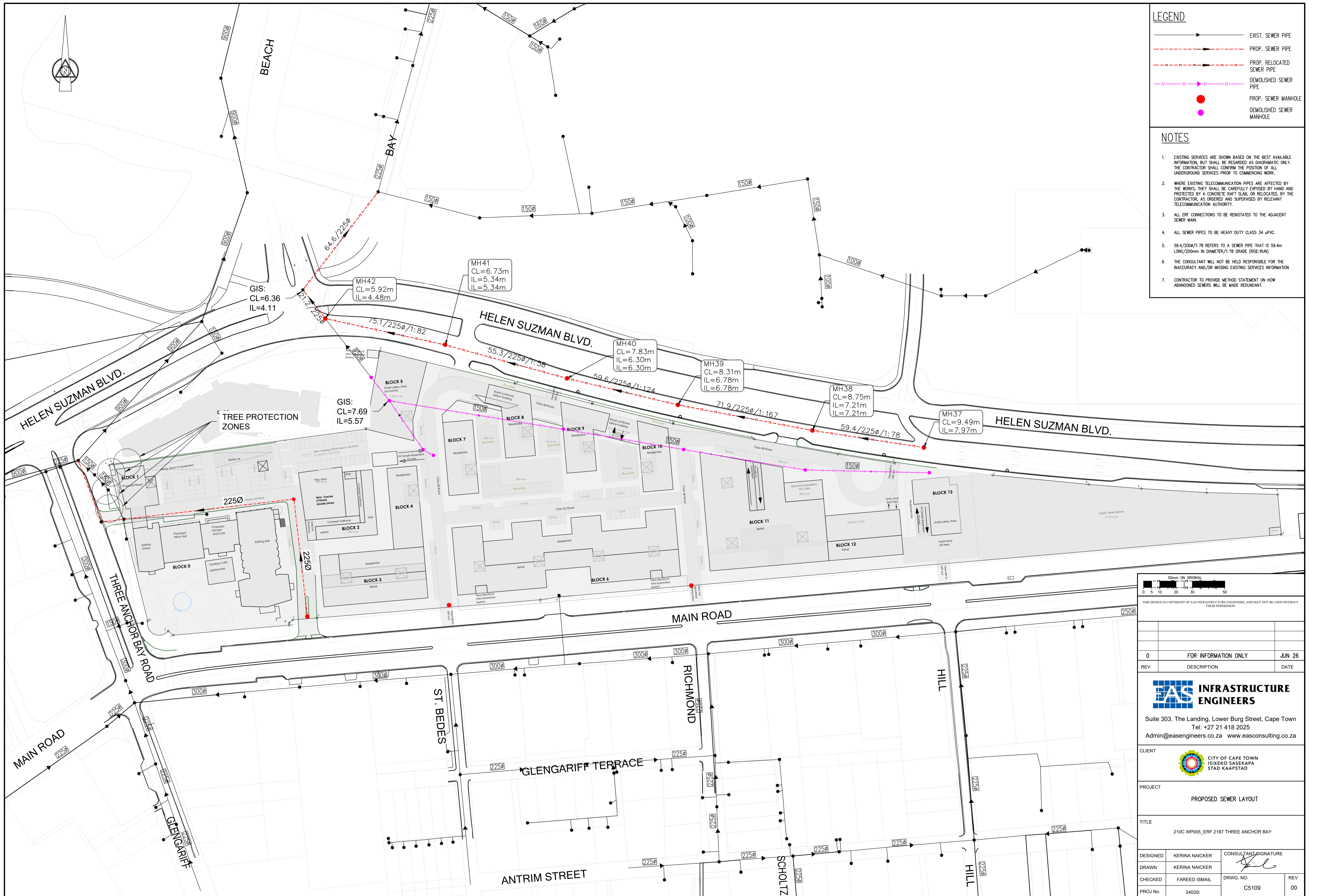
EAS INFRASTRUCTURE ENGINEERS
 Suite 303, The Landing, Lower Burg Street, Cape Town
 Tel: +27 21 418 2025
 Admin@easengineers.co.za www.easconsulting.co.za

CLIENT
 CITY OF CAPE TOWN
 ISIXEKO SASEKAPA
 STAD KAAPSTAD

PROJECT
 PROPOSED WATER LAYOUT

TITLE
 210C WP005_ERF 2187 THREE ANCHOR BAY

DESIGNED	KERINA NAICKER	CONSULTANT SIGNATURE	
DRAWN	KERINA NAICKER		
CHECKED	FAREED ISMAIL	DRWG. NO.	REV
PROJ No.	240201	C5108	00



LEGEND

- EXIST. SEWER PIPE
- PROP. SEWER PIPE
- PROP. RELOCATED SEWER PIPE
- DEMOLISHED SEWER PIPE
- PROP. SEWER MANHOLE
- DEMOLISHED SEWER MANHOLE

- NOTES**
- EXISTING SERVICES ARE SHOWN BASED ON THE BEST AVAILABLE INFORMATION, BUT SHALL BE REGARDED AS DIAGRAMATIC ONLY. THE CONTRACTOR SHALL CONFIRM THE POSITION OF ALL UNDERGROUND SERVICES PRIOR TO COMMENCING WORK.
 - WHERE EXISTING TELECOMMUNICATION PIPES ARE AFFECTED BY THE WORKS, THEY SHALL BE CAREFULLY EXPOSED BY HAND AND PROTECTED BY A CONCRETE RAFT SLAB, OR RELOCATED, BY THE CONTRACTOR, AS ORDERED AND SUPERVISED BY RELEVANT TELECOMMUNICATION AUTHORITY.
 - ALL ERF CONNECTIONS TO BE REINSTATED TO THE ADJACENT SEWER MAIN.
 - ALL SEWER PIPES TO BE HEAVY DUTY CLASS 34 uPVC.
 - 59.4/225Ø/1:78 REFERS TO A SEWER PIPE THAT IS 59.4m LONG/225mm IN DIAMETER/1:78 GRADE (RISE:RUN)
 - THE CONSULTANT WILL NOT BE HELD RESPONSIBLE FOR THE INACCURACY AND/OR MISSING EXISTING SERVICES INFORMATION
 - CONTRACTOR TO PROVIDE METHOD STATEMENT ON HOW ABANDONED SEWERS WILL BE MADE REDUNDANT.

