

Ref. No. 171-05027

August 29, 2017

Ms. Ashley Blissett, P. Eng. Senior Development Engineer Halifax Regional Municipality PO Box 1749 HALIFAX NS B3J 3A5

Sent via Email to blissea@halifax.ca

RE: Revised Addendum Traffic Impact Statement for Long Lake Village, Cowie Hill Drive, Halifax

Dear Ms. Blissett:

Further to our telephone conversation on Thursday, August 10, 2017, this is a *Revised Addendum Traffic Impact Statement for Long Lake Village* that will replace the Addendum prepared on May May 9, 2017. The Revised Addendum has been prepared to estimate trip generation impacts for the following proposed land use changes:

- increase commercial space from 4,000 SF to a maximum of 20,000 SF of neighborhood oriented commercial space; and
- increase the number of apartments from 220 two bedroom equivalent units to 480 bachelor apartment units.

**Background** - Long Lake Village (formerly referred to as Rockcliffe Village) is a mixed use residential and commercial development adjacent to North West Arm Drive that has been under development over the past ten years.

When O'Halloran Campbell Consultants Limited prepared a Traffic Impact Statement (TIS) in October 2009 (copy attached) the development was to include the following land uses:

- 149 Single Family Detached / Semi-Detached / Townhouse / Condominium Dwellings (the current DA includes 147 residential units)
- 220 two bedroom equivalent Apartment Units
- 4,000 SF Retail / Commercial space.

O'Halloran Campbell Consultants Limited completed an additional TIS in October 2010 (copy attached) to consider the impacts of 40 semi-detached residential dwellings developed 'as of right' on a piece of R2 land adjacent to the area covered in the DA and accessed from Cowie Hill Road.

**Site Accesses** - Site generated trips have the following access opportunities at signalized intersections using Cowie Hill Road:

- North West Arm Drive at Cowie Hill Road approximately 400 meters north of Old Sambro Road.
- Peter Saulnier Drive intersection on North West Arm Drive approximately 700 meters north of the Cowie Hill Road intersection; and
- Herring Cove Road near Winchester Avenue about 500 meters south of Withrod Drive.

Trip Generation - Site generated trip estimates for 220 apartment units and 4,000 SF of commercial space included in the 2009 O'Halloran Campbell Consultants Limited Traffic Impact Statement (TIS), as well as estimates for the proposed revised numbers of 480 high rise apartment units and up to 20,000 SF of commercial space, are included in Table 1.

The 2009 TIS (Table 3, Page 3, attached) considered only two-way trip estimates for the PM peak hour, however, trip generation equations from Trip Generation, 8th Edition, Institute of Transportation Engineers, 2009, have been used to provide both AM and PM peak hourly directional trip estimates for 220 apartment units (Land Use 220) and 4,000 SF of Shopping Centre space (Land Use 820). It is estimated (Table 1) that apartment and commercial land uses included in the 2009 TIS will generate 134 two-way vehicle trips (36 entering and 98 exiting) during the AM peak hour and 213 two-way vehicle trips (126 entering and 87 exiting) during the PM peak hour.

