# **NSD**



# NOISE IMPACT ASSESSMENT 800 EAGLESON ROAD, OTTAWA

**IRONCLAD DEVELOPMENTS INC.** 

**DECEMBER 14, 2018** 

# **\\**\$|)

### NOISE IMPACT ASSESSMENT 800 EAGLESON ROAD, OTTAWA

**IRONCLAD DEVELOPMENTS INC.** 

FINAL REPORT VERSION 2

PROJECT NO.: 181-02513-00

DATE: DECEMBER 14, 2018

WSP UNIT 2 126 DON HILLOCK DRIVE AURORA, ON, CANADA L4G 0G9

T: +1 905 750-3080 F: +1 905 727-0463 WSP.COM

WSP Canada Inc.

# vsp

December 14, 2018

IRONCLAD DEVELOPMENTS INC. Ironclad Developments Inc. 101-57158 Symington Rd 20E Springlied, MB R2J 4L6

#### Attention: Pascal Toupin-Selinger

Dear Sir:

#### Subject: Noise Impact Assessment for Proposed Development at 800 Eagleson Road, Ottawa

WSP is pleased to provide you with the following report detailing the noise impact assessment of the proposed residential development to be located at 800 Eagleson Regional Road in Ottawa, Ontario. This report details the results of the noise impact assessment as it relates to the impacts from nearby transportation noise sources; specifically, Fernbank and Eagleson Road.

We trust that our submission meets your approval and we look forward to the continued opportunity to work with you. If you have any questions regarding our report, please contact the undersigned at (519) 904 1732or via email at Carolyn.Ropp@wsp.com.

Yours truly,

andy fopp

Carolyn Ropp, BSc Acoustic, Noise and Vibration Specialist

CR/kg Encl. WSP ref.: 181-02513-00

UNIT 2 126 DON HILLOCK DRIVE

AURORA, ON, CANADA L4G 0G9

T: +1 905 750-3080 F: +1 905 727-0463 wsp.com

### SIGNATURES

PREPARED BY

Carolyn Ropp, B.Sc. Acoustic Noise and Vibration Specialist

December 14, 2018 Date

REVIEWED BY

Kana Ganesh, MSc., PhD, P.Eng. Senior Technical Director, Acoustics and Vibration (Ontario) December 14, 2018 Date

WSP Canada Inc. prepared this report solely for the use of the intended recipient, IRONCLAD DEVELOPMENTS INC., in accordance with the professional services agreement. The intended recipient is solely responsible for the disclosure of any information contained in this report. The content and opinions contained in the present report are based on the observations and/or information available to WSP Canada Inc. at the time of preparation. If a third party makes use of, relies on, or makes decisions in accordance with this report, said third party is solely responsible for such use, reliance or decisions. WSP Canada Inc. does not accept responsibility for damages, if any, suffered by any third party as a result of decisions made or actions taken by said third party based on this report. This limitations statement is considered an integral part of this report.

The original of this digital file will be conserved by WSP Canada Inc., for a period of not less than 10 years. As the digital file transmitted to the intended recipient is no longer under the control of WSP Canada Inc., its integrity cannot be assured. As such, WSP Canada Inc. does not guarantee any modifications made to this digital file subsequent to its transmission to the intended recipient.

### **VERSION HISTORY**

Version	Date	Title	Comments (purpose and track modifications)	Prepared by
1.0	October 17, 2018	NOISE IMPACT ASSESSMENT 800 EAGLESON ROAD, OTTAWA	Prepared as part of approval application for 800 Eagleson Road, Ottawa	WSP
2.0	December 14, 2018	NOISE IMPACT ASSESSMENT 800 EAGLESON ROAD, OTTAWA	Updated to address City's comments	WSP

# vsp

### TABLE OF CONTENTS

1	INTRODUCTION	1
2	SITE DESCRIPTION	1
3	IMPACT OF THE SURROUNDING ENVIRONMENT ON THE DEVELOPMENT	2
3.1	Noise Sources and Impacts	2
<b>3.2</b> 3.2.1	Noise Guidelines and Assessment Criteria OLA, Ventilation, Building Requirements and Warning Clauses	<mark>2</mark> 3
3.3	Traffic Data and Future Predictions	5
3.4	Noise Impact Assessment Methods	5
3.5	Results	5
<b>3.6</b> 3.6.1	Recommendations	<mark>6</mark>
3.6.2	Ventilation Requirements	6
3.6.3 3.6.4	Building Requirements Warning Clauses	7 7
4	IMPACT OF THE DEVELOPMENT ON THE SURROUNDING ENVIRONMENT	7
5	IMPACT OF THE DEVELOPMENT ON ITSELF	8
6	CONCLUSIONS AND RECOMMENDATIONS	S8
6.1 6.2	Summary of Recommendations	8 9
7	BIBLIOGRAPHY	10

# wsp

TABLES	
TABLE 3-1	NPC-300 SOUND LEVEL CRITERIA FOR ROAD NOISE
TABLE 3-2	WARNING CLAUSE REQUIREMENTS FOR OUTDOOR LIVING AREAS 3
TABLE 3-3	WARNING CLAUSE, VENTILATION AND BUILDING REQUIREMENTS 4
TABLE 3-4	NPC-300 AND ENCG WARNING
TABLE 3-5	SUMMARY OF ROAD TRAFFIC DATA USED IN THE TRANSPORTATION
TABLE 3-6	SUMMARY OF PREDICTED FACADE SOUND LEVELS –
TABLE 6-1	TRANSPORTATION (ROAD)
TABLE 3-6	SUMMARY OF PREDICTED FACADE SOUND LEVELS – TRANSPORTATION (ROAD)

#### **APPENDICES**

- A FIGURES
- B DRAWINGS
- C TRAFFIC DATA
- D SAMPLE STAMSON OUTPUT

# wsp

### Abbreviations

dB	decibel
dBA	decibel, A-weighted
ENCG	Environment Noise Control Guideline
Hz	Hertz
ISO	International Organization for Standardization
km	kilometre(s)
Leq(16)	Daytime 16-hour (0700-2300) Energy Equivalent Sound Level (Leq)
Leq(8)	Nighttime 8-hour (2300-0700) Energy Equivalent Sound Level (Leq)
Leq	Energy Equivalent Sound Level over a period of time
m	metre(s)
m <sup>2</sup>	square metre(s)
MECP	Ontario Ministry of the Environment, Parks and Conservation
ORNAMENT	Ontario Road Noise Analysis Method for Environment and Transportation
POR	point of reception
RMS	root mean square

# vsp

Glossary	
A-weighting	The weighting is applied to sound level data to account for changes in level sensitivity as a function of frequency. The A- weighting adjustment reflects average human ear.
decibel (dB)	A logarithmic quantity of generally used in the measurement of sound. The decibel (dB) provides the possibility of representing a large span of sound levels in a simplified manner. It is used for both sound pressure level as well as sound power level. When it is used to refer sound pressure level, a location or distance from a sources is usually provided with the sound pressure level.
decibel, A-weighted (dBA)	A-weighted decibels (dBA). Most common units for expressing sound levels approximating the response of the human ear.
energy equivalent sound level	An energy-average sound level (Leq) over a specified period that would have the same sound energy as the actual (i.e., time varying) sound over the same period.
frequency	The number of times per second that the sine wave of sound repeats itself. It can be expressed in cycles per second, or Hertz (Hz).
frequency weighting (A, B, and C Weighting)	A method used to account for changes in sensitivity as a function of frequency. Three standard weighting networks, A, B, and C, are used to account for different responses to sound pressure levels.
	Most commonly used weighting is A-weighting (see also A-weighting).
Hertz (Hz)	The unit of frequency also expressed as cycles per second.
noise	Unwanted sound.
octave band	The interval between two frequencies having a ratio of two to one. For acoustical measurements, the octaves start a 1,000 Hz centre frequency and go up or down from that point, at the 2:1 ratio. From 1,000 Hz, the next filter's centre frequency is 2,000 Hz, the next is 4,000 Hz, or 500 Hz, 250 Hz, etc.

# vsp

point of reception (POR)	A noise-sensitive receptor such as a residence, campground, daycare, school, church, or hospital as defined in Ontario Ministry of the Environment and Climate Change Publication NPC-300.
root mean square (vibration)	The root mean square of a vibration velocity signal is the square root of the average of the squared velocity of the vibratory signal.
sound power level	The total sound energy radiated by a source per unit time. The unit of measurement is the Watt. The acoustical power radiated from a given sound source as related to a reference power level (i.e., typically 1E 12 watts, or 1 picowatt) and expressed as decibels. A sound power level of 1 watt = 120 decibels relative to a reference level of 1 picowatt.
sound pressure level	Logarithmic ratio of the root-mean-square sound pressure to the sound pressure at the threshold of human hearing (i.e., 20 micropascals).
vibration	Vibration is defined as an oscillatory motion of an element/particle. Rail related vibration is described in terms of the velocity. The velocity represents the instantaneous speed of the element/particle.

### **1 INTRODUCTION**

Ironclad Developments Inc., (Ironclad) has retained the services of WSP Canada Inc., (WSP) to prepare a Noise Impact Assessment for the proposed residential development to be located at 800 Eagleson Road in Ottawa, Ontario. This study addresses the noise impacts of transportation sources associated with the nearby roads on the proposed development. In addition, it discusses the noise impact of the development on itself as well as on its surroundings. The report was prepared in support of a Site Plan Control Application required at this state of the development.

The noise impact assessment was conducted in accordance with the City of Ottawa's *Environmental Nosie Control Guidelines, January 2016* (ENCG) and Ministry of Environment, Park and Conservation (MECP) Noise Pollution Control (NPC) publication NPC-300 "*Environmental Noise Guideline, Stationary and Transportation Sources – Approval and Planning*".

In accordance with the ENCG and NPC-300 requirements, this report discusses environmental noise from stationary sources and transportation sources on the development. The results are presented in Section 3 "impact of the surrounding environment on the development". Similarly, the impact of the development on to the surrounding environment is discussed in Section 4 "impact of the development on the surrounding environment". The impact of the development on itself is discussed in Section 5 "Impact of Development on itself". Finally, summary of recommendations are presented in Section 6.

