



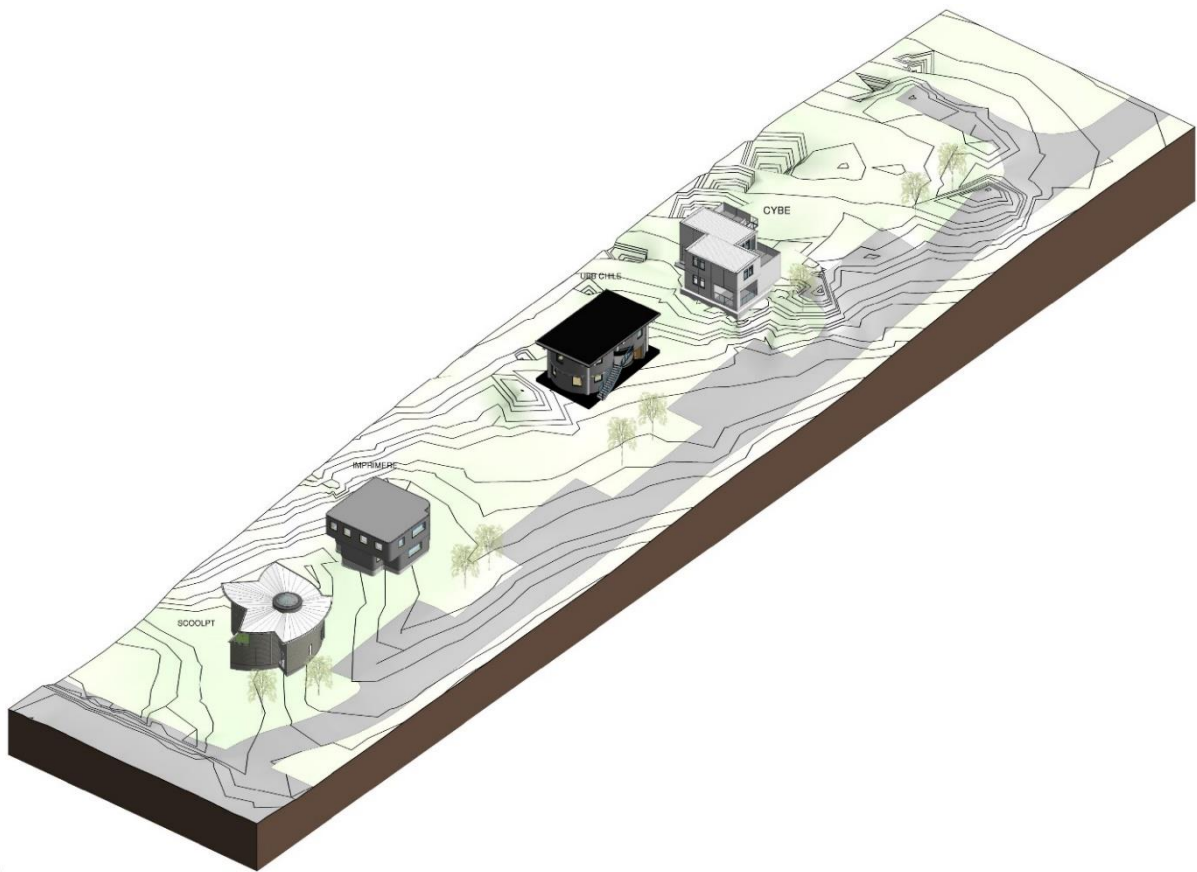
MARCO POLO 100

Digital Build Challenge

PLANNING RATIONALE

MARCO POLO 100 DIGITAL BUILD CHALLENGE

FOURTH STREET, GANANOQUE ONTARIO



2022.01.12 (Rev. 2022.02.04)

EXECUTIVE SUMMARY

THE MARCO POLO 100 PROJECT IS A GROUPING OF 6 TRIPLEXES PROPOSED FOR THE PROPERTY AT (NO CIVIC ADDRESS) PLAN 86 LOTS 161 TO LOT 163, LOT 165, LOT 167, LOT 169, LOT 171, LOT 173, LOT 175, LOT 177, LOT 179 AND LOT 180; AND PLAN 86 PT LOT 314, PT LOT 316.