50mm ON ORIGINAL
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0	FOR INFORMATION ONLY	JUN 26
REV	DESCRIPTION	DATE

EAS INFRASTRUCTURE ENGINEERS
Suite 303, The Landing, Lower Burg Street, Cape Town
Tel: +27 21 418 2025
Admin@easengineers.co.za www.easconsulting.co.za

CLIENT: CITY OF CAPE TOWN
ISIXEKO SASEKAPA
STAD KAAPSTAD

PROJECT: PROPOSED SEWER LAYOUT

TITLE: 210C WP005_ERF 2187 THREE ANCHOR BAY

DESIGNED	KERINA NAICKER	CONSULTANT SIGNATURE
DRAWN	KERINA NAICKER	
CHECKED	FAREED ISMAIL	DRWG. NO.
PROJ No.	240201	C5109
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ANNEXURE C: SERVICES DEMAND CALCULATIONS

**City of Cape Town Contract 210C
THREE ANCHOR BAY**

THREE ANCHOR BAY DEVELOPMENT YIELD SUMMARY AS PER TOWN PLANNER'S SPREADSHEET:

Scenario	Retail GLA (m ²)	Office GLA (m ²)	Hotel GLA (m ²)	Hotel rooms	Community GLA (m ²)	Affordable units	Open-market units	Total residential units
Scenario 1A: High residential (High Studio/1Bed) and no office.	8379	926	5094	325	1583	249	996	1245
Scenario 1B: High residential (balanced mix) and no office.	8379	926	5094	325	1583	229	914	1143
Scenario 1C: High residential (High 2&3 bed) and no office.	8379	926	5094	325	1583	221	881	1102
Scenario 2A: Residential (High Studio/1Bed) and office	8379	13062	5094	325	1583	204	816	1020
Scenario 2B: Residential (balanced mix) and office	8379	13062	5094	325	1583	186	751	937
Scenario 2C: Residential (High 2&3 bed) and office	8379	13062	5094	325	1583	182	722	904

WATER DEMAND

Water Demand for each Scenario:

Scenario	Total Residential demand (kl/day)	Total Non-Residential demand (kl/day)	Total AADD (kl/day)	Total AADD (l/s)	Peak Daily Flow (l/s) (Pr. day-1.5)	Peak Hourly Flow (Pr. hour-3)
1A	872	174	1045	12.10	18	36
1B	800	174	974	11.27	17	34
1C	771	174	945	10.94	16	33
2A	714	222	936	10.83	16	33
2B	656	222	878	10.16	15	30
2C	633	222	855	9.89	15	30

Water Demand for each Portion and each scenario:

Development Portions	Scenario 1A, AADD per portion (kl/day)	Scenario 1B, AADD per portion (kl/day)	Scenario 1C, AADD per portion (kl/day)
Portion 1	12	12	12
Portion 2a	243	230	225
Portion 2b	558	513	495
Portion 2c	233	219	213
Total AADD (kl/day)	1045	974	945

Development Portions	Scenario 2A, AADD per portion (kl/day)	Scenario 2B, AADD per portion (kl/day)	Scenario 2C, AADD per portion (kl/day)
Portion 1	12	12	12
Portion 2a	223	213	209
Portion 2b	518	479	463
Portion 2c	183	175	172
Total AADD (kl/day)	936	878	855

Firefighting requirements

Provision of water for firefighting			
Risk Classification	Fire Flow (l/s)	Volume of water (l/s)	Volume of water (m ³ /s)
High Risk	100	2160000	2160

SEWER DEMAND

Sewer Demand for each Scenario:

Scenario	Total Residential demand (kl/day)	Total Non-Residential demand (kl/day)	Total ADWF (kl/day)	Total ADWF (l/s)	Peak Dry Weather Flow, PDWF (l/s)	Infiltration @15%	Peak Wet Weather Flow, PWWF (l/s)
1A	398	53	451	5.22	18.33	0.15	21.98
1B	349	53	401	4.66	15.61	0.15	17.15
1C	326	53	378	4.41	14.81	0.15	15.96
2A	326	93	419	4.85	17.36	0.15	19.97
2B	258	93	351	4.05	14.17	0.15	14.32
2C	233	93	326	3.77	13.20	0.15	13.35

Sewer Demand for each Portion and each scenario:

Development Portions	Scenario 1A, ADWF per portion (kl/day)	Scenario 1B, ADWF per portion (kl/day)	Scenario 1C, ADWF per portion (kl/day)
Portion 1	10	10	10
Portion 2a	80	107	134
Portion 2b	258	353	452
Portion 2c	163	152	162
Total ADWF (kl/day)	451	401	378

Development Portions	Scenario 2A, ADWF per portion (kl/day)	Scenario 2B, ADWF per portion (kl/day)	Scenario 2C, ADWF per portion (kl/day)
Portion 1	10	10	10
Portion 2a	75	96	118
Portion 2b	246	332	421
Portion 2c	88	105	123
Total ADWF (kl/day)	419	543	671

Disclaimer: These figures are preliminary estimates prepared for planning purposes only. They are based on City of Cape Town's design guidelines and Red Book standards. Final demands may vary following detailed design.

Comments

Overall Scenario:

Total AADD ranges from:
 Lowest water demand: Scenario 2C at 855 kl/day
 Highest water demand: Scenario 1A at 1045kl/day
 The demand variations between scenarios is relatively small.

Remarks
 This scenario has the **lowest residential units** overall and the **residential demand dominates AADD in this development**
 This scenario has the **highest amount of residential units**

Portion-Based demand:

Lowest water demand: Portion 1 (all scenarios)
 Highest water demand: Portion 2b (Scenario 1A)

Remarks
No residential units are in this portion
 Portion 2b generally includes the **highest residential units** from all portions in this development. Scenario 1A has the **highest res units**.

Overall Scenario:

Total ADWF ranges from:
 Lowest sewer demand: Scenario 2A at 419 kl/day
 Highest sewer demand: Scenario 1C at 758kl/day

Remarks
 This scenario has **residential units that are predominately studio/1-bed rooms** therefore the sewer demand is much lower than the 'B' and 'C' scenarios. Although it shares the same typology as scenario 1A, scenario 2A has **lesser units** even with the extra offices.

Portion-Based demand:

Lowest sewer demand: Portion 1 (all scenarios)
 Highest sewer demand: Portion 2b (Scenario 1C)

Remarks
No residential units are in this portion
 Portion 2b generally includes the **highest residential units** from all portions in this development. Scenario 1C produces the **highest res demand due to it's typology** as well.

Three Anchor Bay Development yield summary table below:

Scenario	Retail GLA (m ²)	Office GLA (m ²)	Hotel GLA (m ²)	Hotel rooms	Community GLA (m ²)	Affordable units	Open-market units	Total residential units
1A	8379	926	5094	325	1583	249	996	1245
1B	8379	926	5094	325	1583	229	914	1143
1C	8379	926	5094	325	1583	221	881	1102
2A	8379	13062	5094	325	1583	204	816	1020
2B	8379	13062	5094	325	1583	186	751	937
2C	8379	13062	5094	325	1583	182	722	904

Water demand calculations based on development yields and six scenarios:

Scenario 1A: High residential (High Studio/1Bed) and no office.
 Scenario 1B: High residential (balanced mix) and no office.
 Scenario 1C: High residential (High 2&3 bed) and no office.
 Scenario 2A: Residential (High Studio/1Bed) and office
 Scenario 2B: Residential (balanced mix) and office
 Scenario 2C: Residential (High 2&3 bed) and office

Retail Development Yields		Red Book Standards (Table 9.14)		Water demand calculation		
Scenario	Retail GLA (m ²)	Category	Area Water Demand (l/day per 100m ²)	Average Annual Daily Demand, AADD (kl/day)	Average Annual Daily Demand, AADD (l/day)	Average Annual Daily Demand, AADD (l/s)
1A	8379	4	400	33.52	33516	0.39
1B	8379	4	400	33.52	33516	0.39
1C	8379	4	400	33.52	33516	0.39
2A	8379	4	400	33.52	33516	0.39
2B	8379	4	400	33.52	33516	0.39
2C	8379	4	400	33.52	33516	0.39