Traffic data was obtained from the City of Ottawa and was used to estimate future sound levels at the façades of the proposed development, where traffic data is less than those stipulated in the ENCG, the traffic volumes suggested by ENCG were used. Sound level from transportation sources were compared to the guideline limits provided in the ENCG or MECP publication NPC-300 and recommendations are developed.

### **2 SITE DESCRIPTION**

The proposed development is a multi-family residential building consisting of 143 units and will be located on the southwest corner of Fernbank Road and Eagleson Road. Single-family residential areas are located to the north, northeast and west of the proposed development; Maurice Lapointe Public School is located to the east of the development.

The location of the proposed development is presented in **Figure 1** in **Appendix A**. The proposed development will include a 6-storey residential building consisting of 14,722 m<sup>2</sup> gross floor area and a 1-level of parking (underground). The site plan indicates several exterior parking lots and design drawing indicates a gymnasium and 143 suites (1 to 3-bedroom suites) located on Level 1 through 6. The site plan and concept plans of the proposed development are included in **Appendix B**.

WSP identified the noise sources in the vicinity of the development through a review of aerial imagery. As per MECP's and City's classification, the acoustical environment surrounding the site is considered as urban in nature (MECP Class 1); in sound in such environment is dominated by anthropogenic sound during both the daytime and night time hours (MECP Class 1).

The subject property is currently zoned for arterial mainstreet (AM). Arterial mainstreet zone means a land to accommodate a broad range of uses including retail, service commercial, offices, residential and institutional uses in a mixed-use style building(s) or side by side style (i.e. separate) buildings. A zoning map from the City of Ottawa is provided in **Appendix A** (Figure 2).

The dominant noise sources impacting the site are road traffic on arterial roads: Eagleson Road and Fernbank Road.

# 3 IMPACT OF THE SURROUNDING ENVIRONMENT ON THE DEVELOPMENT

#### 3.1 NOISE SOURCES AND IMPACTS

The environmental noise sources that are external to the project with potential to have effect on the development are discussed and assessed in this section.

The City of Ottawa official plan stipulates that a noise study shall be prepared when a new development is proposed within distances as follows:

- 100 metres from the right-of-way of an existing or proposed road; arterial, major collector, light rail transit, bus
  rapid transit or transit priority corridor;
- 250 metres from the right-of-way of an existing or proposed highway or secondary main railway line;
- 500 metres from the right-of-way of a freeway or 400-series provincial highway or principal main railway line.

The primary noise sources in the area surrounding the development is the road traffic on Eagleson and Fernbank Road which are both arterial roads within 100 metres of the site. Other roads are over 100 metres away from the proposed development and are not expected to have a major impact.

The area includes light rail transit corridor, bus rapid transit and transit priority corridor; these are all greater than 100 metres away from the proposed development and are not expected to have a noise impact on the site. There are no principal or secondary main railway lines within 250 metres of the site.

WSP's review indicated that the proposed development is not within City of Ottawa's International Airport (Macdonald–Cartier International Airport) Operating Influence Zone or Airport Vicinity Development Zone; therefore, assessment of aircraft noise is not considered in this report.

There are no significant industries/industrial activities present in the area of the proposed development. Therefore, the potential for "stationary" noise impacts from the surrounding industries on the proposed development is negligible.

As discussed previously, the dominant source that could have in impact on the proposed development are the arterial road traffic on Fernbank Road to the north and Eagleson Road to the east. These transportation sources have the potential to contribute to the sound levels at the proposed development and therefore considered in this study.

#### 3.2 NOISE GUIDELINES AND ASSESSMENT CRITERIA

Noise is recognized as a pollutant in the Environmental Protection Act, as uncontrolled noise can affect human activities. Ontario provincial noise control guidelines require that noise concerns are addressed in the planning of any new development.

In land use planning, although elimination or control of the source of pollution is usually a primary objective, there are general limits as to what is practical and technically possible. The City of Ottawa "*Environmental Noise Control Guidelines*" (ENCG) follows the MECP's Publication NPC-300, "*Environmental Noise Guideline Stationary and Transportation Sources – Approval and Planning*" for acceptable levels of road traffic noise impacting residential developments. These limits are discussed in Section "Part C – Land Use Planning" of NPC-300 as well as Section 2 of the ENCG. **Table 3-1** below summarizes these limits.

NPC-300 and ENCG provide sound level limits in terms of energy equivalent (average) sound levels  $[L_{EQ}]$  in units of A-weighted decibels [dBA] at a specific noise-sensitive location. Both outdoor and indoor locations are identified, with the focus of outdoor areas being amenity spaces. Indoor criteria vary with sensitivity of the space. As a result, sleep areas have more stringent criteria than living/dining room space.

#### Table 3-1 NPC-300 Sound Level Criteria for Road Noise

AREA	TIME PERIOD	L <sub>EQ</sub> (dBA) -ROAD	REF
Outdoor Living Area (OLA)	Daytime (0700 – 2300h)	55	ENCG Table 2.2a
Indoor Living/Dining Room	Daytime (0700 – 2300h) 45		ENCG Table 2.2b
	Night time (23:00 – 07:00h)	45	ENCG Table 2.2b
Indoor Sleeping Quarters	Daytime (0700 – 2300h)	45	ENCG Table 2.2b
(1.e.Bedroom)	Night time (23:00 – 07:00h)	40	ENCG Table 2.2b

NPC-300 and ENCG further defines that in order to qualify as an OLA a certain minimum area as well as depth (measured from the façade) requirement should be met. Accordingly, a balcony or terrace that are less than 4 meters in depth are not considered an OLA as per both ENCG and MECP's guidelines.

#### 3.2.1 OLA, VENTILATION, BUILDING REQUIREMENTS AND WARNING CLAUSES

In order to decide appropriate control to achieve the above noted sound level limits, NPC-300 and the City of Ottawa ENCG has provided further guidance.

**Sound Level in Outdoor Living Area (OLA)** - If the future daytime (0700 - 2300h) sound level in an OLA is below 55 dBA no control is required; an excess of daytime sound level up to 5 dBA over the 55 dBA limit is often acceptable without noise control, however such excess should be notified to the future occupants (in case of residential receptors) with a warning clause. If sound level exceeds 60 dBA, feasibility of controlling noise in terms of economic, technical and administrative feasibility should be investigated and where possible control included in the design.

#### Table 3-2 Warning Clause Requirements for Outdoor Living Areas

AREA	TIME PERIOD	LEQ (dBA)	VENTILATION AND WARNING CLAUSE REQUIREMENTS
		<55	• None
		55 - 60	• Warning Clause (Type A)
Outdoor Living Area (OLA)	Daytime (0700 – 2300h)	>60	<ul> <li>Warning Clause (Type B)</li> <li>Distance Setback with Soft Ground</li> <li>Insertion of insensitive land use between source and receptor</li> <li>Orientation of buildings to provide sheltered zones in rear yards</li> <li>Shared outdoor amenity areas</li> <li>Berm or barrier</li> </ul>

**Sound Level in Indoor Spaces** - To achieve indoor sound levels listed in **Table 3-1**, the ENCG and the MECP publication NPC-300 provides guidelines based on predicted sound level at the façade/plane of window. If the predicted sound level at the plane of window exceeds, additional considerations such as the type of ventilation; type of windows, exterior walls, and doors that will be required must be selected. In addition, warning clauses to inform the future occupants are also required.

**Table 3-3** summarizes requirements for ventilation, type of building façade construction and the requirement for warning clauses to inform the future occupants of the exceedances.

\_\_\_\_\_

AREA	TIME PERIOD	LEQ (DBA)	VENTILATION REQUIREMENTS	BUILDING COMPONENT REQUIREMENTS	WARNING CLAUSE
		< 55	None	Building components compliant with Ontario Building Code (OBC)	None
	Daytime (0700 – 2300h)	55 - 65	Forced Air Heating with provision for central air condition	Building components compliant with OBC	Type C required
Diama of		> 65	Central air conditioning is required	Building components designed/selected to meet Indoor Requirements	Type D required
Window <sup>[1]</sup>	Night time (2300 – 0700h)	<u>≤</u> 50	None	Building components compliant with OBC	None
		51 - 60	Forced Air Heating with the provision to add central air conditioning	Building components compliant with OBC	Type C required
		> 60	Central air conditioning is required	Building components designed/selected to meet Indoor Requirements	Type D required

#### Table 3-3 Warning Clause, Ventilation and Building Requirements

Notes: [1] Plane of Window of a Bedroom, Living Room or Dining Room

The warning clauses referred to in **Table 3-3** are defined in **Table 3-4** below. In a residential development, where required, these clauses are to be included in offers/agreements of purchase and sale or leases or rental agreements, to notify potential purchasers and tenants of the environmental concerns to make an informed decision. However, in a school development, it is important to communicate future owners, and operators.

#### Table 3-4 NPC-300 and ENCG Warning Clauses

#### TYPE WARNING CLAUSES

Туре А	"Purchasers/tenants are advised that sound levels due to increasing (road) (transitway) (rail) (air) traffic may occasionally interfere with some activities of the dwelling occupants as the sound levels exceed the City's and the Ministry of the Environment's noise criteria."
Туре В	"Purchasers/tenants are advised that despite the inclusion of noise control features in the development and within the building units, sound levels due to increasing (road) (transitway) (rail) (air) traffic may on occasions interfere with some activities of the dwelling occupants as the sound levels exceed the City's and the Ministry of the Environment's noise criteria."
Туре С	"This dwelling unit has been fitted with a forced air heating system and ducting, etc. and was sized to accommodate central air conditioning. Installation of central air conditioning by the occupant will allow windows and exterior doors to remain closed, thereby ensuring that the indoor sound levels are within the City's and the Ministry of the Environment's noise criteria."
	(Note: The location and installation of the outdoor air conditioning device should be done so as to comply with noise criteria of MOE Publication NPC-216, Residential Air Conditioning
	Devices and thus minimize the noise impacts both on and in the immediate vicinity of the subject property."
Type D	"This dwelling unit has been supplied with a central air conditioning system which will allow windows and exterior doors to remain closed, thereby ensuring that the indoor sound levels are within the City's and the Ministry of the Environment's noise criteria."

