One Stop
Development Shop
SAINT JOHN

onestop@saintjohn.ca Phone: 658-2911 Fax: 632-6199

General Application Form

GROWTH & COMMUNITY DEVELOPMENT SERVICES
CITY OF SAINT JOHN

LOCATION	CIVIC ADDRESS :	Gault Road	PID # :	00403535
STAFF USE	HERITAGE AREA: Y / N	INTENSIFICATION AREA: Y / N	FLOOD RISK AREA: Y / N	APPROVED GRADING PLAN: Y / N
	APPLICATION #:		DATE RECEIVED:	
			RECEIVED BY:	

APPLICANT INFORMATION

APPLICANT Hughes Surveys & Consultants Inc. Ltd. on behalf of Mike Cavanagh Homes Inc..	EMAIL rick.turner@hughessurveys.com	PHONE (506)333-8700
MAILING ADDRESS 575 Crown Street, Saint John, NB E2L 5E9		POSTAL CODE
CONTRACTOR /DEVELOPER Mike Cavanagh Homes Inc.	EMAIL mike.aq@gmail.com	PHONE 506-636-1322
MAILING ADDRESS c/o Hughes Surveys & Consultants Inc., 575 Crown Street, Saint John, NB		POSTAL CODE E2L 5E9
OWNER Simpco Development Ltd.	EMAIL simpson@nb.aibn.com	PHONE 506-635-8711
MAILING ADDRESS c/o Hughes Surveys & Consultants Inc., 575 Crown Street, Saint John, NB		POSTAL CODE E2L 5E9

PRESENT USE: Vacant Land

PROPOSED USE: Development of mixed use housing

CHECK ALL THAT APPLY

BUILDING		PLANNING	INFRASTRUCTURE	HERITAGE
☐ INTERIOR RENOVATION	☐ NEW CONSTRUCTION	☐ VARIANCE	☐ STREET EXCAVATION	☐ HERITAGE DEVELOPMENT
☐ EXTERIOR RENOVATION	☐ ACCESSORY BLDG	☐ PLANNING LETTER	☐ DRIVEWAY CULVERT	☐ HERITAGE SIGN
☐ ADDITION	☐ POOL	☐ PAC APPLICATION	☐ DRAINAGE	☐ HERITAGE INFILL
☐ DECK	☐ DEMOLITION	☒ COUNCIL APP	☐ WATER & SEWERAGE	☐ HERITAGE DEMO
☐ CHANGE OF USE	☐ SIGN	☒ SUBDIVISION	☐ OTHER	☐ OTHER
☐ MINIMUM STANDARDS	☐ OTHER	☐ OTHER		

DESCRIPTION OF WORK

Details of the proposal for a mixed use housing development in the Monte Cristo / Gault Road Intensification Area are included in the submitted documents.
Simpco Developments Ltd. have authorized Hughes Surveys & Consultants Inc. to make this application on behalf of Mike Cavanagh Homes Inc. who are also signature to this application.

_Mike Cavanagh Homes Inc. Michael Cavanagh

☐ I consent to the City of Saint John sending to me commercial electronic messages, from time to time, regarding City initiatives and incentives.

General Collection Statement

This information is being collected in order for the City of Saint John to deliver an existing program service; the collection is limited to that which is necessary to deliver the program service. Unless required to do so by law, the City of Saint John will not share your personal information with any third party without your express consent.

The legal authority for collecting this information is to be found in the Municipalities Act and the Right to Information and Protection of Privacy Act. For further information or questions regarding the collection of personal information, please contact the Access & Privacy Officer:

City Hall Building
8th Floor - 15 Market Square
Saint John, NB E2L 1E8
commonclerk@saintjohn.ca
(506) 658-2862

The City of Saint John

I, the undersigned, hereby apply for the permit(s) or approval(s), indicated above for the work described on plans, submissions and forms herewith submitted. This application includes all relevant documentation necessary for the applied for permit(s) or approval(s). I agree to comply with the plans, specifications and further agree to comply with all relevant City By-laws and conditions imposed.

Hughes Surveys & Consultants Inc. on behalf of Mike Cavanagh Homes Inc.	SimpcoDevelopments Ltd. Douglas Simpson
Applicant Name RichardTurner	Owners Authorization
Applicant Signature	Owners Signature
July 4, 2024	July 4, 2024
Date	Date

Subdivision Application

GROWTH & COMMUNITY DEVELOPMENT SERVICES
CITY OF SAINT JOHN

CIVIC ADDRESS	Gault Road	APPLICATION #		FEE PAID	Y	N

TYPE OF APPLICATION

☐ Instrument
Document requiring Development Officer endorsement for registration
Application Fee: $60

☐ Type 1 Subdivision
Lot boundary adjustment, consolidation, or new lot abutting an existing street
Application Fee: $300 plus $60 per new lot

☑ Type 2 Subdivision
Subdivision involving the construction or extension of a street
Application Fee: $600 plus $120 per new lot

DETAILED DESCRIPTION OF APPLICATION

Attach the instrument or tentative subdivision plan, plus any additional documentation to fully describe the application. Tenative subdivision plans must adhere to the requirements of the *Community Planning Act* of New Brunswick. In the case of a Type 2 Subdivision, the submission of a preliminary proposal and a Pre-Application Meeting with City staff is encouraged prior to seeking approval. Please contact the One Stop Development Shop at (506) 658-2911 or OneStop@saintjohn.ca for further information.

The proposal is to rezone a portion of PID 00403535 from R2 to RM and CG. The subject area to be rezoned RM will be subdivided as shown on the submitted plans. There are no plans to subdivide the land designated CG at this time but a logical division line would be to create a parcel on each side of the Emera facility. The commercial development area will focus on businesses that will service the neighbouring community.

ENCUMBRANCES

Describe any easements, restrictive covenants, and other encumbrances affecting the land.

Known encumbrances are City of Saint John waterline and force main easements and a pipeline easement in favour of Emera Brunswick Pipeline Company Ltd.

AUTHORIZATION

As of the date of this application, I, the undersigned, am the registered owner of the land described in this application or the authorized agent thereof, and I have examined the contents of this application and hereby certify that the information submitted with the application is correct insofar as I have knowledge of these facts, and I hereby authorize the applicant to represent this matter and to provide any additional information that will be necessary for this application.

Hughes Surveys & Consultants Inc.on behalf of Mike Cavanagh Homes Inc. - RickTurner

Registered Owner or Authorized Agent

Additional Registered Owner

Date 2024 07 05

Date

The information contained in this application and any documentation, including plans, drawings, reports, and studies, provided in support of this application will become part of the public record.

Council Application

GROWTH & COMMUNITY DEVELOPMENT SERVICES
CITY OF SAINT JOHN

CIVIC ADDRESS	Gault Road	APPLICATION #		FEE PAID	Y	N

TYPE OF APPLICATION

- ☐ Land for Public Purposes Release — Service Fee: $300
- ☐ Non-Conforming Use — Service Fee: $200
- ☐ Satisfactory Servicing — Service Fee: $200
- ☐ Section 39 Amendment — Service Fee: $2,500
- X Zoning By-law Amendment — Service Fee: $2,700
- ☐ Zoning By-law Amendment with a Municipal Plan Amendment — Service Fee: $3,500

DETAILED DESCRIPTION OF APPLICATION

Where applicable, indicate the changes to existing Section 39 conditions, zoning, or Municipal Plan designation being requested. Attach site plans, building elevations, floor plans, and other documentation to fully describe the application. The submission of a preliminary proposal and a Pre-Application Meeting is encouraged prior to seeking approval. Please contact the One-Stop Development Shop at (506) 658-2911 for further information.

See attached page for Description of Application for the proposed mixed use residential development proposed by Mike Cavanagh Homes Inc. on PID 00403535

ENCUMBRANCES

Describe any easements, restrictive covenants, and other encumbrances affecting the land.

Known encumbrances are City of Saint John waterline and force main easements and a pipeline easement in favour of Emera Brunswick Pipeline Company Ltd.

AUTHORIZATION

As of the date of this application, I, the undersigned, am the registered owner of the land described in this application or the authorized agent thereof, and I have examined the contents of this application and hereby certify that the information submitted with the application is correct insofar as I have knowledge of these facts, and I hereby authorize the applicant to represent this matter and to provide any additional information that will be necessary for this application.

Hughes Surveys & Consultants Inc. on behalf of Mike Cavanagh Homes Inc. – Richard Turner

Registered Owner or Authorized Agent

Date July 4, 2024

SEE OWNERS' AUTHORIZATION ON THE GENERAL APPLICATION FORM

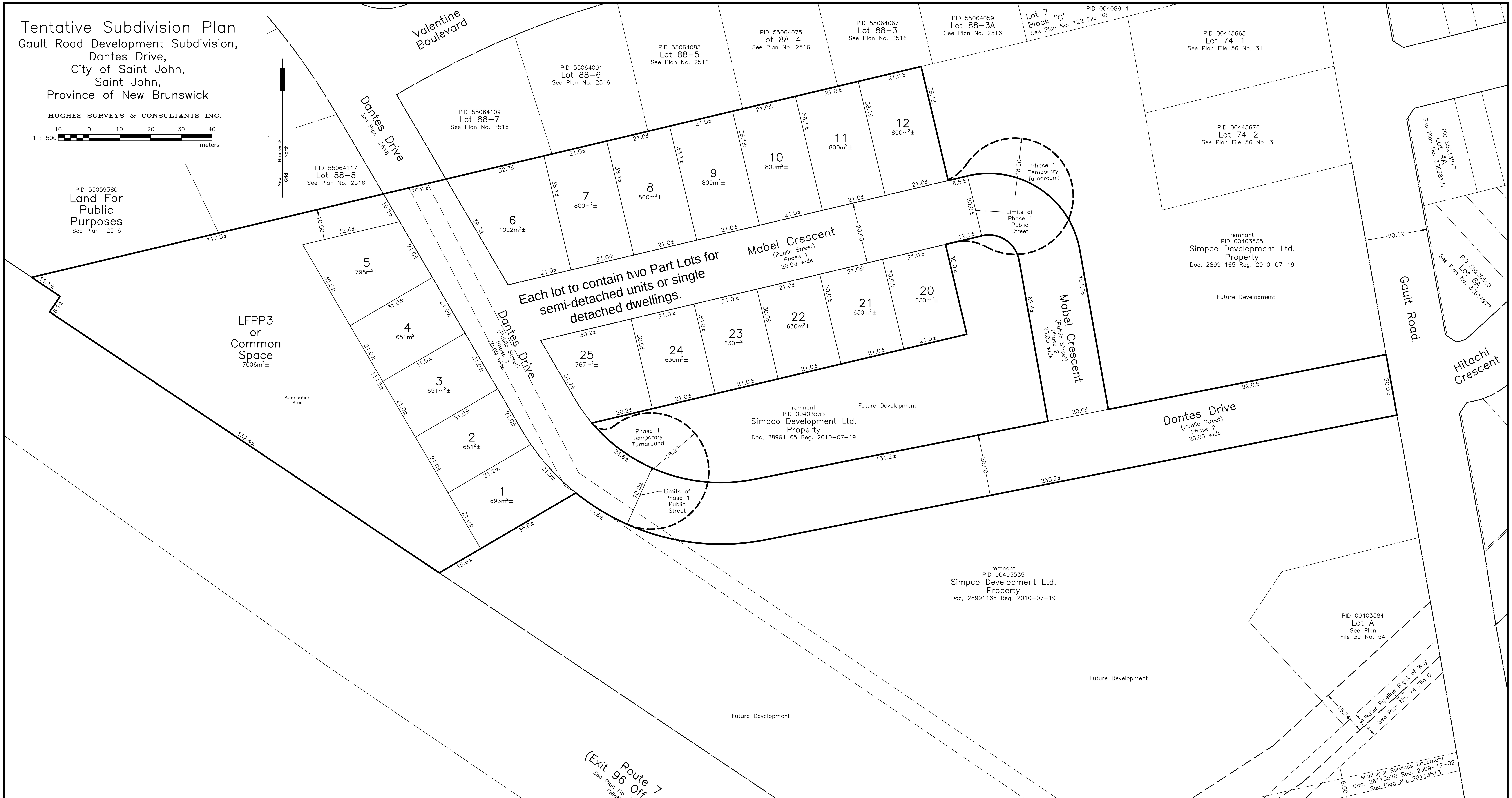
Additional Registered Owner

Date

Tentative Subdivision Plan
Gault Road Development Subdivision,
Dantes Drive,
City of Saint John,
Saint John,
Province of New Brunswick

HUGHES SURVEYS & CONSULTANTS INC.

1 : 500 (scale bar 10 0 10 20 30 40 meters)



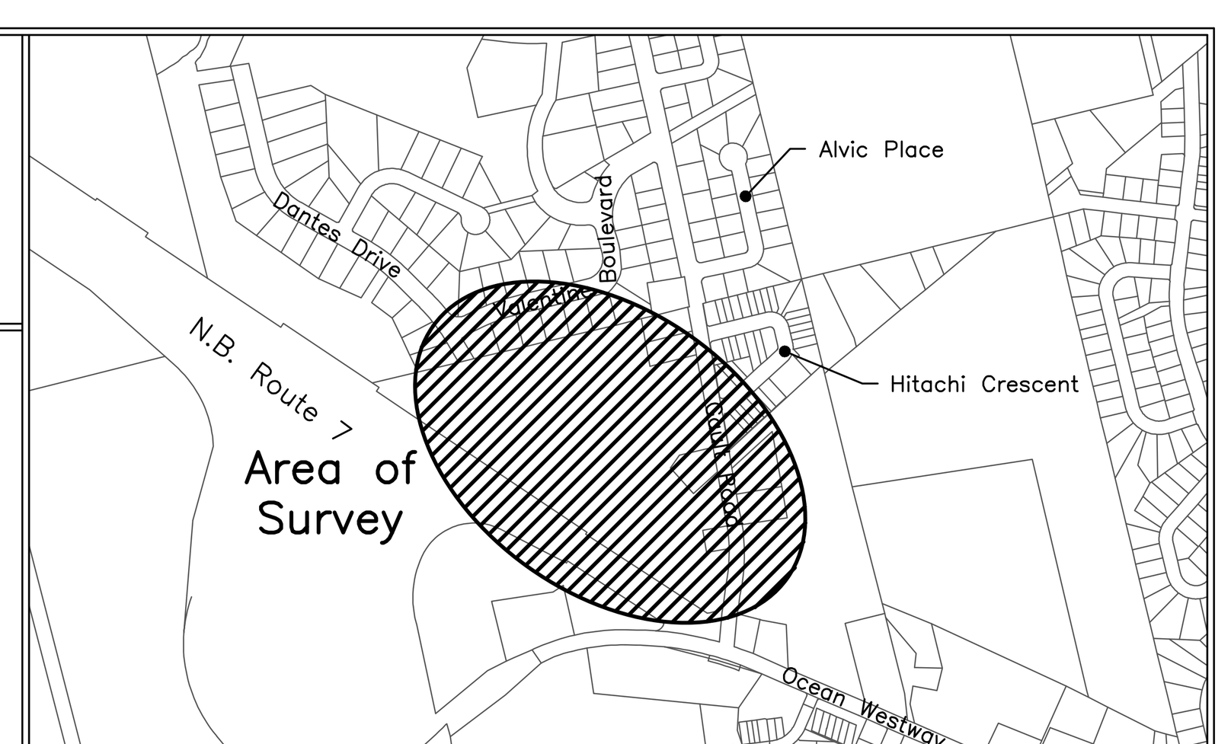
New Brunswick Grid North
Valentine Boulevard
Dantes Drive
See Plan 2516
PID 55059380
Land For Public Purposes
See Plan 2516
PID 55064117
Lot 88-8
See Plan No. 2516
PID 55064109
Lot 88-7
See Plan No. 2516
PID 55064091
Lot 88-6
See Plan No. 2516
PID 55064083
Lot 88-5
See Plan No. 2516
PID 55064075
Lot 88-4
See Plan No. 2516
PID 55064067
Lot 88-3
See Plan No. 2516
PID 55064059
Lot 88-3A
See Plan No. 2516
Lot 7
Block "G"
PID 00408914
See Plan No. 122 File 30
PID 00445668
Lot 74-1
See Plan File 56 No. 31
PID 00445676
Lot 74-2
See Plan File 56 No. 31
PID 55213813
Lot 4A
See Plan No. 30628177
PID 55220560
Lot 6A
See Plan No. 32614977
LFPP3
or
Common
Space
7006m²±
Attenuation Area
1
693m²±
2
651²±
3
651m²±
4
651m²±
5
798m²±
6
1022m²±
7
800m²±
8
800m²±
9
800m²±
10
800m²±
11
800m²±
12
800m²±
20
630m²±
21
630m²±
22
630m²±
23
630m²±
24
630m²±
25
767m²±
Mabel Crescent
(Public Street)
Phase 1
20.00 wide
Each lot to contain two Part Lots for semi-detached units or single detached dwellings.
Dantes Drive
(Public Street)
Phase 1
20.00 wide
Mabel Crescent
(Public Street)
Phase 2
20.00 wide
Dantes Drive
(Public Street)
Phase 2
20.00 wide
Phase 1
Temporary
Turnaround
Limits of
Phase 1
Public
Street
remnant
PID 00403535
Simpco Development Ltd.
Property
Doc. 28991165 Reg. 2010-07-19
Future Development
Gault Road
Hitachi Crescent
PID 00403584
Lot A
See Plan
File 39 No. 54
Route 7
(Exit 96 Off Ramp)
See Plan No. 2340 & 2341
(Width Varies)
Water Pipeline Right of Way
See Plan No. 74 File 0
Municipal Services Easement
Doc. 28113570 Reg. 2009-12-02
See Plan No. 28113513
Water Pipeline Easement
Doc. 229307 Vol. 645 Pg. 239
See Plan No. 101 File 49
Emera Brunswick Pipeline Company Ltd. Easement
Doc. 27147025 Reg. 2009-05-13
See Plan No. 27146993

Purpose Of Plan

To show the Phase 1 development concept of a portion of PID 00403535.
To show the proposed public street network for Phase 1 & Phase 2.

NOTES

1. Directions are N.B. Grid azimuths derived from GNSS observations on N.B. Mon's. ---- (based on NAD83 CSRS HPN Value on N.B. Mon. ---).
2. All distances are in metres and are grid distances, calculated using a combined scale factor and using geoid model H2T_0; to convert to imperial equivalents divide by 0.3048.
3. Area of survey outlined thus ⊙———⊙ , peripheral information compiled from various sources.
4. All document and plan references refer to the Registry Office for Saint John County or the Land Titles District of New Brunswick.
5. Field survey completed on ----.
6. All computations performed and coordinates shown on this plan are based on New Brunswick Stereographic Double Projection and the NAD83(CSRS) Reference System as realized by Service New Brunswick High Precision Network coordinate survey monuments.
7. Each lot to contain two Part Lots for semi-detached units or single detached dwellings.



Key Plan Scale 1 : 10,000

Registration Data

Owner Name : Simpco Development Ltd.
PID : 00403535
Effective Date : 2010-07-14
Instrument : Transfer # 28991165 Reg. 2010-07-19
Name Change # 37997658 Reg. 2018-05-14

Owners ______________________
Owner Names

LEGEND

ROUND IRON BAR FOUND
SQUARE IRON BAR FOUND
IRON PIPE FOUND
STANDARD SURVEY MARKER FOUND
STANDARD SURVEY MARKER PLACED
WOODEN POST PLACED
CALCULATED POINT
TABULATED POINT
TRAVERSE CONTROL POINT
N.B. GRID CO-ORDINATE MONUMENT
HYDRO POLE / UTILITY WIRE — O/H
FOUNDATION — Fdn.
STREET R.O.W.
UTILITY EASEMENT
ADJACENT PROPERTY LINE
CENTRELINE
FENCE
STRUCTURE

Tentative Subdivision Plan

Gault Road Development Subdivision,
Dantes Drive,
City of Saint John,
Saint John,
Province of New Brunswick

HUGHES SURVEYS & CONSULTANTS INC.

1 : 500 — 10 0 10 20 30 40 meters

New Brunswick Grid North

Valentine Boulevard

Dantes Drive
See Plan 2516

PID 55064109
Lot 88–7
See Plan No. 2516

PID 55064091
Lot 88–6
See Plan No. 2516

PID 55064083
Lot 88–5
See Plan No. 2516

PID 55064075
Lot 88–4
See Plan No. 2516

PID 55064067
Lot 88–3
See Plan No. 2516

PID 55064059
Lot 88–3A
See Plan No. 2516

Lot 7
Block "G"
See Plan No. 122 File 30

PID 00408914

PID 00445668
Lot 74–1
See Plan File 56 No. 31

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Lot 74–2
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PID 55213813
Lot 4A
See Plan No. 30628177

PID 55220560
Lot 6A
See Plan No. 32614977

PID 55059380
Land For Public Purposes
See Plan 2516

PID 55064117
Lot 88–8
See Plan No. 2516

LFPP3 or Common Space
7006m²±

Attenuation Area

Mabel Crescent
(Public Street)
Phase 1
20.00 wide

Dantes Drive
(Public Street)
Phase 1
20.00 wide

Mabel Crescent
(Public Street)
Phase 2
20.00 wide

Dantes Drive
(Public Street)
Phase 2
20.00 wide

Gault Road

Hitachi Crescent

1 693m²±	2 651²±	3 651m²±	4 651m²±	5 798m²±	6 1022m²±	7 800m²±	8 800m²±	9 800m²±	10 800m²±	11 800m²±	12 800m²±	
25 767m²±	24 630m²±	23 630m²±	22 630m²±	21 630m²±	20 630m²±							

Phase 1 Temporary Turnaround

Limits of Phase 1 Public Street

remnant
PID 00403535
Simpco Development Ltd.
Property
Doc, 28991165 Reg. 2010–07–19

Future Development

remnant
PID 00403535
Simpco Development Ltd.
Property
Doc, 28991165 Reg. 2010–07–19

Future Development

Future Development

PID 00403584
Lot A
See Plan
File 39 No. 54

Route 7
(Exit 96 Off Ramp)
See Plan No. 2340 & 2341
(Width Varies)

6" Water Pipeline Right of Way
Doc. 74 File 0
See Plan No. 74 File 0

Municipal Services Easement
Doc. 28113570 Reg. 2009–12–02
See Plan No. 28113513

Water Pipeline Easement
Doc. 229307 Vol. 645 Pg. 239
See Plan No. 101 File 49

Emera Brunswick Pipeline Company Ltd. Easement
Doc. 27147025 Reg. 2009–05–13
See Plan No. 27146993

Purpose Of Plan

To show the Phase 1 development concept of a portion of PID 00403535.
To show the proposed public street network for Phase 1 & Phase 2.

NOTES

1. Directions are N.B. Grid azimuths derived from GNSS observations on N.B. Mon's. ---- (based on NAD83 CSRS HPN Value on N.B. Mon. ---).
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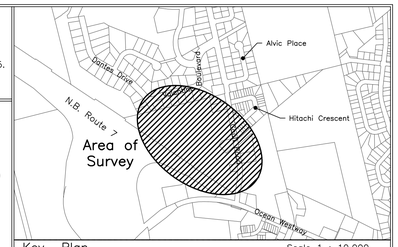
6. All computations performed and coordinates shown on this plan are based on New Brunswick Stereographic Double Projection and the NAD83(CSRS) Reference System as realized by Service New Brunswick High Precision Network coordinate survey monuments.



Key Plan — Scale 1 : 10,000

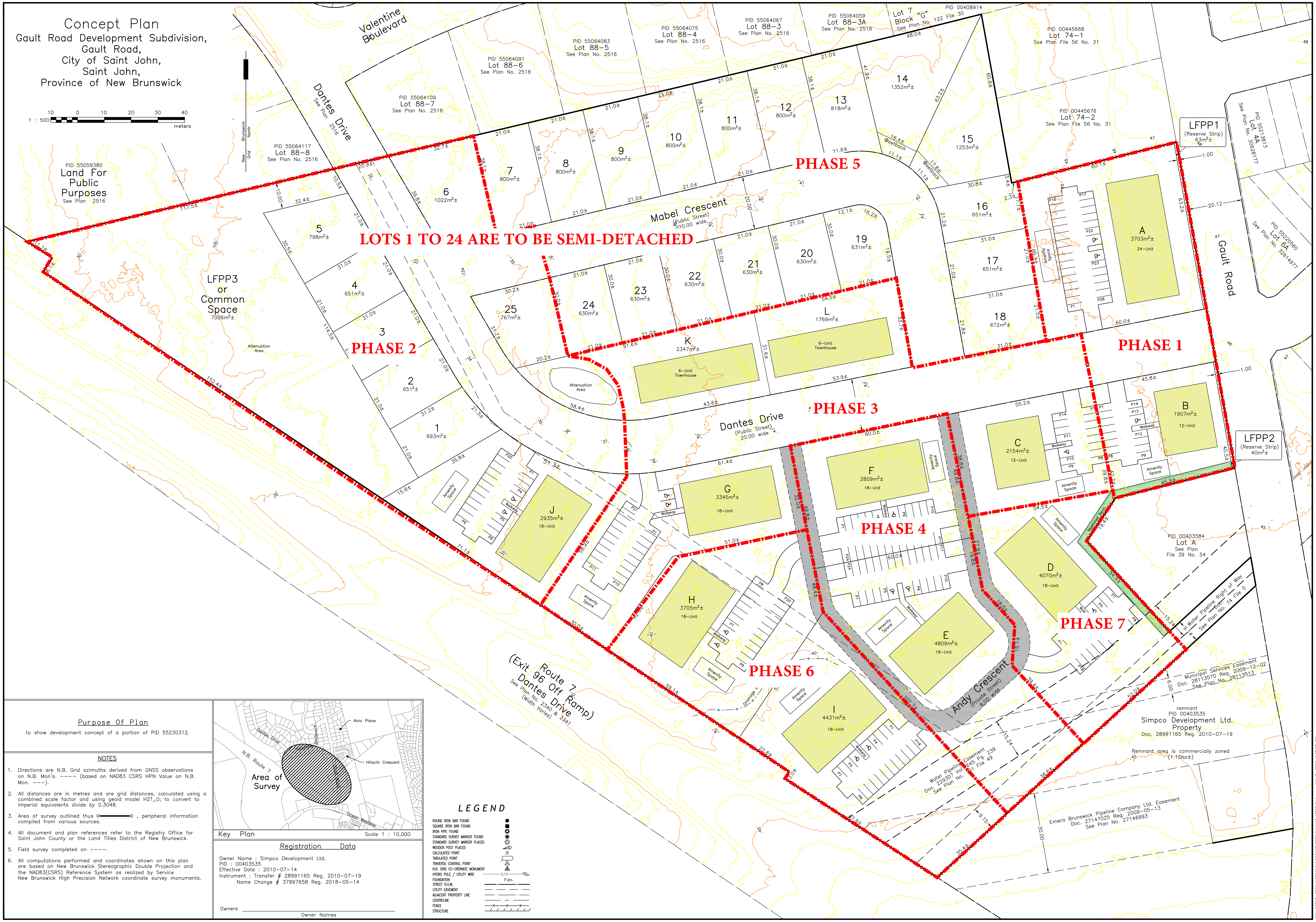
Registration Data

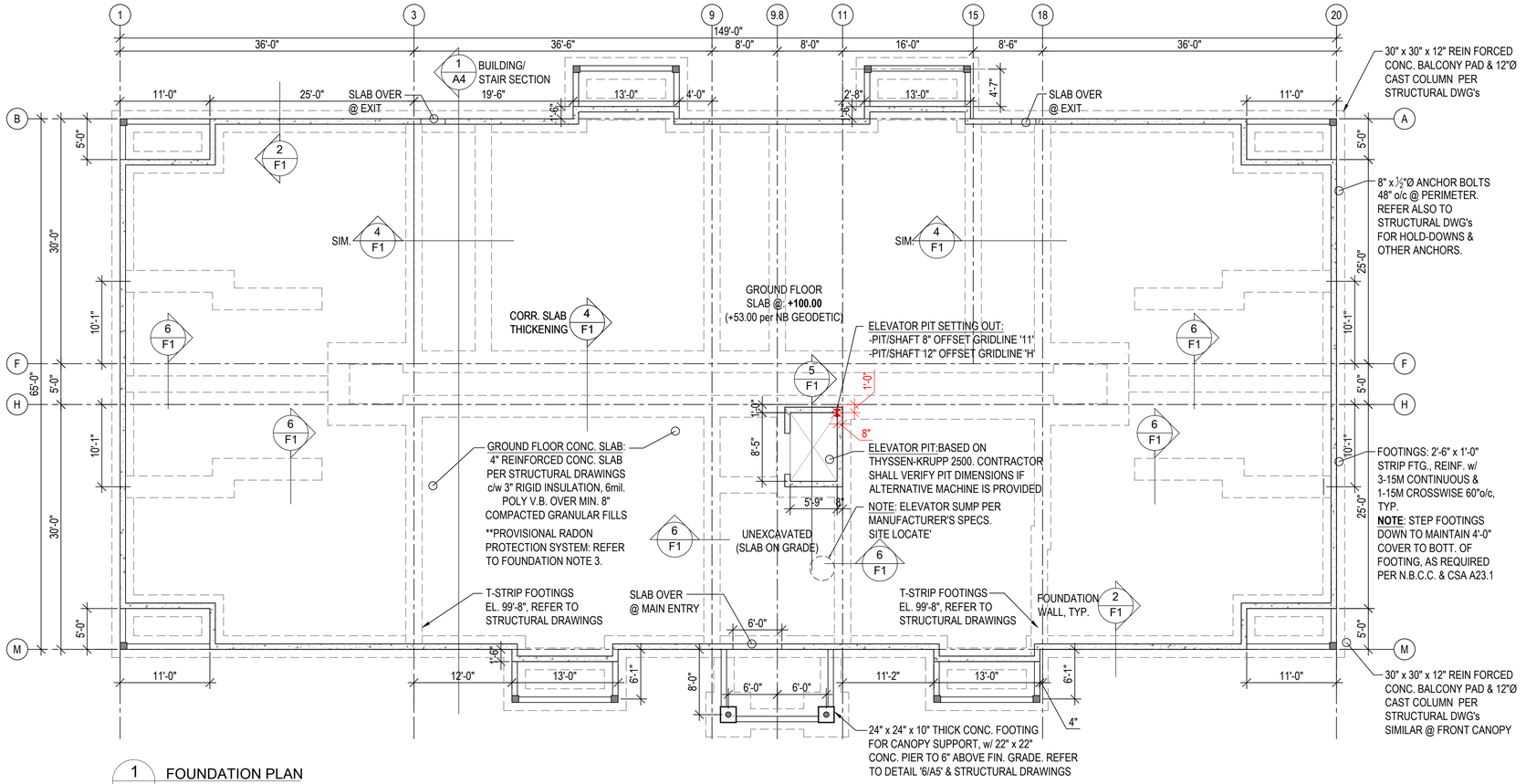
Owner Name : Simpco Development Ltd.
PID : 00403535
Effective Date : 2010–07–14
Instrument : Transfer # 28991165 Reg. 2010–07–19
Name Change # 37997658 Reg. 2018–05–14