Office Development Yields		Red Book Standards (Table 9.14)		Water demand calculation		
Scenario	Office GLA (m ²)	Category	Annual Average Water Demand (l/day per 100m ²)	Average Annual Daily Demand, AADD (kl/day)	Average Annual Daily Demand, AADD (l/day)	Average Annual Daily Demand, AADD (l/s)
1A	926	4	400	3.70	3704	0.04
1B	926	4	400	3.70	3704	0.04
1C	926	4	400	3.70	3704	0.04
2A	13062	4	400	52.25	52248	0.60
2B	13062	4	400	52.25	52248	0.60
2C	13062	4	400	52.25	52248	0.60

Hotel Development Yields			Red Book Standards (Table J.4)	Water demand calculation		
Scenario	Hotel GLA (m ²)	Hotel rooms	Typical AADD unit demand (l/person)	Average Annual Daily Demand, AADD (kl/day) (assuming average of two people per room)	Average Annual Daily Demand, AADD (l/day)	Average Annual Daily Demand, AADD (l/s)
1A	5094	325	200.00	130.00	130000	1.50
1B	5094	325	200.00	130.00	130000	1.50
1C	5094	325	200.00	130.00	130000	1.50
2A	5094	325	200.00	130.00	130000	1.50
2B	5094	325	200.00	130.00	130000	1.50
2C	5094	325	200.00	130.00	130000	1.50

Community Development Yields		Red Book Standards (Table J.4) (NB: Community GLA comprising of institutional land use, educational land use)		Water demand calculation		
Scenario	Community GLA (m ²)	Average water demand estimate (kl/ha/day)	Average Annual Daily Demand, AADD (kl/day)	Average Annual Daily Demand, AADD (l/day)	Average Annual Daily Demand, AADD (l/s)	
1A	1583	40	6.33	6332	0.07	
1B	1583	40	6.33	6332	0.07	
1C	1583	40	6.33	6332	0.07	
2A	1583	40	6.33	6332	0.07	
2B	1583	40	6.33	6332	0.07	
2C	1583	40	6.33	6332	0.07	

Residential Development Yields				Red Book (Table 9.14)		Water demand calculation				
Scenario	Affordable units	Open-market units	Total residential units	Category	Annual Average Water Demand (l/day)	Affordable units AADD (kl/day)	Open-market units AADD (kl/day)	Total Residential AADD (kl/day)	Total Residential AADD (l/day)	Total Residential AADD (l/s)
1A	249	996	1245	3	700	174.3	697.2	871.5	871500	10.09
1B	229	914	1143	3	700	160.3	639.8	800.1	800100	9.26
1C	221	881	1102	3	700	154.7	616.7	771.4	771400	8.93
2A	204	816	1020	3	700	142.8	571.2	714	714000	8.26
2B	186	751	937	3	700	130.2	525.7	655.9	655900	7.59
2C	182	722	904	3	700	127.4	505.4	632.8	632800	7.32

Scenario	Total Residential demand (kl/day)	Total Non-Residential demand (kl/day)	Total AADD (kl/day)	Total Average Daily Demand, AADD (l/s)	Peak Daily Flow (l/s) (PF _{day} ~1.5)	Peak Hourly Flow (PF _{hour} ~3)
1A	872	174	1045	12.10	18	36
1B	800	174	974	11.27	17	34
1C	771	174	945	10.94	16	33
2A	714	222	936	10.83	16	33
2B	656	222	878	10.16	15	30
2C	633	222	855	9.89	15	30

WATER DEMAND CALCULATION FOR EACH PORTION IN THE DEVELOPMENT

OPTION 1: HIGH RESIDENTIAL - NO OFFICE									
	RETAIL GLA m ²	OFFICE GLA m ²	HOTEL ROOMS	COMMUNITY GLA m ²	Retail AADD (kl/day)	Office AADD (kl/day)	Hotel AADD (kl/day)	Community AADD (kl/day)	Total AADD per portion
Portion 1	425	926	0	1583	2	4	0	6	12
Portion 2a	1188	0	213	0	5	0	85	0	90
Portion 2b	1844	0	0	0	7	0	0	0	7
Portion 2c	4922	0	112	0	20	0	45	0	65
RESIDENTIAL UNITS				AADD (kl/day)					
Scenario 1A summary	Scenario 1B summary	Scenario 1C summary	Scenario 1A AADD (kl/day)	Scenario 1B, AADD (kl/day)	Scenario 1C, AADD (kl/day)				
0	0	0	0	0	0				
218	200	193	152.6	140	135.1				
787	723	697	550.9	506.1	487.9				
240	220	212	168	154	148.4				
Development Portions	Scenario 1A, AADD per portion (kl/day)	Scenario 1B, AADD per portion (kl/day)	Scenario 1C, AADD per portion (kl/day)						
Portion 1	12	12	12						
Portion 2a	243	230	225						
Portion 2b	558	513	495						
Portion 2c	233	219	213						
Total AADD (kl/day)	1045	974	945						

OPTION 2: RESIDENTIAL + OFFICE

	RETAIL GLA m ²	OFFICE GLA m ²	HOTELROOMS	COMMUNITY GLA m ²	Retail AADD (kl/day)	Office AADD (kl/day)	Hotel AADD (kl/day)	Community AADD (kl/day)	Total AADD per portion
Portion 1	425	926	0	1583	2	4	0	6	12
Portion 2a	1188	2349	213	0	5	9	85	0	99
Portion 2b	1844	4658	0	0	7	19	0	0	26
Portion 2c	4922	5129	112	0	20	21	45	0	85

RESIDENTIAL UNITS			AADD (kl/day)		
Scenario 2A summary	Scenario 2B summary	Scenario 2C summary	Scenario 2A AADD (kl/day)	Scenario 2B, AADD (kl/day)	Scenario 2C, AADD (kl/day)
0	0	0	0.0	0.0	0.0
177	162	156	123.9	113.4	109.2
703	647	624	492.1	452.9	436.8
140	128	124	98.0	89.6	86.8

Development Portions	Scenario 2A, AADD per portion (kl/day)	Scenario 2B, AADD per portion (kl/day)	Scenario 2C, AADD per portion (kl/day)
Portion 1	12	12	12
Portion 2a	223	213	209
Portion 2b	518	479	463
Portion 2c	183	175	172
Total AADD (kl/day)	936	878	855

Three Anchor Bay Development yield summary table below:

Scenario	Retail GLA (m ²)	Office GLA (m ²)	Hotel GLA (m ²)	Hotel rooms	Community GLA (m ²)	Affordable units	Open-market units	Total residential units
1A	8379	926	5094	325	1583	249	996	1245
1B	8379	926	5094	325	1583	229	914	1143
1C	8379	926	5094	325	1583	221	881	1102
2A	8379	13062	5094	325	1583	204	816	1020
2B	8379	13062	5094	325	1583	186	751	937
2C	8379	13062	5094	325	1583	182	722	904

Sewer demand calculations based on development yields and six scenarios:

Scenario 1A: High residential (High Studio/1Bed) and no office.
 Scenario 1B: High residential (balanced mix) and no office.
 Scenario 1C: High residential (High 2&3 bed) and no office.
 Scenario 2A: Residential (High Studio/1Bed) and office in podium
 Scenario 2B: Residential (balanced mix) and office in podium
 Scenario 2C: Residential (High 2&3 bed) and office in podium

Design Standards used:

Residential ADWF: 160/person/day x 5.5 persons/dwelling = 880 l/dwelling/day (CoCT Standard)

This development has various scenarios with varying residential units therefore the number of persons per dwelling was refined based on unit typology (studio, 1-bedroom, 2-bedroom, and 3-bedroom units). This will provide a more realistic representation of expected occupancy and prevents the overall demand from being overstated.