#### 3.3 TRAFFIC DATA AND FUTURE PREDICTIONS

Road traffic volumes were obtained from the City of Ottawa's ENCG Appendix B for Eagleson Road and Fernbank Road. The data taken from the City of Ottawa's ENCG provides ultimate future traffic volume data for various roadways based on roadway class and number of lanes. The traffic data used represents future traffic volumes and corresponding to a "mature state of development", in the City's Official Plan.

Eagleson road currently is a 2-lane urban arterial road, however it has been flagged by the city as potential in the future to be a 4-lane urban undivided arterial. The traffic and road parameters used for sound level predictions are shown in **Table 3-5**. The surrounding topography was assessed as generally flat.

#### Table 3-5 Summary of Road Traffic Data Used in the Transportation Analysis

ROAD	ROAD CLASSIFICATION	TRAFFIC VOLUMES (AADT)	DAY/NIGHT SPLIT (%)	MEDIUM TRUCKS (%)	HEAVY TRUCKS (%)	POSTED SPEED LIMIT (KPH)
Eagleson Road	4-Lane Urban Arterial- Undivided	30,000	92/8	7%	5%	60
Fernbank Road	2-Lane Urban Arterial	15,000	92/8	7%	5%	60

Road traffic data from ENCG and calculations used for the study are included in Appendix C.

#### 3.4 NOISE IMPACT ASSESSMENT METHODS

Per the ENCG and MECP Guidelines, the impact at receptors was estimated using the future road traffic data presented in Table 3.5. The sound level predictions were made using STAMSON version 5.04, a computer algorithm developed by the MECP. A copy of the STAMSON output files are included in **Appendix D**.

The following factors were taken into account in the analysis:

- Vehicle speeds;
- Road traffic volumes;
- Percentage of trucks;
- Horizontal and vertical road-receiver geometry;
- Ground absorption; and
- Screening provided by terrain, houses or existing barriers.

Most impacted receptor locations (in terms of façade and height) were chosen as representative receptor locations for each facade. The modelled receptor locations are shown on the site plan included in **Figure 3** in **Appendix A**. The parameters used in STAMSON to assess the noise impacts at the receiver locations can be found in Table D1 in **Appendix D**. **Figure 4** and **5** in **Appendix A** shows the corresponding angles and distances used in the model.

#### 3.5 RESULTS

#### Plane of window

Sound levels were predicted at the most impacted façades during the daytime and nighttime hours. The predicted sound levels were used to investigate ventilation and building construction requirements. The results of these predictions are summarized in **Table 3-6**.

PREDICTION LOCATION	DESCRIPTION	DAYTIME SOUND LEVEL (dBA)	NIGHTIME SOUND LEVEL (dBA)
А	North Façade (6th Floor) – exposure to Fernbank and Eagleson Road	62	61
В	North Façade (6 <sup>th</sup> Floor) – exposure to Fernbank and Eagleson Roads	70	63
С	East Façade (6 <sup>th</sup> Floor) – exposure to Eagleson Road	71	63
D	East Façade (6 <sup>th</sup> Floor) – exposure to Eagleson Road	67	59
Е	South Façade (6 <sup>th</sup> Floor) – exposure to Eagleson Road	65	57
F	West Façade (6 <sup>th</sup> Floor) – exposure to Fernbank and Eagleson Road	59	51
G	West Façade (6th Floor) – exposure to Fernbank Road	64	56

#### Table 3-6 Summary of Predicted Facade Sound Levels – Transportation (Road)

The façade level indicates that due to the magnitude of exterior sound level, there is potential to exceed indoor sound level; therefore, as per the City of Ottawa's ENCG and the MECP's NPC-300 noise control façade construction and warning clauses are required.

#### **Outdoor Living Area (OLA)**

A review of floor plans indicates that there are balconies/terraces are provided to suites and are less than 4 m in depth. Therefore, as per City of Ottawa ENCG and NPC-300, these balconies/terraces are not considered as an OLA and this report does not investigate sound level at OLA's any further. Previous there was a sitting area near the east front entrance but that has been removed in updated drawings.

#### 3.6 RECOMMENDATIONS

The following discussion outlines the recommendations for building facade constructions, ventilation requirements, and warning clauses to achieve the noise criteria stated in **Table 3-3**.

#### 3.6.1 OUTDOOR LIVING AREA

As discussed previously, the development does not include OLAs that are greater than 4 meters in depth and therefore no specific requirements are identified.

#### 3.6.2 VENTILATION REQUIREMENTS

The projected sound levels at the exterior façade with exposure to Fernbank Road and/or Eagleson Road is up to 71 dBA during the daytime and up to 63 dBA during the nighttime. Therefore, it is recommended that central air conditioning should be provided to the building. This will allow occupants to keep windows closed and maintain a comfortable indoor living environment. Since it is a mid-high-rise development, central air conditioning is typical.

As required by the City of Ottawa's ENCG and MECP, warning clauses (Type D) should be included in all offers of purchase and sales, and lease or rental agreements.

The development has selected the Make Up Air Unit similar to the one provided in Appendix B.

#### 3.6.3 BUILDING REQUIREMENTS

Based on the predicted sound level at the plane of window the sound exceeds 65 dBA during the daytime at Location B, C and D. This means that the façades facing Eagleson Road will require upgraded door and window glazing assemblies as described below:

*Exterior wall facing Eagleson Road:* Exterior wall can be constructed with a variety or material providing an STC-50 or more. The exterior façade can be brick veneer, masonry, spandrel glass or metal panels; the selected exterior façade with an insulated drywall partition on the inside should provide a composite STC-50 or better. The following wall construction provided in **Appendix B** listed under Exterior Wall Types EW1, EW2, EW3, and EW4 can be used to achieve the required STC ratings.

<u>Balcony doors facing Eagleson Road</u> - The layout of the development include balconies; these balconies are less than 4 meters in depth but with operable doors. Estimated total window to floor area is 27-30% (including windows and doors), a double-glazed door assembly rated at an STC 34 or better should be selected. A double glaze door assembly consisting of 3 mm glass panes with a 25-mm air gap or greater can achieve STC-34. The door system should include good weather seals to minimize noise flanking.

<u>Window assembly facing Eagleson Road</u> - It was confirmed that the building will include double glazed window assembly. It is recommended that window glazing assembly providing a STC 34 or better should be included. A double glazed fully sealed window assembly consisting of two 3 mm panes separated by 25 mm air gap or greater is expected to provide this STC rating. Typically, window assemblies include small operable portion within the window assembly. A good weather seal should be included for this operable portion to minimize the noise flanking.

Door and window shop drawings from the client from a similar project are included in **Appendix B**. Shop drawings for Eagleson development will be updated to meet the required STC rating discussed within this report.

The roadway impacts on the remaining locations (i.e. A, E, F and G) are not predicted to exceed the City's noise criteria stated in **Table 3-1**. This means that all façades except the façade facing Eagleson Road, can have glazing and façade construction meeting or exceeding Ontario Building Code (OBC) requirements. As OBC requirements are expected to provide sufficient transmission loss to meet indoor sound level requirements.

#### 3.6.4 WARNING CLAUSES

As per the City of Ottawa's ENCG and the MECP's guideline, the inclusion of warning clauses in all offers of purchase and sale, and lease or rental agreements are required. Appropriate wording is provided below and can be altered as required by the City of Ottawa as needed.

#### Type D

"This dwelling unit has been supplied with a central air conditioning system which will allow windows and exterior doors to remain closed, thereby ensuring that the indoor sound levels are within the City's and the Ministry of the Environment's noise criteria."

### 4 IMPACT OF THE DEVELOPMENT ON THE SURROUNDING ENVIRONMENT

In terms of the noise environment of the area, it is expected that the project will have a negligible effect on the neighboring properties. The traffic related to the proposed development will be small in relation to the traffic volumes within the area, and it is not of concern with respect to noise impact.

The noise sources associated with the proposed development are expected to be rooftop HVAC units and other similar mechanical units (i.e. boilers, chillers, elevators, pumps, emergency generators, chillers, exhaust fans, air conditioners, parking garage exhausts) which could have the potential to have adverse impacts on the surrounding neighborhood. Typically, this equipment is located inside a mechanical room and if there are rooftop sources they are not expected to have an impact on adjacent residential receptors given that the high ambient sound levels in the

area and the fact that the systems will be designed to ensure that the applicable noise guidelines are met at on-site receptors, off-site impacts are not anticipated.

Considering typical HVAC units, the impact of building mechanical on surrounding environment is estimated to be less than 45 dBA. This complies with the MECP Publication NPC-300 requirements. Potential impacts should be verified by an acoustic consultant as part of the final building design based on equipment selection.

## 5 IMPACT OF THE DEVELOPMENT ON ITSELF

The impact on the development on itself can be from mechanical systems outlined in Section 4. Considering typical HVAC units, the impact of building mechanical on surrounding environment is estimated to be less than 45 dBA. This complies with the MECP Publication NPC-300 requirements. Potential impacts should be verified by an acoustic consultant as part of the final building design based on equipment selection.

### 6 CONCLUSIONS AND RECOMMENDATIONS

The predicted sound levels from surface transportation were assessed as per the City of Ottawa's ENCG and the MECP publication NPC-300 requirements. Noise control measures are discussed in Section 3.1 are summarized in this section. The development's impact on to the environment and on itself were discussed in Section 4 and 5 and concluded that the development does not have dominant effect on itself or its surrounding environment.

#### 6.1 SUMMARY OF RECOMMENDATIONS

**Table 6-1** summarizes the recommendations made in this detailed noise assessment regarding noise control measures in the form of ventilation, building components, warning clauses. Refer to **Figure 3** in **Appendix A** for more information regarding the locations to which these recommendations apply.