Table 1 - Trip Generation Estimates for Proposed Revisions to Apartment and Commercial Land Uses									
1	2	Trip Generation Rates <sup>3</sup>			Trips Generated <sup>3</sup>				
Land Use <sup>1</sup>	Units <sup>2</sup>	AM	Peak	PM F	Peak	AM F	Peak	PM Peak	
		ln	Out	In	Out	ln	Out	ln	Out
Trip Generation Estim	ates for O'l	Halloran Ca	ampbell Co	nsultants Li	mited Traf	fic Impact S	tatement (	October 200	)9) <sup>5</sup>
Apartments (Land Use 220)	220 Units		tions from Parip Generati			22	89	90	49
Shopping Centre (Land Use 820)	4.0 KGLA		Equations from Pages 1501 and 1502 ( <i>Trip Generation</i> , 8 <sup>th</sup> Edition)			14	9	36	38
Trip Generation Est	timates for A	Apartment a	and Commer	cial Land Us	ses (2009)	36	98	126	87
Trip Generation Estim	Trip Generation Estimates for Proposed Revised Land Uses (August 2017) <sup>6</sup>								
High Rise Apts (Land Use 222)	480 Units		Equations from Pages 376 and 377 ( <i>Trip Generation</i> , 9 <sup>th</sup> Edition)		36	108	101	65	
Specialty Retail (Land Use 826) 4	20.0 KGLA	Assumed 50% PM T= 2.40 (x) +21.48 (56% in / 44% out) (44% in / 56% out)		19	15	31	39		
Trip Generation Estimates for Apartment and Commercial Land Uses (2017)					55	123	132	104	
Differences Between Trip Estimates for Proposed 2009 and 2017 Land Uses <sup>7</sup>									
Additional	Additional Trip Estimates from 2009 to 2017 for Revised Land Uses						25	6	17

- NOTES: 1. Rates and equations are for the indicated Land Use Codes, Trip Generation, 8th and 9th Editions, Institute of Transportation Engineers, 2009 and 2012, respectively.
  - 2. KGLA is 'Gross Leasable Area x 1000 square feet'.
  - 3. Rates are 'vehicles per hour per unit'; trips generated are 'vehicles per hour for peak hours'.
  - 4. The published equation (Page 1580) for Speciality Retail (Land Use 826) for 'Peak Hour of Adjacent Street Traffic, One Hour Between 4 and 6 PM' has been used. Since there is no published data for the AM peak hour of adjacent street for this Land Use, and since AM peak hour trips to Speciality Retail are generally lower, AM trip rates have been assumed to be 50% of the PM rate with reversal of the directional split.
  - 5. These are the trip estimates for apartment and commercial land uses included in Rockcliffe Village Development, Revised Trip Distribution and Estimated Daily Traffic Volumes, O'Halloran Campbell Consultants Limited, Octobre 26, 2009.
  - 6. These are the trip estimates for the current proposed apartment and commercial land uses in August, 2017.
  - 7. These are the increases in trip estimates as a result of proposed increase in numbers of apartment units and commercial gross leasable floor area.

The current 2017 proposed land uses for Long Lake Village will increase the number of apartments from 220 two bedroom equivalent units to 480 bachelor apartment units, and increase commercial space from 4,000 SF of shopping centre space to a maximum of 20,000 SF of neighborhood oriented commercial space. The proposed apartment units will be in two or three high rise buildings, and the commercial space will generally be provided as ground floor leasable spaces in residential apartment / condominium buildings. The proposed commercial spaces will include neighborhood oriented businesses such as - coffee shop (no drive through lane), small restaurant, outdoors shop, hair dresser, real estate office, daycare, florist, personal trainer/gym, and other

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commercial uses with the primary aim of serving the residents of Long Lake Village, and the adjacent Halifax Water offices. Expected uses are similar to those included in Specialty Retail Center, Land Use 826 (Page 1578, *Trip Generation, 9<sup>th</sup> Edition,* Institute of Transportation Engineers, 2012) which is described as "generally small strip shopping centers that contain a variety of shops and specialized in quality apparel, hard goods and services, such as real estate offices, dance studios, florists and small restaurants".

Trip generation equations from *Trip Generation*, 9<sup>th</sup> *Edition*, have been used to provide AM and PM peak hourly directional trip estimates for 480 high rise apartment units (Land Use 222) and 20,000 SF of Specialty Retail space (Land Use 826). It is estimated (Table 1) that apartment and commercial land uses included in the proposed revised 2017 land use plan will generate 178 two-way vehicle trips (55 entering and 123 exiting) during the AM peak hour and 236 two-way vehicle trips (132 entering and 104 exiting) during the PM peak hour.