Owners _____
Owner Names

LEGEND

- ROUND IRON BAR FOUND
- SQUARE IRON BAR FOUND
- IRON PIPE FOUND
- STANDARD SURVEY MARKER FOUND
- STANDARD SURVEY MARKER PLACED
- WOODEN POST PLACED
- CALCULATED POINT
- TABULATED POINT
- TRAVERSE CONTROL POINT
- N.B. GRID CO-ORDINATE MONUMENT
- HYDRO POLE / UTILITY WIRE
- FOUNDATION (Fdn.)
- STREET R.O.W.
- UTILITY EASEMENT
- ADJACENT PROPERTY LINE
- CENTRELINE
- FENCE
- STRUCTURE


Concept Plan
Gault Road Development Subdivision,
Gault Road,
City of Saint John,
Saint John,
Province of New Brunswick
1 : 500
meters
LOTS 1 TO 24 ARE TO BE SEMI-DETACHED
PHASE 1
PHASE 2
PHASE 3
PHASE 4
PHASE 5
PHASE 6
PHASE 7
Valentine Boulevard
Dantes Drive
Mabel Crescent
(Public Street)
20.00 wide
Dantes Drive
(Public Street)
20.00 wide
Andy Crescent
(Private Street)
Gault Road
Route 7
(Exit 96 Off Ramp)
Dantes Drive
See Plan No. 2340 & 2341
(Width Varies)
PID 55059380
Land For Public Purposes
See Plan 2516
LFPP3
or
Common
Space
7006m²±
LFPP1
(Reserve Strip)
63m²±
LFPP2
(Reserve Strip)
40m²±
Attenuation Area
A
3703m²±
24-Unit
B
1907m²±
12-Unit
C
2154m²±
12-Unit
D
4070m²±
18-Unit
E
4809m²±
18-Unit
F
2809m²±
18-Unit
G
3345m²±
18-Unit
H
3705m²±
18-Unit
I
4431m²±
18-Unit
J
2935m²±
18-Unit
K
2347m²±
6-Unit Townhouse
L
1769m²±
6-Unit Townhouse
Amenity Space
PID 00403584
Lot A
See Plan
File 39 No. 54
remnant
PID 00403535
Simpco Development Ltd.
Property
Doc. 28991165 Reg. 2010-07-19
Remnant area is commercially zoned
(1.15ha±)
Municipal Services Easement
Doc. 28113570 Reg. 2009-12-02
See Plan No. 28113513
Water Pipeline Easement
Emera Brunswick Pipeline Company Ltd. Easement
Doc. 27147025 Reg. 2009-05-13
See Plan No. 27146993
Purpose Of Plan
to show development concept of a portion of PID 55230312.
NOTES
1. Directions are N.B. Grid azimuths derived from GNSS observations on N.B. Mon's. ---- (based on NAD83 CSRS HPN Value on N.B. Mon. ---).
2. All distances are in metres and are grid distances, calculated using a combined scale factor and using geoid model H2T_0; to convert to imperial equivalents divide by 0.3048.
3. Area of survey outlined thus , peripheral information compiled from various sources.
4. All document and plan references refer to the Registry Office for Saint John County or the Land Titles District of New Brunswick.
5. Field survey completed on ----.
6. All computations performed and coordinates shown on this plan are based on New Brunswick Stereographic Double Projection and the NAD83(CSRS) Reference System as realized by Service New Brunswick High Precision Network coordinate survey monuments.
Key Plan
Scale 1 : 10,000
Area of Survey
Alvic Place
Hitachi Crescent
Ocean Westway
N.B. Route 7
Registration Data
Owner Name : Simpco Development Ltd.
PID : 00403535
Effective Date : 2010-07-14
Instrument : Transfer # 28991165 Reg. 2010-07-19
Name Change # 37997658 Reg. 2018-05-14
Owners
Owner Names
LEGEND



1 F1 FOUNDATION PLAN
SCALE: ⅛" = 1'-0"

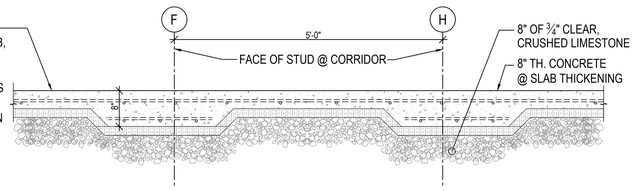
NOTE:

1. REFER ALSO TO MATCH ENGINEERING FOUNDATION PLAN & DETAILS. ANY INSTANCES WHERE ARCHITECTURAL FOUNDATION PLAN DIFFERS, STRUCTURAL DRAWINGS ARE TO TAKE PRECEDENCE.
2. GROUND FLOOR SLAB SET @ +100.00 ft. BASED ON SITE ELEVATION = NB GEODETIC EL.:+53.00. REFER TO SURVEYOR'S SITE PLAN.
3. SETTING OUT LOCATION: REFER TO SURVEYOR'S SITE PLAN. ALSO PER SURVEYOR'S SITE PLAN: EXTERIOR WALKS & STOOPS, LANDSCAPING, FINISHED GRADES, MUNICIPAL CONNECTIONS, & EXTERIOR TRANSFORMER LOCATIONS

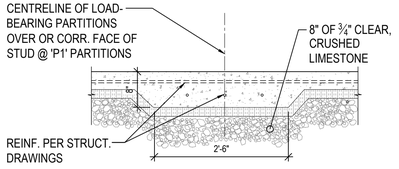
FOUNDATION NOTES:

1. ALL WORK SHALL BE PERFORMED IN ACCORDANCE w/ NATIONAL BUILDING CODE OF CANADA 2015. THIS BUILDING IS WITHIN PART 3 OF NBCC 2015.
2. STEP FOOTINGS AS REQUIRED TO ACHIEVE APPROPRIATE COVERAGE. PERFORM FOOTING STEPS PER N.B.C.C. AND CSA A23.1:19
3. RADON PROTECTION:
   - PROVIDE OUTLET : 4" PVC VERTICAL PIPE, LOCATED ON SITE BY ARCHITECT FOR FUTURE EXHAUST FAN
   - MIN. 4" @ ¾" CLEAR GRANULAR FILL UNDER SLAB
   - 6mil. POLY V.B UNDER SLAB OVERLAPPED MIN. 6" AT ALL JOINTS, TAPED & SEALED CONTINUOUSLY AROUND PERIMETER
   - 4" PVC VERTICAL PIPE, CAPPED, RUNS CONTINUOUSLY UNDER-SLAB.
   - PROVIDE 2 WAY GRID OF 4" PVC PERFORATED PIPE, 28'-0" o/c EACH WAY. SUBMIT LAYOUT TO ARCHITECT FOR APPROVAL.
   - SEAL ALL JOINTS WHERE FOUNDATION WALL MEETS CONCRETE SLAB & AT ALL PENETRATIONS IN CONCRETE SLAB & CONCRETE FOUNDATION WALL
   - PROVIDE RADON TRAPS AT ALL FLOOR DRAINS
4. CONCRETE:
   - CONCRETE SPECIFICATION, MIX DESIGN, STRENGTH, AIR ENTRAIN, : ALL BY STRUCTURAL ENGINEERING DRAWINGS
   - DROP FOUNDATION WALL 8" & CAST SLAB-OVER WALL @:
     --40"w @ EXIT STAIR DOORS
     --72"w @ PATIO SLIDERS
     --5'-6"w @ MAIN ENTRY
   - REFER TO STRUCTURAL DRAWINGS FOR HOLD DOWN ANCHORS, SHEAR WALLS, ETC.
5. SLAB FINISH THROUGHOUT: POWER TROWEL TO SMOOTH/FLAT TOLERANCE ⅛" IN 10". SLAB FINISH TO TAKE VC TILE/ VINYL SHEET FLOORING, ALL LOCATIONS
6. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH FOUNDATION DRAWINGS BY MATCH ENGINEERING INC. FOR FOOTING SIZES & REINFORCING, SLAB THICKENINGS, ANCHOR BOLTS, & CONTROL JOINTS. MATCH ENGINEERING DRAWING SHALL SUPERSEDE ARCHITECTURAL DRAWINGS, FOR THE SPECIFIC ITEMS ABOVE.

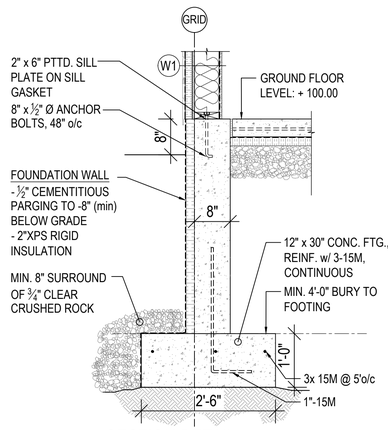
DRAWING INDEX (ARCHITECTURAL):



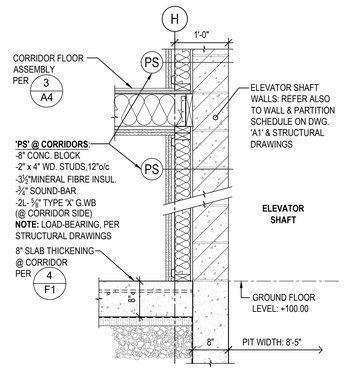
4 F1 SECTION: SLAB THICKENING @ CORRIDOR & STAIRWELLS
SCALE: ¾" = 1'-0"



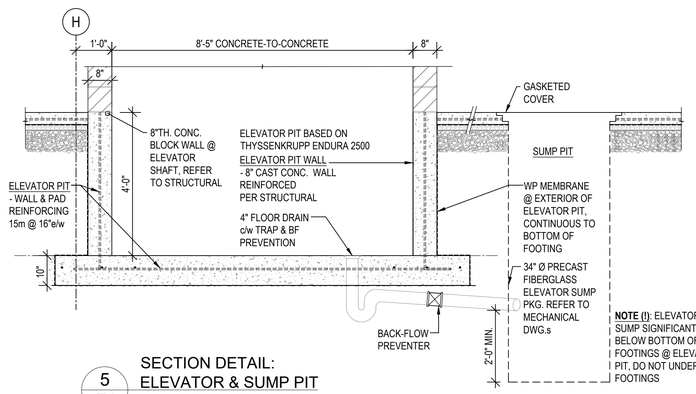
6 F1 SECTION DETAIL: SLAB THICKENING @ LOADBEARING PARTITIONS, TYP.
SCALE: ¾" = 1'-0"



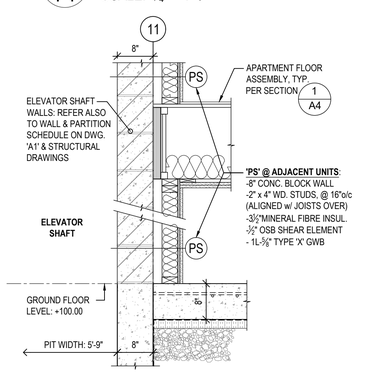
2 F1 SECTION DETAIL: FOUNDATION @ FOOTING TYP.
SCALE: ¾" = 1'-0"



3 F1 SECTION DETAIL: ELEVATOR SHAFT @ CORRIDORS, TYP.
SCALE: ¾" = 1'-0"



5 F1 SECTION DETAIL: ELEVATOR & SUMP PIT
SCALE: ½" = 1'-0"



7 F1 SECTION DETAIL: ELEVATOR SHAFT @ ADJACENT UNITS, TYP.
SCALE: ¾" = 1'-0"

NO.	DATE	REVISION DESCRIPTION
--	28 MAR. 2024	REISSUED FOR BUILDING PERMIT
--	02 NOV. 2023	ISSUED FOR BUILDING PERMIT
--	07 MAR. 2023	CONSULTANT CO-ORDINATION
--	21 FEB. 2023	ISSUED FOR CLIENT REVIEW

97009 CERTIFICATE of PRACTICE 28 MAR. 2024 Peter G. MacKenzie COMEAU MACKENZIE ARCHITECTURE

COMEAU MACKENZIE ARCHITECTURE
183 CHARLOTTE STREET, SAINT JOHN, NB E2L 0C7
TEL: (506) 657-1611 mackarch@nbnet.nb.ca

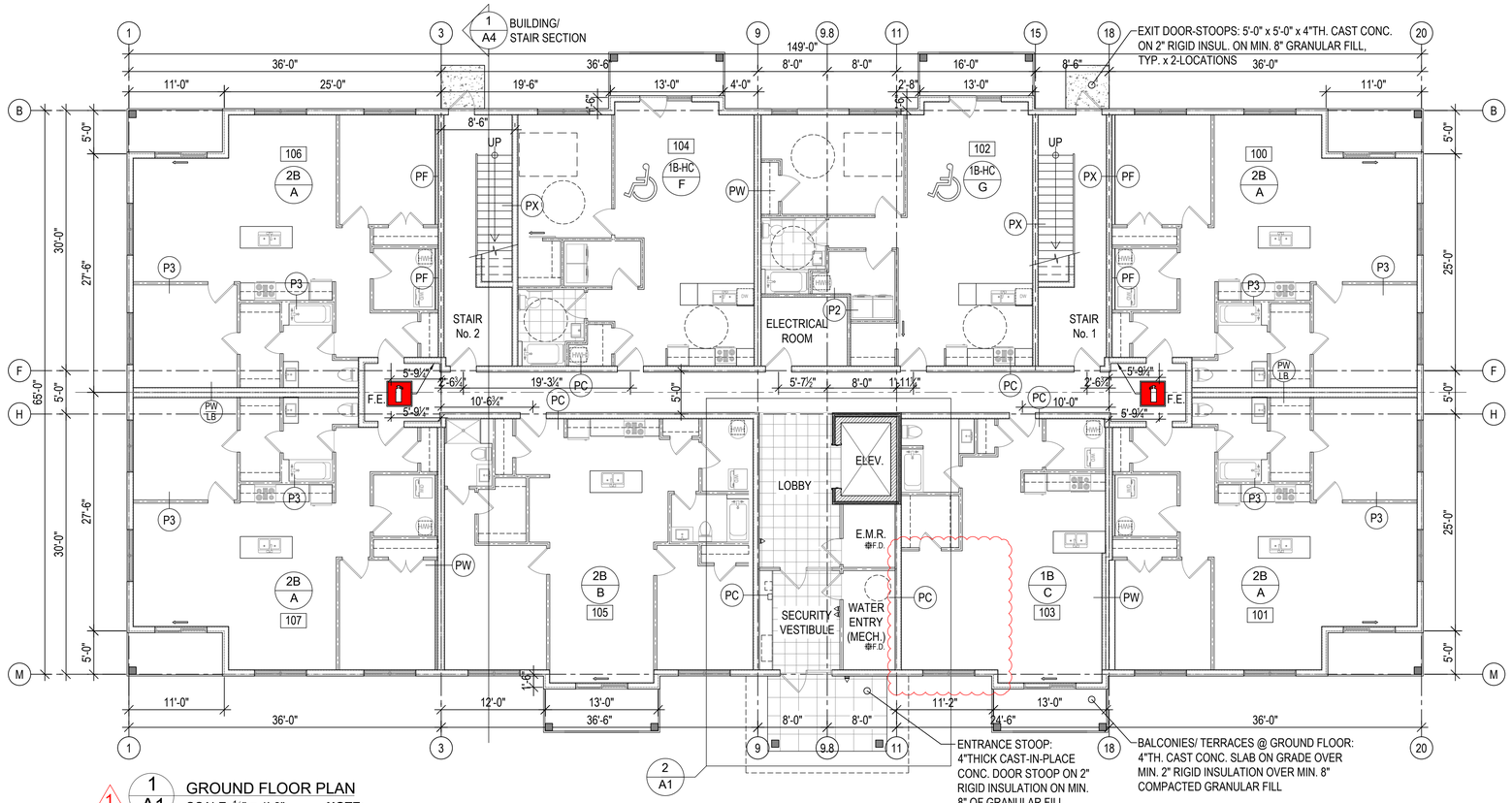
PROJECT NAME:

MDC HOLDINGS, LTD.:
24 UNIT APARTMENT BUILDING

5 WILD FOX DRIVE
SAINT JOHN,NB

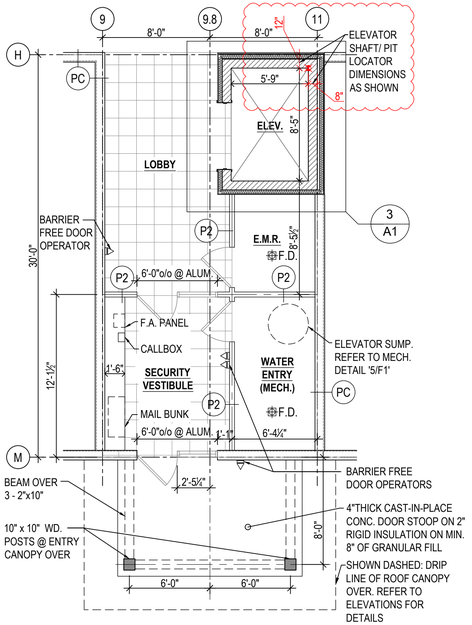
FOUNDATION PLAN & DETAILS

DRAWN BY:	AEP	CHECKED BY:	
SCALE:	AS SHOWN	DATE:	FEB. 2023
PROJECT #:	222403	DWG #:	F1

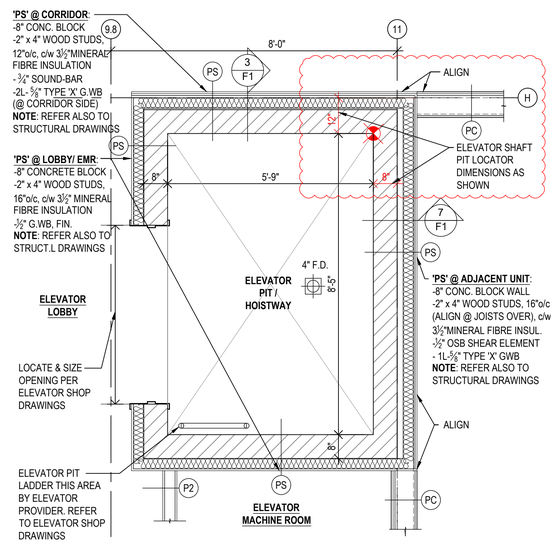


1. 1 / A1 GROUND FLOOR PLAN
SCALE: ⅛" = 1'-0"

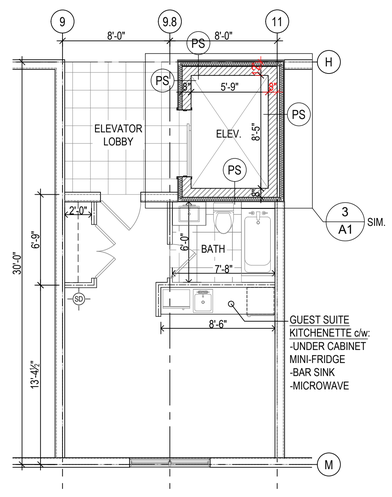
NOTE:
1. WALL & PARTITION SCHEDULE: REFER TO DRAWING 'A1'
2. DETAIL UNIT PLANS: REFER TO DRAWING 'A3'



1. 2 / A1 PLAN DETAIL: ENTRY VESTIBULE & LOBBY
SCALE: 3/16" = 1'-0"



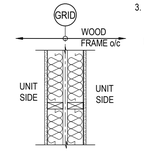
1. 3 / A1 DETAIL PLAN: ELEVATOR PIT/ HOISTWAY @ GROUND FLOOR
SCALE: ½" = 1'-0"



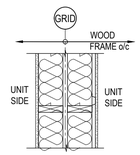
4 / A1 DETAIL PLAN: GUEST SUITE
SCALE: 3/16" = 1'-0"
NOTE: LOCATED ON THIRD FLOOR. REFER ALSO TO '2/A2' OVERALL THIRD FLOOR PLAN

1. WALL & PARTITION SCHEDULE:

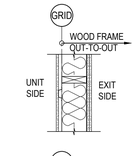
NOTES:
1. REFER ALSO TO CODE REVIEW MATRIX ON ARCHITECTURAL DRAWING 'A4'
2. REFER ALSO TO STRUCTURAL DRAWINGS FOR STUD CENTERS, ROW OF BLOCKING, HOLD-DOWN ANCHOR LOCATIONS, SHEAR-WALL NAILING PATTERNS, COLUMNS WITHIN WALLS, & OTHER STRUCTURAL REQUIREMENTS
3. SEE ALSO FINISH NOTES



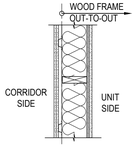
PW — **PARTY WALL / SHEARWALL, NOT LOAD BEARING:**
FS, 1hr F.R.R, STC 59: UL: R4024
-⅝" TYPE 'X' GWB
-2" x 4" WOOD STUDS, 16"o/c
- 3 ½" GLASS BATT INSULATION
- ½" AIR GAP
- 2" x 4" WOOD STUDS, 16" o/c
-RESILIENT CHANNEL
-⅝" TYPE 'X' GWB



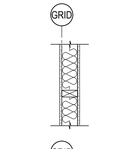
PW LB — **PARTY WALL, LOAD BEARING**
FS, 1hr F.R.R, STC 59 : UL: R4024
- ½" TYPE 'X' GYPSUM WALL BOARD
-2" x 6" WOOD STUD, CENTERS PER STRUCTURAL
-5 ½" GLASS BATT INSULATION
-1" AIR GAP
- 5 ½" GLASS BATT INSULATION
-2" x 6" WOOD STUD, CENTERS PER STRUCTURAL
-RESILIENT CHANNEL
- ⅝" TYPE 'X' GYPSUM WALL BOARD



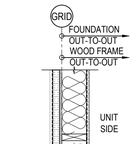
PX — **EXIT PARTITION/STAIRWELLS ADJACENT UNITS:**
FS, 1hr F.R.R. STC 54 : UL DES. 301
NOTE: 1 ADDITIONAL LAYER ⅝" TYPE 'X' G.WB @ STAIRWELLS
-⅝" TYPE 'X' GWB (UNIT SIDE)
- ¾" RESILIENT CHANNEL
-2" x 6" WOOD STUDS, CENTERS PER STRUCTURAL
- 3 ½" GLASS BATT INSULTION
- 2L- ⅝" TYPE 'X' GWB (EXIT SIDE)
NOTE: NO SERVICES WITHIN 'PX' PARTITIONS UNLESS SPECIFICALLY SERVING THE EXIT. PROVIDE ADDITIONAL 'PF' FURRING @ RESIDENCE SIDE AS REQUIRED



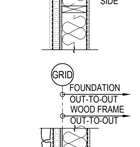
PC — **CORRIDOR, LOADBEARING**
FS, 1hr, F.S.S, STC 56 : UL DES. 327
- 2L- ⅝" TYPE 'X' GWB (CORRIDOR SIDE)
- ¾" SOUND-BAR
- 2" x 6" WOOD STUD
- 5 ½" GLASS BATT INSULATION
- ½" OSB SHEAR ELEMENT
- ⅝" TYPE 'X' GWB



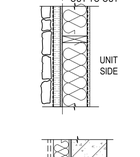
P1



W1 — **EXTERIOR WALL, TYP:**
BXUV U.301
-VINYL SIDING
-1 ½" XPS 'SILVERBOARD': R4.5 / " = R6.25
-TYVEK A.V.B.
-½" OSB SHEATHING
-2" x 6" WOOD STUDS, CENTERS PER STRUCTURAL
-R22 PRO-PINK BATT INSULATION
-6mil. POLY V.B.
- ⅝" TYPE 'X' GYPSUM WALL BOARD



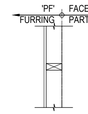
W2 — **EXTERIOR PRESENTATION WALLS:**
BXUV U.301
- DECORATIVE STONE SIDING 'VERSETTA-STONE OR APPROVED EQ.
- FULL PASS ICE-&-WATER SHIELD
- 1 ⅞" XPS 'SILVERBOARD'
- TYVEK A.V.B
- ½" PLYWOOD SHEATHING
- 2"x 6" STUDS 16" o/c
-R22 PRO-PINK BATT INSULATION
- 6mm POLY VB
- ⅝" TYPE 'X' GWB



PS — **SHAFT WALLS**: FS, 1Hr. F.R.R.
8" CONC. BLOCK SHAFT WALL
'PS' @ CORRIDOR:
-2" x 4" WD. STUDS @ 12"o/c
- 3 ½" MINERAL FIBRE INSULATION
-RESILIENT CHANNEL
-2L- ⅝" TYPE 'X' G.WB ALIGNED w/ 'PC' PARTITION @ CORR. (PER DETAIL '3/F1')
'PS' @ ADJACENT UNIT:
-2" x 4" WD. STUDS @ 16"o/c
-3½" MINERAL FIBRE INSULATION
-1L- ⅝" TYPE 'X' G.WB ALIGNED w/ 'PC' PARTITION @ GRID '11' (PER DETAIL '7/F1')
'PS' @ ELEV. LOBBY/EMR:
-2" x 4" WD. STUDS @ 16"o/c
-3½" MINERAL FIBRE INSULATION.
- ½" G.WB, FIN.
NOTE (!):
- **LOAD-BEARING IN SOME LOCATIONS, REFER ALSO TO STRUCT. DRAWINGS**
- **FIRE RATING: PER 2015 NBCC APPENDIX 'D' TABLE D-2.1.1.: HOLLOW CONC. BLOCK TYPE S OR N CONC.**

P2

P3



PF

INSULATION PRODUCTS:

1. UNDERSLAB & FOUNDATION WALL INSULATION: 3" XPS DOW SM OR 'CODE BOARD'
2. EXTERIOR WALL INSULATION: (STUD CAVITY) 'PRO PINK' OWEN'S CORNING FIBROUS GLASS BATT INSTALLED TO A DENSITY OF 1.25lb. PER CU. FT.: R22 WITHIN 2" x 6" STUD CAVITY
3. EXTERIOR WALL INSULATION (INSULATED SHEATHING:) 1 ½" TH. 'SILVERBOARD' AMVIC EPS c/w FOIL FACE, R5 PER INCH/ 0.88m² K/W PER 25mm. R7.5 @ 1½" SHEATHING BOARD.
4. SPRAY-FOAM INSULATION @ JOIST ENDS, WINDOW INSTALL, VARIOUS: DOW 'GREAT STUFF' POLYURETHANE SPRAY INSULATION, LOW EXPAND, R6.0 PER INCH x MIN. 5"
5. ATTIC INSULATION: 'PRO PINK' OWEN'S CORNING FIBROUS GLASS BLOWING WOOL INSTALLED TO A DENSITY OF 1.25lb. PER CU. FT. R60 @ 13" INSULATION DEPTHS.

