

SUNVALE HOMES

FUNCTIONAL SERVICING REPORT

PRETTY RIVER ESTATES TOWNHOUSES
TOWN OF COLLINGWOOD

MAY 2022

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TABLE OF CONTENTS

1.	INTRODUCTION	1
1.1	Location	1
1.2	Development Proposal	1
2.	WATER DISTRIBUTION SYSTEM	3
2.1	Design Criteria.....	3
2.2	Water Consumption	3
2.3	Fire Flow.....	3
2.4	Design Flow Rates	4
2.5	Watermain Configuration	4
3.	SANITARY SEWER SYSTEM	5
3.1	Design Criteria.....	5
3.2	Design Flow Rates	5
3.3	Sanitary Sewer Configuration.....	5
3.4	Sewage Pumping Station	5
4.	STORM SEWER SYSTEM.....	6
5.	GRADING & EROSION AND SEDIMENT CONTROL	7
5.1	Construction Stage	7
5.2	Lot Development	7

LIST OF TABLES

Table 1 - Proposed Water Demands	3
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LIST OF FIGURES

Figure 1 - Site Location Map	2
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APPENDICES

A – Drawings	
SP1 – Proposed Site Plan	

1. INTRODUCTION

Cobide Engineering Inc. was retained by Sunvale Homes to provide engineering services in support of a Site Plan Approval Application. The application will be to develop the property into a 90 unit condominium development.

A copy of the proposed Site Plan has been included in Appendix A as Drawing SP1.

1.1 LOCATION

The proposed development is located on Block 181, Registered Plan 51M-945, Geographic Township of Nottawasaga, Town of Collingwood, County of Simcoe (described herein as the “site”). A Site Location Map is included as Figure 1. The subject property is approximately 3.795 hectares in area.

1.2 DEVELOPMENT PROPOSAL

The proposed development consists of 3.795 hectares of land within the Collingwood settlement area.

The proposed plan is to develop the site into a residential condominium. The subdivision will involve the creation of a number of new internal streets.

A single road access point to Portland Street will be provided. There will be a number of pedestrian linkages to the nearby trail network.

The proposed development is within the Collingwood Settlement Boundary of the current Official Plan and thus is intended for servicing from municipal water and sewage systems.



MAP SOURCE - MTO ROAD MAP



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Figure No.

1

Title

REGIONAL LOCATION MAP

2. WATER DISTRIBUTION SYSTEM

The water distribution system will be sized based on the existing conditions at the connection to the municipal system and the subdivisions demands which are determined by the Ministry of the Environment (MOE) Design Guidelines for Drinking-Water Systems (2008).

2.1 DESIGN CRITERIA

The water distribution system will be design in accordance MOE guidelines which state the system “should be designed to satisfy the greater of the following demands:

- *Maximum day demand plus fire flow; or,*
- *Peak hour demand*

The maximum day demand and peak hour demand are based on the projected water consumption from the development and the fire flow is based on the type of the development.

The system will require modelling during the detailed design stage to ensure the water pressure throughout the system is within the requirements of the MOE.

Based on MOE guidelines, the minimum pressure at ground level at all points in the distribution system under maximum day demand plus fire flow conditions are to be 140 kPa (20 psi). The normal operation pressure should be between 350 kPa (50 psi) to 480 kPa (70 psi). There shall be no point in the distribution system that has a normal operating pressure of less than 275 kPa (40 psi). The maximum pressure in the pipe cannot exceed 700 kPa (100 psi).

2.2 WATER CONSUMPTION

The system will be designed based on a domestic water demand of 450 L/cap/day. The peaking factors will be derived from Table 3-1 of the MOE Design Guidelines. Based on the projected population of 252 people the peaking factor for the maximum day demand will be 2.75 and the peaking factor for the peak hour demand will be 4.13. This population estimate is based on 2.8 people per dwelling which is consistent with the EXP Functional Servicing Report for the Pretty River Estates Phase 1 Intensification.

Table 1 below summarizes the projected maximum day and peak hour demands for the proposed development.

