ONPOINT
PROJECT ENGINEERS LTD.

111-957 Langford Parkway
Victoria, BC V9B 0A5
T: (250) 478-7875
www.oppel.ca

Memorandum

File: 355-01

Date: February 24, 2024

Jensen Group Architects
Suite 111 1034 Johnson Street
Victoria, BC
V8V 3N7

Attention: Don Brown, Architect AIBC

Reference: 101 Bittancourt Application for Sanitary Extension Rev. A

On Point Project Engineers Ltd. has prepared the following memorandum Revision A to accommodate the 101 Bittancourt application for the sanitary extension. The revision addresses comments from the CRD requesting inclusion of 276 Fulford-Ganges property as well as extending the sewer beyond 101 Bittancourt. The project requests the sanitary sewer be extended 330m from the existing gravity main at Dean Road and Fulford-Ganges Road to 101 Bittancourt Road (Refer to Exhibit A) to service the Sea Breeze Inn being renovated by the Lady Minto Hospital Foundation to provide long term housing for healthcare workers.

As outlined in the CRD Local Service Area Inclusion Requests Guideline (Exhibit B):

2. *Provide details on the whole development including, but not limited to:*
   - *Civic Address and Legal Description of the property:*
     - 101 Bittancourt Road, Saltspring Island, BC. VIP 2947. LOT A SECTION 19 RANGE 4E COWICHAN PLAN VIP2947 PORTION NORTH SALT SPRING, EXCEPT PLAN 42952
   - *Current zoning of the property*
     - CA2(a).
   - *Number of existing or proposed buildings on the property, and their proposed use (i.e., residential, commercial, etc.):*
     - Three (3) adjoined buildings. Long term residential housing for health care workers.
   - *Total number of units and total square footage of all buildings:*
     - 17 Units. 11,195 sqft (1040m²)
   - *Equivalent population for the whole property to be served:*

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  - Equivalent Population: 48 (2.8 persons per unit)
- *Average daily flow, peak hourly flow, and inflow and infiltration allowance. (for sanitary sewer connection only)*
  - Average Daily Dry Weather Flow: 240 litres per day per capita (L/d/c) (Per MMCD Design Guidelines 2022).
  - Peak Hourly Flow: 2,160 litres / hour (L / hr)
  - Inflow & Infiltration Allowance: 0.1 litres / second

The downstream capacity of the existing system should be confirmed adequate before additional sanitary connections are made. Preliminary flow calculations show the 200mm main may run at 3% capacity upstream (approximately 1.7L/s) of the existing sanitary main with the assumed connections from the lots highlighted in Exhibit C. The proposed 200mm main at 95% could handle approximately 62 L/s therefore this portion of the system provides capacity for either densification within the site boundary or future extensions of the main. If the lot is rezoned to CA1 zoning the property could be allowed up to 50 units. Exhibit D demonstrates the increased flow may result in the pipe running at 4% capacity upstream of the existing sanitary main. This extension provides the possibility of connection from properties fronting Fulford – Ganges Road with the potential for sanitary extensions along Dean Road, Bittancourt & Alders.

Sincerely,

Prepared by:

Tanner Dobson, P.Eng.

Reviewed:

PROFESSIONAL ENGINEER
PROVINCE OF
M. TING
58959
2024-02-23

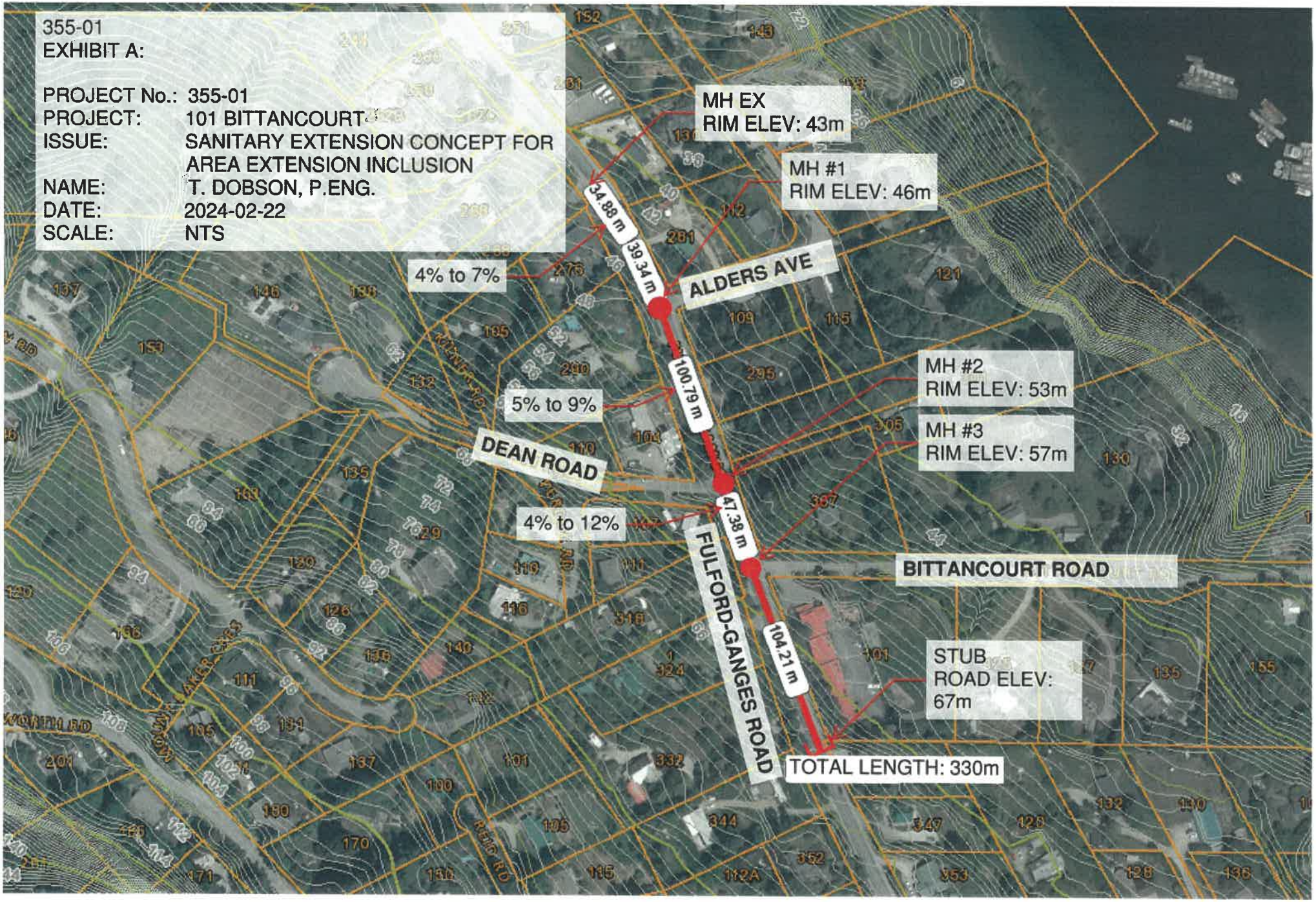
PERMIT TO PRACTICE
On Point Project Engineers Ltd.
2024-02-23
Michelle Ting, P.Eng.
PERMIT NUMBER 1002973
Engineers and Geoscientists of BC

Michelle Ting, P.Eng.

c.
Frank Copley – On Point Project Engineers Ltd.