ENERGY DATA:

1. CLIMATE ZONE 6: 4000-4999 HTG DEGREE DAYS
2. EFFECTIVE R-VALUE MINIMUMS:
   - WALLS 16.9
   - CEILINGS 50
3. ALL UNITS WITH HRV's

ROOF/ ATTIC: (NBCC T-9.36.2.6 B)

ASSEMBLY	RSI	R-VALUE	
R60 BLOWN-IN BATT INS.	10.56	60	
6mil. POLY V.B.	--	--	
STRAPPING	0.16	0.92	
½" G.WB CEILING	0.08	0.45	
TOTAL:	10.8		
REQUIRED:	8.67		✓

WALLS ABOVE GRADE: (T-9.36.2.6.B.)

ASSEMBLY	RSI	R-VALUE	
OUTDOOR AIR FILM	0.03	0.17	
VINYL SIDING	0.11	0.62	
1½"RIGID INSULATION XPS	1.05	6	
7/16" OSB SHEATHING	0.11	0.62	
2" x 6" @ 16" c/w R22 GLASS BATT INSULATION	2.60	18.4*	*REDUCTION PER TABLE A-9.36.2.4
6mil. POLY V.B.	--	--	
½" G.WB	0.08	0.45	
TOTAL:	3.98		
REQUIRED:	2.97		✓

ASSEMBLIES AT OR BELOW GRADE: (T-9.36.2.8.B.)

ASSEMBLY	RSI	R-VALUE	
INDOOR AIR	0.12		
4" CONC. SLAB	0.04		.0004 x 100
6mil. POLY V.B.	--		
3" EPS RIGID INSULATION	2.64		
TOTAL:	2.8		
REQUIRED:	1.96		✓

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--	21 FEB. 2023	ISSUED FOR CLIENT REVIEW

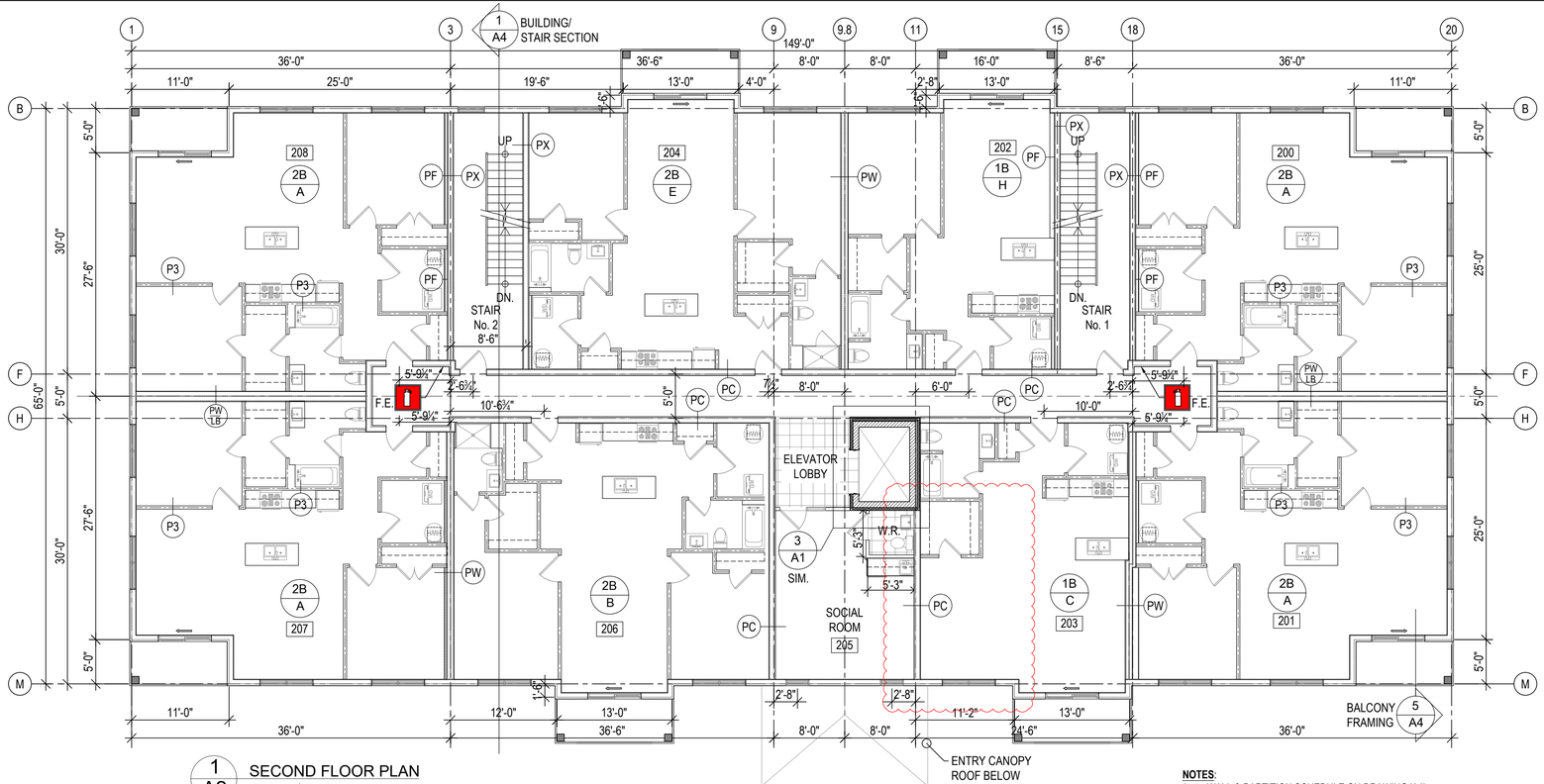
97009
CERTIFICATE of PRACTICE
28 Mar. 2024
Peter G. Mackenzie
ARCHITECTURE

COMEAU MACKENZIE ARCHITECTURE
193 CHARLOTTE STREET, SAINT JOHN, NB E2L 0C7
TEL: (506) 657-1611 mackarch@nbnet.nb.ca

PROJECT NAME:
MDC HOLDINGS, LTD.:
24 UNIT APARTMENT BUILDING
5 WILD FOX DRIVE
SAINT JOHN,NB

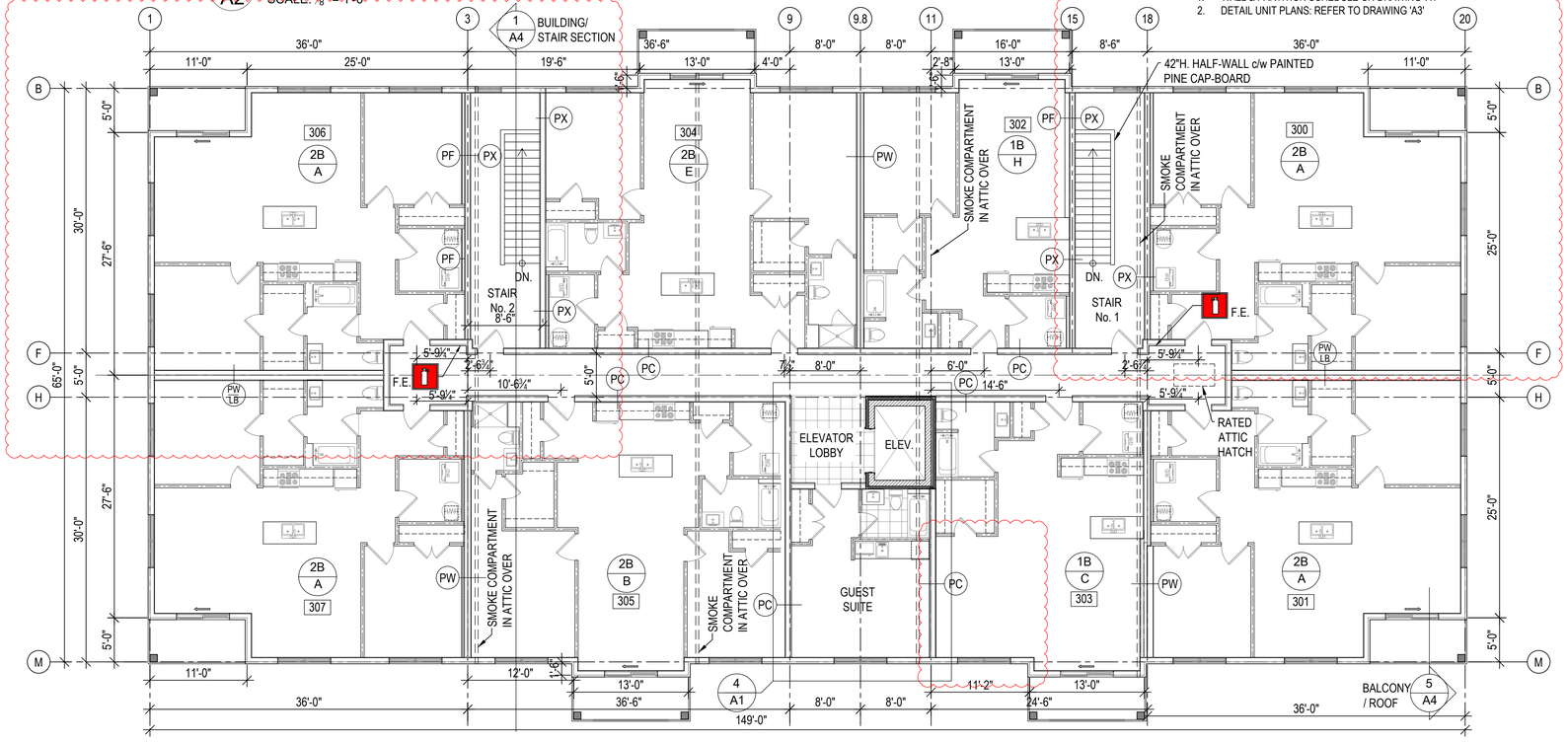
GROUND FLOOR PLAN & PARTITION SCHEDULE

DRAWN BY:	AEP
CHECKED BY:	
SCALE:	AS SHOWN
DATE:	FEB. 2023
PROJECT #:	222403
DWG #:	A1-R1

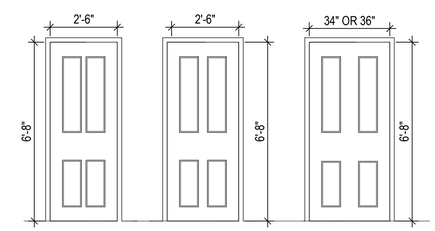


1 A2 SECOND FLOOR PLAN
SCALE: ⅛" = 1'-0"

NOTES:
1. WALL & PARTITION SCHEDULE ON DRAWING 'A1'
2. DETAIL UNIT PLANS: REFER TO DRAWING 'A3'



1. 2 A2 THIRD FLOOR PLAN
SCALE: ⅛" = 1'-0"



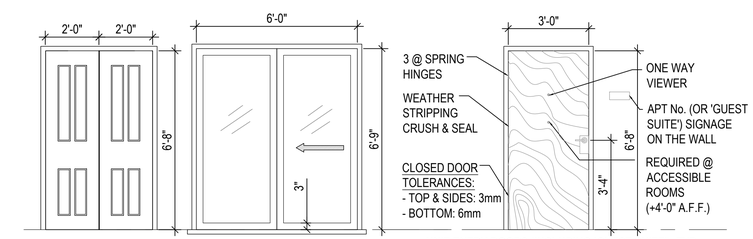
BEDROOMS, BATHS, & CLOSETS: 30" x 80" x 1⅜" HOLLOW CORE DOOR w/ PRE-HUNG FRAME & LEVER LATCH SET

STORAGE & LAUNDRY ROOM: 32" x 80" x 1⅜" HOLLOW CORE DOOR w/ PRE-HUNG FRAME

BARRIER FREE UNITS @ BEDROOMS, BATHROOMS, & CLOSETS: 34" OR 36" x 80" x 1⅜" HOLLOW CORE DOOR w/ PRE-HUNG FRAME & LEVER LATCH SET

TERRACE DOORS @ ACCESSIBLE: 6'-0" x 6'-8" SWING DOOR c/w LOW-PROFILE (MAX. ½") THRESHOLD PER CAN/CSA B651- M18

DOOR NOTES:
- PROVIDE PRIVACY SETS @ BATHRM.s
- PASSAGE SETS ALL OTHERS.
- PROVIDE FLOOR, WALL, OR HINGE STOPS @ DOOR AGAINST WALLS.
- SET HINGES TO ALLOW 180° OPENING @ DOUBLE DOORS
- LEVER HANDLES THROUGHOUT
- HINGE-SIDE DOOR BUCK AGAINST WALLS: 3" @ FRAMING, UNLESS NOTED OTHERWISE

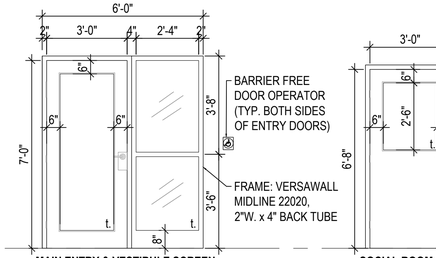


DOUBLE CLOSET: 2- 24"x 80" x 1⅜" HOLLOW CORE DOOR IN PRE-HUNG FRAME c/w DUMMY LEVER HANDLES & ROLLER LATCH

SLIDING PATIO DOORS: 6'-0" x 6'-8" SLIDING PATIO DOORS c/w LATCH-LOCK, BAR-LOCK, & SLIDING SCREENS

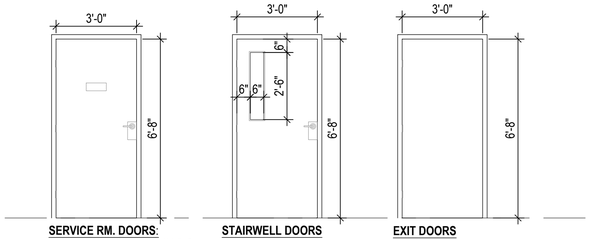
UNIT ENTRY DOORS (INCLUDING 'GUEST SUITE'), TYP.: 3'-0"x 6'-8" x 1¾" SOLID CORE WOOD DOOR, STAIN GRADE BIRCH, VENEER DOOR, 20min F.R.R RATING ON DOOR, FRAME, HARDWARE
- LEVER LATCH SET / DEADBOLT
- LOCKS w/ KEY ONLY WHEN EXITING
- ACTION OF LEVER RELEASES DEADBOLT IN THE EXIT DIRECTION

3 A2 DOOR SCHEDULE: DOORS WITHIN UNITS
SCALE: ⅜" = 1'-0"



MAIN ENTRY & VESTIBULE SCREEN: 3'-0" x 7'-0" x 1¾" ALUM. ENTRY, BLACK ANODIZED DOORS, ALUMICOR 'CANADIANA' INSULATED 600A OUTER SCREEN: WEATHER-STRIPPED, THERMAL LITES INNER SCREEN: SINGLE GLAZE, TEMPERED

SOCIAL ROOM DOOR (2nd LVL.): 3'-0" x 6'-8" HM DOOR c/w SIDE LITE AS SHOWN IN P.S. FRAME,
- ¾ Hr. F.R.R RATING ON DOOR, FRAME, GLAZING, & HDWE.
- LEVER LATCH SET & CLOSER
- LOCKS w/ KEY ONLY WHEN EXITING



SERVICE RM. DOORS: 3'-0" x 6'-8" x HM DOOR IN P.S. FRAME, 'STOREROOM' SET
- ¾ Hr. F.R.R RATING ON DOOR, FRAME, & HARDWARE
- LEVER LATCH SET, CLOSER

SIGNAGE:
- ELECTRICAL ROOM
- ELEV. MACHINE ROOM
-STORAGE ROOM
-MECHANICAL (WATER ENTRY)

STAIRWELL DOORS (FROM CORRIDORS): 3'-0" x 6'-8" x HM DOOR IN P.S. FRAME, c/w VIEW LITE AS SHOWN
- ¾ Hr. F.R.R RATING ON DOOR, FRAME, & HARDWARE
- LEVER LATCH SET & CLOSER

EXIT DOORS (STAIRWELLS TO EXTERIOR): 3'-0" x 6'-8" x 1¾" INSULATED MET. DOOR IN THERMALLY BROKEN FRAME, FULLY WEATHER-STRIPPED
- PANIC HARDWARE TO EXTERIOR & CLOSER
- NO EXTERIOR HARDWARE

4 A2 DOOR SCHEDULE: COMMON AREA & EXTERIOR DOORS
SCALE: ⅜" = 1'-0"

W.R. DOOR @ SOCIAL RM. '205': 36" x 84" x 1¾" STAIN GRADE, SOLID CORE WD. DOOR, c/w PRIVACY LEVER SET, & PRESSED STEEL FRAME
SIGNAGE: UNIVERSAL SYMBOL FOR 'GENDER NEUTRAL' / 'TACTILE / BARRIER FREE'

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COMEAU MacKENZIE ARCHITECTURE
PROVINCE OF NEW BRUNSWICK

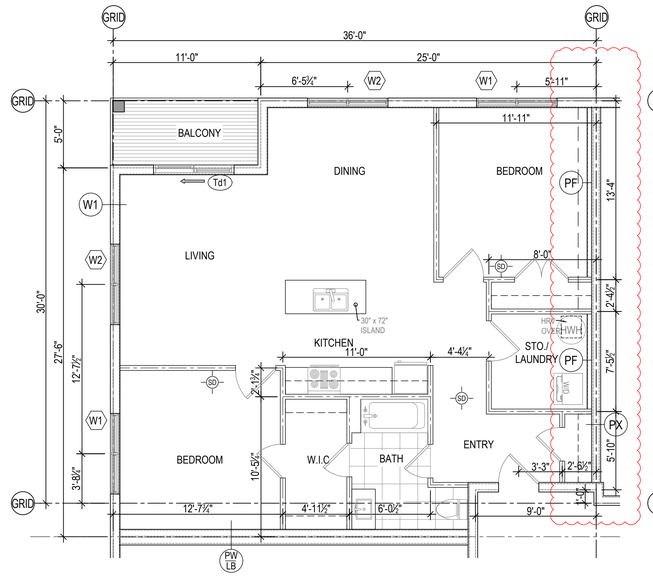
COMEAU MACKENZIE ARCHITECTURE
183 CHARLOTTE STREET, SAINT JOHN, NB E2L 0C7
TEL: (506) 657-1611 mackarch@nbnet.nb.ca

PROJECT NAME:
MDC HOLDINGS, LTD.:
24 UNIT APARTMENT BUILDING

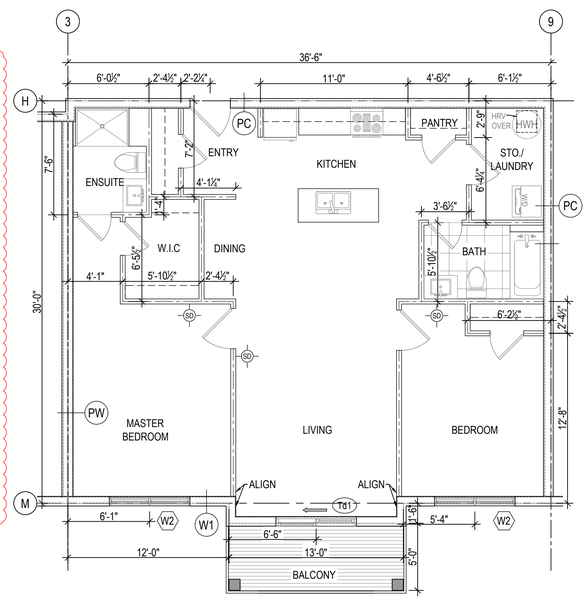
5 WILD FOX DRIVE
SAINT JOHN,NB

SECOND FLOOR PLAN, THIRD FLOOR PLAN, & DETAILS

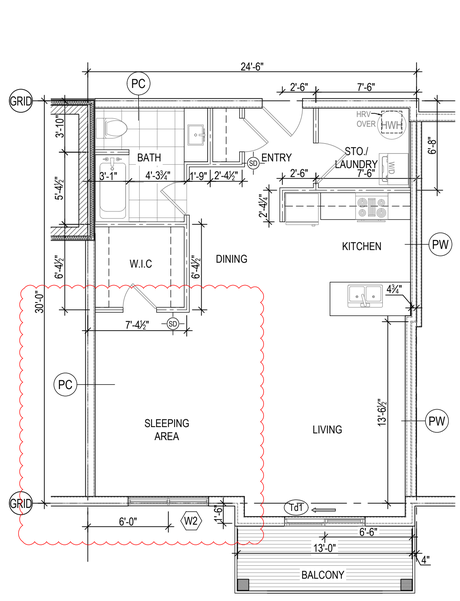
DRAWN BY:	AEP	CHECKED BY:	
SCALE:	AS SHOWN	DATE:	FEB. 2023
PROJECT #:	222403	DWG #:	A2-R1



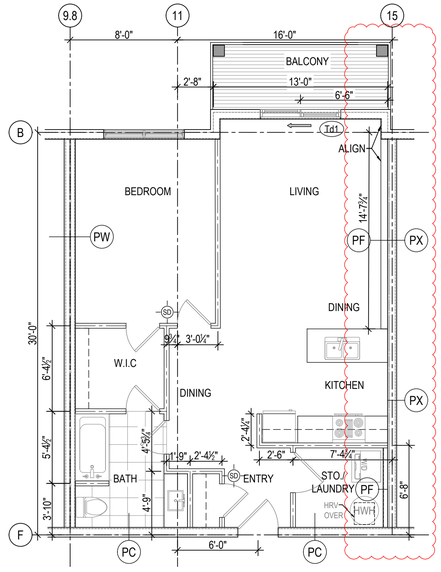
1. 1 / A3 PLAN DETAIL: 2B TYPE 'A' UNITS (OR REVERSED)
SCALE: 3/16" = 1'-0"



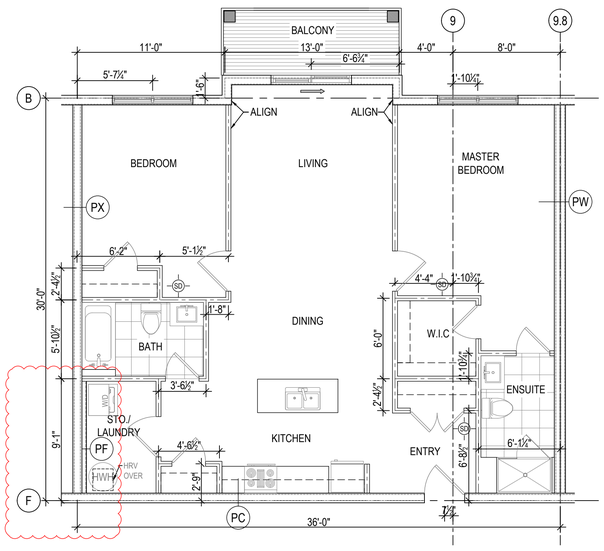
2 / A3 PLAN DETAIL: 2B TYPE 'B' UNITS
SCALE: 3/16" = 1'-0"



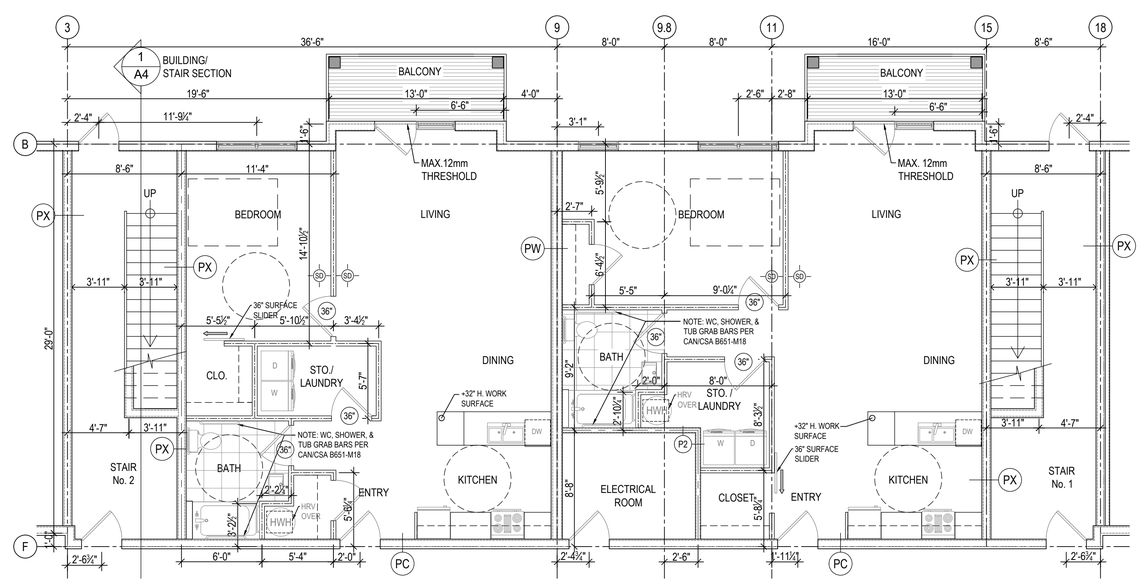
1. 3 / A3 PLAN DETAIL: TYPE 'C' STUDIO UNITS
SCALE: 3/16" = 1'-0"



1. 4 / A3 PLAN DETAIL: 1B TYPE 'H' UNITS
SCALE: 3/16" = 1'-0"



1. 5 / A3 PLAN DETAIL: 2B TYPE 'E' UNIT
SCALE: 3/16" = 1'-0"



6 / A3 PLAN DETAIL: 1B TYPE 'F' BARRIER-FREE UNIT & STAIR No. 2 @ GROUND FLOOR
SCALE: 3/16" = 1'-0"

7 / A3 PLAN DETAIL: 1B TYPE 'G' BARRIER-FREE UNIT & STAIR No. 1 @ GROUND FLOOR
SCALE: 3/16" = 1'-0"

NOTES:
1. REFER TO STRUCTURAL DRAWINGS FOR SHEAR-WALLS, COLUMNS WITHIN WALLS, STUD SPACING, BEAMS & LINTELS, AND OTHER STRUCTURAL REQUIREMENTS
2. REFER TO MECHANICAL DRAWINGS FOR HRV DUCT ROUTINGS & APPURTENANCES AND HEAT-PUMP CONDENSER & REGISTER LOCATIONS
3. SMOKE DETECTORS (SHOWN AS: SD)PER 2015 NBCC 3.2.4.1./ 9.10.9.
4. OPENINGS / APERTURES IN UNIT CEILINGS: PER 2015 NBCC, APPENDIX 'D': 2.3.10.
5. REFER TO ELECTRICAL DRAWINGS FOR LOCATIONS OF ELECTRICAL PANELS & COMM.S HUBS WITHIN UNITS. NOTE: ELECTRICAL PANEL WALL REQUIRES MIN. 4½" DEEP STUD SPACE
6. DRYER DUCT RUNS WITHIN UNITS **SHALL NOT BE LOCATED** WITHIN 'PW', 'PC', OR 'PX' PARTITIONS

1.