THE PLANNING RATIONALE OUTLINES HOW THESE GOALS ARE REACHED AND FORMS A PART OF THE DEVELOPMENT PERMIT PROCESS.

THE MARCO POLO 100 PROJECT MEETS THESE REQUIREMENTS THROUGH A VARIETY OF FACTORS; WITH THE UNIQUE SIZE AND CONFIGURATION OF THE LOT AND THE PROPOSED DEVELOPMENT WE DON'T BELIEVE ANY ZONING BY-LAW RELIEF IS REQUIRED OTHER THAN THE NUMBER OF DWELLING UNITS PER LOT.

APPROVAL OF THE ZONING REQUESTS IS CRITICAL TO ACHIEVE THE GOALS SET OUT IN THE APPLICABLE PLANNING DOCUMENTS.

INTRODUCTION

The Marco Polo 100 Project is a proposed 6-Triplex Project located on a vacant site bounded by Fourth Street to the north, Third Street (future extension) to the south and the future Birch Street to the west. This Planning Rationale document has been prepared to explain how the design of the building meets the planning objectives of the Town of Gananoque.

The Town of Gananoque uses a Development Permit process which combines planning approvals such as zoning, site plan and minor variances into one development stream. This document has been prepared in support of the development permit process.

BACKGROUND

Horizon Legacy Group is in production to finance and build the first and largest 3D printed neighborhood in Canada, pioneering the use of robots and automation in multi-storey building construction. This project is born out of the Marco Polo 100 Digital Build Challenge, the biggest construction technology innovation competition in North America.

The winning teams are:

- Scoolpt representing the Czech Republic;
- CyBe, representing the Netherlands;
- Imprimere, representing Switzerland;
- UBB Chile, representing Chile;

The Marco Polo 100 Challenge was created to solve the problem of affordable housing by asking participants to design a multi storey building for \$100/sq ft using new technologies and processes and reduce traditional construction timelines by up to 50%. The Challenge is unique in that it brings innovative ideas into the real world by constructing a building that satisfies existing market and regulatory standards. In addition to cash prizes, the Sponsor is offering up to \$10M in funding, land and experts to support the teams.

Each team is working with an experienced team of architects, engineers, technology experts, and builder to fully develop their designs. The unique buildings showcasing innovative construction technologies or processes will be built in Gananoque, Ontario.