#### Table 6-1 Summary of Noise Control Requirements and Noise Warning Clauses

LOCATION	NOISE ATTENUATION BARRIER FOR OLA?	VENTILATION REQUIREMENTS	TYPE OF WARNING CLAUSE	BUILDING COMPONEN TS (WINDOWS)	BUILDING COMPONEN TS (WALLS)
All units facing North façade	No	Central Air Conditioning for the entire building	Type D	STC-34	STC-50
All units facing East façade	No	Central Air Conditioning	Type D	STC-34	STC-50
All units facing South façade	No	Forced Air with Provision for Central Ai is sufficient but the building will include Central Air Conditioning	Type D	OBC	OBC
All units facing West façade	No	Forced Air with Provision for Central Ai is sufficient but the building will include Central Air Conditioning	Type D	OBC	OBC

The following recommendations are offered:

- 1. The development will require central air conditioning as an alternate means of open window. A sample shop drawing is included in Appendix B
- 2. The acoustical performance requirements for exterior façade elements (i.e. exterior walls, windows and balcony doors) for the development are discussed in Section 3.
  - a. Exterior Wall
    - i. On façade facing Eagleson Road Exterior type EW1, EW2, EW3 or EW4 can be used. Wall details are provided in wall schedule in Appendix B.
    - ii. All other facades wall assembly meeting Ontario Building Code is sufficient.
  - b. Balcony Doors -
    - On façade facing Eagleson Road A double-glazed door assembly rated at an STC 34 or better should be selected. A double glaze door assembly consisting of 3 mm glass panes with a 25-mm air gap or greater can achieve this rating. The door system should include good weather seals to minimize noise flanking. A sample shop drawing is included in Appendix B.
    - ii. All other facades a double glazed assembly is considered sufficient.
  - c. Window assembly
    - i. On façade facing Eagleson Road A double-glazed window assembly rated at an STC 34 or better should be selected. A double glaze window assembly consisting of 3 mm glass panes with a 25-mm air gap or greater can achieve this rating. Typically, window assemblies include small operable portion within the window assembly. A good weather seal should be included for this operable portion to minimize the noise flanking.
    - ii. All other facades a double glazed assembly is considered sufficient.
- 3. Warning clauses should be included in pertinent Offers of Purchase or Sales and Lease or Rental Agreements.
  - a. All units- "This dwelling unit has been supplied with a central air conditioning system which will allow windows and exterior doors to remain closed, thereby ensuring that the indoor sound levels are within the City's and the Ministry of the Environment's noise criteria."

#### 6.2 CONCLUSIONS AND CLOSURE

Based on the content of this impact study it is concluded that developing the proposed development will be in compliance with the City of Ottawa ENCG and MECP's noise criteria.

This report has been prepared to support the Site Plan Control Application being prepared by Ironclad Developments Inc. This study demonstrate that the proposed development will be in compliance with the City of Ottawa's ENCG and MECP's noise guidelines.

This report entitled "Noise Impact Assessment 800 Eagleson Road Development" was prepared by WSP for the account of "Ironclad Developments Inc." (the "Client"), in accordance with the professional services agreement. Any reliance of this document by any third party is strictly prohibited without express or written consent from the Client and WSP. The material in it reflects WSP's professional judgement in light of the scope, schedule, information available to it at the time of preparation and limitations stated within the report and in the professional services agreement between WSP and the Client. In preparation of this document WSP did not verify information provided by others. Any unauthorized use which a third party makes of this report, or any reliance on or decisions to be made based on it, are the sole responsibility of such third parties. Such third party agrees that WSP shall not be responsible for cost or damages of any kind suffered by any third party as a result of decisions made or actions based on unauthorized use of this report.

### 7 **BIBLIOGRAPHY**

- International Organization for Standardization (1996). ISO 9613-2: Acoustics Attenuation of Sound During Propagation Outdoors Part 2: General Method of Calculation, Geneva, Switzerland
- National Research Council of Canada (1995, September). Building Practice Note No. 56: Controlling Sound Transmission into Buildings, Canada
- Ontario Ministry of the Environment and Climate Change (2013). Environmental Noise Guideline Stationary and Transportation Sources – Approval and Planning – Publication NPC-300. Ontario, Canada
- Ontario Ministry of the Environment and Climate Change (1996), STAMSON v5.04: Road, Rail and Rapid Transit Noise Prediction Model, Ontario, Canada
- Ontario Ministry of the Environment (1989). Ontario Road Noise Analysis Method for Environment and Transportation (ORNAMENT), Ontario, Canada

# **APPENDIX**

# **A** FIGURES



Document Path: T:\181-02513-00\MXD\181-02513-00 Figure 1 Location of Proposed Development - Dec.mxd

- Series		<b>SP</b>	
	126 DON HILLO AURORA, ONTARI TEL.: 905-750-3080   FAX: 90	CK DRIVE, UNIT 2 O CANADA L4G 0G9 95-727-0463   WWW.WSP.COM	
	LEGEND		
	APPROXIMAT	TE SITE BOUNDAF BUILDING	RY
mants			
STRPOT		w	ь
- //	10 5 0 10 Metres	S	
and the	Data Source: Ministry of Natural Resources,	Ontario Base Mapping, October 2016	6.
water water	CLIENT:		
11, 1	IRONCLAD DE	VELOPMENT INC.	
#/	PROJECT:		
	NOISE IMPAC 800 EAGL OTTAW/	CT ASSESSMENT ESON ROAD A, ONTARIO	
	PRO IEGENIO:	DATE	
	181-02513-00 DESIGNED BY:	DECEMBER 2018	
100000	-		
	DRAWN BY: T.P.		
	-		
	FIGURE NO: 1	SCALE: 1:800	
THE.	LOCATION OF PRC	POSED DEVELOPME	NT
11	DISCIPLINE:	RONMENT	
1 Section	ISSUE:	F	REV.:
Thereit (		.	
A DECKER OF THE OWNER			



Document Path: T:\181-02513-00\MXD\181-02513-00 Figure 2 Zoning - Dec.mxd

R2C		50	
	126 DON HILLC AURORA, ONTAR TEL.: 905-750-3080   FAX: 9	CK DRIVE, UNIT 2 O CANADA L4G 0G9 95-727-0463   WWW.WSP.COM	
R3X[1052]	LEGEND		
	ZONING BOL	INDARY	
10	PROPOSED	BUILDING	
	Residential Zones - R	1 - R5	
1.	Institutional Zones (M	inor Institutional)	- 11
	Open Space Zones -	01	
	Industrial Zones (busi	ness park) - IP	
and a state -	Local Commerce	cial Zone - LC	
100 100	General Mixed	Used Zone - GM	
and a state	Arterial Mainstr	eet Zone - AM	
15	*for other codes see t	he zoning by-law	
1			
			Å.
		w<	
	30 15 0 30 Metres		8
1 - 238	Data Source: Ministry of Natural Resources,	Ontario Base Mapping, October 2	016.
R3X	CLIENT:		
1 Con	IRONCLAD DE	VELOPMENT INC.	
A Ditte			
5 B.B.	PROJECT:		
	NOISE IMPAC	TASSESSMENT	
1	800 EAGL	ESON ROAD	
1 Lapar	OTTAW	A, ON IARIO	
and the second	PROJECT NO:	DATE:	
A STATES	181-02513-00	DECEMBER 2018	
a lat	DESIGNED BY:		
	- DRAWN BY:		
C and a les	T.P.		
	CHECKED BY:		
- parts		SCALE:	
PAT	2	1:3,000	
KII	TITLE:		
a go con			
23.0	ZON	IING MAP	
8.4	DISCIPLINE:		
1000	ENVI	RONMENT	
	ISSUE:		REV.:
			-
a training and a state of the s			



Document Path: T:\181-02513-00\MXD\181-02513-00 Figure 3 Site Plan Dec.mxd

and a set of the set		SD.	
311	126 DON HILLO AURORA, ONTARI TEL.: 905-750-3080   FAX: 90	CK DRIVE, UNIT 2 O CANADA L4G 0G9 55-727-0463   WWW.WSP.COM	
	LEGEND		
-1/-		E SITE BOUNDA	
1/	PROPOSED		
(1)			
111			
1 1			
1 1			
1 1			
1 1			
1 / 1			
11			
111			
111			N A
EN I		W	Ε
, 11	10 5 0	10 Metroe	V S
111			
, 11	Data Source: Ministry of Natural Resources,	Untario Base Mapping, October 20	016.
21	CEIENT.		
21	IRONCLAD DE	VELOPMENT INC.	
10, 1			
141	PROJECT.		
00 01	NOISE IMPAC	TASSESSMENT	
111	800 EAGL		
111	UT AW/		
111			
	PROJECT NO:	DATE:	
1 11	181-02513-00	DECEMBER 2018	
1 11	DESIGNED BY:		
1 1	DRAWN BY:		
1 1	T.P.		
1 K	CHECKED BY:		
	-	00115	
	FIGURE NO:	SCALE: 1:500	
RIN TS R. X	TITLE:	1.000	
27'-1 34" E F		PREDICTION	TIONO
Tast - t	SITE PLAN SHOWING	PREDICTION LOCA	ATIONS
1 18	(TRANS		
- take	DISCIPLINE:		
LINE R.49%	ENVI	RONMENT	
22-10 1/2*	ISSUE:		REV.:
(ear)			-
/			



Document Path: T:\181-02513-00\MXD\181-02513-00 Figure 4 POR A - D.mxd

ESON ROAD	LEGEND APPROXIMA PROPOSED POR LOCATI	DCK DRIVE, UNIT 2 IO CANADA L4G 0G9 05-727-0463   WWW.WSP.COM TE SITE BOUNDA BUILDING ON	ARY
	10 5 0 Data Source: Ministry of Natural Resources CLIENT: IRONCLAD DE PROJECT:	Noteres Ontario Base Mapping, October 2 VELOPMENT INC.	№ Е 5 016.
	NOISE IMPA( 800 EAGI OTTAW	CT ASSESSMENT LESON ROAD A, ONTARIO	
	PROJECT NO: 181-02513-00 DESIGNED BY: - DRAWN BY: T.P. CHECKED BY:	DATE: NOVEMBER 2018	
	- FIGURE NO: 4 TITLE: RECEIVE A,	SCALE: 1:500 ER LOCATIONS B, C & D	
	DISCIPLINE: ENVI ISSUE:	RONMENT	REV.:



Document Path: T:\181-02513-00\MXD\181-02513-00 Figure X POR E - G.mxd

	<b>SD</b>
126 DON HILLO AURORA, ONTARI TEL.: 905-750-3080   FAX: 90	CK DRIVE, UNIT 2 O CANADA L4G 0C9 15-727-0463   WWW.WSP.COM
LEGEND	
	E SITE BOUNDARY
PROPOSED B	BUILDING
POR LOCATIO	ON
	Å
	W E
10 5 0	10 Metres
Data Source: Ministry of Natural Resources,	Ontario Base Mapping, October 2016.
CLIENT:	
IRONCLAD DE	VELOPMENT INC.
PROJECT:	
800 EAGL	ESON ROAD
OTTAWA	A, ONTARIO
PROJECT NO:	DATE
181-02513-00	NOVEMBER 2018
DESIGNED BY:	
- DRAWN BY:	
T.P.	
CHECKED BY:	
	SCALE:
5	1:500
TITLE:	
E	, F & G
-	, -
DISCIPLINE:	
ENVI	
1990E;	REV.:
	-

# **APPENDIX**

# **B** DRAWINGS



S

(19)

102 3/4

[7.58]

- 22 EXISTING TERMINAL BOX-BEL SEE LANDSCAPE DRAWING. EXISTING TERMINAL BOX-BELL
- 23 EXISTING TRAFFIC SIGNAL LIGHT, SEE LANDSCAPE DRAWING.
- 24 SIAMESE FIRE CONNECTION



/	//						
		IRDI	NCLAC	DEV	'ELOP	MEN	TS INC.
	EXISTING PAINTED CROSSWALK					Projec Gener	t Management al Contracting
STM D D D D D D D D D D D D D D D D D D D						10 Sym Sprir F	1-57158 nington Rd. ngfield, MB. 2J 4L6
TIT THE SCORE						Ph: 20	)4-777-1972
TYP.		IR		CL/	\D Inc.	info	@icdev.ca
AVAD- NING DAYLIGHTING TRIANGLE ZONE TYP. 18 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5		GENE 1. THES STRU SPEC 2. THE 3. THE 3. THE SIGN 4. SLOU 5. REFN 6. ALL TRAF	ERAL NC SE DRAWINGS AR JOTURAL. MECHA CIFICATION AS RE SURVEY AND PI SURVEY WAS C IED AND CERTIFII PE PARKING LOT ER TO CIVIL DRA SIGNAGES TO B FIC MANUAL AND	TES: TE TO BE REAL NICAL AND ELL EQUIRED. LAN ARE CORF AND THE REI OMPLETED ON ED BY BRIAN 2% DOWN TO WING FOR GR E IN COMPLIAN D OTHER APPL	D IN CONJUNCT ECTRICAL ENGIN RECT IN ACCORI GULATIONS MAD THE 7TH DAY J. WEBSTER ON D DRAW TO CAT ADING OF PARK NCE WITH THE ICABLE CODES.	ION WITH C EERING DR/ DANCE WITH E UNDER T OF MARCH,   4TH DAY CH BASINS. ING AREA. LATEST EDIT	IVIL, LANDSCAPE WINGS AND THE SURVEY ACT, HEM. 2018. OF APRIL, 2018. ION OF ONTARIO
F54'-3 3/4" [R16.56] EXISTING							
R32'-8 1/2"		1 REV#	ISSUED FOR	DEVELOPMEI EVISION DESC	NT PERMIT ON	ILY	2018/12/04 DATE
		THIS DRAWI REPRODUCE CONTRACTO DIMENSIONS INC. AND C	ING IS THE PRO ED OR USED W OR IS RESPONSI S AND SHALL R OBTAIN CLARIFIC	DPERTY OF IF ITHOUT THE ( BLE FOR CHE EPORT ALL D ATION PRIOR	CONCLAD DEVE CONSENT OF T ECKING AND VE ISCREPANCIES TO COMMENCI	_OPMENTS HE DESIGN ERIFYING AI TO IRONCI NG WORK.	INC. AND CANNOT BE MANAGER. THE LL LEVELS AND _AD DEVELOPMENTS
		Ot	tawa	a, C	nta	rio	
5		800	Eagl	eson	Roa	d	
		Εαί	gleso	n Ap	oartr	ner	nts
		Pro	posed	d Site	e Plar	٦	
		Project Nu Date Drawn By Checked E	umber OCT 31, 20 TT By RG	18	Rev Da	te	1802
		Sheet No.		Δſ		1	
		Scale					
· / /							



Ironclad Developments Inc.				
GEN 1.	CONCLADE ELOPMENTS INC	Ma De 10 Sy F 204- infc	Project anagement General ontracting sign/Build 1-57158 ymington Rd. pringfield, MB. 2J 4L6 Ph: -777-1972 D@icdev.ca	
1			2018/00/17	
REV#	REVISION DESCRIPTION		DATE	
THIS DRAW REPRODUCI CONTRACTO DIMENSION INC. AND (	ING IS THE PROPERTY OF IRONCLAD I ED OR USED WITHOUT THE CONSENT R IS RESPONSIBLE FOR CHECKING AN S AND SHALL REPORT ALL DISCREPAN DBTAIN CLARIFICATION PRIOR TO COMM	Developmen of the des ID verifying Cies to iro Iencing wor	TS INC. AND CANNOT BE IGN MANAGER. THE 9 ALL LEVELS AND NCLAD DEVELOPMENTS RK.	
Ot	tawa, Onto	ario	,	
800	Eagleson Ro	ad		
Ea	gleson Apar	tme	ents	
Pa	rkade Floor Pl	lan		
Project Nu	umber		1802	
Date	OCT 31, 2018 Rev	Date		
Drawn By	MR/TT			
Checked	By RG			
Sheet No.	<b>A0</b> <sup>1</sup>	1		
Scale		_	AS NOTED	
			DI AN NO #17700	



	ironcida Developin	ents Inc.
		Project Management General
ſ		Contracting Design/Build 101-57158
	JLI	Symington Rd.
		Springfield, MB.
TR		RZJ 4L0 Ph·
DEVI	ELOPMENTS INC.	04-777-197
GEN	IERAL NOTE:	info@icdev.cc
1.	Contractor shall refer to large scal coordination of dropped lintels and f	e plan drawings for Lush—mounted beams.
1 REV#	ISSUED FOR ESTIMATES REVISION DESCRIPTION	2018/09/17 DATE
1 REV# THIS DRAW REPRODUCI CONTRACTO DIMENSIONS INC. AND C	ISSUED FOR ESTIMATES REVISION DESCRIPTION ING IS THE PROPERTY OF IRONCIAD DEV ED OR USED WITHOUT THE CONSENT OF IS RESPONSIBLE FOR CHECKING AND AND SHALL REPORT ALL DISCREPANCES BITAIN CLARIFICATION PRIOR TO COMMEN	2018/09/17 DATE ELOPMENTS INC. AND CANNOT BE VERIFING ALL LEVELS AND S TO IRONCLAD DEVELOPMENTS SING WORK.
1 REV# THIS DRAW REPRODUC DIMENSIONS INC. AND C	ISSUED FOR ESTIMATES REVISION DESCRIPTION NG IS THE PROPERTY OF IRONCLAD DEV 20 OR USED WITHOUT THE CONSENT OF 3 AND SHALL REPORT ALL DISCREPANCIES BITAIN CLARIFICATION PRIOR TO COMMENT TAWA, Onta	2018/09/17 DATE ELOPMENTS INC, AND CANNOT BE THE DESIGN MANAGER, THE VERTITICA LLEVELS AND S TO IRONCLAD DEVELOPMENTS SING WORK.
1 REV# THIS DRAW REPRODUCI CONTRACTO CONTRACTO DIMENSION INC. AND C	ISSUED FOR ESTIMATES REVISION DESCRIPTION NO IS THE PROPERTY OF INCOMENT OF STATE STOREST OF INSTANT OF A US RESPONSIBLE FOR CHECKING AND AND SHALL REPORT ALL DESCRIPTIONE ISTAN CLARIFICATION PRIOR TO COMMENT TAWA, Onta Eagleson Roa	2018/09/17 DATE ELOPERTIS INC. AND CANNOT BE VERIFYING ALL LEVELS AND S TO IRONGCIAD DEVELOPMENTS CING WORK.
1 REV# THIS DRAW REPRODUCI CONTRACTOR DIMENSIONS INC. AND C Off 8000 ECQ	ISSUED FOR ESTIMATES REVISION DESCRIPTION NO IS THE PROPERTY OF INCOMENT OF TO RUSED THE PROPERTY OF INCOMENT OF R IS RESPONSIBLE FOR CHECKING AND AND SHALL REPORT ALL DESCRIPTIONE ISTAIL CLARIFICATION PROR TO COMMENT TAWA, Onta Eagleson Roa gleson Apart	2018/09/17 DATE ELOPERTIS INC. AND CANNOT BE VERIFYING ALL LEVELS AND STO IRONCLAD DEVELOPMENTS SING WORK. URIO
1 REV# THIS DRAW REPRODUCI CONTRACT DIMENSIONE INC. AND C OT 8000 Eac	ISSUED FOR ESTIMATES REVISION DESCRIPTION DO RUSSO WITHOUT THE CONSUM OF DO RUSSO WITHOUT THE CONSUM OF DO RUSSO WITHOUT THE CONSUM OF TAW SALL REPORT AL DESCRIPTION TAW SALL REPORT AL DESCRIPTION TAW SALL REPORT AL DESCRIPTION TAW ALT AND THE CONSUMER TAWA CALIFICATION PROOF TO COMMENT TAWA CAL	2018/09/17 DATE ELOPENTS INC. AND CANNOT BE VERIFING ALL LEVELS AND STO IRONGLOD DEVELOPMENTS SING WORK.
1 REV# THIS DRAW REPRODUC CONTRACT DIMENSIONE ONT 8000 Ea( Mc	ISSUED FOR ESTIMATES REVISION DESCRIPTION DO RUSSO WITHOUT HE CONSUL DE DO RUSSO WITHOUT HE CONSUL DE DO RUSSO WITHOUT HE CONSUL DE TAMO SHALL REPORT ALL DESCRIPTION AMAIN ALL REPORT ALL DESCRIPTION TAWO SHALL REPORT ALL DESCRIPTION TAWO SHALL REPORT ALL DESCRIPTION TAWO SHALL REPORT ALL DESCRIPTION TAWO ALL REPORT ALL DESCRIPTION TAWO SHALL REPORT ALL DESCRIPTION AND TO TAWO SHALL DESCRIPTION AND TO TAWO SHALL DESCRIPTION AND TO TAWO SHALL DESCRIPTION AND TAKEN TAWO SHALL DESCRIPTION AND TAKEN TAKEN TAKEN AND TAKEN TAKEN TAKEN AND TAKEN TAKEN TAKEN AND TAKEN AND TAKEN TAKEN TAK	2018/09/17 DATE ELOPENTS INC. AND CANNOT BE VERIFING ALL LEVELS AND STO IRONCADO DEVELOPMENTS SING WORK.
1 REV# THIS DRAW REPRODUCI CONTRACT DIMENSIONE ONT BOD DIMENSIONE MCC MCC	ISSUED FOR ESTIMATES REVISION DESCRIPTION NO IS THE PROPERTY OF ROACIAD DAY DO RUSSO WITHOUT THE CONSENT OF AN RESPUESTOR AND PROF TAWA, Onta Eagleson Roa gleson Apart ain Floor Plan	2018/09/17 DATE ELOPENTS INC. AND CANNOT BE VERIFING ALL LEVELS AND STO HONKCAD DEVELOPMENTS SING WORK. ITIO Ind ments
1 REV# THIS DRAW REPRODUCI CONTRACTO DIMENSIONE INC. AND C CONTRACTO DIMENSIONE BOO EQ MCC Date Droject Nu Date Drawn By	ISSUED FOR ESTIMATES REVISION DESCRIPTION NO IS THE PROPERTY OF IRONCLAD DEV D OR USED WITHOUT THE CONSOL AND SHALL REPORT ALL DESCRIPTION TAWE SHALL REPORT ALL DESCRIPTION TAWE SHALL REPORT ALL DESCRIPTION TAWE AND ALL REPORT	2018/09/17 DATE ELOPENTS INC. AND CANNOT BE VERTIME ALL DECIS. MID S TO IRONCLO DEVELOPMENTS SING WORK. Infio Ind ments
1 REV# THIS DRAW REPRODUCI CONTRACTO DIMENSIONE INC. AND C CONTRACTO DIMENSIONE INC. AND C CONTRACTO PIOJECT NUC Drawn By Checked I	ISSUED FOR ESTIMATES REVISION DESCRIPTION NO IS THE PROPERTY OF IRONCIAD DEV D OK USED WITHOUT THE CONSENT OF AND SHALL REPORT ALL DESCRIPTION TAWN SHALL REPORT ALL DESCRIPTION TO COMMENT TO	2018/09/17 DATE ELOPMENTS INC. AND CANNOT BE VERIFYING ALL LEVELS AND STO IRONCLAD DEVELOPMENTS SING WORK. Irio Memts 1802 1802 ate
1 REV# THIS DRAW REPRODUCI CONTRACT DIMENSIONE INC. AND C OT 8000 EQ Contract BOO EQ Contract Contract BOO Contract Con	ISSUED FOR ESTIMATES REVISION DESCRIPTION NO IS THE PROPERTY OF HONCLAD DEV TO PRISE WITHOUT THE CONCEAN DEV TAWA, Onta Eagleson Roa Deleson Apart ain Floor Plan	2018/09/17 DATE ELOPENTS INC. AND CANNOT BE VERIFING ALL LEVELS AND SING WORK. UTIO Ind ments
1 REV# THIS DRAW REPRODUCI CONTRACT DIMENSIONE INC. AND C OT 8000 ECC CONTRACT Project Nu Date Drawn By Checked I Sheet No. Scale	ISSUED FOR ESTIMATES REVISION DESCRIPTION NO IS THE PROPERTY OF HONCLAD DEV TO R USE DESCRIPTION TO COMMENT TAWA, Onta Eagleson Roa Deleson Apart ain Floor Plan Interret OCT 31, 2018 Rev Da MR/TT By RG	2018/09/17 DATE ELOPENTIS INC. AND CANNOT BE VERIFING ALL LEVELS AND SING WORK. UTIO Ind ments 1802 ate AS NOTED