Table 1 - Proposed Water Demands

Demand	Population	Consumption (L/cap/day)	Peaking Factor	Peak Rate (L/day)	Peak Rate (L/s)
Maximum Day	252	450	2.75	311,850	3.61
Peak Hour	252	450	4.13	468,342	5.42

2.3 FIRE FLOW

The AWWA *Manual of Water Supply Practices M31 – Distribution System Requirements for Fire Protection* and the Fire Underwriters Survey document *Water Supply for Public Fire Protection* will determine the required fire flows.

The fire flows are dependent upon many factors including the type of construction materials, building height and density of the development.

The fire flow requirements for a typical townhouse within the development are expected to 8000 L/min which would need to be sustained for 1.5 hours.

2.4 DESIGN FLOW RATES

The watermain within the subdivision will be required to maintain the aforementioned pressure while supplying 137 L/s (MDD + Fire Flow). The pipes should be designed with a pipe roughness C-value of 110 which is typically used to represent PVC pipe.

2.5 WATERMAIN CONFIGURATION

The proposed watermain will be connected to the municipal system at the proposed intersection with Portland Street. There is currently a 300mm diameter Ductile Iron watermain on the west side of Portland Street. This watermain will provide service to the proposed development.

A 200mm diameter Ductile Iron watermain is proposed within the development. There will be no irrigation systems within the development.

A single connection will be provided to each residential lot using 19mm diameter copper water services. Each unit will be individually metered.

3. SANITARY SEWER SYSTEM

The sanitary sewer system will be sized based on the existing conditions at the connection to the municipal system and the subdivisions demands which are determined by the Ministry of the Environment (MOE) Design Guidelines for Sewage Works (2008).

3.1 DESIGN CRITERIA

The sanitary sewer system will be design in accordance MOE guidelines.

The sanitary sewer will be designed to convey the projected peak flow based upon the projected population of the development, flows from future development to the north as well as extraneous flows.

3.2 DESIGN FLOW RATES

The sanitary sewer will be designed based on a peak flow of 450 L/cap/day and a peaking factor of 4.0 for the size of the development. Based on a population of 252 the projected residential flow is 5.25 L/s. The development will contribute 3.795 ha of extraneous flows to the sanitary sewer. This will contribute 0.57 L/s to the flow. Therefore, the peak flow from the development is 5.82 L/s.

3.3 SANITARY SEWER CONFIGURATION

There will be a sanitary sewer on all internal streets with a single connection to the existing sanitary sewer at Portland Street A single connection will be provided to each residential lot.

All sanitary sewers are proposed to be 200mm diameter PVC pipe. The minimum slope considered will be 0.40% to maintain a minimum velocity at full flow to prevent sediment deposition and blockages. The furthest section upstream will be installed at 1.0% for that same reason where possible.

It is proposed to have as few connections to the existing sanitary sewer as possible as it is installed adjacent to the forcemain.

3.4 SEWAGE PUMPING STATION

As per the EXP Functional Servicing Report for the Pretty River Estates Phase 1 Intensification the existing sanitary sewer pumping station was designed to accommodate 90 residential units from the development of this block of land.

4. STORM SEWER SYSTEM

The storm sewer system will be design in accordance with the municipal and conservation authority guidelines including the Ministry of the Environment (MOE) Design Guidelines. The storm sewer system will use the rationale method to size the storm sewer to accommodate the 5 year peak flow from the development.

The majority of the site will discharge to the proposed storm sewers with the exception of the rear of the lots along the north and south boundaries which will flow off site via sheet flow.

The existing outlet ditch from Pretty River Estates is proposed to be filled in and a storm sewer extended across the site. The SWM pond for Pretty River Estates assumed a 55% imperviousness for Block 181. The proposed design is 53% impervious therefore the stormwater flows from the proposed development are within the parameters the SWM facility was designed with.

5. GRADING & EROSION AND SEDIMENT CONTROL

Erosion and sediment controls shall meet the requirements of the most recent version of the MOE *Stormwater Management Planning and Design Manual* at the time of construction.

5.1 CONSTRUCTION STAGE

Prior to the start of construction, appropriate sediment control facilities are to be in place. Following are details regarding erosion and sediment control that are to be implemented:

- Placement of light duty siltation fencing is required along the north, east and south sides of the site to intercept sediment that could potentially be transported by sheet flow across the site.
- Placement of temporary straw check dams within swales and any other locations where a concentrated flow of runoff may occur. All proposed drainage swales are to be seeded during construction;
- Installation of filter cloth under all new and existing catchbasin grates until paving of the subdivision streets is completed;
- Mud mats will be placed at construction accesses to keep public roadways free from debris during the construction period.
- Re-vegetate all disturbed areas after underground and surface works have been constructed.