UNIT TYPES:		
TYPE	SQ. FOOTAGE	# OF UNITS
TYPE A -- 2 BEDROOM	1, 072 Sq.ft.	12
TYPE B -- 2 BEDROOM	1, 069 Sq.ft.	3
TYPE C -- STUDIO	554.5 Sq.ft.	3
TYPE E -- 2 BEDROOM	1,099.5 Sq.ft.	2
TYPE F -- 1 BEDROOM (BF)	859.5 Sq.ft.	1
TYPE G -- 1 BEDROOM (BF)	888.5 Sq.ft.	1
TYPE H -- 1 BEDROOM	739.5 Sq.ft.	2
GUEST SUITE*	334.5 Sq.ft.	1
TOTAL:		**25**

* **DETAIL PLAN OF GUEST SUITE: REFER TO '4/A1'**

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--	21 FEB. 2023	ISSUED FOR CLIENT REVIEW

97009
CERTIFICATE of PRACTICE
28 MAR. 2024
Peter G. MacKenzie
COMEAU MACKENZIE ARCHITECTURE

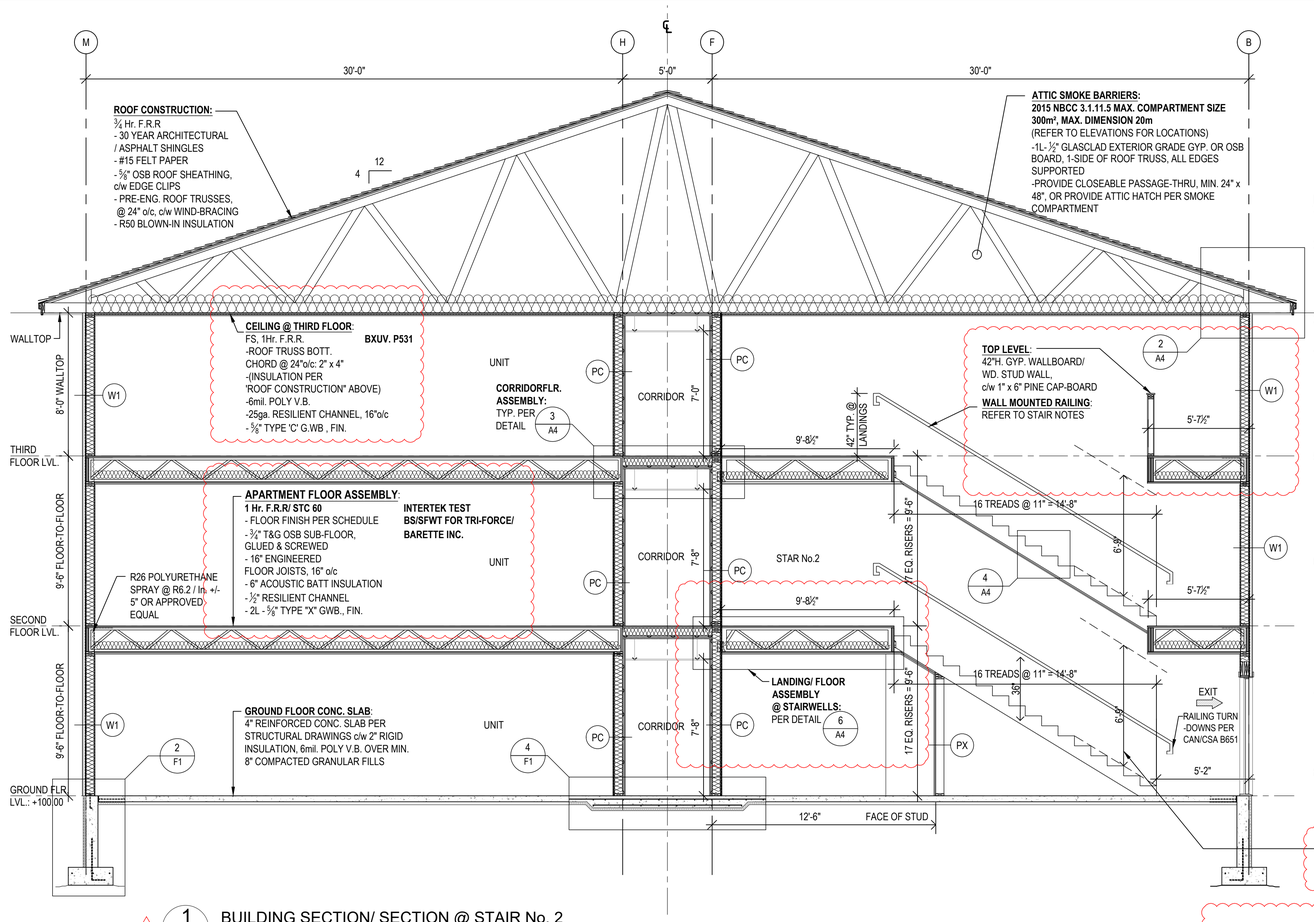
COMEAU MACKENZIE ARCHITECTURE
193 CHARLOTTE STREET, SAINT JOHN, NB E2L 2G7
TEL: (506) 657-1611 mackarch@nbnet.nb.ca

PROJECT NAME:
MDC HOLDINGS, LTD.:
24 UNIT APARTMENT BUILDING

5 WILD FOX DRIVE
SAINT JOHN,NB

DETAIL UNIT PLANS

DRAWN BY:	AEP	CHECKED BY:	
SCALE:	AS SHOWN	DATE:	FEB. 2023
PROJECT #:	222403	DWG #:	A3-R1



1. BUILDING SECTION/ SECTION @ STAIR No. 2

SCALE: ¼" = 1'-0"

NOTE:

1. REFER ALSO TO MATCH ENGINEERING INC. DRAWINGS FOR:
   - LINTELS & BEAMS
   - SHEAR WALLS & DIAPHRAGMS
   - HOLD DOWNS & FASTENERS
   - STAIR FRAMING & SHAFTING DETAILS
2. ALL WALLS: GRADED & STAMPED CANADIAN SOFTWOOD LUMBER, SPF, S-DRY, or KD / HT
   - STUDS: STUD GRADE
   - JOISTS & HEADERS: KD No. 1 & 2
3. ALL FRAMING TO N.B.C.C 2015 & BEST PRACTICE.

EXIT STAIR NOTES:

1. SUBMIT FULL & EXPLICIT SHOP DRAWINGS OF ALL EXIT STAIRS.
2. EXIT STAIR LIVE LOADS: 100PSF @ LANDINGS & TREADS. DESIGN ALSO TO LATERAL LOADS PER NBCC 2015 @ RAILS & GUARDS.
3. DEFLECTIONS: 1:240 ALL TREADS @ MID-TREAD.
4. WALL RAILINGS:
   -1½"Ø SCH. 40 PIPE RAIL ANCHORED TO WALL, 1½" CLEAR OF WALL
   NOTE: CONTRACTOR TO PROVIDE ANCHORS WITHIN WALLS AS REQUIRED FOR WALL RAILS
5. CONSTRUCT STAIRS TO STRICT COMPLIANCE WITH N.B.C.C. 2015 SECTION 3.4.6:
   - MAX. RISE 7"
   - MIN. NET RUN 11"
   - NO NOSINGS, NO CANTED RISERS
6. RAILS & GUARDS:
   a. 4" SPHERE WILL NOT PASS THRU GUARD
   b. 36" HIGH @ RISERS
   c. 42" HIGH @ LANDING
   d. 12" HANDRAIL EXTENSIONS @ FLOOR LANDINGS
   e. CLIMBING NOT FACILITATED PER DETAILS AS SHOWN
7. NO SERVICES SHALL BE LOCATED WITHIN EXIT WALLS OTHER THAN SERVING EXIT ITSELF. SUBMIT DETAILED SHOP DRAWINGS TO ARCHITECT
8. REFER ALSO TO STRUCTURAL DETAILS FOR STAIRS, LANDINGS, & STAIR 'SHAFTING'.

1. 5 WILD FOX DRIVE: CODE REVIEW 2015 NBCC (PART 3)

BUILDING DESCRIPTION: 3- STOREY, NOT SPRINKLERED, COMBUSTIBLE, 24-UNIT APARTMENT BUILDING ON SLAB-ON-GRADE, FACING 2 STREETS, BUILDING AREA: 9 543 Sq.ft. / 887m²

3.2.2.52.: GROUP C, UP TO 3-STOREYS, INCREASED AREA
1.) b.): (T-3.2.2.52) 3 STOREY, 2 STREETS : MAX AREA 1000m² = OK @ 9 543 Sq.ft. / 887m²

3.1.3.1. **MAJOR OCCUPANCY SEPARATIONS**: N/A @ GROUP C ONLY

3.1.8. **FIRE SEPARATIONS & CLOSURES**:
- EXIT ENCLOSURE: FS, 1Hr. F.R.R. / 45Min. CLOSURES
- CORRIDOR TO SUITE: FS, 1Hr. F.R.R. / 20Min. CLOSURES PER 3.1.8.12.

3.1.8.3. **CONTINUITY OF FIRE SEPARATIONS**: RATED MEMBRANE CEILING USED IN LIEU OF FIRE SEPARATIONS EXTENDING THROUGH ATTIC. (REFER TO 3.6.4.2.)

3.1.9.6. **OPENINGS THROUGH MEMBRANE CEILINGS**: PERMISSIBLE PER APPENDIX 'D', METAL DUCT, MAX 5'Ø, (WITHIN UNITS) D-2.3.10.

3.1.11.5. **FIRE-BLOCKS IN CONCEALED SPACES**:
- WALLS: PLATFORM FRAMING; WALL SPACES COMPLETELY ENCAPSULATED
- ATTIC: (NOT SPRINKLERED)
- b.) COMPARTMENTS NOT MORE THAN 300m² / NO DIMENSION OVER 20m

3.1.11.6. **FIRE-BLOCKS IN CRAWLSPACES**: N/A

3.1.13. **FLAME SPREAD**: ALL PARTITIONS & CEILINGS: GYP. WALL BOARD, FLAME-SPREAD = 10 -15

3.1.17. **OCCUPANT LOAD**:
1.) b.) TOP FLOOR: 15b @ 2p = 30p
SECOND FLOOR: 14b @ 2p = 28p
GROUND FLOOR: 13b @ 2p = 26p
GUEST SUITE: 1b @2p = 2p
TOTAL OCCUPANCY LOAD: 86p

3.2.2.52. PER ABOVE

3.2.3. **SPATIAL SEPARATIONS**:
T-3.2.3.1-B: NOT SPRINKLERED: FIRE COMPARTMENT (MAX.) 26m², NO OTHER BUILDING OR PROPERTY LINES WITHIN 7.5m

3.2.3.6. **COMBUSTIBLE PROJECTIONS**: NO BALCONIES OR EAVES WITHIN LIMITING DISTANCES

3.2.3.7. **CONSTRUCTION OF EXPOSED BUILDING FACE**:
T-3.2.3.7.: 100% ALLOWABLE u/o, 45Min. F.R.R., COMBUSTIBLE CLADDING, COMBUSTIBLE CONSTRUCTION

3.2.3.13. **EXIT FACILITIES**: PROTECTED STAIRWELLS EXIT PERPENDICULAR TO BUILDING

3.2.3.16. **PROTECTION OF SOFFITS**: CEMENTITIOUS BOARD OR ⅜" PAINTED PLY SOFFITS DEPLOYED @ ALL EAVE PROJECTIONS

3.2.4. **FIRE ALARM & DETECTION**: REQUIRED @ MULTI-UNIT, SINGLE STAGE, SIGNAL TO FIRE DEPARTMENT, ANNUNCIATOR PANEL @ MAIN FRONT ENTRY

3.2.4.11/ 9.10.9 **SMOKE DETECTORS & SMOKE ALARMS**: LOCATED PER 3.2.4.11 AND 9.10.9:
- WITHIN EVERY DWELLING UNIT, 5m FROM BEDROOM DOORS
- WITHIN EACH BEDROOM OR SLEEPING AREA
- ALL SMOKE DETECTORS WITHIN A DWELLING UNIT INTERCONNECTED
- SMOKE DETECTORS ON UNINTERRUPTIBLE POWER CIRCUIT PLUS BATTERY

3.2.5. **PROVISION FOR FIREFIGHTERS**:
3.2.5.1. **ACCESS AT ABOVE GRADE STOREYS**: ALL STOREYS HAVE BALCONY SLIDER DOORS

3.2.5.2. **BASEMENT LEVEL ACCESS**: N/A

3.2.5.6. **ACCESS ROUTES**: MAIN DRIVEWAY TO BUILDING MEETS CRITERIA FOR FIRE LANE

3.2.5.8. **STANDPIPES**: NOT REQUIRED

3.2..5.12. **AUTOMATIC SPRINKLER SYSTEM**: NOT REQUIRED

3.2.7. **LIGHTING & EMERGENCY POWER**:

3.2.7.3. **EMERGENCY LIGHTING:** REQUIRED @ EXITS, PRINCIPAL ROUTES OF ACCESS TO EXIT, & CORRIDORS.

3.2.7.4. EMERGENCY POWER FOR LIGHTING: SHALL MAINTAIN EMERGENCY LIGHTS FOR 1-HOUR

3.2.7.8. **EMERGENCY POWER FOR FIRE ALARM SYSTEM**: SHALL MAINTAIN SYSTEM FOR 1-HOUR

3.2.8. **MEZZANINE AND OPENINGS THROUGH FLOOR ASSEMBLIES**: N/A

3.3. **SAFETY WITHIN FLOOR AREAS**:

3.3.1. **SEPARATIONS, SUITE TO SUITE**:
FS, 1Hr. F.R.R, STC 50 (ACTUAL STC 58)
SEPARATION, CORRIDOR TO SUITE:
FS, 1Hr. F.R.R., STC 50
ELEVATOR SHAFT ACOUSTICAL SEPARATION:
FS, 1Hr. F.R.R., STC 58 (CONC. BLOCK)

3.3.1.13. **SUITE DOOR HARDWARE**:
(INCLUDING GUEST SUITE & 'SOCIAL ROOM'
- LEVER HANDLE LOCKSET COMPLETE w/ DEADBOLT ON THUMB-TURN
- TURNING OF THE INTERIOR LEVER RELEASES THE DEADBOLT
- CLOSER OR CLOSER HINGES
- SMOKE-STOP WEATHER-STRIPPING
- PEEPHOLE & UNIT NUMBER

EXIT DOORS INTO STAIRWELLS @ EACH LEVEL:
- PANIC HARDWARE REQUIRED @ OVER 60-PERSON OCCUPANT LOAD FOR THE FLOOR

3.3.1.21. **JANITOR ROOM**: FS, 1Hr. F.R.R., ¾ Hr. CLOSURE
ELEVATOR MACHINE ROOM: FS, 1Hr. F.R.R., ¾ Hr. CLOSURE
GARBAGE ROOM: N/A OUTDOOR ENCLOSED DUMPSTER PER SITE PLAN
MECH. / WATER ENTRY ROOM

3.4. **EXITS**:

3.4.1.2. **EXIT SEPARATIONS**: FS, 1Hr. F.R.R.

3.4.2.5. **EXIT DISTANCE**: 30m IN NOT SPRINKLERED THROUGHOUT

3.4.4.2. **EXIT THROUGH LOBBY**: NOT USED

3.4.5. **EXIT SIGNS**: REQUIRED AT EXIT DOORWAYS FROM A FLOOR AREA, & AT MAJOR DECISION POINTS IN PUBLIC CORRIDORS

3.4.6.3. **EXIT STAIRS**: COMPLY W/ DIMENSIONAL CRITERIA @ 3.4.6.8.

3.4.6.16. **DOOR RELEASE HARDWARE**: REQUIRED @ PUBLIC CORRIDORS TO STAIR TOWERS & STAIR TOWERS TO EXTERIOR

3.5. **VERTICAL TRANSPORTATION**:

3.5.3. **SHAFT SEPARATION**: FS, 1Hr. F.R.R.

3.6. **SERVICE FACILITIES**:

3.6.2.1. **SERVICE ROOM SEPARATIONS**: FS, 1Hr. F.R.R.

3.6.3.3. **GARBAGE CHUTE**: N/A

3.6.4.2. **HORIZONTAL SERVICE SPACES**: RATED CEILING USED @ TOP FLOOR CEILINGS, ATTIC SMOKE COMPARTMENTS PER 3.1.11.5.

3.7. **HEATH REQUIREMENTS**:
- BUILDING IS CONNECTED TO MUNICIPAL WATER & SANITARY SERVICE
- SANITARY FACILITIES PROVIDED WITHIN EACH SUITE

3.8. **ACCESSIBILITY**:

3.8.2.3. **BARRIER-FREE PATH OF TRAVEL:** INCLUDES ALL LEVELS, MAIN ENTRY, PUBLIC CORRIDORS, & AMENITY SPACES

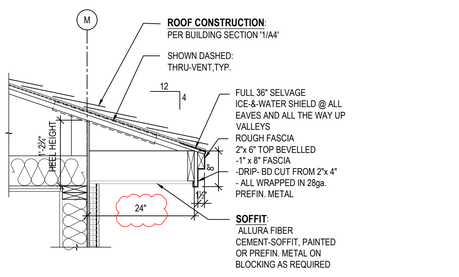
3.8.2.7. **POWER DOOR OPERATORS**: FRONT ENTRY & FRONT ENTRY VESTIBULE

3.8.3. **DESIGN**: BARRIER FREE ASPECTS, INTERIOR & EXTERIOR, TO CAN / CSA B651
CITY OF SAINT JOHN: 1 IN 20 BARRIER-FREE / ACCESSIBLE SUITES (2 PROVIDED)

9.11.1. **SOUND TRANSMISSION PROTECTIONS**:
- SUITE TO SUITE: MIN. STC 55
- SUITE TO COMMON AREAS: STC 55

9.9.10. **BALCONY & WINDOW EGRESS @ NON-SPRINKLERED**: AT LEAST ONE BEDROOM OPENING TO 0.35m² CLEAR AREA, NO DIMENSION LESS THAN 380mm, STAYS OPEN TO THAT SIZE/ DIMENSION.

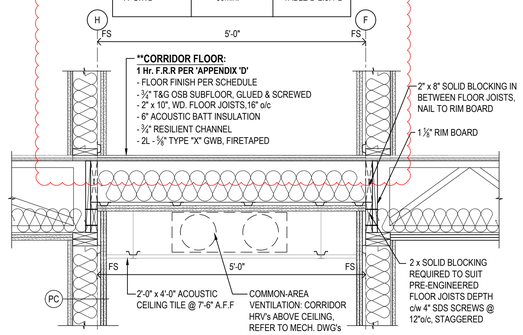
9.8.8.1. **WINDOW GUARDS**: ALL WINDOWS, EXCEPT FOR EGRESS WINDOWS PER ABOVE, LIMITED TO MAX. 100mm CLEAR OPENING, WHERE SILL IS OVER 1800mm FROM THE GROUND



1. 2 A4 SECTION DETAIL: EAVES, TYP.

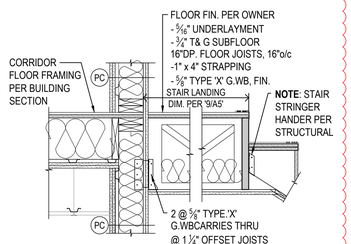
SCALE: ¾" = 1'-0"

CORR. FLOOR ASSEMBLY: FS, 1Hr. F.R.R., STC. 57 DESIGN PER 2015 NBCC APPENDIX 'D'		
ASSEMBLY ELEMENT	TIME ASSIGNED	REF.
¾" T&G OSB SUBFLOOR	--	REQUIRED ELEMENT
WOOD JOISTS @ 400mm o/c	10min.	TABLE D-2.3.4-F
2L- ⅝" 'X' G.WB	60min.	TABLE D-2.3.4-B



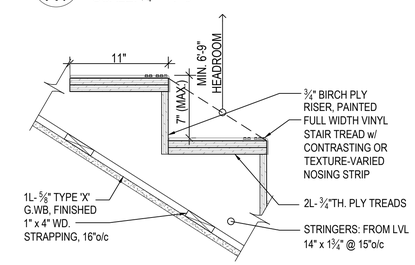
1. 3 A4 SECTION DETAIL: FLOOR / CEILING, @ CORRIDORS, TYP.

SCALE: ¾" = 1'-0"



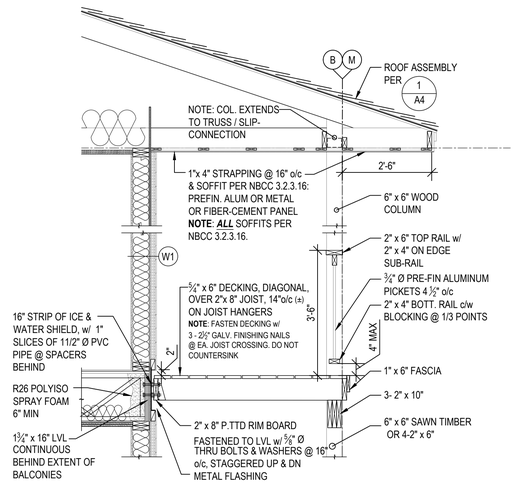
1. 6 A4 SECTION DETAIL: STAIR LANDINGS @ CORRIDOR

SCALE: ¾" = 1'-0"



4 A4 SECTION DETAIL: STAIRS, TYP.

SCALE: 1 ½" = 1'-0"
NOTE: REFER ALSO TO STRUCTURAL DRAWINGS FOR STAIR DESIGN & 'SHAFTING'/ FRAMING DETAILS



5 A4 SECTION DETAIL: ROOF DETAIL & BALCONY PLATFORM @ 3rd FLOOR

SCALE: 1 ½" = 1'-0"
NOTE: BALCONY PLATFORM @ SECOND FLOOR SIM.

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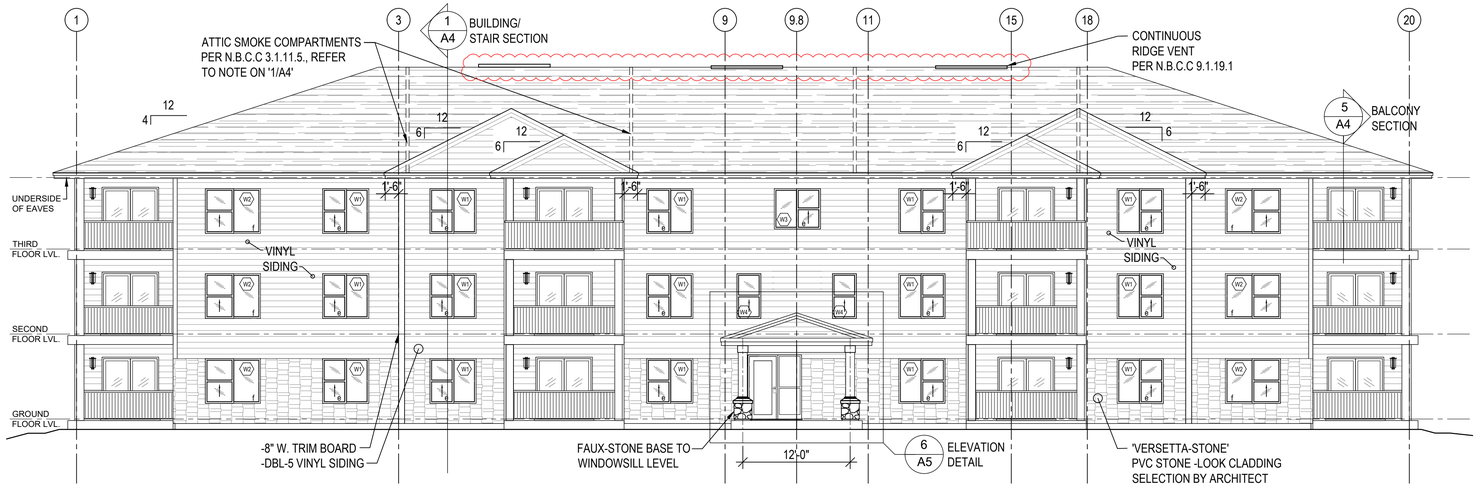
97009 CERTIFICATE of PRACTICE 28 MAR. 2024 Peter G. MacKenzie COMEAU MACKENZIE ARCHITECTURE

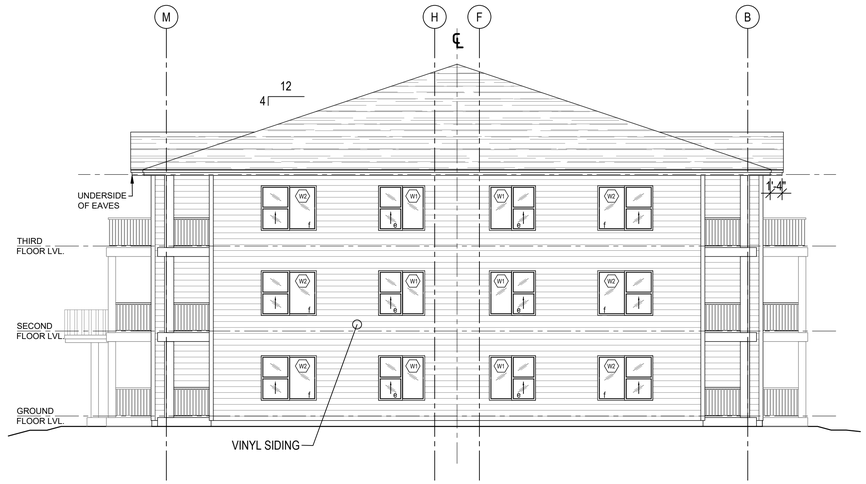
COMEAU MACKENZIE ARCHITECTURE
183 CHARLOTTE STREET, SAINT JOHN, NB E2L 0C7
TEL: (506) 657-1611 mackarch@nbnet.nb.ca

PROJECT NAME:
MDC HOLDINGS, LTD.:
24 UNIT APARTMENT BUILDING
5 WILD FOX DRIVE
SAINT JOHN,NB

BUILDING SECTION, DETAILS, & CODE MATRIX

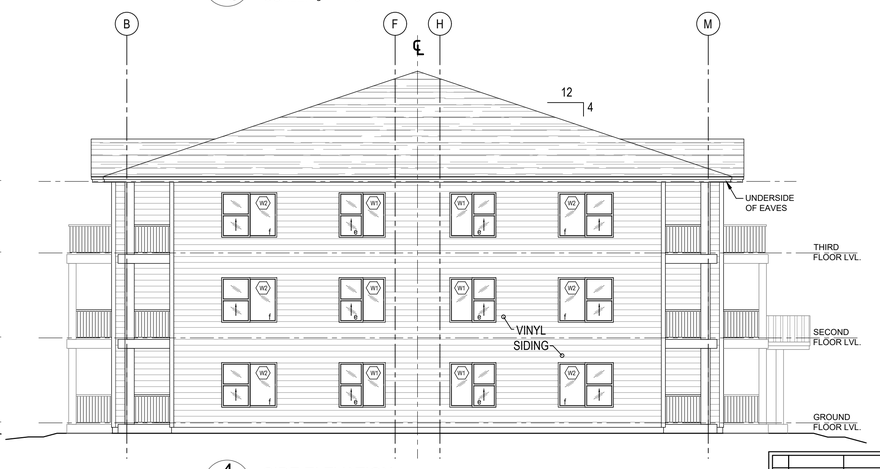
DRAWN BY:	AEP	CHECKED BY:	
SCALE:	AS SHOWN	DATE:	FEB. 2023
PROJECT #	222403	DWG #	A4-R1





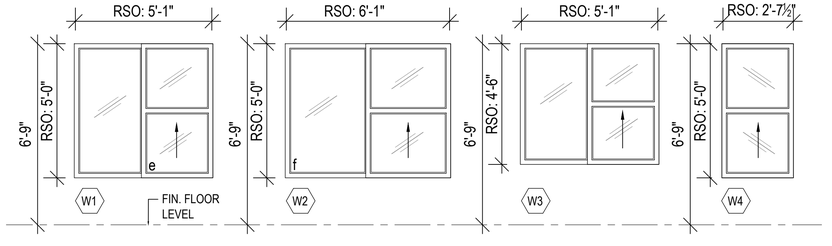
1. 1/A5 FRONT ELEVATION
SCALE: 1/8" = 1'-0"

2/A5 SIDE ELEVATION
SCALE: 1/8" = 1'-0"



1. 3/A5 REAR ELEVATION
SCALE: 1/8" = 1'-0"

4/A5 SIDE ELEVATION
SCALE: 1/8" = 1'-0"



BEDROOM WINDOWS:
EGRESS PER N.B.C.C 9.9.10
NOTE: LITE OPERABLE @ LEFT OR RIGHT REFER TO ELEVATIONS.

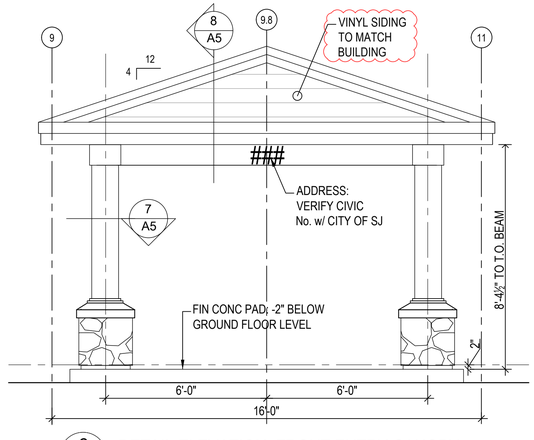
LIVING & DINING ROOM WINDOWS:
LITE OPERABLE @ LEFT or RIGHT HAND, REFER TO ELEVATIONS.

COMMON-ROOM WINDOW:
LITES OPERABLE @ LEFT or RIGHT HAND, REFER TO ELEVATIONS.

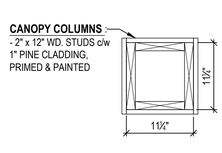
BEDROOM/ STAIRWELLS:
LITES OPERABLE @ LEFT or RIGHT HAND, REFER TO ELEVATIONS.