ILE NO. D07-12-18-009



	Ironclad Developm	nents	s Inc.
GEN 1.	Ironclad Developm	Ma De 10 Sp F 04- infc	s Inc. Project anagement General ontracting sign/ Build 1-57158 ymington Rd. oringfield, MB. 2J 4L6 Ph: -777-1972 D@icdev.ca
1	ISSUED FOR ESTIMATES		2018/09/17
1 REV#	ISSUED FOR ESTIMATES REVISION DESCRIPTION		2018/09/17 DATE
THIS DRAW REPRODUCI CONTRACTO DIMENSION INC. AND (	ING IS THE PROPERTY OF IRONCLAD DE DO R USED WITHOUT THE CONSENT OF R IS RESPONSIBLE FOR CHECKING AND S AND SHALL REPORT ALL DISCREPANCE BITAIN CLARIFICATION PRIOR TO COMMEN	Velopmen The des Verifying S to iro Icing Wof	ts inc. and cannot be ign manager. The 3 all levels and nclad developments ix.
Ot 800 Eag	tawa, Ontc Eagleson Roc gleson Apart	ario ad me	ents
Se	cond Floor Pla	IN	
Project Nu	umber OCT 31, 2018 Rev D	late	1802
Date			
Date Drawn By	MR/TT		
Date Drawn By Checked	MR/TT By RG		
Date Drawn By Checked Sheet No.	MR/TT By RG A12	21	
Date Drawn By Checked I Sheet No. Scale	MR/TT By RG A12	21	AS NOTED

LE NO. D07-12-18-0096



	Ironclad Developm	nents	s Inc.
	Ironclad Developm	Ma De 10 Sp F 04- infc	s Inc. Project anagement General ontracting sign/Build 1-57158 ymington Rd. pringfield, MB. 2J 4L6 Ph: -777-1972 D@icdev.ca
1	ISSUED FOR ESTIMATES		2018/09/17
REV#	REVISION DESCRIPTION		DATE
This draw Reproduci Contracto Dimensions Inc. and C	Ing is the property of ironclad de ed or used without the consent of r is responsible for checking and s and shall report all discrepanci detain clarification prior to commen	Velopmen The des Verifying S to iro Icing Wof	ts inc. and cannot be ign manager. The 3 all levels and NGLAD developments RK.
Ot 800	tawa, Ontc Eagleson Roc	ario ad	
Ea	gleson Apart	me	ents
Thi	rd Floor Plan		
Project Nu	Imber	loto	1802
Date Drawn By	OCT 31, 2018 Rev L	ate	
Checked I	By RG		
Sheet No.	A13	<b>31</b>	
Scale			AS NOTED

PLE NO. D07-12-18-009



	Ironclad Developm	nents	s Inc.
GEN 1.	IERAL NOTE: CONFIDENTS INC.	Mi De 10 Sp F F	Project anagement General ontracting sign / Build 1-57158 ymington Rd. oringfield, MB. 2J 4L6 Ph: -777-1972 o@icdev.ca
1	ISSUED FOR ESTIMATES		2018/00/17
REV#	REVISION DESCRIPTION		DATE
THIS DRAW REPRODUC CONTRACTO DIMENSIONS INC. AND (	ING IS THE PROPERTY OF IRONCLAD DE 2D OR USED WITHOUT THE CONSENT OF R IS RESPONSIBLE FOR CHECKING AND 5 AND SHALL REPORT ALL DISCREPANCI DBTAIN CLARIFICATION PRIOR TO CONMEN	Velopmen The Des Verifying Es to irc Vcing Woi	TS INC. AND CANNOT BE IGN MANAGER. THE 9 ALL LEVELS AND NCLAD DEVELOPMENTS RK.
Ot 800	tawa, Onto Eagleson Roc	ario ad	
Foi	urth & Fifth	n	1112
Project Nu		•	1000
Date		Date	1802
Drawn By			
Checked	By RG		
Sheet No.	A14	1	
Scale			AS NOTED

LE NO. D07-12-18-009



	Ironclad Developments Inc.			
GEN 1	Ironclad Developm	Ma Dee 10 Sy Sp F 004- infc	s Inc. Project anagement General omtracting sign/Build 1-57158 (mington Rd. oringfield, MB. 2J 4L6 Ph: -777-1972 O@icdev.ca	
1	issued for estimates		2018/09/17	
rev#	REVISION DESCRIPTION		DATE	
THIS DRAW REPRODUCI CONTRACTO DIMENSIONS INC. AND (	ING IS THE PROPERTY OF IRONCLAD DE DO OR USED WITHOUT THE CONSENT OF DR IS RESPONSIBLE FOR CHECKING AND S AND SHALL REPORT ALL DISCREPANCIE DETAIN CLARIFICATION PRIOR TO COMMEN	VELOPMEN THE DES VERIFYING IS TO IRO ICING WOF	is Inc. and Cannot Be Ign Manager. The 5 All Levels and NCLAD developments K.	
Ot	tawa, Ontc	irio		
200	Faaleson Pac	hr		
000		i U		
Eagleson Apartments				
Sixth Floor Plan				
Project Nu		ate	1802	
Drawn Bv	OCT 31, 2018 Rev D	ale		
Checked I	By RG			
Sheet No.				
	A16	1		
Scale	A16		AS NOTED	

ILE NO. D07-12-18-009



26	
ROOF LIKE	
	Pr

	Ironclad Develo	opments	s Inc.
	CONCLAR	Ma De 100 Sy F C.204-	Project anagement General ontracting sign/Build 1-57158 ymington Rd. oringfield, MB. 2J 4L6 Ph: -777-1972 o@icdev.ca
I       ISSUED FOR ESTIMATES       2018/09/17         I       ISSUED FOR ESTIMATES       2018/09/17         REV#       REVISION DESCRIPTION       DATE         THE DRAWING IS THE PROPERTY OF IRONCLAD DEVELOPMENTS INC. AND CANNOT BE REPROVIDED OR USED WITHOUT THE CONSENT OF THE DESIGN MANAGER. THE CONTRACTOR IS RESPONSIBLE FOR CHECKING AND VERTIFING ALL LEVELS AND DIMENSIONS AND SHALL REPORT ALL DISCREPANCES TO IRONCLAD DEVELOPMENTS INC. AND OBTAIN CLARIFICATION PRIOR TO COMMENCING WORK.         Otttawa, Ontario       800 Eagleson Road         Eagleson Apartments         Attic Space Plan			
Project Nu Date Drawn By Checked I Sheet No. Scale	OCT 31, 2018 F MR/TT By RG	Rev Date	1802
			PLAN NO. #17788