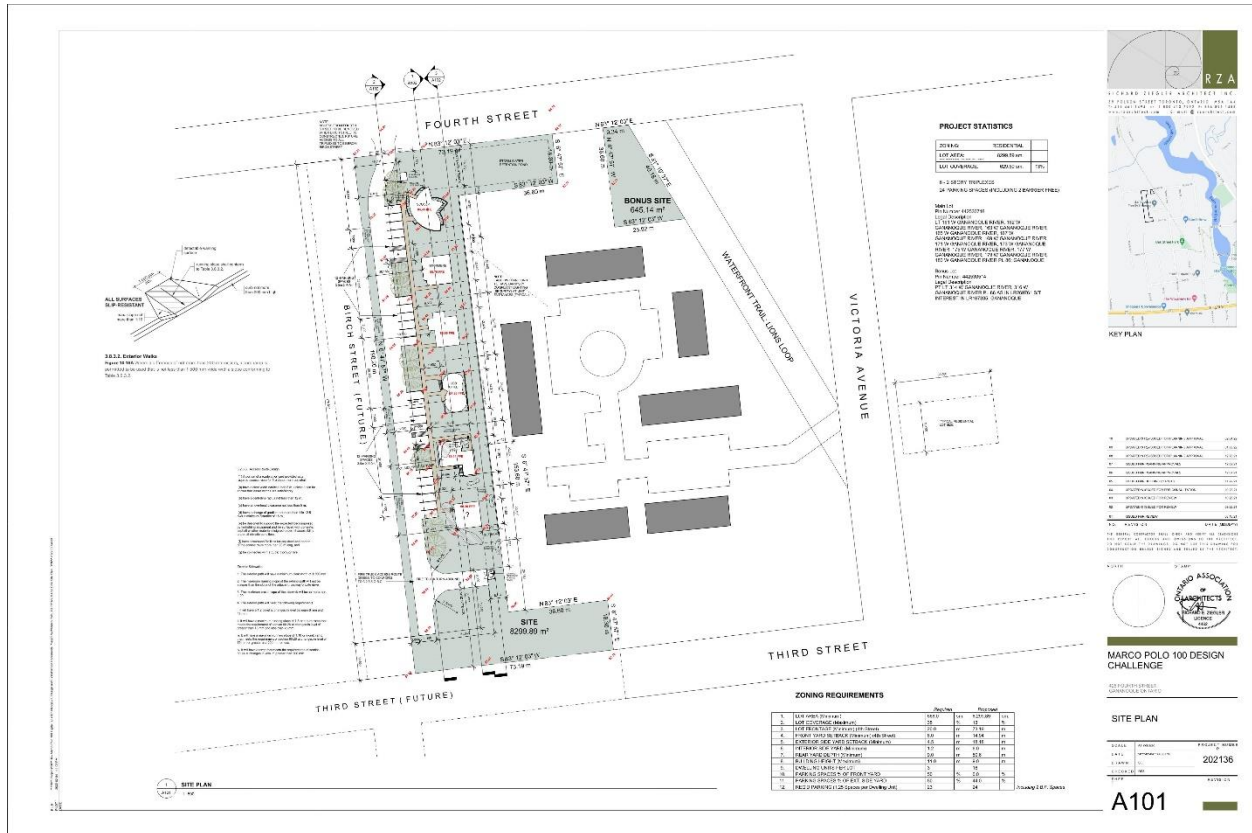
Highlights

- The project will build the first 3D printed neighbourhood in Canada. The Sponsor Horizon Legacy Group is pioneering the use of robots and automation in construction.
- Over 400 people from nearly 60 countries registered in Stage 1. Submissions were considered by a 12 member jury with expertise in construction, architecture, engineering, 3D printing, prefabrications, quantity surveying, and finance.
- the small buildings will be built in Gananoque, Ontario to demonstrate the technology concept. Known as Gateway to the 1000 Islands, this water-front community of 5000 people is perfect for young families building their life and established families looking for a safe, quiet place to downsize, work or play.

PHYSICAL DESCRIPTION

The Marco Polo 100 Project consists of 6 triplex units on a lot that currently is accessed of Fourth Street but will eventually be addressed from Birch Street. In spite of that our Planning Rationale recognizes that our Front Yard will be the Fourth Street yard.

Legal Description: Lots 161, 162, 163, 165, 167, 169, 171, 173, 175, 177, 179, 180 and Part of Lots 314 and 316 West of the Gananoque River Compiled Plan 86 (West) Town of Gananoque, County of Leeds.