5/A5 WINDOW SCHEDULE
SCALE: 3/8" = 1'-0"

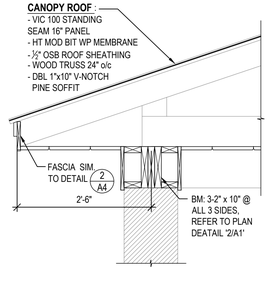
WINDOW NOTES:
1. WINDOWS BASED ON KOHLER, ATLANTIC OR APPROVED EQUAL, c/w SCREENS, LOCKING.
2. SEALED DOUBLE GLAZED UNITS; LOW-e/ ARGON-FILLED, CSA A440 A3, B6, C4, 140, F1 & S1, ENERGY STAR ZONE C or D, RATING 85 or BETTER.
3. ALL FRAME c/w NAILING FLANGE.
4. ALL DOORS & WINDOWS c/w LOCKING DEVICES & SCREENS
5. "e" INDICATES EGRESS WINDOW PER N.B.C.C 9.9.10
6. NON-EGRESS WINDOWS: MAX. 4" OPENING SASH PREVENTERS



1. 6/A5 DETAIL ELEVATION: FRONT ENTRY CANOPY
SCALE: 3/8" = 1'-0"



7/A5 PLAN DETAIL: ENTRY CANOPY COLUMNS
SCALE: 1" = 1'-0"



8/A5 SECTION DETAIL: ENTRY CANOPY
SCALE: 3/4" = 1'-0"

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PROJECT NAME:
MDC HOLDINGS, LTD.:
24 UNIT APARTMENT BUILDING

5 WILD FOX DRIVE
SAINT JOHN,NB

ELEVATIONS & DETAILS

DRAWN BY:	AEP	CHECKED BY:	
SCALE:	AS SHOWN	DATE:	FEB. 2023
PROJECT #	222403	DWG #	A5-R1

Residential / Commercial Development
Conceptual Sanitary Demand

GROWTH & COMMUNITY SERVICES
CITY OF SAINT JOHN

Email: onestop@saintjohn.ca Phone: (506) 658-4455

DEVELOPMENT INFORMATION	
Development Name:	Gault Road Development
Development Address:	PID 00403535
Owner:	Simpco Development Ltd.
Contact Information:	Rick Turner, rick@canterburydevelopments.com
Consultant:	Engineering By Houghton
Contact Information:	Jacob Kilpatrick, 506-607-0709, jacob@ebyh.ca

PROJECT INFORMATION – DEVELOPMENT USE:				
■ Residential	☐ Commercial	☐ Residential & Commercial	☐ Other:	

RESIDENTIAL POPULATION INFORMATION					
Total Number of Units:	236	Persons / Dwelling:	3	Bedrooms / Unit:	2

BUILDING INFORMATION			
Storeys:	3	Type of Use:	Residence - Private or Apartment
Total Building Area (m^2):	TBD	Average Daily Wastewater Flow:	3.11 L/s

Please note: submitted calculations are to be completed in accordance with the Atlantic Canada Wastewater Guidelines

PEAK SANITARY FLOW (FULL BUILD OUT)		PEAKING FACTOR	
Total Residential Flow (L/s)	12.12	Residential Peaking Factor:	3.89
Total Commercial Flow (L/s)	0	Commercial Peaking Factor:	0
Total Other Flow (L/s)	0	Other Peaking Factor:	0
TOTAL FLOW (L/s)	**12.12**	*Please include peaking factor calculations*	

MUNICIPAL CONNECTION POINT

Please provide the general location (street name) of the proposed sanitary service/main connection to the municipal system.

Please provide the proposed location of the service / main as it relates to the municipal system.

Please provide a drawing to scale including site contours, illustrating the conceptual design of the proposed development.

There are more phases - see phasing plan

PHASING INFORMATION

Phase	Buildings per Phase	Construction Estimate (# of years / phase)	Estimated Occupancy Date (mm/yy)
1	2	1	11/25
2	8	2	12/27
3	3	3	05/30
4	2	2	05/32
TOTAL	**37**	**13**	

General Collection Statement

This information is being collected for the City of Saint John to deliver an existing program/service; the collection is limited to that which is necessary to deliver the program/service. Unless required to do so by law, the City of Saint John will not share your personal information with any third party without your express consent. The legal authority for collecting this information is to be found in the Municipalities Act and the Right to Information and Protection of Privacy Act. For further information or questions regarding the collection of personal information, please contact the Access & Privacy Officer: City Hall Building, 2nd Floor -15 Market Square, Saint John, NB E2L 1E8, commonclerk@saintjohn.ca (506) 658-2862.

Residential / Commercial Development
Conceptual Sanitary Demand

GROWTH & COMMUNITY SERVICES
CITY OF SAINT JOHN

Email: onestop@saintjohn.ca Phone: (506) 658-4455

DEVELOPER INPUT:
The Developer is expected to provide the following information to the City of Saint John for their proposed development: • The Developer shall; o Complete and submit this form to the City of Saint John. o Provide back-up information and calculations illustrating assumptions for all calculated peak sanitary design flows.
CITY OF SAINT JOHN OUTPUT:
Potential outputs for the Developer from the City of Saint John based on development information provided by the Developer: • At this time, based on the information provided, Saint John Water does not see and issues with the proposed development in relation to the downstream sanitary sewer system. • At this time, based on the information provided, Saint John Water does see issues with the downstream sanitary sewer system when incorporating the proposed development flows, thus further discussions between the Developer and the City are required as potentially more in-depth analysis and/or investigation may be required to be completed by the Developer for the proposed development. **NOTE:** The sewer model is a simulated analysis. Information provided by the city of Saint John is to be received by the Developer as an estimation of the municipal system's capability.

ENGINEERING CONSULTANT INFORMATION:	
Firm Name:	Engineering By Houghton
Consultant Name:	Jacob Kilpatrick
Contact Number:	506-607-0709
E-Mail Address:	jacob@ebyh.ca

	July 9th 2024
Signature of Applicant / Engineering Consultant	**Date**

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Residential / Commercial Development
Conceptual Water Demand

GROWTH & COMMUNITY SERVICES
CITY OF SAINT JOHN

Email: onestop@saintjohn.ca Phone: (506) 658-4455

DEVELOPMENT INFORMATION	
Development Name:	Gault Road Development
Development Address:	PID 00403535
Owner:	Simpco Development Ltd.
Contact Information:	Rick Turner, rick@canterburydevelopments.com
Consultant:	Engineering By Houghton
Contact Information:	Jacob Kilpatrick, 506-607-0709, jacob@ebyh.ca

PROJECT INFORMATION – DEVELOPMENT USE:				
☒ Residential	☐ Commercial	☐ Residential & Commercial	☐ Other:	

RESIDENTIAL POPULATION INFORMATION					
Total Number of Units:	236	Persons / Dwelling:	3	Bedrooms / Unit:	2

BUILDING INFORMATION					
Type of Use:	Residence - Apartment	Storeys:	3	Total Building Area (m^2):	TBD

Please note: submitted calculations are to be completed in accordance with the Atlantic Canada Water Supply Guidelines

WATER DEMAND (FULL BUILD OUT – ALL PHASES)	
Average Day Demand (ADD)	**2.87**
Maximum Day Demand (MDD)	**5.02**
Peak Hourly Demand (PHD)	7.51
**Please provide all demand flow in L/s*	

FIRE HYDRANT FLOW TEST		
**Fire flow testing helps confirm SJW model results. If there has not been a Fire Flow Test completed, please note this on the form.*		
Fire Hydrant Flow Test Attached:	☐ Yes	■ No
Sprinkler System Required?	☐ Yes	■ No

FIRE DEMAND				
Requested fire flow for the proposed site:		L/s		PSI

MUNICIPAL CONNECTION POINT

Please provide the general location (street name) of the proposed water connection to the municipal system.

Please provide a drawing to scale including site contours, illustrating the conceptual design of the proposed development. The new water main that is incorporated into the City's water model will use these contours for approximate water main elevations.

There are more phases - see phasing plan

PHASING INFORMATION

Phase	Buildings per Phase	Construction Estimate (# of years / phase)	Estimated Occupancy Date (mm/yy)
1	**2**	**1**	**11/25**
2	**8**	**2**	**12/27**
3	**3**	**3**	05/30
4	**2**	**2**	05/32
TOTAL	**37**	**13**	

General Collection Statement

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Residential / Commercial Development
Conceptual Water Demand

GROWTH & COMMUNITY SERVICES
CITY OF SAINT JOHN

Email: onestop@saintjohn.ca Phone: (506) 658-4455

DEVELOPER INPUT:
The Developer is expected to provide the following information to the City of Saint John for their proposed development: • The Developer shall; o Complete and submit this form to the City of Saint John. o Provide back-up information and calculations illustrating assumptions for all calculated water demands. o Complete a Hydrant Flow Test in the area of the Development if one is not available from the City of Saint John.
CITY OF SAINT JOHN OUTPUT:
Potential outputs for the Developer from the City of Saint John based on development information provided by the Developer: • Approximate pressure in the City of Saint John municipal system near the proposed development from the Water Model using the Developer's Water Demands. • Approximate available fire flow in the City of Saint John municipal system near the proposed development from the Water Model using the Developer's Water Demands. **NOTE:** The Water Model is a simulated analysis. Information provided by the City of Saint John is to be received by the Developer as an estimation of available flow / pressure.

ENGINEERING CONSULTANT INFORMATION:	
Firm Name:	Engineering By Houghton
Consultant Name:	Jacob Kilpatrick
Contact Number:	506-607-0709
E-Mail Address:	jacob@ebyh.ca

	July 9th 2024
Signature of Applicant / Engineering Consultant	**Date**

General Collection Statement

This information is being collected for the City of Saint John to deliver an existing program/service; the collection is limited to that which is necessary to deliver the program/service. Unless required to do so by law, the City of Saint John will not share your personal information with any third party without your express consent. The legal authority for collecting this information is to be found in the Municipalities Act and the Right to Information and Protection of Privacy Act. For further information or questions regarding the collection of personal information, please contact the Access & Privacy Officer: City Hall Building, 2nd Floor -15 Market Square, Saint John, NB E2L 1E8, commonclerk@saintjohn.ca (506) 658-2862.

Gault Road Traffic Impact Study

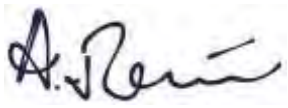
Mike Cavanagh Homes Inc.
Traffic Impact Study

October 31, 2024
02410073.000

ENGLOBE

Mike Cavanagh Homes Inc.

Prepared by:



Adriana Terán, P.Eng.
Transportation Engineer
Civil and Transportation Engineering

William Morrison, EIT
Engineer in Training
Civil and Transportation Engineering

Reviewed/Approved by:

Garrett Donaher, M.A.Sc., P.Eng.
Senior Transportation Engineer
Civil and Transportation Engineering

Production team

Mike Cavanagh Homes Inc.

Developer	Mike Cavanagh

Englobe Corp.

Project Manager / Senior Engineer	Garrett Donaher, M.A.Sc., P.Eng.
Transportation Engineer	Adriana Terán, P.Eng.
Junior Engineer	William Morrison, EIT

Revisions and publications log

REVISION No.	DATE	DESCRIPTION
0A	October 31, 2024	Initial client submission

Summary

Mike Cavanagh Homes Inc. is planning a 236-unit residential development on Gault Road adjacent to Highway 100 in Saint John, New Brunswick. The development will be developed in several phases. Phase 1 is to begin immediately upon approval and consists of 18 duplex units on an extension of Dantes Drive and will be complete in 2026. The remaining phases will be complete by 2035 and include a connection from Dantes Drive to Gault Road allowing a change in access for the neighbourhood. In total this development includes the addition of 62 Single-family attached, LUC 215, and 174 Multi-family (low-rise), LUC 220, residential units.

TRAFFIC VOLUMES

Traffic volumes were collected by Englobe staff on October 15, 2024 using a Miovision camera to collect turning movement counts. The intersections collected and analyzed in this study are **Gault Road @ Hitachi Crescent, Gault Road @ Valentine Boulevard,** and **Gault Road @ Manawagonish Road**.

The future background traffic volumes in 2031 and 2040 were estimated by applying a 1.5% annual growth rate to the 2024 volumes.

It was estimated that Phase 1 of the proposed development would generate 17 trips (4 in / 13 out) during the AM Peak period and 21 trips (12 in / 8 out) during the PM Peak period.

At full buildout, it was estimated that the development would generate 99 trips (24 in / 75 out) during the AM Peak period and 124 trips (77 in / 47 out) during the PM Peak period. The development volumes were added to the background volumes to estimate the 2031 and 2040 traffic conditions with the phases of the development in place.

LOS RESULTS

The Study Team completed LOS analyses for the existing 2024 conditions, the 2031 and 2040 background conditions, the projected 2031 conditions with Phase 1 + 5 years, and the projected 2040 conditions five years after completion of all phases of the proposed development.

In all scenarios it was found that the network will operate in very good condition, with all movements operating at LOS C or better with all intersection as LOS A.

ADDITIONAL CONSIDERATIONS

The sight distances at the proposed access was reviewed during a site visit and adequate sight distances to safely support all movements in to and out of the development was present.

The traffic volumes through the area are not high enough to warrant left turn or right turn lanes into the development.

RECOMMENDED IMPROVEMENTS

As the traffic volumes added by the proposed development would not have a significant impact on intersection LOS throughout the study area and the proposed access all have reasonable sight distances, there are no roadway improvements that are specifically required to accommodate the proposed development and accesses as planned.

New streets in the development are recommended to be constructed to a local standard as per City standard cross section S045-300. Optional modifications to this standard are noted in §6.1.

Transit stop relocation and sidewalk improvements that the City may wish to consider are discussed in §6.4.

Property and Confidentiality

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If tests have been carried out, the results of these tests are valid only for the sample described in this report.

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FIGURES

APPENDICES

1 Introduction

1.1 Background

Mike Cavanagh Homes Inc. is planning a 236-unit residential development on Gault Road adjacent to Highway 100 in Saint John, New Brunswick.

The proposed site plan is shown in **Appendix A** and will be developed in phases. Phase 1 is to begin immediately upon approval and consists of 18 duplex units on an extension of Dantes Drive and will be complete in 2026. The remaining phases will be complete by 2035 and include a connection from Dantes Drive to Gault Road allowing a change in access for the neighbourhood. In total this development includes the addition of 62 Single-family attached - LUC 215 - and 174 Multi-family (low-rise) - LUC 220 - residential units.

Englobe Corp. was hired by Mike Cavanagh Homes Inc. to conduct a Traffic Impact Study (TIS) for the proposed development. The study area for this TIS includes the development site, the development accesses and the intersection of Gault Road with Martinon Bypass / Ocean Westway / Manawagonish Road. The three study intersections and approximate development boundary are noted in **Figure 1**. The study area is shown on the background of an April 2024 aerial image.

Figure 1: Study Area

1.2 Study Tasks

The main objective of the study was to estimate how much additional traffic the development would create and determine what impact, if any, the development traffic would have on adjacent roads and intersections. The following was completed as a part of the TIS.

— Englobe staff visited the development site to document the character of the roadways and access locations, and to count AM and PM traffic volumes at the three study intersections.

— Existing information, including the proposed development site plan, was collected and reviewed.

— Future 2031 and 2040 background traffic volumes were estimated by applying a 1.5% growth rate.

— Future site traffic generated by the proposed development was estimated and added to the 2031 (Phase 1 + 5 years) and 2040 (Full build-out + 5 years) background volumes to determine the traffic conditions with the development in place.

— Diversion of existing Valentine Boulevard traffic through Dantes Drive was estimated for the 2040 horizon.

— LOS analyses were completed for the 2024 existing conditions, 2031 background and total future, and 2040 background and total future scenarios.

— Address additional consideration relevant to this development.

— The methodology, findings, and recommendations of the TIS were documented in this report.

1.3 Study Methodology

Traffic conditions were modelled using Synchro 11, which is traffic analysis software that uses the Highway Capacity Manual and Intersection Capacity Utilization procedures.

The study analysis periods were chosen as 2031 and 2040 to correspond to 5 years beyond buildout of Phase 1 and 5 years beyond full buildout, respectively.

The intersection performance was evaluated mainly in terms of the level of service (LOS), which is a common performance measurement of an intersection. The LOS is determined based on vehicle delay and is expressed on a scale of A through F, where LOS A represents very short delays and LOS F represents very long delays. A LOS D is often considered acceptable in urban locations; however, some jurisdictions will accept a LOS E. The LOS Criteria for signalized intersections, stop-controlled intersections, and roundabouts are shown in **Table 1**.

Peak hour factors have largely been left at the default of 0.92. This allows some sensitivity testing relative to traffic volumes but prevents overbuilding of infrastructure based on a synthetic worst case 15min period in a day.

Table 1: Level of Service Definitions

LOS	LOS Description	Control Delay (Seconds Per Vehicle)	
		Signalized	Stop Controlled / Roundabout
A	Very low delay; most vehicles do not stop (**Excellent**)	less than 10.0	less than 10.0
B	Higher delay; more vehicles stop (**Very Good**)	between 10.0 and 20.0	between 10.0 and 15.0
C	Higher level of congestion; number of vehicles stopping is significant, although many still pass through intersection without stopping (**Good**)	between 20.0 and 35.0	between 15.0 and 25.0
D	Congestion becomes noticeable; vehicles must sometimes wait through more than one red light; many vehicles stop (**Satisfactory**)	between 35.0 and 55.0	between 25.0 and 35.0
E	Vehicles must often wait through more than one red light; considered by many agencies to be the **Limit of Acceptable Delay**	between 55.0 and 80.0	between 35.0 and 50.0
F	This level is considered to be unacceptable to most drivers; occurs when arrival flow rates exceed the capacity of the intersection (**Unacceptable**)	greater than 80.0	greater than 50.0

2 Information Gathering

2.1 Existing Traffic Counts

The Study Team collected AM and PM peak hour counts at three (3) adjacent intersections on October 15th, 2024. The intersections included in this study are **Gault Road @ Hitachi Crescent, Gault Road/Valentine Boulevard,** and **Gault Road/Manawagonish Road**. Summaries of these traffic counts are provided in Appendix B.

2.2 Existing Streets and Intersections

Gault Road is a local residential road with a 2- lane cross-section, artificial street lighting, a sidewalk along the east side of the road, and a posted speed limit of 50 km/h. The route is positioned to the east of the development site and will provide access into the development through a new access road. The route is oriented in the north/south direction. Several single-family homes and entrances into subdivisions are located along Gault Road.

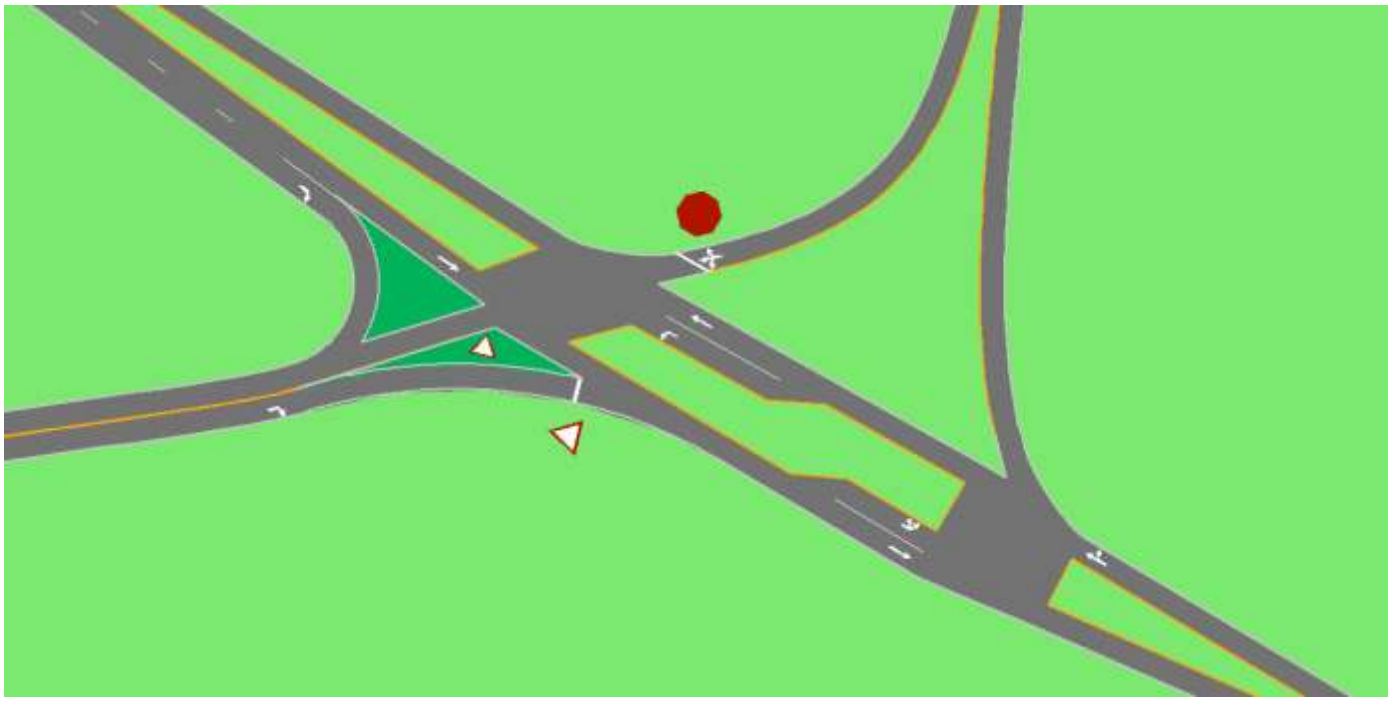
Gault Road @ Valentine Boulevard intersection is a 3-leg intersection comprised of Gault Road positioned in the north/south direction and Valentine Boulevard located to the west. Stop control is positioned on Valentine Boulevard with the free-flow traffic travelling north/south. Each approach contains a single travel lane. There is a median separating westbound/eastbound traffic on Valentine Boulevard and a sidewalk on the east side of the intersection.

Gault Road @ Hitachi Crescent intersection is a 3-leg intersection comprised of **Gault Road** positioned in the north/south direction and **Hitachi Crescent** to the east. Stop control is positioned on Hitachi Crescent with the free-flow traffic travelling north/south. All turning movements are made within a single lane for each approach. A pedestrian crosswalk is provided on the east side of the intersection.

Note there are two (2) **Gault Road @ Hitachi Crescent** intersections, as Hitachi Crescent loops around to the north and reconnects with Gault Road. This study examines the southern intersection.

The **Gault Road/Manawagonish Road** intersection is located to the south of the proposed development and has four approaches. The routes leading into this intersection include Ocean Westway, NB-7 Highway, Manawagonish Road, and Gault Road. The intersection is unique, as it contains an oval shaped center island which allows vehicles to make left-turn and U-turn movements. Free-flow traffic is travelling along Manawagonish Road and NB-7 Highway, which is generally oriented in the east/west direction. There is stop control on Gault Road for southbound traffic and a yield sign for vehicles entering from Ocean Westway. On the northwest side of the center island there is a yield sign for vehicles attempting to cross the NB-7 Highway approach, and on the southeast side of the center island there is a stop sign for vehicles that conflict with those on Manawagonish Road.

For the purpose of analysis, this intersection has been modelled in Synchro as two separate intersections: one at the western break in the median, and one at the eastern break. This allows the two-stage nature of some movements to be accurately captured. For ease communication, these “sub intersections” have been combined in this report and documented as a single four-leg intersection.



2.3 Planned Future Development

There are multiple phases of the development:

— **Phase 1** is anticipated to begin immediately upon approval and consists of 18 duplex units on an extension of Dantes Drive and will be complete in 2026.

— The remaining **phases** will be complete by 2035 and include a connection from Dantes Drive to Gault Road allowing a change in access pattern for the neighbourhood.

In total this development includes the addition of 62 Single-family attached (LUC 215) and 174 Multi-family (low-rise) residential units (LUC 220).

To account for other unknown developments and broader network growth, a 1.5% annual growth rate was used to determine the initial 2031 and 2040 background traffic volumes, which the traffic generation for the known phases of developments was then added to in order to calculate the total 2031 and 2040 traffic volumes.

3 Existing Conditions

3.1 Existing (2024) Traffic Volumes

The existing (2024) traffic volumes collected by our team are shown below in **Figure 2.**

3.2 Existing (2024) LOS Analysis

A level of service (LOS) analysis was completed for the existing 2024 traffic conditions Using Synchro 11. The analysis revealed that:

- **Gault Road @ Hitachi Crescent** operates at an overall LOS of A during both AM and PM peak periods. In addition, each turning movement also is operating at an LOS of A. No operational issues or concerns were identified with this intersection.
- **Gault Road @ Valentine Boulevard** operates at an overall LOS of A during both AM and PM peak periods. In addition, each turning movement also is operating at an LOS of A. No operational issues or concerns were identified with this intersection.
- **Gault Road @ Manawagonish Road** operates at an overall LOS of A during both AM and PM peak periods. In addition, each turning movement also is operating at an LOS of C or better. No LOS issues were identified for this intersection.

The LOS results, including average delay, volume to capacity (v/c) ratios, and the 95th percentile queue lengths for the 2024 conditions are summarized in **Table 2** with detailed LOS results in **Appendix C**.

Figure 2: 2024 Existing Traffic Volumes

Table 2: 2024 Existing Conditions LOS Results

Intersection			Overall LOS // Delay (sec/veh)	LOS // Average Delay (sec/veh) // [Volume to Capacity Ratio (v/c)] // 95th Percentile Queue (m)											
				Eastbound			Westbound			Northbound			Southbound		
Main Street @ Minor Street	Traffic Control	Peak Period		L	T	R	L	T	R	L	T	R	L	T	R
Valentine Blvd @ Gault Rd	STOP	AM	LOS A 2.4	A 8.8 [0.04] 1.1	-	Shared	-	-	-	Shared	A 0.5 [0.00] 0.1	-	-	Free Flow [0.04] 0	Shared
		PM	LOS A 1.7	A 8.9 [0.02] 0.5	-	Shared	-	-	-	Shared	A 1.6 [0.02] 0.4	-	-	Free Flow [0.04] 0	Shared
Hitachi Cres. (south) @ Gault Rd	STOP	AM	LOS A 0.2	Shared	Free Flow [0.08] 0	Shared	Shared	A 9.7 [0.01] 0.1	Shared	Shared	Free Flow [0.00] 0	Shared	Shared	A 0.1 [0.00] 0	Shared
		PM	LOS A 0.0	Shared	Free Flow [0.08] 0	Shared	Shared	Free Flow [0.01] 0	Shared	Shared	Free Flow [0.00] 0	Shared	Shared	A 0.1 [0.00] 0	Shared
Manawagonish @ Gault Rd	STOP	AM	LOS A 4.9	A 7.7 [0.03] 0.8	Free Flow [0.02] 0	Free Flow [0.00] 0	A 7.4 [0.06] 1.6	Free Flow [0.11] 0	Shared	Shared	C 17.2 two stage	A 9.5 [0.24] 7.4	Shared	B 12.9 [0.24] 7.3	Shared
		PM	LOS A 3.8	A 8.3 [0.06] 1.5	Free Flow [0.02] 0	Free Flow [0.00] 0	A 7.5 [0.09] 2.3	Free Flow [0.24] 0	Shared	Shared	C 17.9 two stage	A 9.6 [0.24] 7.6	Shared	B 14.1 [0.18] 5.3	Shared

4 Future Background

4.1 Background (2031) Analysis

4.1.1 Volumes

A 1.5% annual compound growth factor was used to inflate the 2024 existing traffic volumes to the anticipated 2031 background traffic volumes without the new development. The 2031 background traffic volumes are shown in **Figure 3.**

4.1.2 Level of Service Analysis

A level of service (LOS) analysis was completed for the background 2031 traffic conditions. The analysis revealed that there will not be a substantial change in the overall operation of these intersections between 2024 and 2031. Furthermore, no performance issues with respect to LOS are expected.

- **Gault Road @ Hitachi Crescent** operates at an overall LOS of A during both AM and PM peak periods. In addition, each turning movement also is operating at an LOS of A. No operational issues or concerns were identified with this intersection.
- **Gault Road @ Valentine Boulevard** operates at an overall LOS of A during both AM and PM peak periods. In addition, each turning movement also is operating at an LOS of A. No operational issues or concerns were identified with this intersection.
- **Gault Road @ Manawagonish Road** operates at an overall LOS of A during both AM and PM peak periods. In addition, each turning movement also is operating at an LOS of C or better. No LOS issues were identified for this intersection.

The LOS results, including average delay, volume to capacity (v/c) ratios, and the 95th percentile queue lengths for the 2031 background conditions are summarized in **Table 3** with detailed LOS results in **Appendix C**.