Attachments

Exhibit A – Sketch Sanitary Extensions Concept
Exhibit B – CRD Local Service Area Inclusion Requests Guideline
Exhibit C – Residents Included
Exhibit D – Calculations


355-01
EXHIBIT A:
PROJECT No.: 355-01
PROJECT: 101 BITTANCOURT
ISSUE: SANITARY EXTENSION CONCEPT FOR AREA EXTENSION INCLUSION
NAME: T. DOBSON, P.ENG.
DATE: 2024-02-22
SCALE: NTS
MH EX
RIM ELEV: 43m
MH #1
RIM ELEV: 46m
34.88 m
39.34 m
4% to 7%
ALDERS AVE
100.79 m
MH #2
RIM ELEV: 53m
MH #3
RIM ELEV: 57m
5% to 9%
DEAN ROAD
47.38 m
4% to 12%
FULFORD-GANGES ROAD
BITTANCOURT ROAD
104.21 m
STUB
ROAD ELEV:
67m
TOTAL LENGTH: 330m

355-01
EXHIBIT B

CRD LOCAL SERVICE AREA INCLUSION REQUESTS GUIDELINE

Below is a general step-by-step process for a property that is currently located outside of a CRD Local Service Area but would like to be included in the Service Area:

1. Write a letter to the Capital Regional District (CRD) requesting inclusion into the Service Area.
2. Provide details on the whole development including, but not limited to:
    - Civic Address and Legal Description of the property
    - Current zoning of the property
    - number of existing or proposed buildings on the property, and their proposed use (ie, residential, commercial, etc),
    - total number of units and total square footage of all buildings,
    - equivalent population for the whole property to be served,
    - average daily flow, peak hourly flow, and inflow and infiltration allowance. (for sanitary sewer connection only)
    - domestic water peak demand based on total fixture units. (for water service connection only)
    - The above information will have to be signed and sealed by a professional engineer.
3. Provide a deposit for the CRD to review your information and what impacts it may have on the service. We can follow up with the estimated cost of the CRD's analysis once the information in item 2 has been provided.
4. CRD staff will present the letter and information from item 2 to the Service Area Commission at a Commission Meeting. The Service Area Commissions meet at the call-of-the-chair, typically 3-4 times a year. There are no pre-scheduled set meetings for the Commissions.
5. CRD staff will request direction from the Commission whether to proceed with the analysis or not.
6. If direction is to proceed, the applicant will need to provide a deposit to complete the analysis.
7. Once the analysis is complete, CRD staff will present the results to the Commission, and request direction on whether to proceed with the service area inclusion or not.
8. If the Service Area Commission directs staff to proceed with the service area inclusion, a bylaw will need to be prepared to amend the service area.
9. The bylaw will be presented to the Service Area Commission and the CRD Board for 1st, 2nd and 3rd reading and then sent to the Inspector of Municipalities for approval. After the Inspector of Municipalities approves the bylaw, the CRD Board will make final adoption of the bylaw.
10. Once the Service Bylaw is amended, the applicant can proceed with the process of design and construction of the service extension/connection.
11. The property owner will have to apply for a connection and commence with making annual user fee payment and parcel tax payments to use the service.