Scenario 1A/2A: High Studio/1-bed unit mix = 2 persons/dwelling
 Scenario 1B/2B: Balanced unit mix = 3 persons/dwelling
 Scenario 1C/2C: High 2&3-bed unit mix = 4 persons/dwelling

Office, Retail, Hotel and Community: 3.3 l/m²/day (33 kl/ha/day)
 Peaking factor: Harmon peaking factor formula - $1 + 14 / (4 + \sqrt{P})$

Development Yields		City of Cape Town Standards (Table 2.1)		Sewer Demand Calculation
Scenario	Retail GLA (m ²)	GLA in hectares	Average daily wastewater flow (kl/ha/day)	Average Dry Weather Flow, ADWF (kl/day)
1A	8379	0.84	33	28
1B	8379	0.84	33	28
1C	8379	0.84	33	28
2A	8379	0.84	33	28
2B	8379	0.84	33	28
2C	8379	0.84	33	28

Development Yields		City of Cape Town Standards (Table 2.1)		Sewer Demand Calculation
Scenario	Office GLA (m ²)	GLA in hectares	Average daily wastewater flow (kl/ha/day)	Average Dry Weather Flow, ADWF (kl/day)
1A	926	0.09	33	3
1B	926	0.09	33	3
1C	926	0.09	33	3
2A	13062	1.31	33	43
2B	13062	1.31	33	43
2C	13062	1.31	33	43

Development Yields				City of Cape Town Standards (Table 2.1)	Sewer demand calculation
Scenario	Hotel GLA (m ²)	GLA in hectares	Hotel rooms	Average daily wastewater flow (kl/ha/day)	ADWF (kl/day)
1A	5094	0.5094	325	33	16.8102
1B	5094	0.5094	325	33	16.8102
1C	5094	0.5094	325	33	16.8102
2A	5094	0.5094	325	33	16.8102
2B	5094	0.5094	325	33	16.8102
2C	5094	0.5094	325	33	16.8102

Development Yields		City of Cape Town Standards (Table 2.1)		Sewer Demand Calculation
Scenario	Community GLA (m ²)	GLA in hectares	Average daily wastewater flow (kl/ha/day)	Average Dry Weather Flow, ADWF (kl/day)
1A	1583	0.16	33	5
1B	1583	0.16	33	5
1C	1583	0.16	33	5
2A	1583	0.16	33	5
2B	1583	0.16	33	5
2C	1583	0.16	33	5

Development Yields				City of Cape Town Standards (Table 2.1)		Sewer Demand Calculation				
Scenario	Affordable units	Open-market units	Total residential units	Average daily wastewater flow (l/person/day)	Persons/dwelling	Affordable units ADWF (kl/day)	Open-market units ADWF (kl/day)	Total ADWF (kl/day)	Contributing population, P_persons	Harmon Peaking Factor (PF)
1A	249	996	1245	160	2.0	79.68	318.72	398	2490	3.510
1B	229	914	1143	160	3.0	109.92	438.72	549	3429	3.392
1C	221	881	1102	160	4.0	141.44	563.84	705	4408	3.295
2A	204	816	1020	160	2.0	65.28	261.12	326	2040	3.579
2B	186	751	937	160	3.0	89.28	360.48	450	2811	3.466
2C	182	722	904	160	4.0	116.48	462.08	579	3616	3.372

Scenario	Total Residential demand (kl/day)	Total Non-Residential demand (kl/day)	Total ADWF (kl/day)	Total ADWF (l/s)	Peak Dry Weather Flow, PDWF (l/s)	Infiltration @15%	Q_design (l/s)
1A	398	53	451	5.22	18.33	0.15	21.08
1B	549	53	601	6.96	23.61	0.15	27.15
1C	705	53	758	8.77	28.91	0.15	33.25
2A	326	93	419	4.85	17.36	0.15	19.97
2B	450	93	543	6.28	21.77	0.15	25.03
2C	579	93	671	7.77	26.20	0.15	30.13

SEWER DEMAND CALCULATION FOR EACH PORTION IN THE DEVELOPMENT

OPTION 1: HIGH RESIDENTIAL - NO OFFICE									
	RETAIL GLA m ²	OFFICE GLA m ²	HOTEL GLA m ²	COMMUNITY GLA m ²	Retail AADD (kl/day)	Office ADWF (kl/day)	Hotel ADWF (kl/day)	Community ADWF (kl/day)	Total ADWF per portion
Portion 1	425	926	0	1583	1	3	0	5	10
Portion 2a	1188	0	2038	0	4	0	7	0	11
Portion 2b	1844	0	0	0	6	0	0	0	6
Portion 2c	4922	0	3056	0	16	0	10	0	26
RESIDENTIAL UNITS				ADWF (kl/day)					
Scenario 1A summary	Scenario 1B summary	Scenario 1C summary	Scenario 1A ADWF (kl/day)	Scenario 1B ADWF (kl/day)	Scenario 1C ADWF (kl/day)				
0	0	0	0	0	0				
218	200	193	69.76	96	123.52				
787	723	697	251.84	347.04	446.08				
240	220	212	76.8	105.6	135.68				
Development Portions	Scenario 1A, ADWF per portion (kl/day)	Scenario 1B, ADWF per portion (kl/day)	Scenario 1C, ADWF per portion (kl/day)						
Portion 1	10	10	10						
Portion 2a	80	107	134						
Portion 2b	258	353	452						
Portion 2c	103	132	162						

Total ADWF (kl/day)	451	601	758
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OPTION 2: RESIDENTIAL + OFFICE

	RETAIL GLA m ²	OFFICE GLA m ²	HOTEL GLA m ²	COMMUNITY GLA m ²	Retail ADWF (kl/day)	Office ADWF (kl/day)	Hotel ADWF (kl/day)	Community ADWF (kl/day)	Total ADWF per portion
Portion 1	425	926	0	1583	1	3	0	5	10
Portion 2a	1188	2349	2038	0	4	8	7	0	19
Portion 2b	1844	4658	0	0	6	15	0	0	21
Portion 2c	4922	5129	3056	0	16	17	10	0	43

RESIDENTIAL UNITS			ADWF (kl/day)		
Scenario 2A summary	Scenario 2B summary	Scenario 2C summary	Scenario 2A ADWF (kl/day)	Scenario 2B ADWF (kl/day)	Scenario 2C ADWF (kl/day)
0	0	0	0	0	0
177	162	156	56.64	77.76	99.84
703	647	624	224.96	310.56	399.36
140	128	124	44.8	61.44	79.36

Development Portions	Scenario 2A, ADWF per portion (kl/day)	Scenario 2B, ADWF per portion (kl/day)	Scenario 2C, ADWF per portion (kl/day)
Portion 1	10	10	10
Portion 2a	75	96	118
Portion 2b	246	332	421
Portion 2c	68	105	123
Total ADWF (kl/day)	419	543	671