# Summary -

- 1. It is estimated that the 220 apartment units and 4,000 SF of Shopping Centre space included in the 2009 Traffic Impact Statement would generate 134 two-way vehicle trips (36 entering and 98 exiting) during the AM peak hour and 213 two-way vehicle trips (126 entering and 87 exiting) during the PM peak hour.
- 2. It is estimated that the 480 bachelor apartment units and 20,000 SF of neighborhood oriented commercial space included in the proposed revised 2017 land use plan will generate 178 two-way vehicle trips (55 entering and 123 exiting) during the AM peak hour and 236 two-way vehicle trips (132 entering and 104 exiting) during the PM peak hour.
- 3. The increase in number of apartment units and commercial space from those included in the 2009 Traffic Impact Statement to those proposed in the 2017 land use plan is estimated to generate 44 additional two-way vehicle trips (19 entering and 25 exiting) during the AM peak hour and 23 additional two-way vehicle trips (6 entering and 17 exiting) during the PM peak hour.

#### Conclusion -

4. Since the estimated numbers of additional peak hour vehicle trips are low to moderate, there is not expected to be any noticeable change in the level of performance of adjacent streets and intersections from those included in previous analyses, that is, the signalized North West Arm Drive / Cowie Hill Road intersection will continue to provide very good levels of performance.

If you have any questions, please contact me by Email to <u>ken.obrien@wsp.com</u> or telephone 902-452-7747.

Sincerely: Original Signed

> Ken O'Brien, P. Eng. Senior Traffic Engineer WSP Canada Inc.



#### Attachments:

- 1. Rockcliffe Village Development Revised Trip Distribution and Estimated Daily Traffic Volumes, O'Halloran Campbell Consultants Limited, October, 2009
- 2. Traffic Impact Statement Revised Trip Generation / Distribution for Rockcliffe Village Development with Mont Property, O'Halloran Campbell Consultants Limited, October, 2010

WSP Canada Inc. August 29, 2017

## October 26, 2009

Mr. David Graham President Atlantic Developments Inc. 2151 Gottingen Street Halifax, Nova Scotia B3K 3B3

Dear Mr. Graham;

# ROCKCLIFFE VILLAGE DEVELOPMENT REVISED TRIP DISTRIBUTION AND ESTIMATED DAILY TRAFFIC VOLUMES

As requested, we have revisited the July, 2008 Traffic Impact Study with the intent to review the assumed trip distribution of site generated traffic to various areas throughout the Halifax Regional Municipality, and to provide estimated Average Annual Daily Traffic (AADT) two way traffic volumes for various locations in the proposed Rockcliffe Village Development.

The July, 2008 Traffic Impact Study (TIS) identified the assumed trip distribution of site generated traffic as follows:

DESTINATION/ORIGIN	TOTAL SPLIT	TO/FROM NWAD (NORTH)	TO/FROM NWAD (SOUTH)	TO/FROM HCR (NORTH)	TO/FROM HCR (SOUTH)
Halifax Peninsula	40%	26%	N/A	14%	N/A
Halifax Mainland South	34%	N/A	10.2%	13.6%	10.2%
Halifax Mainland North	10%	10%	N/A	N/A	N/A
Lakeside/Timberlea	3%	3%	N/A	N/A	N/A
Bedford/Sackville	5%	5%	N/A	N/A	N/A
Dartmouth	8%	4%	N/A	4%	N/A

Table 1 - Trip Distribution from the July, 2008 TIS

With relation to the trips distributed to the Halifax Peninsula and the Halifax Mainland South areas, we have reviewed the proposed internal trip distributions for these two areas, and our adjusted trip distribution rates are as follows:

- Halifax Peninsula Trips destined to the Halifax Peninsula area are assumed to be split between travelling North on Northwest Arm Drive to St. Margaret's Bay Road, Highway 102, and Lacewood Drive, and travelling North on Herring Cove Road via Cowie Hill Road for travel to/from the Peninsula. Trip distribution is assumed to be 30% of traffic to/from Herring Cove Road via Cowie Hill Road, 15% to/from St. Margarets Bay Road via Northwest Arm Drive, 15% to/from Lacewood Drive via Northwest Arm Drive and 40% to Highway 102 via Northwest Arm Drive.
- *Halifax Mainland South* With the addition of signal lights at the Old Sambro / Northwest Arm Drive intersection, the left hand turning movement from Northwest Arm Drive has become more favourable (versus the previous stop controlled intersection). With the consideration for the new signalized intersection, it is assumed that the trip distribution for Mainland South would be 65% of traffic to/from Old Sambro Road via Northwest Arm Drive, 10% of traffic to/from Herring Cove Road (travelling South), and 25% of traffic to/from Herring Cove Road travelling North.

With the above two considerations, the revised trip distribution splits for the proposed Rockcliffe Village Development are as follows:

DESTINATION/ORIGIN	TOTAL SPLIT	To/From NWAD (North)	To/From NWAD (SOUTH)	TO/FROM HCR (NORTH)	TO/FROM HCR (SOUTH)
Halifax Peninsula	40%	28%	N/A	12%	N/A
Halifax Mainland South	34%	N/A	22.1%	8.5%	3.4%
Halifax Mainland North	10%	10%	N/A	N/A	N/A
Lakeside/Timberlea	3%	3%	N/A	N/A	N/A
Bedford/Sackville	5%	5%	N/A	N/A	N/A
Dartmouth	8%	4%	N/A	4%	N/A

**Table 2 - Revised Trip Distribution** 

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From Table 2, the assumed trip distribution between the two access intersections for the development (Northwest Arm Drive exit and the Cowie Hill exit) results in 72.1% of traffic directed to the Northwest Arm Drive exit, and 27.9% of traffic being directed to the Cowie Hill Road exit.

Estimated daily traffic volumes were calculated based on the PM Peak Hour of traffic. PM Peak hour traffic volumes were calculated using the ITE Trip Generation Handbook, 8<sup>th</sup> Edition Trip Generation Rates for Single-Family Detached Housing (ITE Code 210), Apartment (ITE Code 220), Residential Condominium/Townhouse (ITE Code 230) and Shopping Centre (ITE Code 820). Trip generation rates were calculated as follows:

DESCRIPTION AND ITE CODE	BLOCK#	NUMBER OF UNITS	PM PEAK HOUR (VEHICLE TRIPS)
	1	2.4	Ln(T) = 0.90Ln(X) + 0.51
	1	34	40
Single-Family Detached	2	21	Ln(T) = 0.90Ln(X) + 0.51
Housing ITE Code 210	2	21	26
	3	21	Ln(T) = 0.90Ln(X) + 0.51
	3	21	26
	1	4	Ln(T) = 0.82Ln(X) + 0.32
	1	4	5
	2	34	Ln(T) = 0.82Ln(X) + 0.32
			25
Residential		5	Ln(T) = 0.82Ln(X) + 0.32
Condominium/Townhouse ITE Code 230	3		6
	4	1.4	Ln(T) = 0.82Ln(X) + 0.32
	4	14	12
		16	Ln(T) = 0.82Ln(X) + 0.32
	5		14
Apartments		220	T = 0.55(X) + 17.65

ITE Code 220

		139
Commercial/Shopping Centre	4,000	Ln(T) = 0.67Ln(X) + 3.37
ITE Code 820	4,000 sq. ft.	74
Total		367 Trips

**Table 3 - PM Peak Hour Trip Generation** 

Residential housing types were seperated into individual blocks based on the available access points along the proposed Cowie Hill Extension. Townhouse units were divided into five blocks along the length of Cowie Hill Extension to allow for a proper disbursement of traffic along the roadway.