SITE PLAN

Total Gross Floor Area	1,260 sm.
Main Floor Area	630 sm.
Second Floor Area	630 sm.
Building Height:	9.0 m

DESIGN SUSTAINABILITY

- * sustainable site development
- * water efficiency
- * energy efficiency
- * materials selection
- * indoor environmental quality

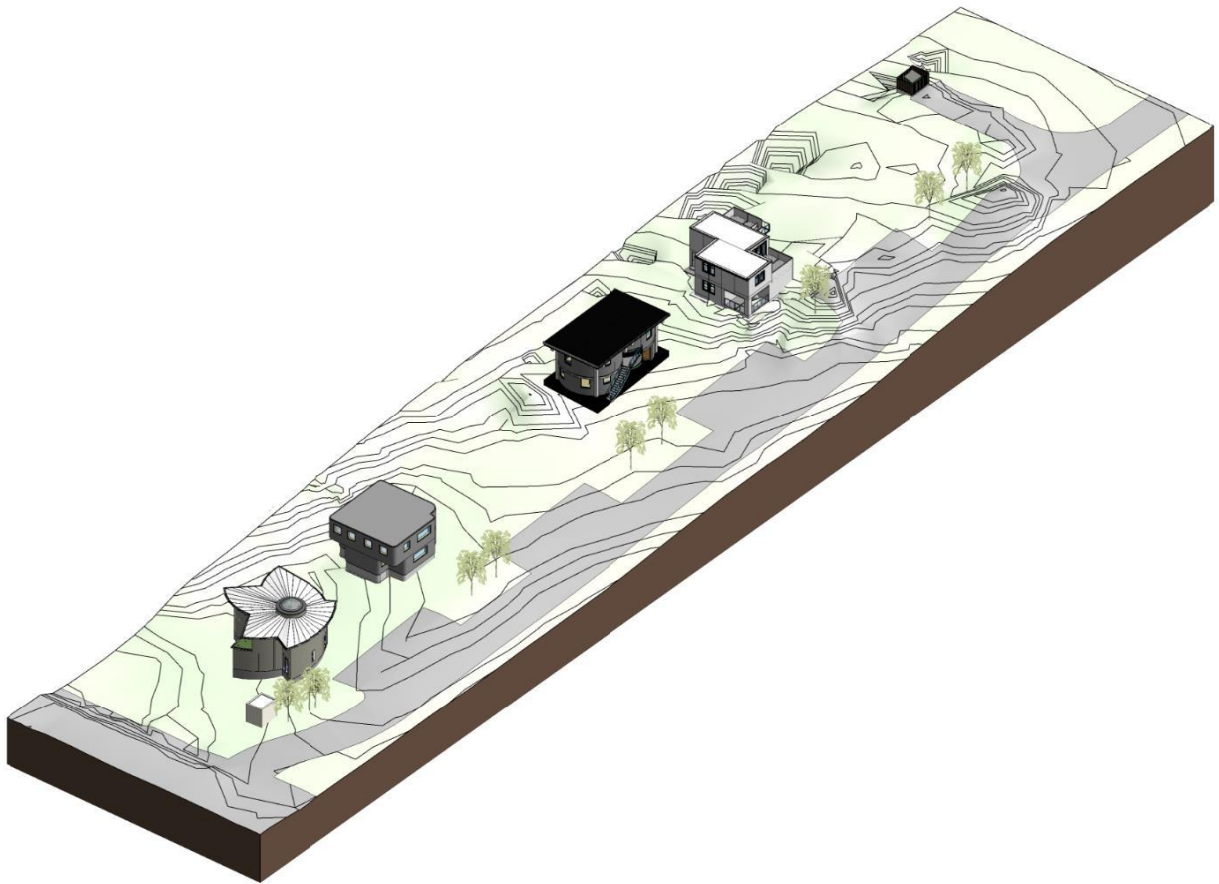
The development uses a variety of technologies and methods including, but not limited to:

Insulated 3D printed Concrete, recycled and slag concrete, building orientation (solar panels), and energy star certified electronics.

In most cases stairwells are open to the exterior, greatly reducing the energy required to operate the building.

ARCHITECTURAL DESIGN

The Architectural Design for each of the Triplexes are unique and are primarily a result of the emerging technology unique to each building. The overall project is a mix of 3D printed concrete homes and modular buildings. As the teams responsible for the design of the buildings are international some of the materials and technologies employed are new to Ontario. Examples of this include proprietary concrete mixes, and spray cork coatings.