Prior to removal of sediment control facilities, ensure that sediment that may have accumulated has been removed. Once the area has been stabilized, the silt fencing can be removed.

5.2 LOT DEVELOPMENT

During individual construction of units within the development, silt barriers are to be constructed, as appropriate, to prevent the eroding of materials into the roadside drainage system. The sedimentation control can be in the form of siltation fences placed in the direction of flow from the construction site and shallow excavated sediment traps (moats) should be constructed around any stockpiled materials.

The responsibility for the individual lot sediment control is the landowner/builder constructing the dwelling.

The proposed development grading design will generally following the existing grade. The proposed grading design will match all existing grades at the property lines and will not alter or affect the drainage patterns of the neighbouring properties. The proposed site grading will drain the stormwater through side yard swales and a storm sewer system. The majority of the slopes found on site are proposed to be between 2.0% and 6.0%.

Sincerely,

Cobide Engineering Inc.



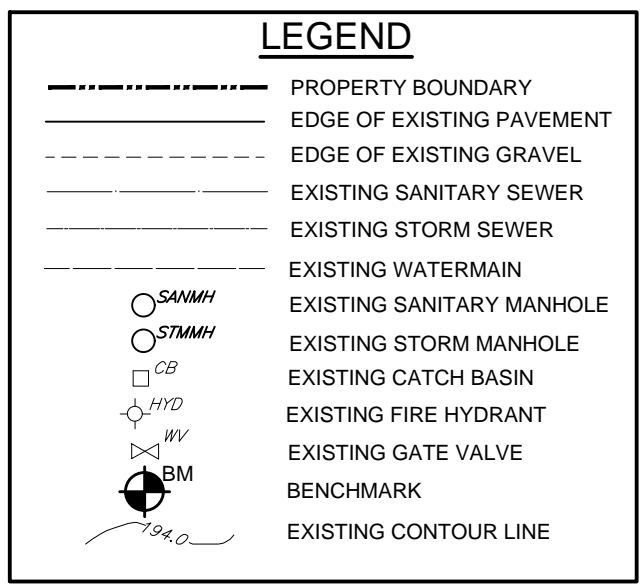
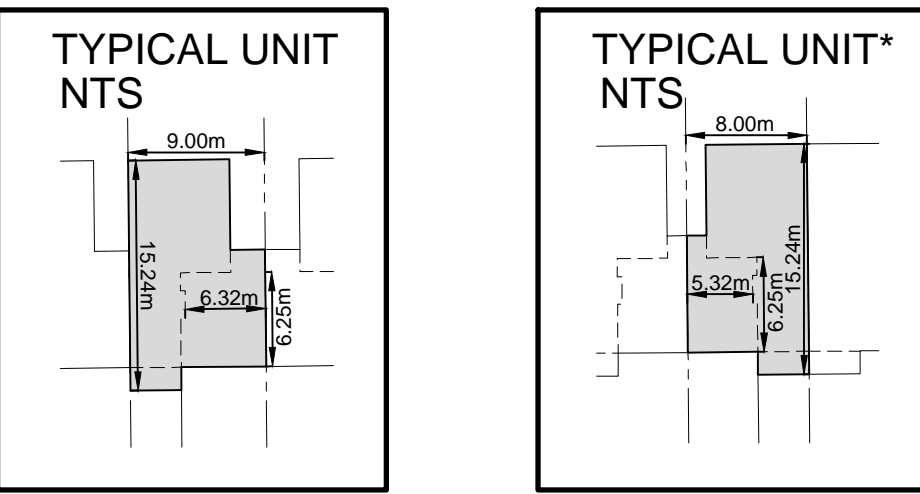
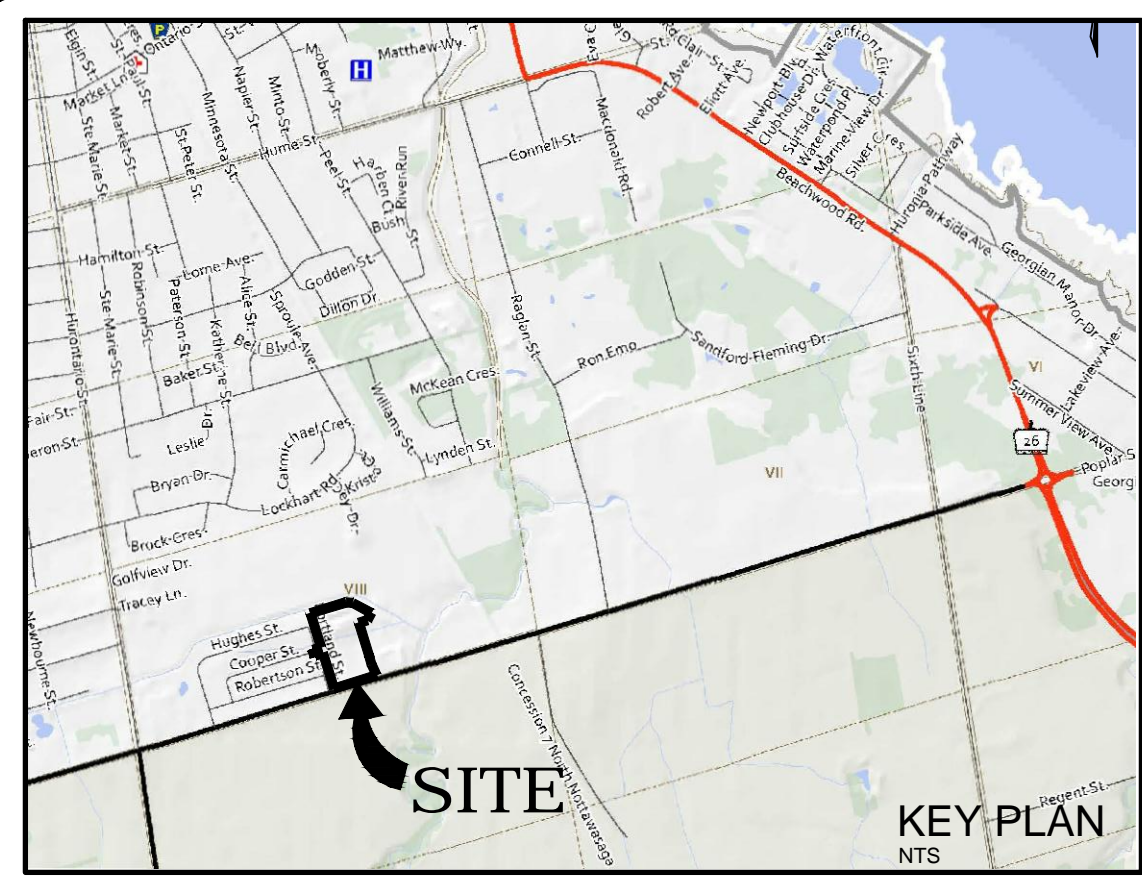
Travis Burnside, P. Eng.