**City of Cape Town Contract 210C
THREE ANCHOR BAY**

THREE ANCHOR BAY DEVELOPMENT YIELD SUMMARY AS PER TOWN PLANNER'S SPREADSHEET:

Scenario	Retail GLA (m ²)	Office GLA (m ²)	Hotel GLA (m ²)	Hotel rooms	Community GLA (m ²)	Affordable units	Open-market units	Total residential units
1A	8379	1403	5094	325	1355	261	1033	1294
1B	8379	1403	5094	325	1355	242	949	1191
1C	8379	1403	5094	325	1355	230	915	1145
2A	8379	13063	5094	325	1355	214	862	1076
2B	8379	13063	5094	325	1355	193	801	994
2C	8379	13063	5094	325	1355	183	772	955

WATER DEMAND

Water Demand for each Scenario:

Scenario	Total Residential demand (kl/day)	Total Non-Residential demand (kl/day)	Total AADD (kl/day)	Total AADD (l/s)	Peak Daily Flow (l/s) (PF _{day} =1.5)	Peak Hourly Flow (PF _{hour} =3)
1A	906	175	1080	12.50	19	38
1B	834	175	1008	11.67	18	35
1C	802	175	976	11.30	17	34
2A	753	221	974	11.28	17	34
2B	696	221	917	10.61	16	32
2C	669	221	890	10.30	15	31

SEWER DEMAND

Sewer Demand for each Scenario:

Scenario	Total ADWF (kl/day)	Peak Flow (Dry weather) (l/s) (PF=2.5)
1A	864	25.0
1B	807	23.3
1C	781	22.6
2A	780	22.6
2B	734	21.2
2C	712	20.6

Disclaimer: These figures are preliminary estimates prepared for planning purposes only. They are based on City of Cape Town's design guidelines and Red Book standards. Final demands may vary following detailed design.

Three Anchor Bay Development yield summary table below:

Scenario	Retail GLA (m ²)	Office GLA (m ²)	Hotel GLA (m ²)	Hotel rooms	Community GLA (m ²)	Affordable units	Open-market units	Total residential units
1A	8379	1403	5094	325	1355	261	1033	1294
1B	8379	1403	5094	325	1355	242	949	1191
1C	8379	1403	5094	325	1355	230	915	1145
2A	8379	13063	5094	325	1355	214	862	1076
2B	8379	13063	5094	325	1355	193	801	994
2C	8379	13063	5094	325	1355	183	772	955

Retail Development Yields		Red Book Standards (Table 9.14)		Water demand calculation		
Scenario	Retail GLA (m ²)	Category	Area Water Demand (l/day per 100m ²)	Average Annual Daily Demand, AADD (kl/day)	Average Annual Daily Demand, AADD (l/day)	Average Annual Daily Demand, AADD (l/s)
1A	8379	4	400	33.52	33516	0.39
1B	8379	4	400	33.52	33516	0.39
1C	8379	4	400	33.52	33516	0.39
2A	8379	4	400	33.52	33516	0.39
2B	8379	4	400	33.52	33516	0.39
2C	8379	4	400	33.52	33516	0.39

Office Development Yields		Red Book Standards (Table 9.14)		Water demand calculation			Previous Demand	Difference
Scenario	Office GLA (m ²)	Category	Annual Average Water Demand (l/day per 100m ²)	Average Annual Daily Demand, AADD (kl/day)	Average Annual Daily Demand, AADD (l/day)	Average Annual Daily Demand, AADD (l/s)	Average Annual Daily Demand, AADD (kl/day)	
1A	1403	4	400	5.61	5612	0.06	3.704	-1.91
1B	1403	4	400	5.61	5612	0.06	3.704	-1.91
1C	1403	4	400	5.61	5612	0.06	3.704	-1.91
2A	13063	4	400	52.25	52252	0.60	52.249	0.00
2B	13063	4	400	52.25	52252	0.60	52.249	0.00
2C	13063	4	400	52.25	52252	0.60	52.249	0.00

Hotel Development Yields		Red Book Standards (Table 1.4)		Water demand calculation		
Scenario	Hotel GLA (m ²)	Hotel rooms	Typical AADD unit demand (l/person)	Average Annual Daily Demand, AADD (kl/day per room) (assuming average of two people per room)	Average Annual Daily Demand, AADD (l/day)	Average Annual Daily Demand, AADD (l/s)
1A	5094	325	200.00	130.00	130000	1.50
1B	5094	325	200.00	130.00	130000	1.50
1C	5094	325	200.00	130.00	130000	1.50
2A	5094	325	200.00	130.00	130000	1.50
2B	5094	325	200.00	130.00	130000	1.50
2C	5094	325	200.00	130.00	130000	1.50

Community Development Yields		Red Book Standards (Table 1.4) (ie: Community GLA comprising of institutional land use, without retail land use)		Water demand calculation			Previous Demand	Difference
Scenario	Community GLA (m ²)	Average water demand estimate (kl/ha/day)	Average Annual Daily Demand, AADD (kl/day)	Average Annual Daily Demand, AADD (l/day)	Average Annual Daily Demand, AADD (l/s)	Average Annual Daily Demand, AADD (kl/day)		
1A	1355	40	5.42	5420	0.06	6.332	0.91	
1B	1355	40	5.42	5420	0.06	6.332	0.91	
1C	1355	40	5.42	5420	0.06	6.332	0.91	
2A	1355	40	5.42	5420	0.06	6.332	0.91	
2B	1355	40	5.42	5420	0.06	6.332	0.91	
2C	1355	40	5.42	5420	0.06	6.332	0.91	