OVERALL SITE AXONOMETRIC



CYBE



IMPRIMERE



SCPOOLPT



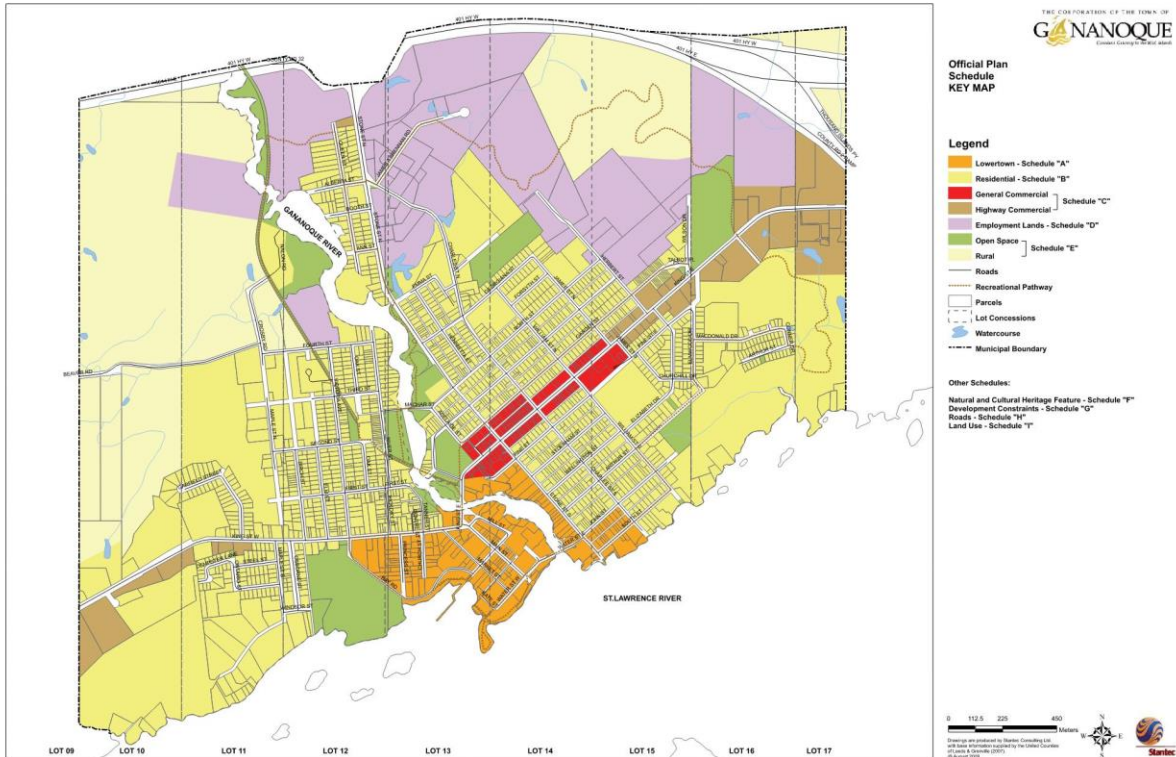
UBB CHILE

BUILDING MATERIALS

The overall project is a mix of 3D printed concrete homes and modular buildings. Materials include 3d printed concrete with elastomeric paint finish, spray cork coating, acrylic stucco, and 2 ply modified bitumen membrane for roofing. Fenestration will be vinyl windows w/ low-e coated insulated glazing.

The exterior walkways that serve each triplex will be broom finish concrete and designed to conformed to Ontario Accessibility Standards (note: the dwelling units aren't required to be barrier free accessible).