Appendix A

DRAWINGS

FUNCTIONAL SERVICING REPORT

**PRETTY RIVER ESTATES TOWNHOUSES
TOWN OF COLLINGWOOD**



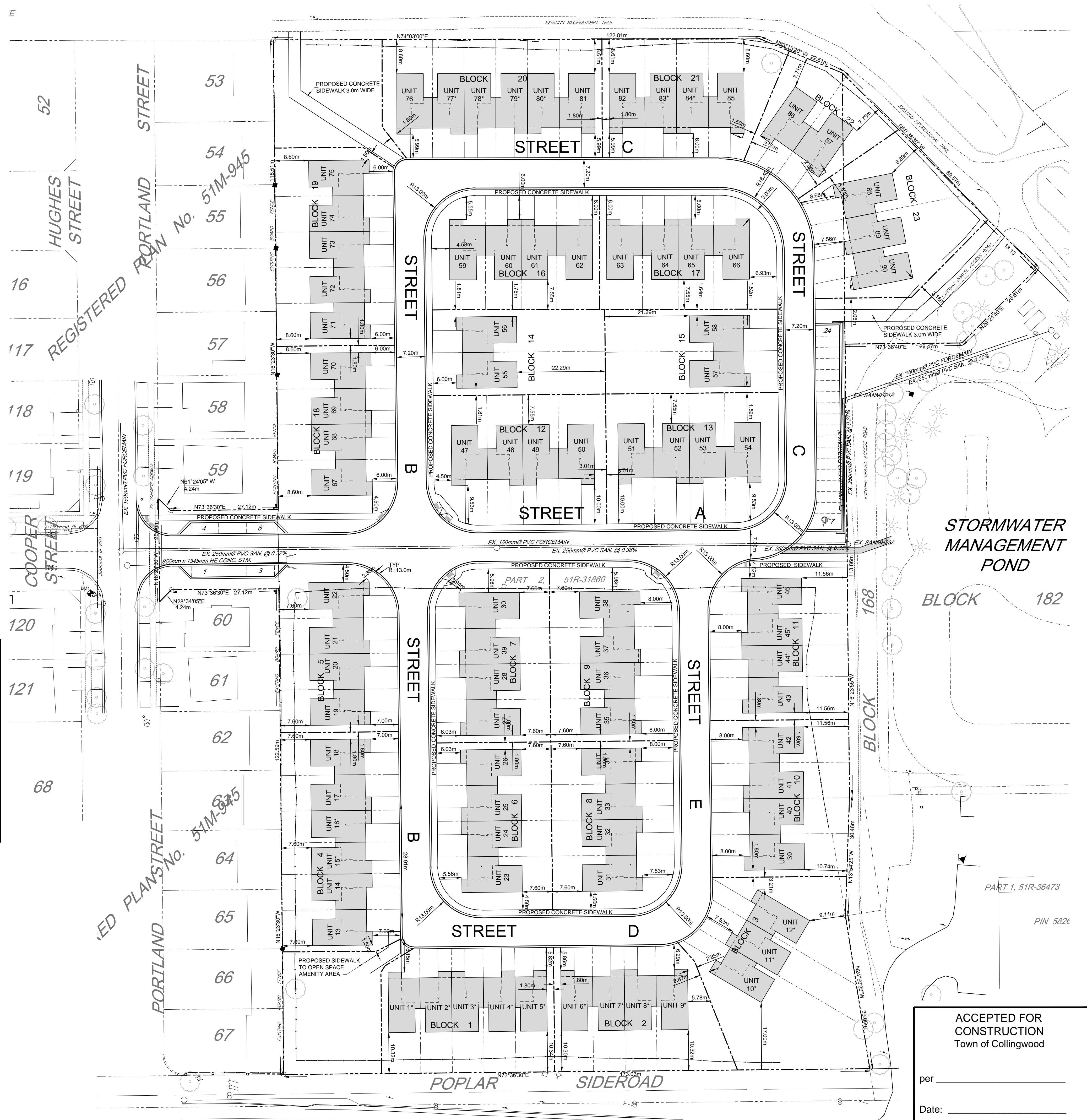
SITE STATISTICS

PARCEL 1
AREA = 3.795 ha.
NUMBER OF UNITS = 90
DENSITY = 23.7 UNITS PER HECTARE

PROPOSED TOWNHOUSE DEVELOPMENT STATISTICS

PROPOSED USE: RESIDENTIAL TOWNHOUSE DWELLING
ZONE: R3-60

REGULATION	REQUIRED	PROVIDED
MIN. FRONT YARD	6.0 m	7.6 m
MIN. EXTERIOR SIDE YARD	6.0 m	10.30 m
MIN. INTERIOR SIDE YARD	6.0 m	7.75 m
MIN. REAR YARD	7.5 m	7.71 m
MAX. LOT COVERAGE	40%	24.8%
MIN. LANDSCAPED OPEN SPACE	35%	47.0%
EXCEPTION 60-	MINIMUM YARD ABUTTING THE REAR LOT LINE OF A RESIDENTIAL SECOND DENSITY NINE (R2-9) ZONE: 7.5m	7.6 m
	MINIMUM YARD FOR ANY BUILDING OR STRUCTURE ABUTTING A STREET UNDER THE JURISDICTION OF SIMCOE COUNTY: 10m	10.30 m