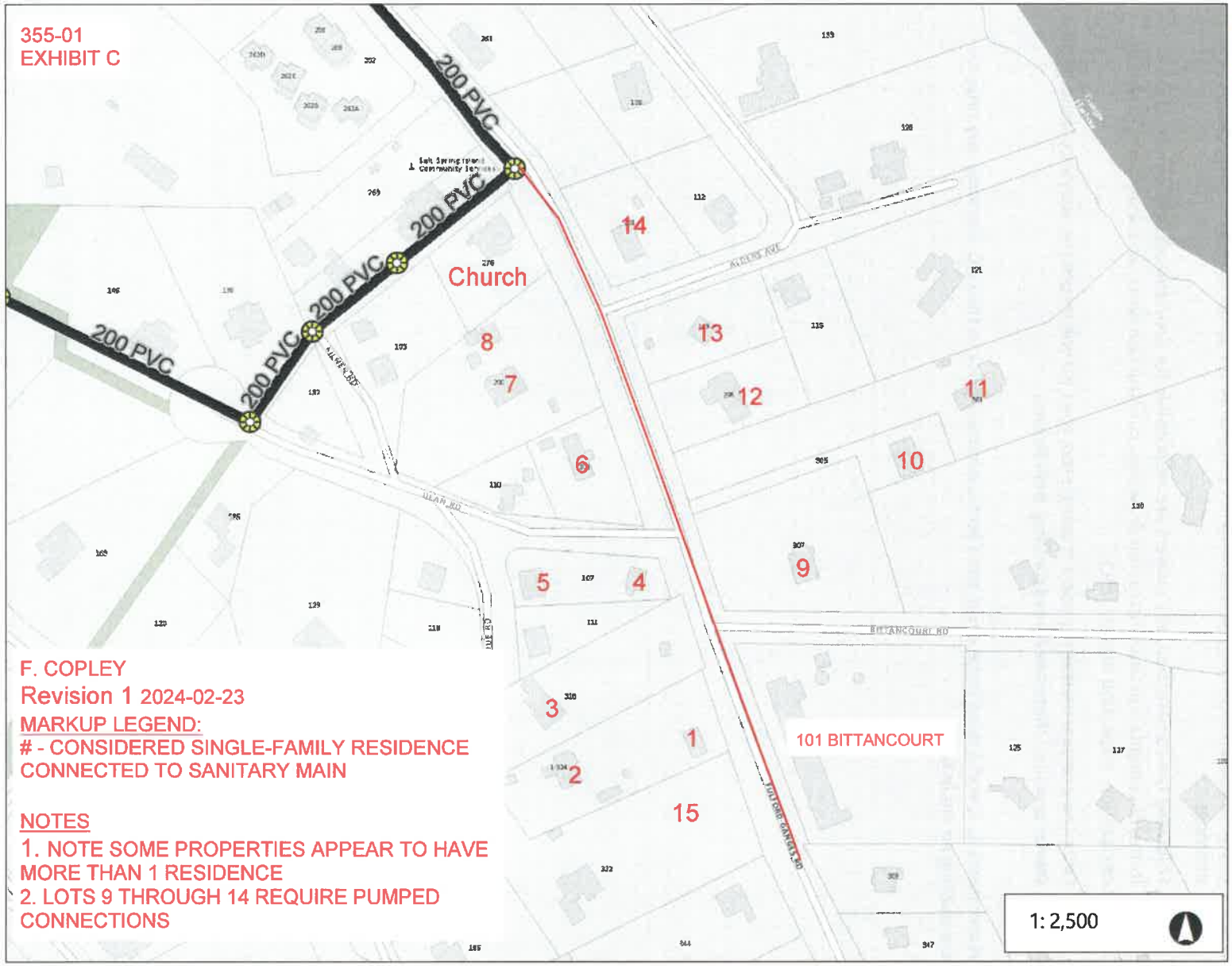
12. The service/main extension and/or connection will have to be designed by a Professional Engineer. Another deposit will be required for CRD's time to review the design and assist the consultant in getting the project "construction-ready".
13. Once the connection/extension design is accepted by the CRD, and all other pre-construction items are received (agreements, connection deposit, insurance, permits, etc), construction can begin. More details of the pre-construction items will be provided at this point. The owner will hire a contractor to install the connection/extension to the specifications of the design drawings.
14. Following the construction, the owners are responsible for providing all post-construction items/documentation (as-constructed drawings, construction costs, warranty bond, statutory declaration, inspection reports, etc).
15. Once the one year warranty period is completed, the CRD will return the warranty bond to the owner provided there are no outstanding deficiencies.

Note: Items 1, 2, and 3 need to be completed and submitted, prior to the CRD spending any time on conducting an analysis.