Based on the proposed Trip Generation split between the two access intersections, the assumed traffic volumes accessing each of the intersections is as shown in Table 4:

INTERSECTION	ASSUMED TRAFFIC VOLUME SPLIT	ASSUMED TRAFFIC VOLUMES (VEHICLE TRIPS)
Northwest Arm Drive	72.1%	265 Trips
Cowie Hill Road	27.9%	102 Trips

**Table 4 - Trip Distribution to Access Intersections** 

Average Annual Daily Traffic (AADT) volumes were estimated using the calculated Trip Generation volumes by assuming that the PM Peak Hour of traffic equates to approximately 9% of the daily traffic volumes (typical rates for Canadian cities is 6-10%, with Halifax in the 9-10% range). Using the 9% conversion factor, we estimate that 2,950 two-way vehicle trips will use the proposed Northwest Arm Drive access intersection, and 1,150 two-way vehicle trips will use the proposed Cowie Hill access intersection. Additional two-way estimated traffic volumes are provided on SK-1569-02 (attached).

Mr. David Graham October 26, 2009 Page 5

We trust that the above review of the proposed Rockcliffe Village Development meets your requirements for discussions with the Halifax Regional Municipality with relations to the proposed development.

Yours Very Truly,

# O'HALLORAN CAMPBELL CONSULTANTS LIMITED

Andrew MacLeod, P.Eng

/cam LC1569

Attachments: SK-1569-02 Rockcliffe Village - Daily Traffic Flow



Planning
Design
Engineering

October 19th, 2010

LC1688

Mr. David Graham President Atlantic Developments Inc. 2151 Gottingen Street Halifax, Nova Scotia, B3K 3B3

Dear Mr. Graham:

# TRAFFIC IMPACT STATEMENT REVISED TRIP GENERATION/DISTRIBUTION FOR ROCKCLIFFE VILLAGE DEVELOPMENT WITH MONT PROPERTY

ADI O'Halloran Campbell is pleased to provide this Traffic Impact Statement (TIS) to identify the additional traffic utilizing the Northwest Arm Drive and the Cowie Hill Road intersections as a result of expanding the proposed Rockcliffe Village Development by 40 semi-detached dwelling units with the addition of the Mont Property (see attached sketch).

#### October 2009 TIS

O'Halloran Campbell completed a traffic review in October 2009 estimating the PM peak hour and daily traffic associated with the Rockcliffe Village Development. When the October 2009 TIS was prepared, the development encompassed the following:

82

- 76-Single Family-Detached Dwellings;
  - 73 Semi-Detached/Townhouse/Condominium Dwellings; 46
- 220 Apartment Dwellings; and
- 4,000 ft<sup>2</sup> of retail/commercial space.

The ITE *Trip Generation* manual was utilized to estimate the PM peak hour traffic volume generated from the proposed development. The total daily traffic was estimated by assuming that PM peak hour traffic represents 9% of the daily total traffic (typical for Halifax).

The October 2009 review estimated that 72.1% of traffic generated by the proposed Rockcliffe development would utilize the Northwest Arm Drive intersection while the remaining 27.9% would utilize the Cowie Hill Road intersection.

In total, it was estimated that there would be 367 vehicle trips generated during the PM peak. Of the 367 total vehicle trips, 265 would utilize the Northwest Arm Drive intersection, while 102 vehicle trips would utilize the Cowie Hill Road intersection.

Using the 9% conversion factor, it was estimated that 2,950 vehicles would utilize the Northwest Arm Drive intersection daily, while 1,150 vehicles would utilize the Cowie Hill Road intersection daily.

Project Management

7071 Bayers Road, Suite 2002 Halifax, NS B3L 2C2 Canada Telephone: 902.429.9826 Fax: 902.429.5457 Email: admin@ohcc.ns.ca



a member of:







www.ohcc.ns.ca



David Graham, Atlantic Developments Inc. Page 2 October 19<sup>th</sup>, 2010

# **Expanded Development Trip Generation & Assignment**

Since the October 2009 traffic review, the proposed development has expanded slightly to include an additional 40 semi-detached dwellings. Using the ITE *Trip Generation* manual, **Table 1** presents the estimated vehicle trips generated by this expansion for both the PM peak hour and the daily total. The same 9% conversion factor for converting PM peak hour to daily traffic in Halifax that was utilized for the October 2009 TIS, was utilized in **Table 1**.