Figure 3: 2031 Background Traffic Volumes

Table 3: 2031 Background Conditions LOS Results

Intersection			Overall LOS // Delay (sec/veh)	Movement LOS // Average Delay (sec/veh) // [Volume to Capacity Ratio (v/c)] // 95th Percentile Queue (m)											
				Eastbound			Westbound			Northbound			Southbound		
Main Street @ Minor Street	Traffic Control	Peak Period		L	T	R	L	T	R	L	T	R	L	T	R
Valentine Blvd @ Gault Rd	STOP	AM	LOS A 2.4	A 8.8 [0.05] 1.2	-	Shared	-	-	-	Shared	A 0.4 [0.00] 0.1	-	-	Free Flow [0.04] 0	Shared
		PM	LOS A 1.7	A 8.9 [0.02] 0.6	-	Shared	-	-	-	Shared	A 1.6 [0.02] 0.4	-	-	Free Flow [0.05] 0	Shared
Hitachi Cres. (south) @ Gault Rd	STOP	AM	LOS A 0.2	Shared	Free Flow [0.08] 0	Shared	Shared	A 9.9 [0.01] 0.1	Shared	Shared	Free Flow [0.00] 0	Shared	Shared	A 0.1 [0.00] 0	Shared
		PM	LOS A 0.0	Shared	Free Flow [0.08] 0	Shared	Shared	Free Flow [0.01] 0	Shared	Shared	Free Flow [0.00] 0	Shared	Shared	A 0.1 [0.00] 0	Shared
Manawagonish @ Gault Rd	STOP	AM	LOS A 5.1	A 7.7 [0.04] 0.9	Free Flow [0.02] 0	Free Flow [0.00] 0	A 7.4 [0.07] 1.8	Free Flow [0.12] 0	Shared	Shared	C 17.4 two stage	A 9.7 [0.26] 8.5	Shared	B 13.8 [0.28] 9	Shared
		PM	LOS A 3.9	A 8.6 [0.08] 2	Free Flow [0.02] 0	Free Flow [0.00] 0	A 7.5 [0.10] 2.6	Free Flow [0.29] 0	Shared	Shared	C 18.4 two stage	A 9.8 [0.27] 8.8	Shared	C 15.4 [0.22] 6.7	Shared

4.2 Background (2040) LOS Analysis

4.2.1 Volumes

In addition to 1.5% generalized annual growth, the extension of Dantes Drive allows current residents of Dantes Drive (26 homes) and Corsica Court (14 homes) to re-distribute. Valentine Blvd has an additional 21 homes for a total of 61 homes served by the existing Valentine Blvd access to Gault Road. It was assumed that 66% of traffic currently using the Valentine Blvd access would shift to Dantes Drive at Gault Road if travelling via the intersection of Gault Road and Manawagonish Road.

4.2.2 Level of Service Analysis

A level of service (LOS) analysis was completed for the background 2040 traffic conditions. The analysis revealed that there will not be a substantial change in the overall operation of these intersections between 2024 and 2040. **Figure 4** displays the projected traffic volumes.

- **Gault Road @ Hitachi Crescent** operates at an overall LOS of A during both AM and PM peak periods. In addition, each turning movement also is operating at an LOS of A. No operational issues or concerns were identified with this intersection.
- **Gault Road @ Valentine Boulevard** operates at an overall LOS of A during both AM and PM peak periods. In addition, each turning movement also is operating at an LOS of A. No operational issues or concerns were identified with this intersection.
- **Gault Road @ Manawagonish Road** operates at an overall LOS of A during both AM and PM peak periods. In addition, each turning movement also is operating at an LOS of C or better. No LOS issues were identified for this intersection.

The LOS results, including average delay, volume to capacity (v/c) ratios, and the 95th percentile queue lengths for the 2040 background conditions are summarized in **Table 4** with detailed LOS results in **Appendix C**.

Figure 4: 2040 Background Traffic Volumes

Table 4: 2040 Background Conditions LOS Results

Intersection			Overall LOS // Delay (sec/veh)	Movement LOS // Average Delay (sec/veh) // [Volume to Capacity Ratio (v/c)] // 95th Percentile Queue (m)											
				Eastbound			Westbound			Northbound			Southbound		
Main Street @ Minor Street	Traffic Control	Peak Period		L	T	R	L	T	R	L	T	R	L	T	R
Valentine Blvd @ Gault Rd	STOP	AM	LOS A 2.5	A 8.9 [0.05] 1.4	-	Shared	-	-	-	Shared	A 0.5 [0.00] 0.1	-	-	Free Flow [0.04] 0	Shared
		PM	LOS A 1.8	A 9.1 [0.03] 0.7	-	Shared	-	-	-	Shared	A 1.6 [0.02] 0.5	-	-	Free Flow [0.05] 0	Shared
Hitachi Cres. (south) @ Gault Rd	STOP	AM	LOS A 0.2	Shared	Free Flow [0.08] 0	Shared	Shared	B 10.1 [0.01] 0.2	Shared	Shared	Free Flow [0.00] 0	Shared	Shared	A 0.1 [0.00] 0	Shared
		PM	LOS A 0.0	Shared	Free Flow [0.13] 0	Shared	Shared	Free Flow [0.01] 0	Shared	Shared	Free Flow [0.00] 0	Shared	Shared	A 0.1 [0.00] 0	Shared
Manawagonish @ Gault Rd	STOP	AM	LOS A 5.4	A 7.8 [0.04] 1.1	Free Flow [0.02] 0	Free Flow [0.00] 0	A 7.5 [0.08] 2	Free Flow [0.14] 0	Shared	Shared	C 17.8 two stage	A 10 [0.30] 10.3	Shared	C 15.4 [0.34] 12.1	Shared
		PM	LOS A 4.1	A 8.9 [0.09] 2.4	Free Flow [0.02] 0	Free Flow [0.01] 0	A 7.6 [0.11] 3	Free Flow [0.33] 0	Shared	Shared	C 19 two stage	B 10.1 [0.31] 10.6	Shared	C 17.6 [0.28] 9.2	Shared

5 Future Development

Traffic generation for the proposed development was estimated and assigned to the background traffic volumes to determine the 2031 and 2040 total traffic volumes. The methodology and assumptions applied for the development traffic are discussed in this section.

5.1 Traffic Generation

The developer provided a site plan for the proposed development and information on which buildings would be considered as parts of Phase 1 and subsequent phases of construction. The ITE Trip Generation Manual 11th Edition was used to estimate the trips generated in the AM and PM peak periods for each phase of development. This data is summarized in **Table 5**.

Table 5: Trip Generation Summary

Phase	Building - Use	ITE Code	Number of Units	AM			PM		
				In	Out	Total	In	Out	Total
1	Lots 1-12, 20-25 (Duplexes)	215	36	4	13	17	12	8	21
2	Building A	220	24	2	7	10	8	5	12
	Building B	220	12	1	4	5	4	2	6
3	6-Unit Townhomes	215	12	1	4	6	4	3	7
	Building C	220	12	1	4	5	4	2	6
	Building G	220	18	2	5	7	6	3	9
	Building J	220	18	2	5	7	6	3	9
4	Building E	220	18	2	5	7	6	3	9
	Building F	220	18	2	5	7	6	3	9

Phase	Building - Use	ITE Code	Number of Units	AM			PM		
				In	Out	Total	In	Out	Total
5	Lots 13-19 (Duplexes)	215	14	2	5	7	5	3	8
6	Building H	220	18	2	5	7	6	3	9
	Building I	220	18	2	5	7	6	3	9
7	Building D	220	18	2	5	7	6	3	9
	Full Build-out Total			**24**	**75**	**99**	**77**	**47**	**124**

5.2 Traffic Assignment

In reviewing the background traffic flows through the study area, we determined that it was reasonable to assume the following origin/destination framework for assigning development traffic to the network:

— Phase 1 entering and exiting traffic all use Valentine Blvd. Based on the existing distribution, 76% to 82% of traffic was distributed to/from Gault Rd south of the Development.

— For all other future phases of the development, traffic was distributed similarly through the road network.

5.2.1 Phase 1

For Phase 1, all the development traffic accesses the network through Valentine Boulevard. **Figure 5** shows the traffic volumes that will be added to the network under Phase 1 of the development.

Figure 5: Phase 1 Development Traffic

5.2.2 Full Build-out

In total, traffic accessing the development will be divided between two access points located on Gault Road. In addition to Phases 2 through 7, the full build-out scenario re-assigns Phase 1 traffic which is now able to take advantage of the Dantes Drive connection to Gault Road. **Figure 6** displays the traffic volumes that will be added to the network as a result of the complete development.

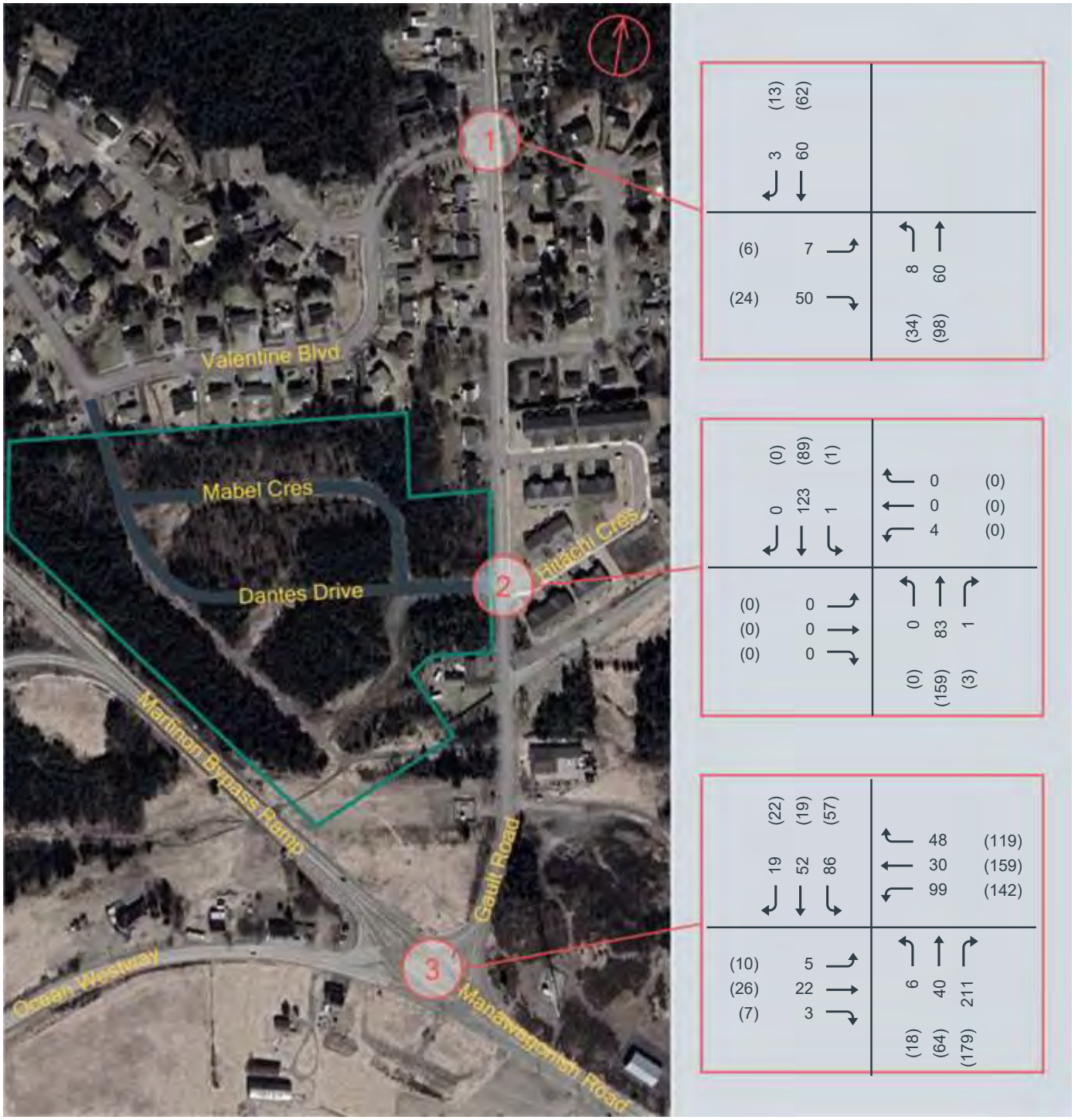
Figure 6: Full Build-out Development Traffic

5.3 2031 Total Analysis (Phase 1 + 5 years)

5.3.1 Volumes

The development traffic from Phase 1 was added to the 2031 background volumes to create the projected traffic volumes illustrated in **Figure 7.**

Figure 7: 2031 Toal Traffic Volumes (Phase 1 + 5 years)



5.3.2 Level of Service Analysis

A level of service (LOS) analysis was completed for the 2031 Phase 1 traffic conditions. The analysis revealed the following:

— **Gault Road @ Hitachi Crescent** operates at an overall LOS of A during both AM and PM peak periods. In addition, each turning movement also is operating at an LOS of A. No operational issues or concerns were identified with this intersection.

- **Gault Road @ Valentine Boulevard** operates at an overall LOS of A during both AM and PM peak periods. In addition, each turning movement also is operating at an LOS of A. No operational issues or concerns were identified with this intersection.
- **Gault Road @ Manawagonish Road** operates at an overall LOS of A during both AM and PM peak periods. In addition, each turning movement also is operating at an LOS of C or better. No LOS issues were identified for this intersection.

No LOS issues are expected for any of the intersections involved in this study. The LOS results, including average delay, volume to capacity (v/c) ratios, and the 95th percentile queue lengths for the 2031 conditions are summarized in **Table 6** with detailed LOS results in **Appendix C**.

Table 6: 2031 Total Conditions LOS Results

Intersection			Overall LOS // Delay (sec/veh)	Movement LOS // Average Delay (sec/veh) // [Volume to Capacity Ratio (v/c)] // 95th Percentile Queue (m)											
				Eastbound			Westbound			Northbound			Southbound		
Main Street @ Minor Street	Traffic Control	Peak Period		L	T	R	L	T	R	L	T	R	L	T	R
Valentine Blvd @ Gault Rd	STOP	AM	LOS A 3.1	A 9 [0.06] 1.6	-	Shared	-	-	-	Shared	A 0.9 [0.01] 0.1	-	-	Free Flow [0.04] 0	Shared
		PM	LOS A 2.3	A 9.1 [0.04] 0.9	-	Shared	-	-	-	Shared	A 2.1 [0.02] 0.6	-	-	Free Flow [0.05] 0	Shared
Hitachi Cres. (south) @ Gault Rd	STOP	AM	LOS A 0.2	Shared	Free Flow [0.08] 0	Shared	Shared	A 10 [0.01] 0.1	Shared	Shared	Free Flow [0.00] 0	Shared	Shared	A 0.1 [0.00] 0	Shared
		PM	LOS A 0.0	Shared	Free Flow [0.08] 0	Shared	Shared	Free Flow [0.01] 0	Shared	Shared	Free Flow [0.00] 0	Shared	Shared	A 0.1 [0.00] 0	Shared
Manawagonish @ Gault Rd	STOP	AM	LOS A 5.2	A 7.8 [0.04] 1	Free Flow [0.02] 0	Free Flow [0.00] 0	A 7.4 [0.07] 1.8	Free Flow [0.12] 0	Shared	Shared	C 17.5 two stage	A 9.7 [0.27] 8.6	Shared	B 14.1 [0.30] 10.1	Shared
		PM	LOS A 4	A 8.7 [0.08] 2.2	Free Flow [0.02] 0	Free Flow [0.00] 0	A 7.5 [0.10] 2.6	Free Flow [0.29] 0	Shared	Shared	C 18.5 two stage	A 9.8 [0.28] 9	Shared	C 15.7 [0.24] 7.5	Shared

5.4 2040 Total Analysis (Full build-out + 5 years)

5.4.1 Volumes

The development traffic from full build-out was added to the 2040 background volumes to create the projected traffic volumes illustrated in **Figure 8.**

Figure 8: 2040 Total Traffic Volumes (Full build-out + 5 years)

5.4.2 Level of Service Analysis

A level of service (LOS) analysis was completed for the 2040 Development traffic conditions. The analysis revealed the following:

- **Gault Road @ Hitachi Crescent** operates at an overall LOS of A during both AM and PM peak periods. In addition, each turning movement also is operating at an LOS of A. No operational issues or concerns were identified with this intersection.
- **Gault Road @ Valentine Boulevard** operates at an overall LOS of A during both AM and PM peak periods. In addition, each turning movement also is operating at an LOS of A. No operational issues or concerns were identified with this intersection.
- **Gault Road @ Manawagonish Road** operates at an overall LOS of A during both AM and PM peak periods. In addition, each turning movement also is operating at an LOS of C or better. No LOS issues were identified for this intersection.

No LOS issues are expected for any of the intersections involved in this study. The LOS results, including average delay, volume to capacity (v/c) ratios, and the 95th percentile queue lengths for the 2040 conditions are summarized in **Table 7** with detailed LOS results in **Appendix C**.

Table 7: 2040 Total Conditions LOS Results

Intersection			Overall LOS // Delay (sec/veh)	Movement LOS // Average Delay (sec/veh) // [Volume to Capacity Ratio (v/c)] // 95th Percentile Queue (m)											
				Eastbound			Westbound			Northbound			Southbound		
Main Street @ Minor Street	Traffic Control	Peak Period		L	T	R	L	T	R	L	T	R	L	T	R
Valentine Blvd @ Gault Rd	STOP	AM	LOS A 1.1	A 9 [0.02] 0.6	-	Shared	-	-	-	Shared	A 0.2 [0.00] 0	-	-	Free Flow [0.05] 0	Shared
		PM	LOS A 0.8	A 9.4 [0.02] 0.4	-	Shared	-	-	-	Shared	A 0.6 [0.01] 0.2	-	-	Free Flow [0.06] 0	Shared
Hitachi Cres. (south) @ Gault Rd	STOP	AM	LOS A 3.5	Shared	A 9.8 [0.13] 3.6	Shared	Shared	B 12.3 [0.01] 0.2	Shared	Shared	A 1.6 [0.02] 0.4	Shared	Shared	A 0.1 [0.00] 0	Shared
		PM	LOS A 3.0	Shared	A 9.7 [0.08] 2.1	Shared	Shared	Free Flow [0.01] 0	Shared	Shared	A 2.7 [0.06] 1.4	Shared	Shared	A 0.1 [0.00] 0	Shared
Manawagonish @ Gault Rd	STOP	AM	LOS A 6.1	A 7.9 [0.05] 1.3	Free Flow [0.02] 0	Free Flow [0.00] 0	A 7.5 [0.08] 2	Free Flow [0.15] 0	Shared	Shared	C 17.9 two stage	B 10 [0.31] 10.7	Shared	C 17.8 [0.47] 20	Shared
		PM	LOS A 4.7	A 9.3 [0.13] 3.5	Free Flow [0.03] 0	Free Flow [0.01] 0	A 7.6 [0.11] 3	Free Flow [0.36] 0	Shared	Shared	C 19.6 two stage	B 10.3 [0.33] 11.8	Shared	C 20.5 [0.41] 15.3	Shared

6 Additional Considerations

6.1 Street Classification

In the 2031 Total scenario the peak hour volumes on Valentine Blvd correspond to an AADT of roughly 700 to 900.

In the 2040 Total scenario the re-distribution of traffic to Dantes Drive lowers the estimated Valentine Blvd AADT to roughly 250 to 400.

For Dantes Drive in the 2040 Total scenario, with the existing traffic re-distributed from Valentine Blvd, and the new site traffic the AADT immediately adjacent Gault Road is estimated at roughly 1,500 to 1,800. These volumes are suitable for a local street or minor collector classification. Based on ESAL and the inclusion of sidewalk on one side, a local street design (S045-300) is recommended.

This cross section includes 9.2m from curb-to-curb which enables parking on one side of the road. If parking on street is not required, or not desired, this curb-to-curb width may send a contextual message to drivers that higher than desirable speeds are appropriate. In this case a narrower carriageway may be appropriate with the right-of-way reallocated to boulevard space for snow storage and/or street tree planting.

6.2 Access Conditions

Sight distance for the proposed access (Gault Road @ Dantes Drive / Hitachi Crescent) was considered during the site visit. Note that currently there is stop-control on Hitachi Cres which allows for free-flow traffic on Gault Road. In addition, left-turning traffic from Gault Road has sufficient sight distance for vehicles to turn on Dantes Drive.

A sight distance evaluation was conducted for vehicles using the Gault Road @ Dantes Drive / Hitachi Crescent access following the guidelines set forth in the Transportation Association of Canada (TAC)'s *Geometric Design Guide for Canadian Roads (2017)*. To remain conservative, a design speed of 10

km/h above the posted speed limit was selected to better reflect current operating speeds. Therefore, a design speed of 60 km/h was used for this sight distance analysis.

The TAC Guide provides minimum Intersection Sight Distances (ISD) for various types of public and private accesses based on design speed for two-lane undivided roadways. For a 60 km/h design speed, TAC recommends ISDs of **110 m to complete a right turn movement** and **130 m to complete a left turn movement**. These distances allow the vehicle departing the access to complete their turn and get up to speed while not forcing drivers on the main road to reduce their speed to less than 70% of their initial speed. These ISDs form Departure Sight Triangles between the driver at the access, the centreline of the lane directly in front of them, and the ISD length along the roadway.

The SSD is the total distance required for a driver to identify a hazard that they need to stop for, react to the hazard by engaging the brake pedal, and coming to a controlled stop. For a 60 km/h design speed the desired SSD is 85m.

The existing sight distances and desired ISD and SSD for the Gault Road @ Dantes Drive / Hitachi Crescent access is summarized in **Table 8**. All the desired sight distances were met for the access.

Table 8: Access Sight Distance Measurement Summary

Proposed Access	Direction	Existing SD	Desired ISD for 60 km/h	Desired SSD for 60 km/h	Desired ISD Met	Desired SSD Met?
Gault Road @ Dantes Drive / Hitachi Crescent	To the North	165m	130m	85m	Yes	Yes
	To the South	195m	110m	85m	Yes	Yes

[1] As detailed above, the available sight distance is sufficient to allow left turns out of the development.

6.3 Dantes Drive Throat Distance

Building B has the closest driveway to Gault Road along the extension of Dantes Drive. The edge of the driveway is approximately 40m away from the edge of the southbound lane on Gault Road. This distance is far more than necessary to accommodate the outbound 95th percentile queue which is expected to be less than a single car. 40m spacing also satisfies *TAC Design Guide Figure 8.9.2: Driveway Spacing Guidelines- Locals and Collectors*. No change to the proposed site concept is deemed necessary for this driveway.

6.4 Sidewalk Connectivity

The Saint John Sidewalk Infill Strategy aims to improve safety, continuity, connectivity, and transit access. To support this program, a sidewalk along the extension of Dantes Drive should be included in the design of this development. A local street cross section includes this sidewalk. Placement should be along the north side of Dantes Drive such that a Gault Road crosswalk location would avoid conflict with the primary turning movements in and out of the new community. Spacing to the next available crosswalk at Alvic Pl is approximately 170m and does not limit a crosswalk at this location.

The route 12 bus stops at Pipeline Road W are approximately 55m from the development access at Dantes Drive. The City should consider relocating these transit stops to Gault Road @ Dates Drive / Hitachi Cres, where the population in the neighbourhood would be better served. Alternatively, the City could consider adding sidewalks to both sides of Gault Road between these transit stops and Dantes Drive / Hitachi Cres.

Further connecting sidewalk along the east side of Dantes Drive from Hitachi (or Pipeline Road W) to the existing sidewalk on Manawagonish Road would close a gap in the sidewalk network. It would also

serve the Hamilton Homestyle Daycare. There are no major walking demands directly associated with the subject development to trigger an immediate need or change in prioritization, but the City should also consider adding this sidewalk as part of the next capital project on Gault Road.

6.5 Gault @ Manawagonish

This intersection has a non-standard configuration that may be confusing to drivers, especially those unfamiliar with the area. The mix of rural context, partially circulatory patterns, inconsistent application of yield and stop control, and higher-speed facilities in the area do not lend themselves to high expected safety performance. This development has minimal impact on the intersection but as the City grows it is recommended that the City, in partnership with the Province, undertakes to complete a safety review of this intersection.

6.6 Turning Lane Analysis

The current and projected left turning traffic for all analysis periods is not high enough to warrant turn lanes into the development based on the left turn warrant system presented in the Ontario Geometric Design Guide for Ontario Highways (GDSOH).

6.7 Recommended Improvements

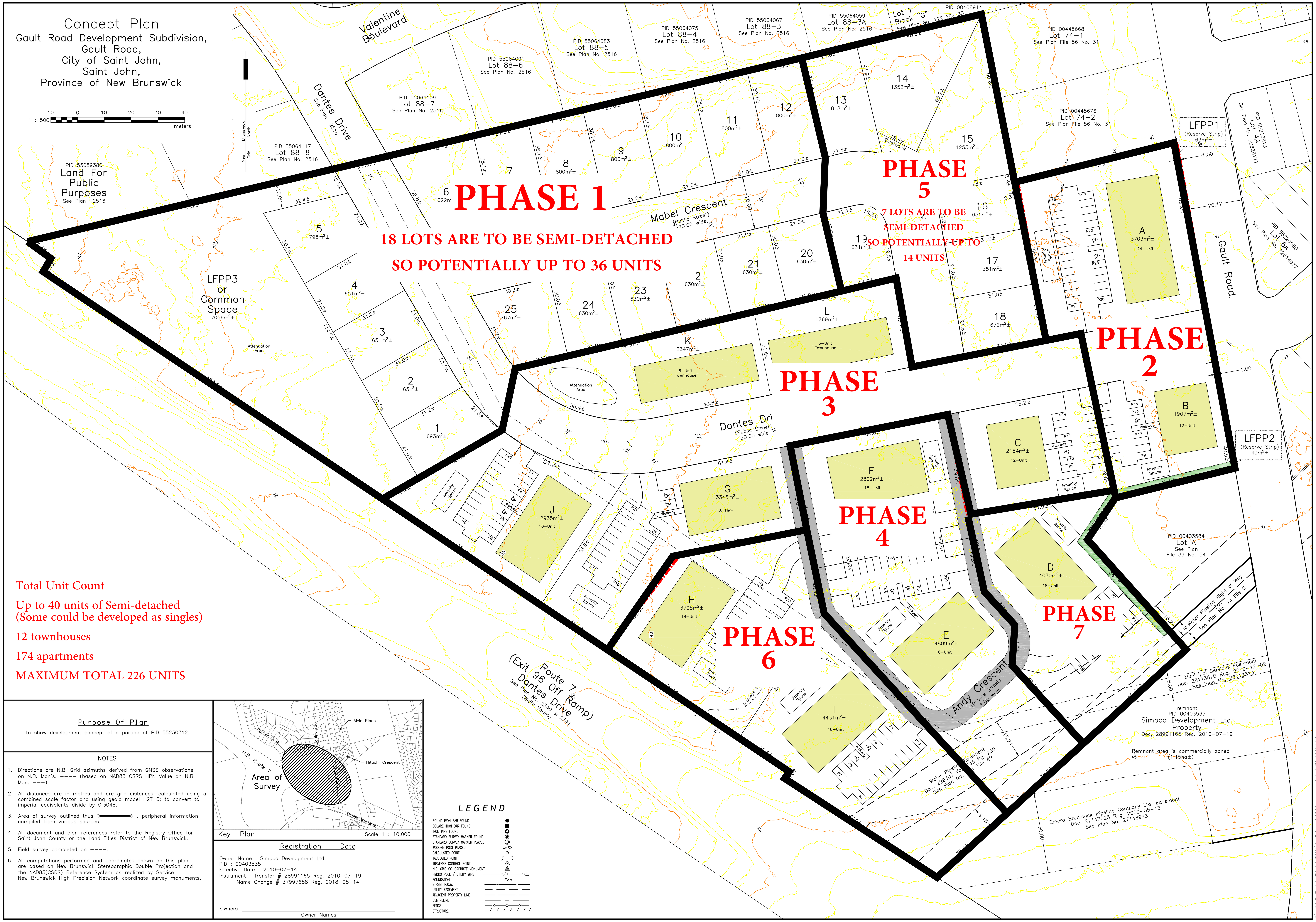
As the traffic volumes added by the proposed development would not have a significant impact on intersection LOS throughout the study area and the proposed access all have reasonable sight distances, there are no roadway improvements that are specifically required to accommodate the proposed development and accesses as planned.

New streets in the development are recommended to be constructed to a local standard as per City standard cross section S045-300. Optional modifications to this standard are noted in §6.1.

Transit stop relocation and sidewalk improvements that the City may wish to consider are discussed in §6.4.