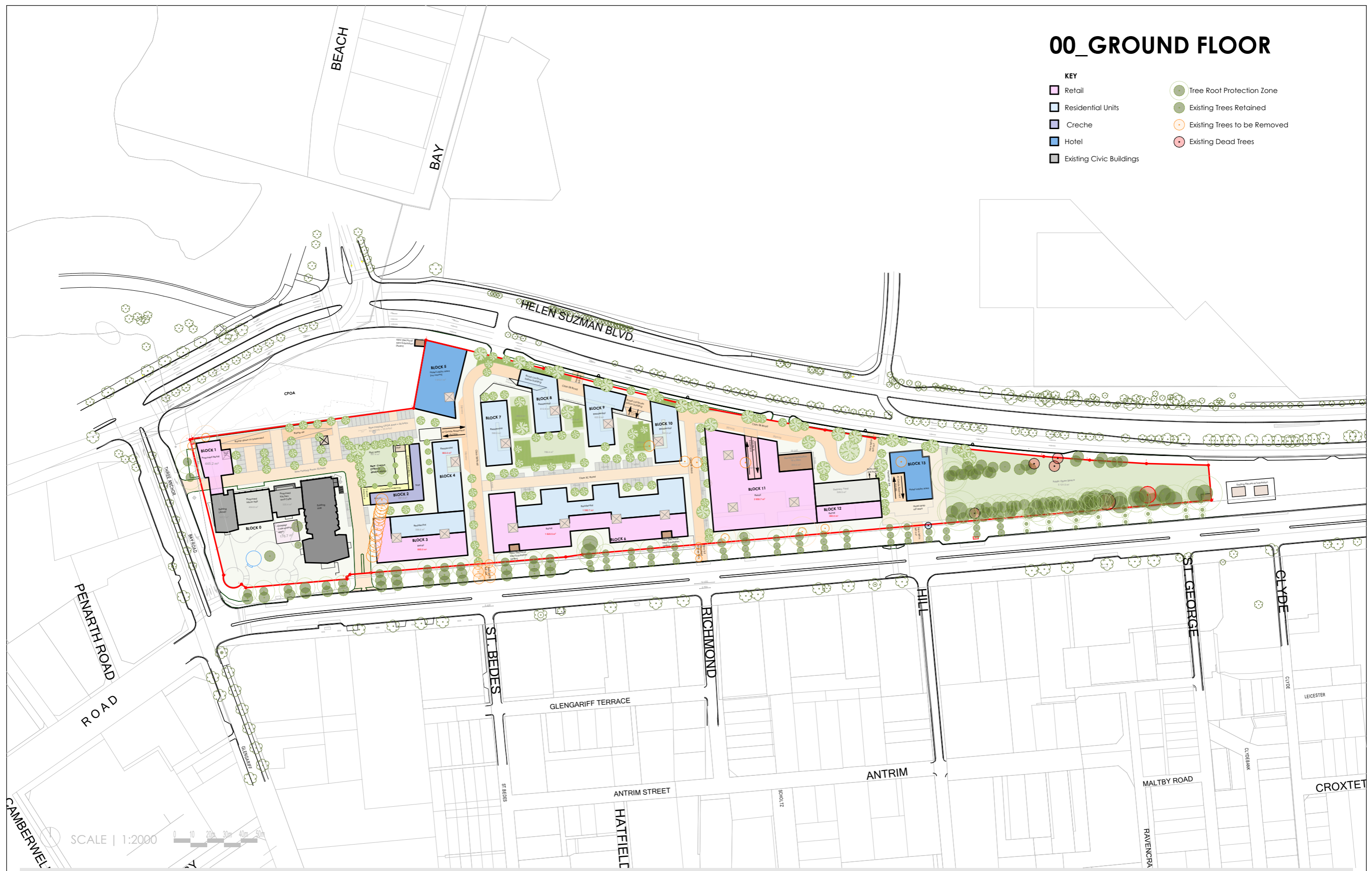
Residential Development Yields				Red Book (Table 9.14)		Water demand calculation					Previous Demand	Difference
Scenario	Affordable units	Open-market units	Total residential units	Category	Annual Average Water Demand (l/day)	Affordable units AADD (kl/day)	Open-market units AADD (kl/day)	Total Residential AADD (kl/day)	Total Residential AADD (l/day)	Total Residential AADD (l/s)	Total Residential AADD (kl/day)	
1A	261	1033	1294	3	700	182.7	723.1	905.8	905800	10.46	871.5	-34.30
1B	242	949	1191	3	700	169.4	664.3	833.7	833700	9.66	800.1	-33.60
1C	230	915	1145	3	700	161	640.5	801.5	801500	9.28	771.4	-30.10
2A	214	862	1076	3	700	149.8	603.4	753.2	753200	8.72	714	-39.20
2B	193	801	994	3	700	135.1	560.7	695.8	695800	8.05	655.9	-39.90
2C	183	772	955	3	700	128.1	540.4	668.5	668500	7.74	632.8	-35.70

Scenario	Total Residential demand (kl/day)	Total Non-Residential demand (kl/day)	Total AADD (kl/day)	Total Average Daily Demand, AADD (l/s)	Peak Daily Flow (l/s) (PF _{day} +1.5)	Peak Hourly Flow (PF _{hour} +3)	Total AADD (kl/day)	Peak Daily Flow (l/s) (PF _{day} +1.5)	Peak Hourly Flow (PF _{hour} +3)
1A	906	175	1080	12.50	19	38	1045	18	36
1B	834	175	1008	11.67	18	35	974	17	34
1C	802	175	976	11.30	17	34	945	16	33
2A	753	221	974	11.28	17	34	936	16	33
2B	696	221	917	10.61	16	32	878	15	30
2C	669	221	890	10.30	15	31	855	15	30

**ANNEXURE D: SITE DEVELOPMENT CONCEPT AND LANDSCAPE
MASTERPLAN**

00_GROUND FLOOR

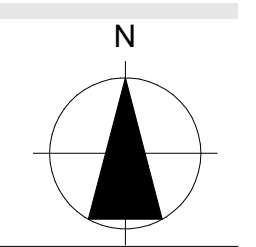
- KEY**
- Retail
 - Residential Units
 - Creche
 - Hotel
 - Existing Civic Buildings
 - Tree Root Protection Zone
 - Existing Trees Retained
 - Existing Trees to be Removed
 - Existing Dead Trees





B1 LANDSCAPE MASTERPLAN
SCALE 1:1000

LEGEND	
	SOFT LANDSCAPED GARDEN AREAS
	SWALES / DETENTION PONDS
	EXISTING PLANTING
	EXISTING GRASSED ROAD VERGES
	PAVED PEDESTRIAN ROUTE
	PEDESTRIAN COURTS/ PLAZA
	ROADWAY
	NEW STREET TREE, SUITABLE FOR SWALES
	NEW COURTYARD/ PLAZA ACCENT TREE
	NEW SCREENING TREE
	EXISTING TREE - REFER TO TREE SURVEY
	EXISTING TREE - TO BE REMOVED
	EXISTING TREE - SURVEYED
	PEDESTRIAN MOVEMENT
	VEHICULAR MOVEMENT



ANNEXURE E: COCT CAPACITY ASSESSMENT OF EXISTING WATER AND SEWER INFRASTRUCTURE



Water & Sanitation Head Office
Cnr Voortrekker & Mike Pienaar Blvd
Bellville 7530
Tel: **+27 021 400 5250**
Fax: **+27 21 970 3140**
E-mail: water.info@capetown.gov.za
Evaluators:
T.Mcinga (Original analysis)
T. Adams (revised)

Water & Sanitation Head Office
Cnr Voortrekker & Mike Pienaar Blvd
Bellville 7530
Umnxeba: **+27 021 400 5250**
Ifeksi: **+27 21 970 3140**

Water en Sanitasie Hoof Kantoor
H/V Voortrekker & Mike Pienaar Blvd
Bellville 7530
Tel: **+27 021 400 5250**
Faks: **+27 21 970 3140**

Reference: 20250312_T (revision 2)

Date: 2026/06/08

Attention: Kerina Naicker
Company: EAS Infrastructure Engineers
Email: KerinaNaicker@easengineers.co.za

COMMENT ON WATER AND SANITATION CAPACITY AND DEVELOPMENT CONDITIONS FOR THE PROPOSED THREE ANCHOR BAY INTEGRATED MIXED USE DEVELOPEMENT

Background

EAS Infrastructure Engineers have been appointed by the City of Cape Town as the professional team for the Three Anchor Bay Project on Erf 2187. Previous analyses were completed in 2013, 2016 (Lyners and Associates) and again in 2025. The last capacity letter indicated capacity for 755 Kℓ/d AADD water and 604 Kℓ/d ADWF for sewer. An amended application was submitted in 2026 based on the applicant's scenario 1A, which reduces the retail office spaces but increases residential units.