Table 1 - Traffic Generation of Expanded Portion of Development

handline	Dwelling	P	PM Peak Hour		2-Way Daily
Land Use	Units	IN	OUT	TOTAL	Volume
Semi-Detached Dwellings (ITE # 230)	40	19	9	28	311

Based on the assignment assumptions developed as part of the October 2009 traffic review, **Table 2** estimates the additional traffic utilizing both the Northwest Arm Drive and the Cowie Hill Road Intersections.

Table 2 - Traffic Assignment of Expanded Portion of Development

Intersection	Assumed Traffic Volume Split	PM Peak Hour Vehicle Trips	Daily 2-Way Volume
Northwest Arm Drive	72.1%	20	224
Cowie Hill Road	27.9%	8	87

#### **Conclusions**

Expanding the proposed Rockcliffe Village Development to include an additional 40 semi-detached dwelling units within the Mont Property would result in an increase of 20 vehicles utilizing the Northwest Arm Drive intersection and 8 vehicles utilizing the Cowie Hill Road intersection during the PM peak hour. Over the course of a typical day, it is estimated that the additional 40 dwelling units would result in an increase of 224 vehicles utilizing the Northwest Arm Drive intersection and 87 vehicles utilizing the Cowie Hill Road intersection which is less than a 10% increase and is considered overall to be insignificant to overall traffic.

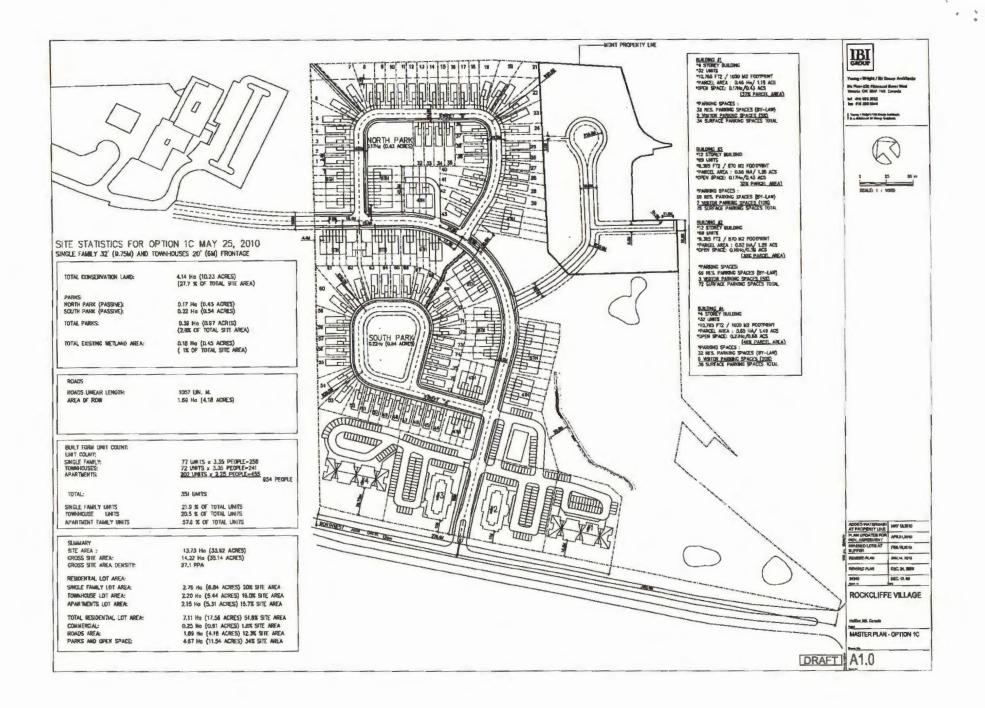
Yours truly,
Original Signed

Jon Lewis, M.ScE, EIT
Transportation Engineering
ADI Limited
Original Signed

Marcel Deveau, P. Eng. ADO d'Halloran Campbell LC1688







THIS AMENDING AGREEMENT made this 200 day of June , 2011
BETWEEN:

RV ATLANTIC HOLDINGS LIMITED

a body corporate, in the Halifax Regional Municipality, Province of Nova Scotia, (hereinafter called the "Developer")

OF THE FIRST PART

-and-

APPROVED AS TO FORM Municipal Solicitor

# HALIFAX REGIONAL MUNICIPALITY,

a municipal body corporate, Province of Nova Scotia (hereinafter called the "Municipality")

OF THE SECOND PART

WHEREAS the Developer is the registered owner of certain lands located to the east of Northwest Arm Drive and Cowie Hill Road, Halifax and which said lands are more particularly described in Schedule A hereto (hereinafter called the "Lands");

AND WHEREAS the Developer and the Municipality entered into a development agreement to allow for a comprehensive mixed-use development on the lands (referenced as Municipal Case Number 01179), the said agreement being recorded at the Land Registry Office in Halifax on October 9, 2009 as Document # 94471258 (hereinafter called the "Existing Agreement");

AND WHEREAS the Developer and the Municipality entered into an amending development agreement to allow for changes to the development on the lands (referenced as Municipal Case Number 015976), the said amending agreement being recorded at the Land Registry Office in Halifax on October 21, 2010 as Document # 97048665 (hereinafter called the "First Amending Agreement");

AND WHEREAS the Developer has requested further amendments to the provisions of the Existing Agreement;

AND WHEREAS the Chebucto Community Council of Halifax Regional Municipality approved this request at a meeting held on March 7, 2011, referenced as Municipal Case Number 16629;

THEREFORE in consideration of the benefits accrued to each party from the covenants herein contained, the Parties agree as follows:

The Existing Agreement is amended as follows:

- Schedule F (Future Local Street Connection, Plan # 16629-001), attached to this
  agreement, shall be added to the Schedules of the Existing Agreement.
- 2. Section 2.1 shall be deleted and replaced with the following:

#### 2.1 Schedules

The Developer shall develop the lands in a manner, which, in the opinion of the Development Officer, is generally in conformance with the following Schedules attached to this agreement, filed in the Halifax Regional Municipality as Case Numbers 01179, 15976 and 16629.

Schedule A	Legal Description of the Lands	
Schedule B-I	Conceptual Site/ Master Plan	Plan # 15976-001
Schedule C	Typical Elevation, 10-storey Residential	Plan # 01179-002
Schedule D	Typical Elevation, 4-storey Residential	Plan # 01179-003
Schedule E	Typical Elevation, 6-storey Residential	Plan # 01179-004
Schedule F	Future Local Street Connection	Plan # 16629-001

3. The following subsection shall be added immediately following subsection 2.11:

### 2.12 Local Street Connection to Abutting Land

2.12.1 Pursuant to Section 4.2, clause (h), a local street connection from the minor collector to an abutting land parcel (PID# 40181091, Mont Street) and the resultant reconfiguration of the Conservation Land may be permitted, as generally shown on Schedule F, subject to compliance with Part 3 of this agreement, the Subdivision By-law and Halifax Mainland Land Use By-law.

All other terms and conditions of the Existing Agreement and the First Amending Agreement shall remain in full force and effect. This Amending Agreement shall be binding upon the Parties hereto and their heirs, successors and assigns.

WITNESS that this Agreement, made in triplicate, was properly executed by the respective

Parties on this day of June	, 2011.
SIGNED, SEALED AND DELIVERED on the presence of: Original Signed	Original Signed
MOONE CA OGRANT	per: Secasimen
SEALED, DELIVERED AND ATTESTED to by the proper signing officers of Halifax Regional Municipality duly authorized in that behalf in the presence of:  Original Signed	HALIFAX REGIONAL MUNICIPALITY Original Signed
Original Signed	-
VVIB ADS	MUNICIPAL CLERK