CAUTION:
THE POSITION OF POLE LINES, CONDUITS, WATERMANS, SEWERS AND OTHER UNDERGROUND AND OVERGROUND UTILITIES AND STRUCTURES IS NOT NECESSARILY SHOWN ON THE DRAWINGS. AND, WHERE SHOWN, THE ACCURACY OF THE POSITION OF SUCH UTILITIES AND STRUCTURES IS NOT GUARANTEED. BEFORE STARTING WORK, THE CONTRACTOR SHALL INFORM HIMSELF OF THE EXACT LOCATION OF ALL SUCH UTILITIES AND STRUCTURES, AND SHALL ASSUME ALL LIABILITY FOR DAMAGE TO THEM.

- Notes**
- PROPERTY BOUNDARY DERIVED FROM PLAN OF SURVEY BY ZUBEK, EMO, PATTEN AND THOMSEN LTD.
 - SEE SHEET 00703-DET1 FOR TYPICAL CROSS SECTION AND PAVEMENT DESIGN
 - ALL ORGANIC MATERIAL WITHIN 1.2m OF FINISHED PROFILE GRADE TO BE REMOVED FROM ALL AREAS UNDER THE TRAVELLED PORTION OF THE ROAD. COVER OVER WATERMAIN 1.7m MINIMUM AT ALL POINTS.
 - SANITARY SEWER TO BE PVC SDR35.
 - ALL JOINTS OF SANITARY MANHOLES TO BE CAULKED WITH MIN. 15mm BEAD, INSTALLED ON THE TOP OF JOINT OF EACH SECTION PRIOR TO SECTION ABOVE BEING INSTALLED. CAULKING TO BE SIKAFLEX 1A OR APPROVED EQUIVALENT.
 - ALL HYDRANT SETS REQUIRE TEST POINT AND HYDRANT MARKER.
 - ALL STORM CATCHBASINS TO HAVE A MINIMUM SUMP OF 600mm AND ALL STORM MANHOLES TO HAVE A MINIMUM SUMP OF 300mm.
 - STORM SEWERS TO BE BELL END HOPE IN 50mmØ WASHED CLEAR STONE WRAPPED IN NONWOVEN GEOTEXTILE EXCEPT 3m ENTERING AND EXITING STORM STRUCTURES WHICH IS TO BE SOLID PIPE. SEE DETAIL SHEET 00814-DET1.
 - ALL DITCH INLET CATCHBASINS TO HAVE HORIZONTAL HONEYCOMB GRATE PER O.P.S. D.403.018.
 - ALL CATCHBASIN MANHOLE STRUCTURES TO BE 1200mmØ UNLESS OTHERWISE SHOWN.
 - ALL WATERMANS TO BE DUCTILE IRON WITH 20mmØ COPPER WATER SERVICES.
 - THIS DRAWING IS NOT TO BE USED FOR CONSTRUCTION PURPOSES UNTIL STAMPED / ISSUED FOR CONSTRUCTION
 - ALL CONSTRUCTION TO BE COMPLETED TO MUNICIPAL SERVICING STANDARDS FOR THE TOWN OF COLLINGWOOD.

Benchmark Information


BM1
TOP NUT OF FIRE HYDRANT LOCATED ON THE SOUTH-WESTERLY CORNER OF THE INTERSECTION OF COOPER STREET AND PORTLAND STREET.
ELEVATION 195.24m

SCALE 1:500 (24 x 36)

REVISION / ISSUE

No.	DATE	DESCRIPTION	BY	APPD
1	MAY 2022	SECOND SUBMISSION	TLB	SJC
0	NOV 08/21	FOR PRE-CONSULTATION	TLB	SJC

Seal not valid unless signed and dated



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File: **PROPOSED TOWNHOUSE DEVELOPMENT PRETTY RIVER ESTATES TOWN OF COLLINGWOOD SITE PLAN**

Client: **SUNVALE HOMES LTD.**

Design: TLB Scale: 1:500
Drawn: JAF Approved:
Checked: SJC
Date: JUN 2021 Design Engineer

DRAWING No. 00703-SP1

ACCEPTED FOR CONSTRUCTION
Town of Collingwood

per _____
Date: _____