Seabreeze Inn Proximity to Existing Sewer Service

Making a difference...together

355-01
EXHIBIT C



F. COPLEY
Revision 1 2024-02-23

MARKUP LEGEND:
- CONSIDERED SINGLE-FAMILY RESIDENCE CONNECTED TO SANITARY MAIN

NOTES
1. NOTE SOME PROPERTIES APPEAR TO HAVE MORE THAN 1 RESIDENCE
2. LOTS 9 THROUGH 14 REQUIRE PUMPED CONNECTIONS

Legend

Facility or Station
- Air Release Chamber
- Degrit Chamber
- Diversion Chamber
- Junction Chamber
- Metering Chamber
- Observation Chamber
- Odour Chamber
- Overflow Chamber
- Pigging Chamber
- Transition Chamber
- Pump Station
- Storage Basin or Tank
- Treatment Plant

Air, Drain, Inline Valve
- Air
- Drain
- Inline

- Clean Out
- Manhole
- Vent
- Pressurized Main Flow Directic
- Gravity Main Flow Direction
- Pressurized Main
- Gravity Main
- Collector

Notes

127.0 0 63.5 127.0 Meters

NAD_1983_UTM_Zone_10N

EXHIBIT D - BITTANCOURT SANITARY SEWER FLOW ANALYSIS - CALCULATIONS

PROJECT: 101 Bittancourt Road
Company: On Point Project Engineers Ltd.
Address: #111 - 957 Langford Parkway, Langford, BC, V9B 0A5
Engineer: T. Dobson, P.Eng.

Seal/Engineers Stamp

Date: Feb 23/24
Design: TD

Manning's Equation
V=(1/n)(R^2/3)(s^1/2)
Q=VA

Area	Area Hectares (A)	Single Family Home	Town Home	Condo	Indust. Area	Comm. Area	Resid. Area	SFE Equiv	TH Equiv	Condo Equiv	Indust. Equiv	Comm. Equiv	Resid. Equiv	Equiv Pop.	SEWAGE FLOW Cum. Equiv Pop.	Peaking Factor	Peak Flow L/s	INFILTRATION Infil. L/s	Total Flow L/s	Total Flow m^3/s	CRITICAL SEWER LINK MH to MH	Pipe Size m	Pipe slope %	Capacity m^3/s	Velocity m/s	PASS OR FAIL ?	
Current Architectural Plan																											
101 Bittancourt to MH#3*	0.8	0	17	0	0	0	0	0	48	0	0	0	0	48	48	4.32	0.6	0.1	0.7	0.001		0.2	3	0.057	1.81	PASS	1%
MH#3 to Existing Connection	1.4	15	0	0	0.2	0	0	60	0	0	10	0	0	70	118	4.22	1.4	0.3	1.7	0.002	1.664905	0.2	4	0.066	2.09	PASS	3%
Scenario: 101 Brittancourt with CA1(a) Zoning																											
101 Bittancourt to MH#3**	0.8	0	50	0	0	0	0	0	140	0	0	0	0	140	140	4.20	1.6	0.1	1.7	0.002		0.2	3	0.057	1.81	PASS	3%
MH#3 to Existing Connection	1.2	15	0	0	0.2	0	0	60	0	0	10	0	0	70	210	4.14	2.4	0.3	2.7	0.003	2.674399	0.2	4	0.066	2.09	PASS	4%

Equivalent Populations

Single Family	4 Persons/Unit
Town Houses	2.8 Persons/Unit
Condominiums	2.5 Persons/Unit
NON-RESIDENTIAL FLOWS	
Institutional	50 People / Hectare
Commercial	75 People / Hectare
Industrial	90 People / Hectare

Sewage Flow Design Criteria

Average Daily Dry Weather Flow (ADWF)	240 L/capita/day (LPCPD)	Per MMCD Design Guidelines.
I & I - New system with pipes above ground	11,200 l/hec/day	Per MMCD Design Guidelines.
water system		
"n"	0.013	

Architectural Design

Provider	Jensen Group Architects
Date	August 5, 2022
Project	Seabreez Inne Renovation
Project No.	2203

Notes:
*101 Bittancourt 17 units based off of JGA Architectural Plan.
**101 Bittancourt units based off of max allowable units per CA1 zoning.
***276 Ganges-Fulford Road appears a place of worship and therefore MMCD non-residential calculation performed