FILE NO. D07-12-18-0096



2	6			
	8'-3 1/2"			
& ICE DITION ABOVE LCONY				
		 	1 301	
		 1		

Project Management General Contracting Design Build 101-57158 Symingtion Rd. Springfield, MB. R2J 4L6         Ph: 04-777-1972         Info@icdev.co         info@icdev.co         info@icdev.co         info@icdev.co         info@icdev.co         info@icdev.co         contracting Build DevelopmentTB INC.         info@icdev.co		Ironclad Developm	nents	s Inc.
Image: Contract of the second seco			M	Project anagement General
Image: State of the property of rowards control of the property of rowards controwards control of the property of rowards con		<b>161</b>	De 10 Sv	sign/ Build 1—57158 vminaton
Image: Note of the second s	L		Sp	Rd. pringfield,
IRONCLAD       Ph: 04-777-1972         Info@icdev.ca       info@icdev.ca         info@icdev.ca <td></td> <td></td> <td>F</td> <td>мв. 2J 4L6</td>			F	мв. 2J 4L6
info@icdev.ca         info@iffa.ca         info@iffa.ca         i		ONCLAD	04-	Ph: -777—1972
I     ISSUED FOR ESTIMATES     2018/09/17       I     ISSUED FOR ESTIMATES     2018/09/17       REV/     REVISION DESCRIPTION     DATE       This prowing is the property of rowcau developments inc. and convort BE     000000000000000000000000000000000000			info	@icdev.ca
I       ISSUED FOR ESTIMATES       2018/09/17         I       ISSUED FOR ESTIMATES       2018/09/17         REV       REVISION DESCRIPTION       DATE         THIS DEMINION IS THE PROPERTY OF ROWADD DEVELOPMENTS INC. AND CHANNES THE REPROPORED THE EXISTIMATES AND VERTICE ALL LEVELS MUD       DATE         THIS DEMINION IS THE PROPERTY OF ROWADD DEVELOPMENTS INC. AND CHANNES THE CONSTRUCTOR IS DESCRIPTION       DATE         THIS DEMINION IS THE PROPERTY OF ROWADD DEVELOPMENTS INC. AND CHANNES THE CONSTRUCTOR IS DEVELOPMENTS INC. AND CHANNES AND VERTICE WANK.         OCTIAL QUE AND CHANNES AND VERTICE WANK.       DEVELOPMENT INC. AND CHANNES AND VERTICE WANK.         OCTIAL CONTRACT ON PROOF TO COMMENCE WANK.       DEVELOPMENT INC. AND CHANNES AND VERTICE WANK.         Project Number       1802         Traine MBY       MR/TT         Checked BY       RG         Sheet No.       MANTE         Call       AS NOTED				
1       ISSUED FOR ESTIMATES       2018/09/17         1       ISSUED FOR ESTIMATES       2018/09/17         REVIOUR REVISION DESCRIPTION       DATE         THIS DRIVING THE ECONSENT OF INCOME DEVELOPMENTS IN AVAILABLES AND CONTROL OF USED WITHOUT THE CONSENT OF INCOME DEVELOPMENTS IN AVAILABLE AND SERVICE AND VERTING AND VERTING ALL LIVES AND CONTROL OF USED WITHOUT THE CONSENT OF INCOME DEVELOPMENTS IN AVAILABLE AND SERVICE AND VERTING				
I     ISSUED FOR ESTIMATES     2018/09/17       I     ISSUED FOR ESTIMATES     2018/09/17       REVISION DESCRIPTION     DATE       THIS DRAWING IS THE PROPERTY OF IRONCLAD DEVELOPMENTS INC. AND CANNOT BE REPRODUCED OR USED WITHOUT THE CONSCIL OD EDELLOWENTS INC. AND CANNOT BE REPRODUCED OR USED WITHOUT THE CONSCIL OD EDELLOWENTS INC. AND CANNOT BE REPRODUCED OR USED WITHOUT THE CONSCIL OD EDELLOWENTS INC. AND CANNOT BE REPRODUCED OR USED WITHOUT THE CONSCIL OD EDELLOWENTS INC. AND CANNOT BE REPRODUCED OR USED WITHOUT THE CONSCIL OD EDELLOWENTS INC. AND CANNOT BE REPRODUCED OR USED WITHOUT THE CONSCIL OD EDELLOWENTS INC. AND DIEDESCRIPTION HORT TO COMMERCIAL WARK.       OCTTACTOR REPORT ALL DATE OF THE CONSCIL OD EDELLOWENTS INC. AND OBTINUE ON CONSCIL OD EDELLOWENTS INC. AND SUCH CONSCIL OD EDELLOWENTS INC. AND CANNOT BE REPORT ALL DATE OF THE CONSCIL OD EDELLOWENTS INC. AND SUCH CONSCIL OD EDELLOWENTS INC. AND CANNOT BE REPORT ALL DATE OF THE CONSCIL OD EDELLOWENTS INC. AND SUCH CONSCIL OD EDELLOWENTS INC. AND CANNOT BE REPORT INC.       Project Number     INC. INC. INC. INC. INC. INC. INC. INC.				
I     ISSUED FOR ESTIMATES     2018/09/17       I     ISSUED FOR ESTIMATES     2018/09/17       REV     REVISION DESCRIPTION     DATE       This DRIVINGE IS THE PROPERTY OF RONCLAD DEVELOPMENTS INC. AND CONNOT BE REPRODUCED OF USED MURICULT RECONSENT OF HER DISSION MANAGES. THE DISSION MANAGES THE DISSION MANAGES. THE DISSION AND DESCRIPTION     DATE       This DRIVINGE IS THE PROPERTY OF RONCLAD DEVELOPMENTS INC. AND CONNOT BE REPRODUCED OF USED MURICULT RECONSENT OF THE DISSION MANAGES. THE DISSION MANAGES THE DISSION AND DESCRIPTION     DATE       This DRIVINGE IS THE PROPERTY OF RONCLAD DEVELOPMENTS INC. AND CONNOT BE REPRODUCED OF USED MURICULT RECONSENT OF THE DISSION MANAGES. THE DISSION AND DESCRIPTION     DATE       This DRIVINGE IS THE PROPERTY OF RONCLAD DEVELOPMENTS INC. AND CONNOT BE REPRODUCED OF USED MURICULT RECONSENT OF THE DISSION MANAGES. THE DISSION AND DESCRIPTION     DATE       OTTAL AND OFFINIA CLARIFICATION PROF     TO COMMENCIAN WORK.     DATE       OTTAL AND OFFINIA CLARIFICATION PROF     TO COMMENCIAN WORK.     DATE       OTTAL AND OFFINIA CLARIFICATION PROF     TO COMMENCIAN WORK.     DATE       OTTAL AND OFFINIA CLARIFICATION PROF     TO COMMENCIAN WORK.     DATE       Project Number     1802     1802       Date     OCT 31, 2018     Rev Date       The DISSING AND AND THE DISSING AND THE				
I     ISSUED FOR ESTIMATES     2018/09/17       I     ISSUED FOR ESTIMATES     2018/09/17       REV/     REVISION DESCRIPTION     DATE       THE DRAWING IS THE PROPERTY OF PROVIDENT THE CONSENT OF THE DESCN NAMAGER. THE DOWNLAW DEVELOPMENTS INC. AND CAMPOT HE REPORT ALL DESCRIPTION ALL DEVELOPMENTS     DATE       THE DRAWING IS THE PROPERTY OF RONCLAD DEVELOPMENTS INC. AND CAMPOT HE REPORT ALL DESCRIPTION     DATE       THE DRAWING IS THE PROPERTY OF RONCLAD DEVELOPMENTS INC. AND CAMPOT HE REPORT ALL DESCRIPTION AD DEVELOPMENTS     DATE       OCTITATION FROM TO COMMENCING WORK.     DIMENSIONS AND SHALL REPORT ALL DESCRIPTION CLARIFICATION FROM TO COMMENCING WORK.       OTTATION CLARIFICATION FROM TO COMMENTING AD EVELOPMENTS     RECORD AD EXAPLORMENTS       BOOD Eagleson Apartments     BOOD Eagleson Road       Reoof Plan     1802       Project Number     1802       Yate     OCTI31, 2018       Rev Date     Date       Drawn By     MR/TT       Checked By     RG       Sheet No.     Alta 182       State     As NOTED				
I     ISSUED FOR ESTIMATES     2018/09/17       I     ISSUED FOR ESTIMATES     2018/09/17       REV/F     REVISION DESCRIPTION     DATE       THIS DRAWING IS THE PROPERTY OF INCLAU DEVELOPMENTS INC. AND COMMOR THE ECONSTRUCTOR IS THE PROPERTY OF INCLAU DEVELOPMENTS INC. AND COMMOR THE CONTRACTOR IS THE PROPERTY OF INCLAU DEVELOPMENTS INC. AND DUBLISHING AND USED WITHOUT ALL DISCREPTION ALL LEVELS AND DUBLISHING AND USED WITHOUT ALL DISCREPTION ALL DEVELOPMENTS INC. AND OBTIMIC CLARPCATION PROP TO COMMENCIATION WORK.       Ottaawa, Ontario 800 Eagleson Road       Eagleson Apartments       Roof Plan       Project Number     1802       Date     OCT 31, 2018       Rev Date       Oran By     MR/TT       Checked By     RG       Sheet No.     All 1801				
I       ISSUED FOR ESTIMATES       2018/09/17         I       ISSUED FOR CESTIMATES       ISSUED FOR CESTIMATES         I       ISSUED FOR OUSENE FOR OUSENE FOR OUSENE FOR COLLAD EVELOPMENTS         I       ISSUED FOR ESTIMATES       ISSUED FOR ESTIMATES         IDMENSIONS AND SHALL REPORTAL LISIERFORMENTES TO ISSUED FOR CLARATION FOR TO COMMENCING WORK.       ISSUED FOR ESTIMATES         I       ISSUED FOR ESTIMATION CLARATION FROME FOR CLARATION FOR CLAR				
I       ISSUED FOR ESTIMATES       2018/09/17         I       ISSUED FOR ESTIMATES       2018/09/17         REV#       REVISION DESCRIPTION       DATE         THS DRAWING IS THE PROPERTY OF INONCLAD DEVELOPMENTS INC. AND CANNOT BE CONTRUCTOR IS RESPONDED FOR CHECKING AND VENDOTIBLE TO INCLAD DEVELOPMENTS INC. AND CONNOT BE CONTRUCTOR IS RESPONDED THE CONSENT         Ottaawa, Ontario         BOO Eagleson Road         Eagleson Apartments         Roof Plan         Project Number       1802         Date       0CT 31, 2018         Rev Date       0CT 31, 2018         Checked By       RG         Sheet No.       Mathematical State Date         Cale       AS NOTED				
I     ISSUED FOR ESTIMATES     2018/09/17       I     ISSUED FOR ESTIMATES     2018/09/17       REV/     REVISION DESCRIPTION     DATE   THE DOMINIC IS THE PROPERTY OF HONICAD DEPELOPMENTS INC. AND COMMON BE CONSULT OF THE DESION MANAGED. THE DESION MANAGED. THE DOMINICAL LICES AND DIMENSIONS IN SHALL REPORT ALL DECREPANCES TO THE DESION MANAGED. THE DOMINICAL LICES AND DIMENSIONS INC. AND OBTAIL DEPELOPMENTS INC. AND OBTAIL DEPELOPMENTS INC. AND OBTAIL DEPELOPMENTS INC. AND COMMON BE CONSULT OF THE DESION MANAGED. THE DOMINICAL LICES AND DIMENSIONS INC. AND OBTAIL DEPELOPMENTS INC. AND DEPLOPMENTS INC. AND DEPLOPMENT INC. AND				
I     ISSUED FOR ESTIMATES     2018/09/17       I     ISSUED FOR ESTIMATES     2018/09/17       REV//     REVISION DESCRIPTION     DATE       THS DRAWING IS THE PROPERTY OF INDICAD DEVELOPMENTS INC. AND CANNOT EE CONTRACTOR IS RESONDER FOR CHECKING AND VERIFITING ALL LEVELS AND DIMENSIONS AND SHALL REPORT ALL DISCREPTING ALL LEVELS AND DIMENSION AND SHALL REPORT ALL DISCREPTING ALL LEVELS AND BOOD EAGEIRESON ADDATT       BOOD EAGEIRESON ADDATT     BOOD EAGEIRESON ADDATT       BOOD FORT ALL DISCREPTION     REV DATE       Project Number     1802       Date     OCT 31, 2018       Rev Date     Drawn By       Drawn By     MR/TT       Checked By     RG       Sheet No. <b>ALL 1818</b> Calle     AS NOTED				
1     ISSUED FOR ESTIMATES     2018/09/17       REV/     REVISION DESCRIPTION     DATE       THER PRAVING IS THE PROPERTY OF ROUCAD DEVELOPMENTS INC. AND COMMOT BE CONTRUCTOR USES PROPERTY OF ROUCAD DEVELOPMENTS INC. AND COMMOT BE CONTRUCTOR SUBSERVIEW THAT IS DESCRIPTION THE DESIGN MANAGES. THE CONTRUCTOR SUBSERVIEW TALL DESCRIPTIONES TO TROUCAD DEVELOPMENTS INC. AND CETAIL CEFORT ALL DESCRIPTIONES TO TROUCAD DEVELOPMENTS INC. AND CETAIL CEFORT ALL DESCRIPTIONES TO TROUCAD DEVELOPMENTS INC. AND CETAIL CHARTICATION PRIOR TO COMMENCIAN WORK.       Ottawa, Ontario 800 Eagleson Road       Eagleson Apartments       Roof Plan       Project Number     1802       Date     OCT 31, 2018       Rev Date       Drawn By     MR/TT       Checked By     RG       Sheet No.     All 1812       Scale     AS NOTED				
I     ISSUEL FOR ESTIMATES     2018/09/17       REV#     REVISION DESCRIPTION     DATE       This DRAWING IS THE PROPERTY OF IRONCLAD DEVELOPMENTS INC. AND CANNOT BE REPROJUCED OR USED WITHOUT THE CONSENT OF THE DESIGN MANAGER. THE CONTRACTOR RESPONSEL FOR CHECKING AND VERTIFING ALL LEVELS AND DIMENSIONS AND SHALL REPORT ALL DISCREPANCES TO IRONCLAD DEVELOPMENTS INC. AND OBTAIN CLARIFICATION PROF TO COMMENTIA ILLEVELS AND DIMENSIONS AND SHALL REPORT ALL DISCREPANCES TO IRONCLAD DEVELOPMENTS INC. AND OBTAIN CLARIFICATION PROF TO COMMENTIA ILLEVELS AND DIMENSIONS AND SHALL REPORT ALL DISCREPANCES TO IRONCLAD DEVELOPMENTS INC. AND OBTAIN CLARIFICATION PROF TO COMMENTIA ILLEVELS AND BOOD EAGILESON ADDATTORIES       BOOD EAGILESON ADDATTORIES     BOOD EAGILESON ADDATTORIES       Roof Plan     1802       Project Number     1802       Date     OCT 31, 2018       Yero Mark By MR/TT     2000       Checked By RG     RG       Sheet No.     ATTA BATA       Scale     AS NOTED				0040 /00 /17
THE DRAWING IS THE PROPERTY OF INONCLAD DEVELOPMENTS INC. AND CANNOT BE REPRODUCED ON USED WITHOUT THE CONSTRUCTOR THE ORDER CONTRACTOR IS RESPONSIBLE FOR CHECKING AND VERIFIXING ALL LEVELS AND DIMENSIONS AND SHALL REPORT ALL DISCREPANCES TO IRONAUCES. TO ROUBLESSON AND SHALL REPORT ALL DISCREPANCES TO IRONAUCES. ROUBLESSON AND AND REPORT TO COMMENCING WORK. Ottawa, Ontario 800 Eagleson Apartments Roof Plan Project Number 1802 Date OCT 31, 2018 Rev Date Drawn By MR/TT Checked By RG Sheet No. Calle AS NOTED	REV#	REVISION DESCRIPTION		DATE
Ottawa, Ontario 800 Eagleson Road Eagleson Apartments Roof Plan Project Number 1802 Date OCT 31, 2018 Rev Date Drawn By MR/TT Checked By RG Sheet No. Ball 81	THIS DRAW REPRODUCI CONTRACTO DIMENSIONS INC. AND C	ING IS THE PROPERTY OF IRONCLAD DE ED OR USED WITHOUT THE CONSENT OF IR IS RESPONSIBLE FOR CHECKING AND 5 AND SHALL REPORT ALL DISCREPANCIE DETAIN CLARIFICATION PRIOR TO COMMEN	Velopmen The des Verifying 's to iro Icing Wof	ts inc. and cannot be Ign Manager. The 3 all levels and Inclad developments RK.
800 Eagleson Road Eagleson Apartments Roof Plan Project Number 1802 Date OCT 31, 2018 Rev Date Drawn By MR/TT Checked By RG Sheet No. A181 As NOTED	Ot	tawa, Ontc	irio	)
Eagleson Apartments Roof Plan Project Number 1802 Project Number 1	800	Eagleson Roc	d	
Project Number       1802         Date       OCT 31, 2018       Rev Date         Drawn By       MR/TT         Checked By       RG         Sheet No.       A1881         Scale       AS NOTED	Ea	gleson Apart	me	ents
Project Number 1802 Date OCT 31, 2018 Rev Date Drawn By MR/TT Checked By RG Sheet No. <b>A181</b>	Ro	of Plan		
Project Number 1802 Date OCT 31, 2018 Rev Date Drawn By MR/TT Checked By RG Sheet No. A181 AS NOTED				
Project Number         1802           Date         OCT 31, 2018         Rev Date           Drawn By         MR/TT         MR/TT           Checked By         RG         RG           Sheet No.         A1881         As NOTED				
Drawn By MR/TT Checked By RG Sheet No. Cale AS NOTED	roject Nu		ate	1802
Checked By RG Sheet No. A181 Scale AS NOTED	Drawn Rv	MR/TT		
Sheet No. A181 Scale AS NOTED	Checked I	By RG		
Scale AS NOTED	Sheet No.	Δ19	21	
	Scale			AS NOTED
DI ANI MA #17700				