Appendix A
Site Plan

ENGLOBE


Concept Plan
Gault Road Development Subdivision,
Gault Road,
City of Saint John,
Saint John,
Province of New Brunswick
1 : 500
meters
PHASE 1
18 LOTS ARE TO BE SEMI-DETACHED
SO POTENTIALLY UP TO 36 UNITS
PHASE 5
7 LOTS ARE TO BE SEMI-DETACHED
SO POTENTIALLY UP TO 14 UNITS
PHASE 2
PHASE 3
PHASE 4
PHASE 6
PHASE 7
Total Unit Count
Up to 40 units of Semi-detached
(Some could be developed as singles)
12 townhouses
174 apartments
MAXIMUM TOTAL 226 UNITS
Valentine Boulevard
Dantes Drive
Mabel Crescent
(Public Street)
20.00 wide
Dantes Dri
(Public Street)
20.00 wide
Andy Crescent
(Private Street)
Gault Road
Route 7
(Exit 96 Off Ramp)
Dantes Drive
See Plan No. 2340 & 2341
(Width Varies)
PID 55059380
Land For Public Purposes
See Plan 2516
LFPP3 or Common Space
7006m²±
LFPP1
(Reserve Strip)
63m²±
LFPP2
(Reserve Strip)
40m²±
A
3703m²±
24-Unit
B
1907m²±
12-Unit
C
2154m²±
12-Unit
D
4070m²±
18-Unit
E
4809m²±
18-Unit
F
2809m²±
18-Unit
G
3345m²±
18-Unit
H
3705m²±
18-Unit
I
4431m²±
18-Unit
J
2935m²±
18-Unit
K
2347m²±
6-Unit Townhouse
L
1769m²±
6-Unit Townhouse
Attenuation Area
PID 00403584
Lot A
See Plan File 39 No. 54
remnant
PID 00403535
Simpco Development Ltd. Property
Doc. 28991165 Reg. 2010-07-19
Remnant area is commercially zoned (1.15ha±)
Municipal Services Easement
Doc. 28113570 Reg. 2009-12-02
See Plan No. 28113513
Emera Brunswick Pipeline Company Ltd. Easement
Doc. 27147025 Reg. 2009-05-13
See Plan No. 27146993
Water Pipeline Right of Way
See Plan No. 74 File 0
Purpose Of Plan
to show development concept of a portion of PID 55230312.
NOTES
1. Directions are N.B. Grid azimuths derived from GNSS observations on N.B. Mon's. ---- (based on NAD83 CSRS HPN Value on N.B. Mon. ---).
2. All distances are in metres and are grid distances, calculated using a combined scale factor and using geoid model H2T_0; to convert to imperial equivalents divide by 0.3048.
3. Area of survey outlined thus , peripheral information compiled from various sources.
4. All document and plan references refer to the Registry Office for Saint John County or the Land Titles District of New Brunswick.
5. Field survey completed on ----.
6. All computations performed and coordinates shown on this plan are based on New Brunswick Stereographic Double Projection and the NAD83(CSRS) Reference System as realized by Service New Brunswick High Precision Network coordinate survey monuments.
Key Plan
Scale 1 : 10,000
Area of Survey
Registration Data
Owner Name : Simpco Development Ltd.
PID : 00403535
Effective Date : 2010-07-14
Instrument : Transfer # 28991165 Reg. 2010-07-19
Name Change # 37997658 Reg. 2018-05-14
Owners
Owner Names
LEGEND

Appendix B
Traffic Counts

ENGLOBE

Gault Road @ Manawagonish Road
October 15 (PM) and 16 (AM / MID)

Start Time	SBR	SBT	SBL	SBU	WBR	WBT	WBL	WBU	NBR	NBT	NBL	NBU	EBR	EBT	EBL	EBU
16:00:00	6	7	12		25	33	47		49	7	8		2	6	1	
16:15:00	5	4	10		15	30	32		36	12	4		4	2	1	
16:30:00	5	4	11		15	42	45		59	13	4		0	6	1	
16:45:00	0	0	16		20	36	19		30	15	3		3	5	3	
17:00:00	1	1	12		33	33	31		50	13	7		1	6	1	
17:15:00	12	10	9		34	32	33		22	13	2		2	6	3	
17:30:00	9	8	11		16	28	31		26	9	5		2	1	1	
17:45:00	3	3	7		15	30	34		30	10	2		1	8	3	
07:00:00	4	12	11		8	5	19		26	9	2		0	3	1	
07:15:00	3	15	21		4	3	16		32	7	0		0	3	1	
07:30:00	2	8	11		6	5	26		64	9	2		1	5	1	
07:45:00	5	13	23		15	8	25		52	10	2		2	6	1	
08:00:00	4	7	17		16	11	22		42	8	1		0	6	1	
08:15:00	3	4	10		5	11	17		43	7	1		0	2	0	
08:30:00	4	6	13		8	11	17		33	8	2		0	2	1	
08:45:00	3	3	6		7	13	17		38	3	2		0	4	0	
11:00:00	1	3	6		7	4	24		29	4	2		0	2	0	
11:15:00	1	1	8		9	13	20		33	4	8		0	1	0	
11:30:00	3	4	10		11	10	19		34	5	5		1	0	0	
11:45:00	4	7	5		7	12	22		30	7	3		0	2	0	
12:00:00	3	5	4		14	17	27		36	9	1		0	6	1	
12:15:00	4	4	9		10	20	23		48	6	2		2	4	0	
12:30:00	5	7	3		14	15	28		33	10	1		1	5	2	
12:45:00	4	6	12		5	13	20		34	5	0		1	3	1	

Gault Road @ Valentine Boulevard
October 15 (PM) and 16 (AM / MID)

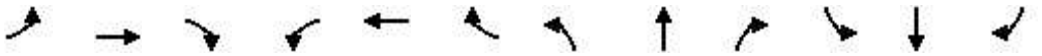
Start Time	SBR	SBT	SBL	SBU	WBR	WBT	WBL	WBU	NBR	NBT	NBL	NBU	EBR	EBT	EBL	EBU
16:00:00	2	10		0						19	8	0	5		1	0
16:15:00	1	13		0						15	6	0	1		1	0
16:30:00	1	13		0						16	5	0	5		1	0
16:45:00	2	7		0						19	3	0	1		2	0
17:00:00	2	16		0						28	8	0	6		1	0
17:15:00	4	20		0						25	6	0	3		0	0
17:30:00	4	14		0						17	9	0	6		1	0
17:45:00	0	9		0						19	1	0	7		4	0
07:00:00	1	17		0						13	0	0	8		0	0
07:15:00	1	19		0						7	1	0	11		2	0
07:30:00	0	6		0						10	1	0	9		1	0
07:45:00	0	15		0						19	0	0	7		1	0
08:00:00	0	14		0						18	2	0	8		0	0
08:15:00	2	15		0						11	1	0	3		1	0
08:30:00	0	10		0						10	0	0	3		2	1
08:45:00	0	9		0						8	0	0	1		1	0
11:00:00	0	9		0						6	1	0	3		0	0
11:15:00	0	13		0						12	1	0	1		0	0
11:30:00	0	10		0						13	3	0	5		0	0
11:45:00	1	7		0						6	1	0	3		0	0
12:00:00	0	9		0						14	2	0	2		3	0
12:15:00	1	10		0						12	4	0	2		1	0
12:30:00	1	8		0						20	4	0	3		0	0
12:45:00	0	8		0						6	4	0	5		1	0

Gault Road @ Hitachi Crescent
October 15 (PM) and 16 (AM / MID)

Start Time	SBR	SBT	SBL	SBU	WBR	WBT	WBL	WBU	NBR	NBT	NBL	NBU	EBR	EBT	EBL	EBU
16:00:00		17	1	0	0		0	0	1	29		0				
16:15:00		16	0	0	0		0	0	2	22		0				
16:30:00		19	0	0	0		0	0	0	22		0				
16:45:00		10	0	0	0		0	0	0	35		0				
17:00:00		21	1	0	0		0	0	1	37		0				
17:15:00		24	0	0	0		0	0	2	40		0				
17:30:00		19	0	0	0		0	0	2	20		0				
17:45:00		16	1	0	0		1	0	3	23		0				
07:00:00		29	0	0	1		0	0	0	11		0				
07:15:00		32	0	0	0		1	0	1	11		0				
07:30:00		20	0	0	0		2	0	0	13		0				
07:45:00		26	1	0	0		0	0	0	24		0				
08:00:00		23	0	0	0		1	0	0	23		0				
08:15:00		19	0	0	0		3	0	1	9		0				
08:30:00		19	0	0	0		0	0	0	13		0				
08:45:00		15	0	0	0		1	0	2	6		0				
11:00:00		15	0	0	0		0	0	2	9		0				
11:15:00		14	0	0	0		2	0	2	13		0				
11:30:00		13	0	0	0		1	0	1	12		0				
11:45:00		11	0	0	0		1	0	1	10		0				
12:00:00		12	0	0	0		0	0	2	21		0				
12:15:00		14	1	0	0		3	0	0	16		0				
12:30:00		11	0	0	0		2	0	1	25		0				
12:45:00		16	0	0	0		2	0	1	8		0				

Appendix C
Detailed Synchro Results

ENGLOBE



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	24	3	89	32	0	0	0	229	72	43	14
Future Volume (Veh/h)	0	24	3	89	32	0	0	0	229	72	43	14
Sign Control		Free			Free			Yield			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	26	3	97	35	0	0	0	249	78	47	15
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		Raised			Raised							
Median storage veh)		1			1							
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	35			26			294	255	26	255	255	35
vC1, stage 1 conf vol							26	26		229	229	
vC2, stage 2 conf vol							268	229		26	26	
vCu, unblocked vol	35			26			294	255	26	255	255	35
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)							6.1	5.5		6.1	5.5	
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			94			100	100	76	86	92	99
cM capacity (veh/h)	1576			1588			574	602	1050	545	597	1038

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1
Volume Total	26	3	97	35	249	140
Volume Left	0	0	97	0	0	78
Volume Right	0	3	0	0	249	15
cSH	1700	1700	1588	1700	1050	593
Volume to Capacity	0.02	0.00	0.06	0.02	0.24	0.24
Queue Length 95th (m)	0.0	0.0	1.6	0.0	7.4	7.3
Control Delay (s)	0.0	0.0	7.4	0.0	9.5	12.9
Lane LOS			A		A	B
Approach Delay (s)	0.0		5.4		9.5	12.9
Approach LOS					A	B

Intersection Summary				
Average Delay	8.9			
Intersection Capacity Utilization	34.6%	ICU Level of Service		A
Analysis Period (min)	15			

Movement	EBU	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations							
Traffic Volume (veh/h)	5	38	282	116	41	0	0
Future Volume (Veh/h)	5	38	282	116	41	0	0
Sign Control			Free	Free		Stop	
Grade			0%	0%		0%	
Peak Hour Factor	0.75	0.84	0.83	0.95	0.66	0.92	0.92
Hourly flow rate (vph)	0	45	340	122	62	0	0
Pedestrians							
Lane Width (m)							
Walking Speed (m/s)							
Percent Blockage							
Right turn flare (veh)							
Median type			Raised	Raised			
Median storage veh)			1	1			
Upstream signal (m)							
pX, platoon unblocked	0.00						
vC, conflicting volume	0	184				583	153
vC1, stage 1 conf vol						153	
vC2, stage 2 conf vol						430	
vCu, unblocked vol	0	184				583	153
tC, single (s)	0.0	4.1				6.4	6.2
tC, 2 stage (s)						5.4	
tF (s)	0.0	2.2				3.5	3.3
p0 queue free %	0	97				100	100
cM capacity (veh/h)	0	1391				532	893

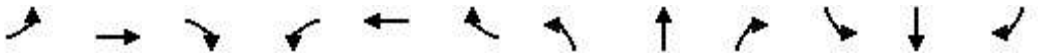
Direction, Lane #	EB 1	EB 2	WB 1
Volume Total	45	340	184
Volume Left	45	0	0
Volume Right	0	0	62
cSH	1391	1700	1700
Volume to Capacity	0.03	0.20	0.11
Queue Length 95th (m)	0.8	0.0	0.0
Control Delay (s)	7.7	0.0	0.0
Lane LOS	A		
Approach Delay (s)	0.9		0.0
Approach LOS			

Intersection Summary			
Average Delay		0.6	
Intersection Capacity Utilization		18.6%	ICU Level of Service A
Analysis Period (min)		15	

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	4	35	4	54	54	1
Future Volume (Veh/h)	4	35	4	54	54	1
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	4	38	4	59	59	1
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	126	60	60			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	126	60	60			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	96	100			
cM capacity (veh/h)	866	1006	1544			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	42	63	60
Volume Left	4	4	0
Volume Right	38	0	1
cSH	991	1544	1700
Volume to Capacity	0.04	0.00	0.04
Queue Length 95th (m)	1.1	0.1	0.0
Control Delay (s)	8.8	0.5	0.0
Lane LOS	A	A	
Approach Delay (s)	8.8	0.5	0.0
Approach LOS	A		

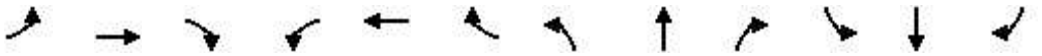
Intersection Summary			
Average Delay	2.4		
Intersection Capacity Utilization	16.1%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	4	0	0	0	71	1	1	101	0
Future Volume (Veh/h)	0	0	0	4	0	0	0	71	1	1	101	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	0	4	0	0	0	77	1	1	110	0
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	190	190	110	190	190	78	110			78		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	190	190	110	190	190	78	110			78		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	100	99	100	100	100			100		
cM capacity (veh/h)	770	704	943	770	705	983	1480			1520		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	0	4	78	111
Volume Left	0	4	0	1
Volume Right	0	0	1	0
cSH	1700	770	1480	1520
Volume to Capacity	0.00	0.01	0.00	0.00
Queue Length 95th (m)	0.0	0.1	0.0	0.0
Control Delay (s)	0.0	9.7	0.0	0.1
Lane LOS	A	A		A
Approach Delay (s)	0.0	9.7	0.0	0.1
Approach LOS	A	A		

Intersection Summary				
Average Delay	0.2			
Intersection Capacity Utilization	16.1%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	31	6	128	159	0	0	0	231	48	15	18
Future Volume (Veh/h)	0	31	6	128	159	0	0	0	231	48	15	18
Sign Control		Free			Free			Yield			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	34	7	139	173	0	0	0	251	52	16	20
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		Raised			Raised							
Median storage veh)		1			1							
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	173			34			513	485	34	485	485	173
vC1, stage 1 conf vol							34	34		451	451	
vC2, stage 2 conf vol							479	451		34	34	
vCu, unblocked vol	173			34			513	485	34	485	485	173
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)							6.1	5.5		6.1	5.5	
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			91			100	100	76	88	97	98
cM capacity (veh/h)	1404			1578			440	464	1039	417	459	871

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1
Volume Total	34	7	139	173	251	88
Volume Left	0	0	139	0	0	52
Volume Right	0	7	0	0	251	20
cSH	1700	1700	1578	1700	1039	482
Volume to Capacity	0.02	0.00	0.09	0.10	0.24	0.18
Queue Length 95th (m)	0.0	0.0	2.3	0.0	7.6	5.3
Control Delay (s)	0.0	0.0	7.5	0.0	9.6	14.1
Lane LOS			A		A	B
Approach Delay (s)	0.0		3.3		9.6	14.1
Approach LOS					A	B

Intersection Summary				
Average Delay	6.8			
Intersection Capacity Utilization	32.2%	ICU Level of Service	A	
Analysis Period (min)	15			

Movement	EBU	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations							
Traffic Volume (veh/h)	16	62	232	271	102	0	0
Future Volume (Veh/h)	16	62	232	271	102	0	0
Sign Control			Free	Free		Stop	
Grade			0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	67	252	295	111	0	0
Pedestrians							
Lane Width (m)							
Walking Speed (m/s)							
Percent Blockage							
Right turn flare (veh)							
Median type			Raised	Raised			
Median storage veh)			1	1			
Upstream signal (m)							
pX, platoon unblocked	0.00						
vC, conflicting volume	0	406				736	350
vC1, stage 1 conf vol						350	
vC2, stage 2 conf vol						386	
vCu, unblocked vol	0	406				736	350
tC, single (s)	0.0	4.1				6.4	6.2
tC, 2 stage (s)						5.4	
tF (s)	0.0	2.2				3.5	3.3
p0 queue free %	0	94				100	100
cM capacity (veh/h)	0	1153				475	693

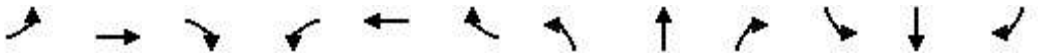
Direction, Lane #	EB 1	EB 2	WB 1
Volume Total	67	252	406
Volume Left	67	0	0
Volume Right	0	0	111
cSH	1153	1700	1700
Volume to Capacity	0.06	0.15	0.24
Queue Length 95th (m)	1.5	0.0	0.0
Control Delay (s)	8.3	0.0	0.0
Lane LOS	A		
Approach Delay (s)	1.7		0.0
Approach LOS			

Intersection Summary			
Average Delay	0.8		
Intersection Capacity Utilization	31.5%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	4	15	22	88	56	9
Future Volume (Veh/h)	4	15	22	88	56	9
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	4	16	24	96	61	10
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	210	66	71			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	210	66	71			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	99	98	98			
cM capacity (veh/h)	766	998	1529			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	20	120	71
Volume Left	4	24	0
Volume Right	16	0	10
cSH	941	1529	1700
Volume to Capacity	0.02	0.02	0.04
Queue Length 95th (m)	0.5	0.4	0.0
Control Delay (s)	8.9	1.6	0.0
Lane LOS	A	A	
Approach Delay (s)	8.9	1.6	0.0
Approach LOS	A		

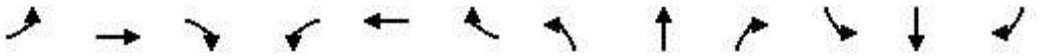
Intersection Summary			
Average Delay	1.7		
Intersection Capacity Utilization	22.5%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	0	0	0	0	134	3	1	74	0
Future Volume (Veh/h)	0	0	0	0	0	0	0	134	3	1	74	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	0	0	0	0	0	146	3	1	80	0
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	230	231	80	230	230	148	80			149		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	230	231	80	230	230	148	80			149		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	100	100	100	100	100			100		
cM capacity (veh/h)	725	668	980	725	670	899	1518			1432		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	0	0	149	81
Volume Left	0	0	0	1
Volume Right	0	0	3	0
cSH	1700	1700	1518	1432
Volume to Capacity	0.00	0.01	0.00	0.00
Queue Length 95th (m)	0.0	0.0	0.0	0.0
Control Delay (s)	0.0	0.0	0.0	0.1
Lane LOS	A	A		A
Approach Delay (s)	0.0	0.0	0.0	0.1
Approach LOS	A	A		

Intersection Summary				
Average Delay	0.0			
Intersection Capacity Utilization	10.6%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	26	3	99	36	0	0	0	255	80	48	16
Future Volume (Veh/h)	0	26	3	99	36	0	0	0	255	80	48	16
Sign Control		Free			Free			Yield			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	28	3	108	39	0	0	0	277	87	52	17
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		Raised			Raised							
Median storage veh)		1			1							
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	39			28			326	283	28	283	283	39
vC1, stage 1 conf vol							28	28		255	255	
vC2, stage 2 conf vol							298	255		28	28	
vCu, unblocked vol	39			28			326	283	28	283	283	39
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)							6.1	5.5		6.1	5.5	
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			93			100	100	74	83	91	98
cM capacity (veh/h)	1571			1585			542	581	1047	510	576	1033

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1
Volume Total	28	3	108	39	277	156
Volume Left	0	0	108	0	0	87
Volume Right	0	3	0	0	277	17
cSH	1700	1700	1585	1700	1047	563
Volume to Capacity	0.02	0.00	0.07	0.02	0.26	0.28
Queue Length 95th (m)	0.0	0.0	1.8	0.0	8.5	9.0
Control Delay (s)	0.0	0.0	7.4	0.0	9.7	13.8
Lane LOS			A		A	B
Approach Delay (s)	0.0		5.5		9.7	13.8
Approach LOS					A	B

Intersection Summary				
Average Delay	9.2			
Intersection Capacity Utilization	37.1%	ICU Level of Service		A
Analysis Period (min)	15			

Movement	EBU	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations							
Traffic Volume (veh/h)	6	42	313	129	46	0	0
Future Volume (Veh/h)	6	42	313	129	46	0	0
Sign Control			Free	Free		Stop	
Grade			0%	0%		0%	
Peak Hour Factor	0.75	0.84	0.83	0.95	0.66	0.92	0.92
Hourly flow rate (vph)	0	50	377	136	70	0	0
Pedestrians							
Lane Width (m)							
Walking Speed (m/s)							
Percent Blockage							
Right turn flare (veh)							
Median type			Raised	Raised			
Median storage veh)			1	1			
Upstream signal (m)							
pX, platoon unblocked	0.00						
vC, conflicting volume	0	206				648	171
vC1, stage 1 conf vol						171	
vC2, stage 2 conf vol						477	
vCu, unblocked vol	0	206				648	171
tC, single (s)	0.0	4.1				6.4	6.2
tC, 2 stage (s)						5.4	
tF (s)	0.0	2.2				3.5	3.3
p0 queue free %	0	96				100	100
cM capacity (veh/h)	0	1365				500	873

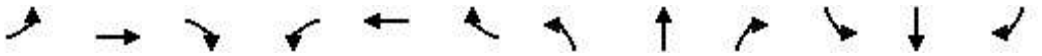
Direction, Lane #	EB 1	EB 2	WB 1
Volume Total	50	377	206
Volume Left	50	0	0
Volume Right	0	0	70
cSH	1365	1700	1700
Volume to Capacity	0.04	0.22	0.12
Queue Length 95th (m)	0.9	0.0	0.0
Control Delay (s)	7.7	0.0	0.0
Lane LOS	A		
Approach Delay (s)	0.9		0.0
Approach LOS			

Intersection Summary			
Average Delay	0.6		
Intersection Capacity Utilization	19.8%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	4	39	4	60	60	1
Future Volume (Veh/h)	4	39	4	60	60	1
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	4	42	4	65	65	1
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	138	66	66			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	138	66	66			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	96	100			
cM capacity (veh/h)	852	998	1536			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	46	69	66
Volume Left	4	4	0
Volume Right	42	0	1
cSH	984	1536	1700
Volume to Capacity	0.05	0.00	0.04
Queue Length 95th (m)	1.2	0.1	0.0
Control Delay (s)	8.8	0.4	0.0
Lane LOS	A	A	
Approach Delay (s)	8.8	0.4	0.0
Approach LOS	A		

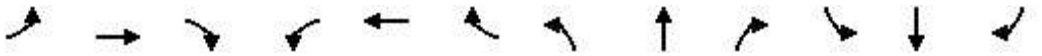
Intersection Summary			
Average Delay	2.4		
Intersection Capacity Utilization	16.4%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	4	0	0	0	79	1	1	112	0
Future Volume (Veh/h)	0	0	0	4	0	0	0	79	1	1	112	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	0	4	0	0	0	86	1	1	122	0
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	210	211	122	210	210	86	122			87		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	210	211	122	210	210	86	122			87		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	100	99	100	100	100			100		
cM capacity (veh/h)	746	686	929	746	686	972	1465			1509		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	0	4	87	123
Volume Left	0	4	0	1
Volume Right	0	0	1	0
cSH	1700	746	1465	1509
Volume to Capacity	0.00	0.01	0.00	0.00
Queue Length 95th (m)	0.0	0.1	0.0	0.0
Control Delay (s)	0.0	9.9	0.0	0.1
Lane LOS	A	A		A
Approach Delay (s)	0.0	9.9	0.0	0.1
Approach LOS	A	A		

Intersection Summary				
Average Delay	0.2			
Intersection Capacity Utilization	16.7%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	35	7	142	177	0	0	0	257	53	17	20
Future Volume (Veh/h)	0	35	7	142	177	0	0	0	257	53	17	20
Sign Control		Free			Free			Yield			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	38	8	154	192	0	0	0	279	58	18	22
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		Raised			Raised							
Median storage veh)		1			1							
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	192			38			569	538	38	538	538	192
vC1, stage 1 conf vol							38	38		500	500	
vC2, stage 2 conf vol							531	500		38	38	
vCu, unblocked vol	192			38			569	538	38	538	538	192
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)							6.1	5.5		6.1	5.5	
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			90			100	100	73	85	96	97
cM capacity (veh/h)	1381			1572			404	435	1034	380	431	850

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1
Volume Total	38	8	154	192	279	98
Volume Left	0	0	154	0	0	58
Volume Right	0	8	0	0	279	22
cSH	1700	1700	1572	1700	1034	444
Volume to Capacity	0.02	0.00	0.10	0.11	0.27	0.22
Queue Length 95th (m)	0.0	0.0	2.6	0.0	8.8	6.7
Control Delay (s)	0.0	0.0	7.5	0.0	9.8	15.4
Lane LOS			A		A	C
Approach Delay (s)	0.0		3.4		9.8	15.4
Approach LOS					A	C

Intersection Summary				
Average Delay	7.0			
Intersection Capacity Utilization	34.3%	ICU Level of Service		A
Analysis Period (min)	15			

Movement	EBU	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations							
Traffic Volume (veh/h)	18	69	258	301	113	0	0
Future Volume (Veh/h)	18	69	258	301	113	0	0
Sign Control			Free	Free		Stop	
Grade			0%	0%		0%	
Peak Hour Factor	0.75	0.84	0.83	0.95	0.66	0.92	0.92
Hourly flow rate (vph)	0	82	311	317	171	0	0
Pedestrians							
Lane Width (m)							
Walking Speed (m/s)							
Percent Blockage							
Right turn flare (veh)							
Median type			Raised	Raised			
Median storage veh)			1	1			
Upstream signal (m)							
pX, platoon unblocked	0.00						
vC, conflicting volume	0	488				878	402
vC1, stage 1 conf vol						402	
vC2, stage 2 conf vol						475	
vCu, unblocked vol	0	488				878	402
tC, single (s)	0.0	4.1				6.4	6.2
tC, 2 stage (s)						5.4	
tF (s)	0.0	2.2				3.5	3.3
p0 queue free %	0	92				100	100
cM capacity (veh/h)	0	1075				417	648

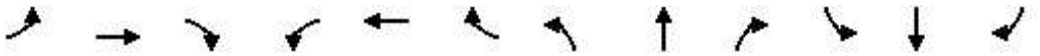
Direction, Lane #	EB 1	EB 2	WB 1
Volume Total	82	311	488
Volume Left	82	0	0
Volume Right	0	0	171
cSH	1075	1700	1700
Volume to Capacity	0.08	0.18	0.29
Queue Length 95th (m)	2.0	0.0	0.0
Control Delay (s)	8.6	0.0	0.0
Lane LOS	A		
Approach Delay (s)	1.8		0.0
Approach LOS			

Intersection Summary			
Average Delay	0.8		
Intersection Capacity Utilization	34.2%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	4	17	24	98	62	10
Future Volume (Veh/h)	4	17	24	98	62	10
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	4	18	26	107	67	11
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	232	72	78			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	232	72	78			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	99	98	98			
cM capacity (veh/h)	744	990	1520			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	22	133	78
Volume Left	4	26	0
Volume Right	18	0	11
cSH	933	1520	1700
Volume to Capacity	0.02	0.02	0.05
Queue Length 95th (m)	0.6	0.4	0.0
Control Delay (s)	8.9	1.6	0.0
Lane LOS	A	A	
Approach Delay (s)	8.9	1.6	0.0
Approach LOS	A		

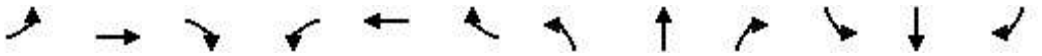
Intersection Summary			
Average Delay	1.7		
Intersection Capacity Utilization	23.2%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	0	0	0	0	149	3	1	82	0
Future Volume (Veh/h)	0	0	0	0	0	0	0	149	3	1	82	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	0	0	0	0	0	162	3	1	89	0
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	254	256	89	254	254	164	89			165		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	254	256	89	254	254	164	89			165		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	100	100	100	100	100			100		
cM capacity (veh/h)	698	647	969	698	649	881	1506			1413		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	0	0	165	90
Volume Left	0	0	0	1
Volume Right	0	0	3	0
cSH	1700	1700	1506	1413
Volume to Capacity	0.00	0.01	0.00	0.00
Queue Length 95th (m)	0.0	0.0	0.0	0.0
Control Delay (s)	0.0	0.0	0.0	0.1
Lane LOS	A	A		A
Approach Delay (s)	0.0	0.0	0.0	0.1
Approach LOS	A	A		

Intersection Summary				
Average Delay	0.0			
Intersection Capacity Utilization	11.4%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	27	3	99	36	0	0	0	257	86	52	19
Future Volume (Veh/h)	0	27	3	99	36	0	0	0	257	86	52	19
Sign Control		Free			Free			Yield			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	29	3	108	39	0	0	0	279	93	57	21
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		Raised			Raised							
Median storage veh)		1			1							
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	39			29			334	284	29	284	284	39
vC1, stage 1 conf vol							29	29		255	255	
vC2, stage 2 conf vol							304	255		29	29	
vCu, unblocked vol	39			29			334	284	29	284	284	39
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)							6.1	5.5		6.1	5.5	
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			93			100	100	73	82	90	98
cM capacity (veh/h)	1571			1584			531	581	1046	508	576	1033

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1
Volume Total	29	3	108	39	279	171
Volume Left	0	0	108	0	0	93
Volume Right	0	3	0	0	279	21
cSH	1700	1700	1584	1700	1046	566
Volume to Capacity	0.02	0.00	0.07	0.02	0.27	0.30
Queue Length 95th (m)	0.0	0.0	1.8	0.0	8.6	10.1
Control Delay (s)	0.0	0.0	7.4	0.0	9.7	14.1
Lane LOS			A		A	B
Approach Delay (s)	0.0		5.5		9.7	14.1
Approach LOS					A	B