This letter provides an overview of the existing water and sewer infrastructure near the development, the capacity of both complete systems to service it as well as associated conditions that would apply. The information provided is based on the City of Cape Town master plan model as well as comments from relevant branches of the department.

Table 1: Estimated water demand and sewer flow anticipated for the proposed development

Description		Potable Water Demand ¹			Sewer Flow ²	
	Quantity (Units/Area/ No. people)	Total AADD (kℓ/d)	Peak Flow (ℓ/s) (PF= 3.00)	Fire Flow (ℓ/s)	Total ADWF (kℓ/d)	Peak Flow (Dry weather) (ℓ/s) (PF=Mixed)
Retail	8379 m ² GLA	33.52	1.16	100	31.84	0.55
Office	13062 m ² GLA	52.25	1.81		49.64	0.86
Hotel Area	5094 m ² GLA	20.38	0.71		19.36	0.34
Hotel Rooms	325 Rooms	65.00	2.26		61.75	1.07
Community	1583 m ² GLA	3.17	0.11		3.01	0.05
Affordable Housing	249 DU	174.30	6.05		156.87	3.63
Open market units	996 DU	697.20	24.21		627.48	14.53
TOTALS		1045.81	36.31		100.00	949.94

Notes:

¹ Based on applicant's submitted total AADD estimated at 0.4 kℓ/d/100 m² (business/commercial) , 200 ℓ/room (hotel rooms), 0.7 and 0.62 kℓ/u/d (residential)

² Recalculated based on 95% AADD for sewer flows (Commercial) 95% sewer AADD for flows (residential)

Water Reticulation***Distribution zone***

The proposed development is situated in the Molteno distribution zone.

Present situation

There are several mains within close proximity of the proposed development.

- A 150 mm Ø along Three Anchor Bay Road
- A 225 mm Ø along Bowlers Road
- A 300 mm Ø along Helen Suzman Road
- A 600 mm Ø Reticulation main along Helen Suzman Road.

The proposed development was modelled on the Integrated Planning hydraulic model. Modelled results indicated that the 225 mm Ø main had a demand head of 78m with peak velocities at 1.21 m/s, both within acceptable ranges. It should be noted that the 600 mm Ø main is not to be connected to.

There is sufficient pressure and flow capacity within the surrounding water network to supply the proposed development.

See Figure 1 for water reticulation layout and Figure 2 for water modelled results.

Bulk Water

No bulk water pipelines or infrastructure under the control of the City of Cape Town's Bulk Water Branch exist in the immediate vicinity of this land.

The bulk supply system has sufficient water resource, treatment, bulk storage and conveyance capacity to supply the estimated annual average daily demand of **1045 kℓ/d** of the proposed development.

Sewer Reticulation***Drainage area***

The development falls within the existing Green Point outfall drainage area.

Present situation

The proposed development can potentially be served by the following mains:

- 150 mm Ø sewer main along Helen Suzman Road feeding into a 225 mm Ø along Bay Road
- 150 mm Ø sewer along Three Anchor Bay Road feeding into a 900 mm Ø bulk sewer collector along Beach Road

Modelled results indicate that the 150 mm Ø pipe feeding into the 225 mm Ø Bay Road sewer has insufficient capacity to accommodate the full demand of the proposed development (see Figure 3).

In contrast, the 900 mm Ø sewer along Beach Road has sufficient capacity to support the development. However, the short section of 150 mm Ø pipe connecting to the 900 mm Ø main may require upgrading to convey the additional flows (see Figure 4).

Alternatively (and subject to approval by the Regional Head (Sewer)), no upgrades will be required if the demand load is distributed across the two separate mains.

www.capetown.gov.za

There is sufficient capacity support the proposed development.

Please See Figure 3 - 4 attached for existing sewer network layout.

Wastewater

There is sufficient unallocated spare capacity at the Green Point Outfall to accommodate the ADWF of 950 Kℓ/d from this development. Should the development proceed kindly provide indicative phasing and timelines to the Waste Water branch (Wastewater.Info@capetown.gov.za).

Conclusion

There is sufficient capacity within the existing water and sewer networks to support the proposed development.

Conditions

The Water and Sanitation Department supports the proposed application provided the following conditions implemented:

- Subject to building plan approval
- Development contributions are payable as per the Development Contribution Policy, to be quantified by the Reticulation Regional Head.
- All costs, relating to alterations to the existing water and sewerage systems and the provision of new water and sewer connections, will be for the account of the applicant.
- Detailed drawings of water and sewer services must be submitted for approval, before the commencement of any work.
- The Reticulation Branch to be contacted 72 hours before the commencement of construction activities.
- All link services are to be installed prior to occupation of any dwelling.

Additional Technical Requirements

- The water and sewer capacities allocated according to this document shall not be reserved if not taken up before the lesser of 5 years or the approved development period.
- Water and Sanitation municipal service designs to be designed according to Departmental Service Standards and be approved prior to construction. These standards can be obtained on the City of Cape Town Website

General/ Disclaimer

Information provided is based on best available data. The infrastructure as-built information referred to and used in the analysis is based on the GIS asset records, while modelled pressures, flows, velocities, capacities and volumes are based on hydraulic models of the current land use and demands. Where appropriate, future land use and demands are considered. The flows and pressures provided are theoretical and not measured. All levels provided to be verified on site.