OFFICIAL PLAN GOALS & ACHIEVEMENTS



* extensive open green spaces

* people friendly spaces

* community gardens

The Marco Polo 100 Project helps achieve these goals, and complies with this official plan by employing a number of design features:

EXTENSIVE OPEN GREEN SPACES

The Marco Polo Project has been designed to incorporate a higher percentage of green space than is typically found in this type of development. The triplexes are separated by a minimum of 10m green space between adjacent buildings. Parking is kept in the yard directly off the temporary laneway to maximize green space between and behind the triplexes. When Birch Street eventually opens the temporary laneway will be converted to green space. Communal garden space has been included in the spaced between the buildings.

BUILDING AND LANDSCAPE DESIGNS MUST CONFORM TO THE ZONING REQUIREMENTS

Zoning: Official Plan Designation: Residential – Schedule B

Development Permit Designation: Residential

The Marco Polo 100 Project meets the intent of the zoning requirements set forth in the official plan. It does request relief from some zoning requirements as outlined in the following section: Zoning Relief Request.

ZONING REQUIREMENTS:

		<i>Required</i>		<i>Proposed</i>	
1.	LOT AREA (Minimum)	668.0	sm.	8,299.89	sm.
2.	LOT COVERAGE (Maximum)	35	%	13	%
3.	LOT FRONTAGE (Minimum) (4th Street)	20.0	m	73.19	m
4.	FRONT YARD SETBACK (Minimum) (4th Street)	6.0	m	14.94	m
5.	EXTERIOR SIDE YARD SETBACK (Minimum)	4.5	m	18.18	m
6.	INTERIOR SIDE YARD (Minimum)	1.2	m	6.0	m
7.	REAR YARD DEPTH (Minimum)	9.0	m	50.6	m
8.	BUILDING HEIGHT (Maximum)	11.0	m	9.0	m
9.	DWELLING UNITS PER LOT	3		18	
10.	PARKING SPACES % OF FRONT YARD	50	%	0.0	%
11.	PARKING SPACES % OF EXT. SIDE YARD	50	%	44.0	%
12.	REQ'D PARKING (1.25 Spaces per Dwelling Unit)	23		24	

Including 2 B.F. Spaces

ZONING RELIEF REQUEST

The relief from the Zoning Bylaw Requirements that the Marco Polo 100 Project is requesting is:

DWELLING UNITS PER LOT:

The Zoning Bylaw indicates 3 Dwelling Units per Lot (Triplex). As the entire property will be under one ownership and not severed into individual lots we are proposing 18 dwelling units (6 Triplexes).

REAR YARD DEPTH

While we aren't looking for relief from the Zoning Bylaw requirements for Rear Yard Depth it is worth mentioning that:

We are proposing a rear yard depth of 50.6m rather than the 9.0m required by the zoning bylaw. This may be reduced when/if additional homes are constructed. In no case will the rear yard depth be less than 9.0m. A temporary north-south laneway for access and (fire-fighting access) to the buildings will be constructed in the exterior side yard setback. The laneway pushes the buildings to the east. This and the existing gradients of the site requiring space for exterior steps between the parking and the triplexes necessitated the 6.0m interior side yard setback. (note: this meets the min. side yard depth requirement of 1.2m). The proximity to the properties to the east is somewhat mitigated by the inclusion of an opaque wooden fence along the eastern property boundary. Once Birch Street is opened the north-south laneway will be eliminated and infilled with landscaping. 4 new driveways will provide access to the Triplexes from Birch Street.

CONCLUSION

This Planning Rationale has been composed to support the development permit for the Marco Polo 100 Project. The proposed design meets the requirements of both the Official Plan and the Zoning Bylaw.

APPENDIX "B" – REPORTS AND DOCUMENTS

The Following reports, drawings, documents, and/or studies have been submitted to the Municipality:

Marco Polo Architectural Site Plan Set (3 drawings)

21050 Marco Polo Gananoque Geotechnical Report

21050 Marco Polo Development – Servicing Report

21050 Marco Polo Development – Survey

GW - 21050 Topo Survey

GW – 21050 SWM Report

GW – 21050 Site Servicing Drawing

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