Intersection Summary				
Average Delay	9.4			
Intersection Capacity Utilization	37.9%	ICU Level of Service	A	
Analysis Period (min)	15			

Movement	EBU	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations							
Traffic Volume (veh/h)	6	45	319	129	48	0	0
Future Volume (Veh/h)	6	45	319	129	48	0	0
Sign Control			Free	Free		Stop	
Grade			0%	0%		0%	
Peak Hour Factor	0.75	0.84	0.83	0.95	0.66	0.92	0.92
Hourly flow rate (vph)	0	54	384	136	73	0	0
Pedestrians							
Lane Width (m)							
Walking Speed (m/s)							
Percent Blockage							
Right turn flare (veh)							
Median type			Raised	Raised			
Median storage veh)			1	1			
Upstream signal (m)							
pX, platoon unblocked	0.00						
vC, conflicting volume	0	209				664	172
vC1, stage 1 conf vol						172	
vC2, stage 2 conf vol						492	
vCu, unblocked vol	0	209				664	172
tC, single (s)	0.0	4.1				6.4	6.2
tC, 2 stage (s)						5.4	
tF (s)	0.0	2.2				3.5	3.3
p0 queue free %	0	96				100	100
cM capacity (veh/h)	0	1362				491	871

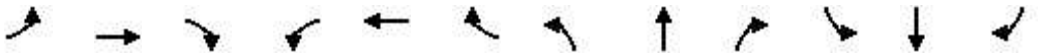
Direction, Lane #	EB 1	EB 2	WB 1
Volume Total	54	384	209
Volume Left	54	0	0
Volume Right	0	0	73
cSH	1362	1700	1700
Volume to Capacity	0.04	0.23	0.12
Queue Length 95th (m)	1.0	0.0	0.0
Control Delay (s)	7.8	0.0	0.0
Lane LOS	A		
Approach Delay (s)	1.0		0.0
Approach LOS			

Intersection Summary			
Average Delay	0.6		
Intersection Capacity Utilization	20.1%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	7	50	8	60	60	3
Future Volume (Veh/h)	7	50	8	60	60	3
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	8	54	9	65	65	3
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	150	66	68			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	150	66	68			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	99	95	99			
cM capacity (veh/h)	838	997	1533			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	62	74	68
Volume Left	8	9	0
Volume Right	54	0	3
cSH	973	1533	1700
Volume to Capacity	0.06	0.01	0.04
Queue Length 95th (m)	1.6	0.1	0.0
Control Delay (s)	9.0	0.9	0.0
Lane LOS	A	A	
Approach Delay (s)	9.0	0.9	0.0
Approach LOS	A		

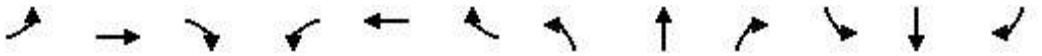
Intersection Summary			
Average Delay	3.1		
Intersection Capacity Utilization	20.0%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	4	0	0	0	83	1	1	123	0
Future Volume (Veh/h)	0	0	0	4	0	0	0	83	1	1	123	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	0	4	0	0	0	90	1	1	134	0
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	226	227	134	226	226	90	134			91		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	226	227	134	226	226	90	134			91		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	100	99	100	100	100			100		
cM capacity (veh/h)	728	672	915	728	672	967	1451			1504		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	0	4	91	135
Volume Left	0	4	0	1
Volume Right	0	0	1	0
cSH	1700	728	1451	1504
Volume to Capacity	0.00	0.01	0.00	0.00
Queue Length 95th (m)	0.0	0.1	0.0	0.0
Control Delay (s)	0.0	10.0	0.0	0.1
Lane LOS	A	A		A
Approach Delay (s)	0.0	10.0	0.0	0.1
Approach LOS	A	A		

Intersection Summary				
Average Delay	0.2			
Intersection Capacity Utilization	17.3%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	36	7	142	177	0	0	0	261	57	19	22
Future Volume (Veh/h)	0	36	7	142	177	0	0	0	261	57	19	22
Sign Control		Free			Free			Yield			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	39	8	154	192	0	0	0	284	62	21	24
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		Raised			Raised							
Median storage veh)		1			1							
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	192			39			574	539	39	539	539	192
vC1, stage 1 conf vol							39	39		500	500	
vC2, stage 2 conf vol							534	500		39	39	
vCu, unblocked vol	192			39			574	539	39	539	539	192
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)							6.1	5.5		6.1	5.5	
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			90			100	100	72	84	95	97
cM capacity (veh/h)	1381			1571			398	435	1033	377	430	850

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1
Volume Total	39	8	154	192	284	107
Volume Left	0	0	154	0	0	62
Volume Right	0	8	0	0	284	24
cSH	1700	1700	1571	1700	1033	443
Volume to Capacity	0.02	0.00	0.10	0.11	0.28	0.24
Queue Length 95th (m)	0.0	0.0	2.6	0.0	9.0	7.5
Control Delay (s)	0.0	0.0	7.5	0.0	9.8	15.7
Lane LOS			A		A	C
Approach Delay (s)	0.0		3.4		9.8	15.7
Approach LOS					A	C

Intersection Summary				
Average Delay	7.2			
Intersection Capacity Utilization	35.0%	ICU Level of Service		A
Analysis Period (min)	15			

Movement	EBU	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations							
Traffic Volume (veh/h)	18	74	262	301	119	0	0
Future Volume (Veh/h)	18	74	262	301	119	0	0
Sign Control			Free	Free		Stop	
Grade			0%	0%		0%	
Peak Hour Factor	0.75	0.84	0.83	0.95	0.66	0.92	0.92
Hourly flow rate (vph)	0	88	316	317	180	0	0
Pedestrians							
Lane Width (m)							
Walking Speed (m/s)							
Percent Blockage							
Right turn flare (veh)							
Median type			Raised	Raised			
Median storage veh)			1	1			
Upstream signal (m)							
pX, platoon unblocked	0.00						
vC, conflicting volume	0	497				899	407
vC1, stage 1 conf vol						407	
vC2, stage 2 conf vol						492	
vCu, unblocked vol	0	497				899	407
tC, single (s)	0.0	4.1				6.4	6.2
tC, 2 stage (s)						5.4	
tF (s)	0.0	2.2				3.5	3.3
p0 queue free %	0	92				100	100
cM capacity (veh/h)	0	1067				408	644

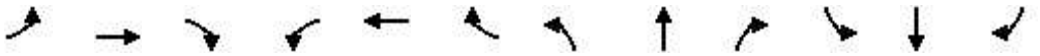
Direction, Lane #	EB 1	EB 2	WB 1
Volume Total	88	316	497
Volume Left	88	0	0
Volume Right	0	0	180
cSH	1067	1700	1700
Volume to Capacity	0.08	0.19	0.29
Queue Length 95th (m)	2.2	0.0	0.0
Control Delay (s)	8.7	0.0	0.0
Lane LOS	A		
Approach Delay (s)	1.9		0.0
Approach LOS			

Intersection Summary			
Average Delay	0.8		
Intersection Capacity Utilization	34.9%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	6	24	34	98	62	13
Future Volume (Veh/h)	6	24	34	98	62	13
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	7	26	37	107	67	14
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	255	74	81			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	255	74	81			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	99	97	98			
cM capacity (veh/h)	716	988	1517			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	33	144	81
Volume Left	7	37	0
Volume Right	26	0	14
cSH	914	1517	1700
Volume to Capacity	0.04	0.02	0.05
Queue Length 95th (m)	0.9	0.6	0.0
Control Delay (s)	9.1	2.1	0.0
Lane LOS	A	A	
Approach Delay (s)	9.1	2.1	0.0
Approach LOS	A		

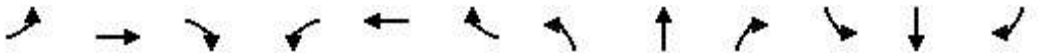
Intersection Summary			
Average Delay	2.3		
Intersection Capacity Utilization	23.7%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	0	0	0	0	159	3	1	89	0
Future Volume (Veh/h)	0	0	0	0	0	0	0	159	3	1	89	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	0	0	0	0	0	173	3	1	97	0
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	274	275	97	274	274	174	97			176		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	274	275	97	274	274	174	97			176		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	100	100	100	100	100			100		
cM capacity (veh/h)	679	632	959	679	633	869	1496			1400		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	0	0	176	98
Volume Left	0	0	0	1
Volume Right	0	0	3	0
cSH	1700	1700	1496	1400
Volume to Capacity	0.00	0.01	0.00	0.00
Queue Length 95th (m)	0.0	0.0	0.0	0.0
Control Delay (s)	0.0	0.0	0.0	0.1
Lane LOS	A	A		A
Approach Delay (s)	0.0	0.0	0.0	0.1
Approach LOS	A	A		

Intersection Summary				
Average Delay	0.0			
Intersection Capacity Utilization	11.9%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	30	4	113	40	0	0	0	290	91	55	18
Future Volume (Veh/h)	0	30	4	113	40	0	0	0	290	91	55	18
Sign Control		Free			Free			Yield			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	33	4	123	43	0	0	0	315	99	60	20
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		Raised			Raised							
Median storage veh)		1			1							
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	43			33			372	322	33	322	322	43
vC1, stage 1 conf vol							33	33		289	289	
vC2, stage 2 conf vol							339	289		33	33	
vCu, unblocked vol	43			33			372	322	33	322	322	43
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)							6.1	5.5		6.1	5.5	
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			92			100	100	70	79	89	98
cM capacity (veh/h)	1566			1579			498	554	1041	463	549	1027

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1
Volume Total	33	4	123	43	315	179
Volume Left	0	0	123	0	0	99
Volume Right	0	4	0	0	315	20
cSH	1700	1700	1579	1700	1041	522
Volume to Capacity	0.02	0.00	0.08	0.03	0.30	0.34
Queue Length 95th (m)	0.0	0.0	2.0	0.0	10.3	12.1
Control Delay (s)	0.0	0.0	7.5	0.0	10.0	15.4
Lane LOS			A		A	C
Approach Delay (s)	0.0		5.5		10.0	15.4
Approach LOS					A	C

Intersection Summary				
Average Delay	9.8			
Intersection Capacity Utilization	40.3%	ICU Level of Service		A
Analysis Period (min)	15			

Movement	EBU	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations							
Traffic Volume (veh/h)	6	48	357	147	52	0	0
Future Volume (Veh/h)	6	48	357	147	52	0	0
Sign Control			Free	Free		Stop	
Grade			0%	0%		0%	
Peak Hour Factor	0.75	0.84	0.83	0.95	0.66	0.92	0.92
Hourly flow rate (vph)	0	57	430	155	79	0	0
Pedestrians							
Lane Width (m)							
Walking Speed (m/s)							
Percent Blockage							
Right turn flare (veh)							
Median type			Raised	Raised			
Median storage veh)			1	1			
Upstream signal (m)							
pX, platoon unblocked	0.00						
vC, conflicting volume	0	234				738	194
vC1, stage 1 conf vol						194	
vC2, stage 2 conf vol						544	
vCu, unblocked vol	0	234				738	194
tC, single (s)	0.0	4.1				6.4	6.2
tC, 2 stage (s)						5.4	
tF (s)	0.0	2.2				3.5	3.3
p0 queue free %	0	96				100	100
cM capacity (veh/h)	0	1333				459	847

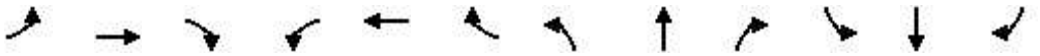
Direction, Lane #	EB 1	EB 2	WB 1
Volume Total	57	430	234
Volume Left	57	0	0
Volume Right	0	0	79
cSH	1333	1700	1700
Volume to Capacity	0.04	0.25	0.14
Queue Length 95th (m)	1.1	0.0	0.0
Control Delay (s)	7.8	0.0	0.0
Lane LOS	A		
Approach Delay (s)	0.9		0.0
Approach LOS			

Intersection Summary			
Average Delay	0.6		
Intersection Capacity Utilization	22.1%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	5	44	5	69	69	1
Future Volume (Veh/h)	5	44	5	69	69	1
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	5	48	5	75	75	1
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	160	76	76			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	160	76	76			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	99	95	100			
cM capacity (veh/h)	828	986	1523			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	53	80	76
Volume Left	5	5	0
Volume Right	48	0	1
cSH	968	1523	1700
Volume to Capacity	0.05	0.00	0.04
Queue Length 95th (m)	1.4	0.1	0.0
Control Delay (s)	8.9	0.5	0.0
Lane LOS	A	A	
Approach Delay (s)	8.9	0.5	0.0
Approach LOS	A		

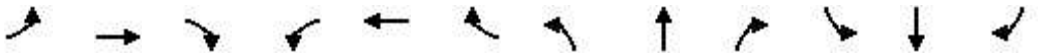
Intersection Summary			
Average Delay	2.5		
Intersection Capacity Utilization	17.7%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	5	0	0	0	90	1	1	128	0
Future Volume (Veh/h)	0	0	0	5	0	0	0	90	1	1	128	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	0	5	0	0	0	98	1	1	139	0
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	240	240	139	240	240	98	139			99		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	240	240	139	240	240	98	139			99		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	100	99	100	100	100			100		
cM capacity (veh/h)	714	661	909	714	661	957	1445			1494		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	0	5	99	140
Volume Left	0	5	0	1
Volume Right	0	0	1	0
cSH	1700	714	1445	1494
Volume to Capacity	0.00	0.01	0.00	0.00
Queue Length 95th (m)	0.0	0.2	0.0	0.0
Control Delay (s)	0.0	10.1	0.0	0.1
Lane LOS	A	B		A
Approach Delay (s)	0.0	10.1	0.0	0.1
Approach LOS	A	B		

Intersection Summary				
Average Delay	0.2			
Intersection Capacity Utilization	17.5%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	39	8	162	201	0	0	0	293	61	19	23
Future Volume (Veh/h)	0	39	8	162	201	0	0	0	293	61	19	23
Sign Control		Free			Free			Yield			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	42	9	176	218	0	0	0	318	66	21	25
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		Raised			Raised							
Median storage veh)		1			1							
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	218			42			648	612	42	612	612	218
vC1, stage 1 conf vol							42	42		570	570	
vC2, stage 2 conf vol							606	570		42	42	
vCu, unblocked vol	218			42			648	612	42	612	612	218
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)							6.1	5.5		6.1	5.5	
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			89			100	100	69	80	95	97
cM capacity (veh/h)	1352			1567			356	398	1029	331	393	822

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1
Volume Total	42	9	176	218	318	112
Volume Left	0	0	176	0	0	66
Volume Right	0	9	0	0	318	25
cSH	1700	1700	1567	1700	1029	396
Volume to Capacity	0.02	0.01	0.11	0.13	0.31	0.28
Queue Length 95th (m)	0.0	0.0	3.0	0.0	10.6	9.2
Control Delay (s)	0.0	0.0	7.6	0.0	10.1	17.6
Lane LOS			A		B	C
Approach Delay (s)	0.0		3.4		10.1	17.6
Approach LOS					B	C

Intersection Summary				
Average Delay	7.4			
Intersection Capacity Utilization	37.3%	ICU Level of Service		A
Analysis Period (min)	15			

Movement	EBU	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations							
Traffic Volume (veh/h)	20	79	294	343	129	0	0
Future Volume (Veh/h)	20	79	294	343	129	0	0
Sign Control			Free	Free		Stop	
Grade			0%	0%		0%	
Peak Hour Factor	0.75	0.84	0.83	0.95	0.66	0.92	0.92
Hourly flow rate (vph)	0	94	354	361	195	0	0
Pedestrians							
Lane Width (m)							
Walking Speed (m/s)							
Percent Blockage							
Right turn flare (veh)							
Median type			Raised	Raised			
Median storage veh)			1	1			
Upstream signal (m)							
pX, platoon unblocked	0.00						
vC, conflicting volume	0	556				1000	458
vC1, stage 1 conf vol						458	
vC2, stage 2 conf vol						542	
vCu, unblocked vol	0	556				1000	458
tC, single (s)	0.0	4.1				6.4	6.2
tC, 2 stage (s)						5.4	
tF (s)	0.0	2.2				3.5	3.3
p0 queue free %	0	91				100	100
cM capacity (veh/h)	0	1015				374	602

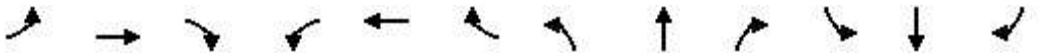
Direction, Lane #	EB 1	EB 2	WB 1
Volume Total	94	354	556
Volume Left	94	0	0
Volume Right	0	0	195
cSH	1015	1700	1700
Volume to Capacity	0.09	0.21	0.33
Queue Length 95th (m)	2.4	0.0	0.0
Control Delay (s)	8.9	0.0	0.0
Lane LOS	A		
Approach Delay (s)	1.9		0.0
Approach LOS			

Intersection Summary			
Average Delay	0.8		
Intersection Capacity Utilization	38.1%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	5	19	28	112	71	11
Future Volume (Veh/h)	5	19	28	112	71	11
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	5	21	30	122	77	12
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	265	83	89			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	265	83	89			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	99	98	98			
cM capacity (veh/h)	710	976	1506			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	26	152	89
Volume Left	5	30	0
Volume Right	21	0	12
cSH	911	1506	1700
Volume to Capacity	0.03	0.02	0.05
Queue Length 95th (m)	0.7	0.5	0.0
Control Delay (s)	9.1	1.6	0.0
Lane LOS	A	A	
Approach Delay (s)	9.1	1.6	0.0
Approach LOS	A		

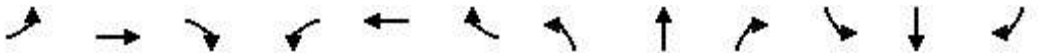
Intersection Summary			
Average Delay	1.8		
Intersection Capacity Utilization	24.1%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	0	0	0	0	170	4	1	94	0
Future Volume (Veh/h)	0	0	0	0	0	0	0	170	4	1	94	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	0	0	0	0	0	185	4	1	102	0
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	291	293	102	291	291	187	102			189		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	291	293	102	291	291	187	102			189		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	100	100	100	100	100			100		
cM capacity (veh/h)	661	617	953	661	619	855	1490			1385		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	0	0	189	103
Volume Left	0	0	0	1
Volume Right	0	0	4	0
cSH	1700	1700	1490	1385
Volume to Capacity	0.00	0.01	0.00	0.00
Queue Length 95th (m)	0.0	0.0	0.0	0.0
Control Delay (s)	0.0	0.0	0.0	0.1
Lane LOS	A	A		A
Approach Delay (s)	0.0	0.0	0.0	0.1
Approach LOS	A	A		

Intersection Summary				
Average Delay	0.0			
Intersection Capacity Utilization	12.5%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	31	4	113	40	0	0	0	297	124	73	30
Future Volume (Veh/h)	0	31	4	113	40	0	0	0	297	124	73	30
Sign Control		Free			Free			Yield			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	34	4	123	43	0	0	0	323	135	79	33
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		Raised			Raised							
Median storage veh)		1			1							
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	43			34			396	323	34	323	323	43
vC1, stage 1 conf vol							34	34		289	289	
vC2, stage 2 conf vol							362	289		34	34	
vCu, unblocked vol	43			34			396	323	34	323	323	43
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)							6.1	5.5		6.1	5.5	
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			92			100	100	69	70	86	97
cM capacity (veh/h)	1566			1578			462	554	1039	457	549	1027

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1
Volume Total	34	4	123	43	323	247
Volume Left	0	0	123	0	0	135
Volume Right	0	4	0	0	323	33
cSH	1700	1700	1578	1700	1039	524
Volume to Capacity	0.02	0.00	0.08	0.03	0.31	0.47
Queue Length 95th (m)	0.0	0.0	2.0	0.0	10.7	20.0
Control Delay (s)	0.0	0.0	7.5	0.0	10.0	17.8
Lane LOS			A		B	C
Approach Delay (s)	0.0		5.5		10.0	17.8
Approach LOS					B	C

Intersection Summary				
Average Delay	11.1			
Intersection Capacity Utilization	44.3%	ICU Level of Service		A
Analysis Period (min)	15			

Movement	EBU	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations							
Traffic Volume (veh/h)	6	56	390	147	63	0	0
Future Volume (Veh/h)	6	56	390	147	63	0	0
Sign Control			Free	Free		Stop	
Grade			0%	0%		0%	
Peak Hour Factor	0.75	0.84	0.83	0.95	0.66	0.92	0.92
Hourly flow rate (vph)	0	67	470	155	95	0	0
Pedestrians							
Lane Width (m)							
Walking Speed (m/s)							
Percent Blockage							
Right turn flare (veh)							
Median type			Raised	Raised			
Median storage veh)			1	1			
Upstream signal (m)							
pX, platoon unblocked	0.00						
vC, conflicting volume	0	250				806	202
vC1, stage 1 conf vol						202	
vC2, stage 2 conf vol						604	
vCu, unblocked vol	0	250				806	202
tC, single (s)	0.0	4.1				6.4	6.2
tC, 2 stage (s)						5.4	
tF (s)	0.0	2.2				3.5	3.3
p0 queue free %	0	95				100	100
cM capacity (veh/h)	0	1316				427	838

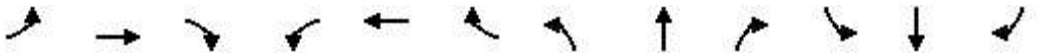
Direction, Lane #	EB 1	EB 2	WB 1
Volume Total	67	470	250
Volume Left	67	0	0
Volume Right	0	0	95
cSH	1316	1700	1700
Volume to Capacity	0.05	0.28	0.15
Queue Length 95th (m)	1.3	0.0	0.0
Control Delay (s)	7.9	0.0	0.0
Lane LOS	A		
Approach Delay (s)	1.0		0.0
Approach LOS			

Intersection Summary			
Average Delay		0.7	
Intersection Capacity Utilization		23.9%	ICU Level of Service A
Analysis Period (min)		15	

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	6	15	2	82	74	2
Future Volume (Veh/h)	6	15	2	82	74	2
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	7	16	2	89	80	2
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	174	81	82			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	174	81	82			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	99	98	100			
cM capacity (veh/h)	815	979	1515			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	23	91	82
Volume Left	7	2	0
Volume Right	16	0	2
cSH	922	1515	1700
Volume to Capacity	0.02	0.00	0.05
Queue Length 95th (m)	0.6	0.0	0.0
Control Delay (s)	9.0	0.2	0.0
Lane LOS	A	A	
Approach Delay (s)	9.0	0.2	0.0
Approach LOS	A		

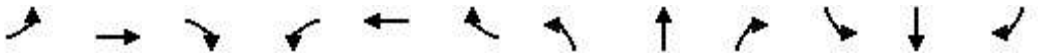
Intersection Summary			
Average Delay	1.1		
Intersection Capacity Utilization	15.9%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	13	0	91	5	0	0	22	90	1	1	128	5
Future Volume (Veh/h)	13	0	91	5	0	0	22	90	1	1	128	5
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	14	0	99	5	0	0	24	98	1	1	139	5
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	290	290	142	389	292	98	144			99		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	290	290	142	389	292	98	144			99		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	98	100	89	99	100	100	98			100		
cM capacity (veh/h)	653	609	906	501	608	957	1438			1494		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	113	5	123	145
Volume Left	14	5	24	1
Volume Right	99	0	1	5
cSH	865	501	1438	1494
Volume to Capacity	0.13	0.01	0.02	0.00
Queue Length 95th (m)	3.6	0.2	0.4	0.0
Control Delay (s)	9.8	12.3	1.6	0.1
Lane LOS	A	B	A	A
Approach Delay (s)	9.8	12.3	1.6	0.1
Approach LOS	A	B		

Intersection Summary				
Average Delay	3.5			
Intersection Capacity Utilization	29.1%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	42	8	162	201	0	0	0	315	82	31	31
Future Volume (Veh/h)	0	42	8	162	201	0	0	0	315	82	31	31
Sign Control		Free			Free			Yield			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	46	9	176	218	0	0	0	342	89	34	34
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		Raised			Raised							
Median storage veh)		1			1							
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	218			46			667	616	46	616	616	218
vC1, stage 1 conf vol							46	46		570	570	
vC2, stage 2 conf vol							621	570		46	46	
vCu, unblocked vol	218			46			667	616	46	616	616	218
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)							6.1	5.5		6.1	5.5	
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			89			100	100	67	72	91	96
cM capacity (veh/h)	1352			1562			335	397	1023	321	392	822

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1
Volume Total	46	9	176	218	342	157
Volume Left	0	0	176	0	0	89
Volume Right	0	9	0	0	342	34
cSH	1700	1700	1562	1700	1023	387
Volume to Capacity	0.03	0.01	0.11	0.13	0.33	0.41
Queue Length 95th (m)	0.0	0.0	3.0	0.0	11.8	15.3
Control Delay (s)	0.0	0.0	7.6	0.0	10.3	20.5
Lane LOS			A		B	C
Approach Delay (s)	0.0		3.4		10.3	20.5
Approach LOS					B	C

Intersection Summary				
Average Delay	8.5			
Intersection Capacity Utilization	40.9%	ICU Level of Service		A
Analysis Period (min)	15			

Movement	EBU	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations							
Traffic Volume (veh/h)	20	104	315	343	163	0	0
Future Volume (Veh/h)	20	104	315	343	163	0	0
Sign Control			Free	Free		Stop	
Grade			0%	0%		0%	
Peak Hour Factor	0.75	0.84	0.83	0.95	0.66	0.92	0.92
Hourly flow rate (vph)	0	124	380	361	247	0	0
Pedestrians							
Lane Width (m)							
Walking Speed (m/s)							
Percent Blockage							
Right turn flare (veh)							
Median type			Raised	Raised			
Median storage veh)			1	1			
Upstream signal (m)							
pX, platoon unblocked	0.00						
vC, conflicting volume	0	608				1112	484
vC1, stage 1 conf vol						484	
vC2, stage 2 conf vol						628	
vCu, unblocked vol	0	608				1112	484
tC, single (s)	0.0	4.1				6.4	6.2
tC, 2 stage (s)						5.4	
tF (s)	0.0	2.2				3.5	3.3
p0 queue free %	0	87				100	100
cM capacity (veh/h)	0	970				331	582

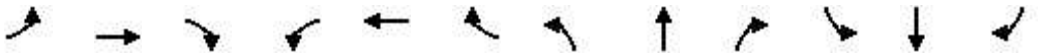
Direction, Lane #	EB 1	EB 2	WB 1
Volume Total	124	380	608
Volume Left	124	0	0
Volume Right	0	0	247
cSH	970	1700	1700
Volume to Capacity	0.13	0.22	0.36
Queue Length 95th (m)	3.5	0.0	0.0
Control Delay (s)	9.3	0.0	0.0
Lane LOS	A		
Approach Delay (s)	2.3		0.0
Approach LOS			

Intersection Summary			
Average Delay	1.0		
Intersection Capacity Utilization	41.5%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	6	6	9	121	85	13
Future Volume (Veh/h)	6	6	9	121	85	13
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	7	7	10	132	92	14
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	251	99	106			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	251	99	106			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	99	99	99			
cM capacity (veh/h)	733	957	1485			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	14	142	106
Volume Left	7	10	0
Volume Right	7	0	14
cSH	830	1485	1700
Volume to Capacity	0.02	0.01	0.06
Queue Length 95th (m)	0.4	0.2	0.0
Control Delay (s)	9.4	0.6	0.0
Lane LOS	A	A	
Approach Delay (s)	9.4	0.6	0.0
Approach LOS	A		

Intersection Summary			
Average Delay	0.8		
Intersection Capacity Utilization	23.5%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	9	0	52	0	0	0	76	170	4	1	94	14
Future Volume (Veh/h)	9	0	52	0	0	0	76	170	4	1	94	14
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	10	0	57	0	0	0	83	185	4	1	102	15
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	464	466	110	522	472	187	117			189		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	464	466	110	522	472	187	117			189		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	98	100	94	100	100	100	94			100		
cM capacity (veh/h)	486	466	944	418	462	855	1471			1385		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	67	0	272	118
Volume Left	10	0	83	1
Volume Right	57	0	4	15
cSH	828	1700	1471	1385
Volume to Capacity	0.08	0.01	0.06	0.00
Queue Length 95th (m)	2.1	0.0	1.4	0.0
Control Delay (s)	9.7	0.0	2.7	0.1
Lane LOS	A	A	A	A
Approach Delay (s)	9.7	0.0	2.7	0.1
Approach LOS	A	A		

Intersection Summary				
Average Delay	3.0			
Intersection Capacity Utilization	30.4%	ICU Level of Service	A	
Analysis Period (min)	15			