Yours faithfully

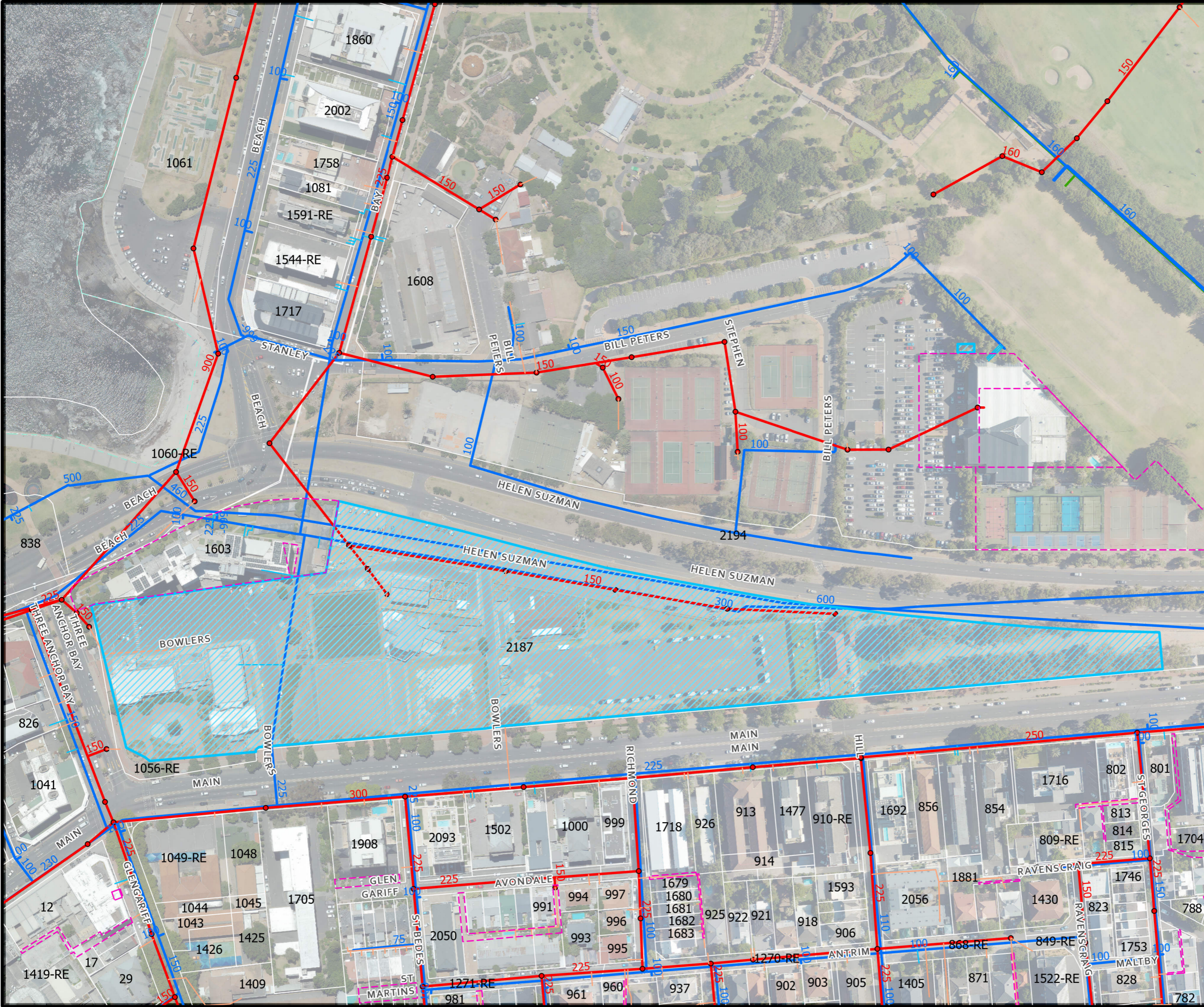
On behalf of

Zolile Basholo

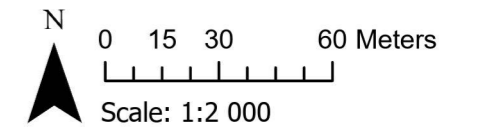
DIRECTOR: TECHNICAL SERVICES, WATER AND SANITATION DIRECTORATE

Table 2: For Internal use only

BRANCH	CONTACT PERSON	INPUT PROVIDED
Integrated Planning	Thandolwethu Mcinga (primary analysis)	2025/06/02
	Thaakier Adams (minor corrections)	2025/06/06
	Thaakier Adams (revised analysis based on updated demands)	2026/05/12
Bulk Water	Bulk water info: S Sanglay	2026/05/21
Reticulation	Whidaad Nazier/ Jerome Brophy	2016/10/21
	Lochan Moodley	2026/05/26
	Roger Williams	2026/05/13
Wastewater Treatment	Sven Sötemann	2025/06/17
	Waste Water Info	2026/05/26



- LEGEND**
- mp_water_project_buffers_202510
- ZONES AND FOOTPRINTS**
- - - servitude
 - ▨ proposed_development
 - region 4
- SEWER**
- sewer - connection line (leading)
 - sewer - manholes
 - sewer - gravity mains
- WATER__**
- water - connection lines (leadings)
 - water pipelines
 - spring water - mains



TITLE:
Figure 1:
Water and Sewer
infrastructure Overview

DONE BY:
 Integrated Planning
 Technical Services Department
 Water and Sanitation Directorate
 2026-05

DISCLAIMER
 Information provided is based on best available data. The flows and pressures provided in this comment are theoretical and not measured.

All information shown must be verified on site before commencing any planning or construction



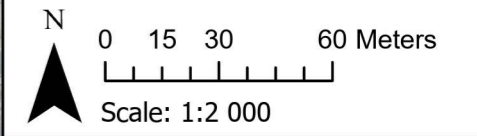


LEGEND

proposed_development

DEMAND HEAD

- <0
- 0 - 12
- 12 - 24
- 24 - 40
- 40 - 60
- 60 - 90
- 90 - 120
- >120
- <out of range>
- schematic pipelines



TITLE:
 Figure 2:
 Modelled Water Pressures

DONE BY:
 Integrated Planning
 Technical Services Department
 Water and Sanitation Directorate
 2026-05
 Model: 1-950

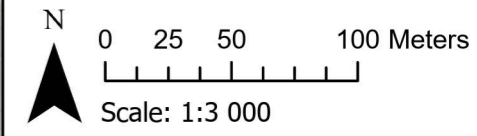
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LEGEND

- - - rising mains
- RELATIVE SPARE CAPACITY (%)
- <0
- 0-15
- 15-30
- 30-60
- 60-90
- >90
- <out of range>
- - - sewer - pressurised mains
- proposed_development



TITLE:
 Figure: 5
 Sewer Modelled Results
 Existing Model: Relative Spare Capacity
 PEAK FLOW 21 l/s

DONE BY:
 Integrated Planning
 Technical Services Department
 Water and Sanitation Directorate
 2026-05

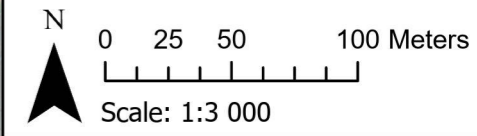
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LEGEND

- - - rising mains
- RELATIVE SPARE CAPACITY (%)
- <0
- 0-15
- 15-30
- 30-60
- 60-90
- >90
- <out of range>
- - - sewer - pressurised mains
- proposed_development



TITLE:
 Figure: 6
 Sewer Modelled Results
 Existing Model: Relative Spare Capacity
 into 900 DN
 PEAK FLOW 21 l/s

DONE BY:
 Integrated Planning
 Technical Services Department
 Water and Sanitation Directorate
 2026-05

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LEGEND

- - - rising mains
- RELATIVE SPARE CAPACITY (%)
- <0
- 0-15
- 15-30
- 30-60
- 60-90
- >90
- <out of range>
- - - sewer - pressurised mains
- proposed_development

N

0 25 50 100 Meters

Scale: 1:3 000

TITLE:
 Figure: 5
 Sewer Modelled Results
 Existing Model: Relative Spare Capacity
 PEAK FLOW 21 l/s

DONE BY:
 Integrated Planning
 Technical Services Department
 Water and Sanitation Directorate
 2026-05

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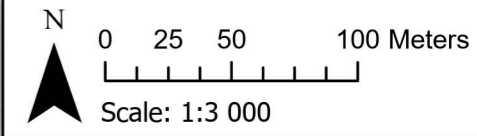
CITY OF CAPE TOWN
 ISIXEKO SASEKAPA
 STAD KAAPSTAD

Making progress possible. Together.



LEGEND

- - - rising mains
- RELATIVE SPARE CAPACITY (%)
- <0
- 0-15
- 15-30
- 30-60
- 60-90
- >90
- <out of range>
- - - sewer - pressurised mains
- proposed_development



TITLE:
 Figure: 6
 Sewer Modelled Results
 Existing Model: Relative Spare Capacity
 into 900 DN
 PEAK FLOW 21 l/s

DONE BY:
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 Technical Services Department
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 2026-05

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