FILE NO. D07-12-18-009














# **Mechanical Shop Drawing Review**

PROJECT NAME	PEMBINA APARTMEN	TS – WIN	NIPEG, MB	PROJECT NUMBER	8987-M
ARCHITECT		CONTACT NAME	Doug McKay	PH	204.777.1972
GENERAL CONTRACTOR	IronClad developments Inc.	CONTACT NAME	Mark Rootsaert	PH	204.777.1972
MECHANICAL CONTRACTOR	Pro-Western Mechanical Ltd.	CONTACT NAME	Wes Levesque	PH	306.979.9500

#### SHOP DRAWING DESCRIPTION

PRODUCT	#PGS	CODE	REMARKS
MAKE-UP AIR UNIT	6	1	UNIT FAN MOTOR REDUCED FROM 50 HP TO 40 HP
CORRIDOR PRESSURIZATION UNITS	17	1	COOLING IS DELETED REFER TO ADDENDUM M1 MCA REDUCED FROM 40 TO 12.6 UNITS ARE OUTDOOR ROOF CURB MOUNTED WEIGHT REDUCED FROM 6000 Ib TO 3800 Ib MECHANICAL CONTRACTOR TO COORDINATE FOR LOCATION OF UNITS REMOTE CONTROL PANEL ( Janitor rooms 6 <sup>th</sup> Floor )
			EQUIPMENT ELECTRICAL CHARACTERISTICS TO BE REVIEWED AND CONFIRMED BY ELECTRICAL CONTRACTOR

REVIEWED		REVIEW	
BY	Frank Lautar	DATE	October 31, 2018

CODES:

1. REVIEWED

2. REVIEWED AS MODIFIED

(RESUBMISSION NOT REQUIRED) 3. REVISE AND RESUBMIT

\_2\_

4. NOT REVIEWED

5. NOT ACCEPTED

REVIEWED FOR CONFORMITY WITH THE DESIGN CONCEPT AND CRITERIA. THE CONTRACTOR REMAINS SOLELY RESPONSIBLE FOR ENSURING THAT THE MATERIALS MEET OR EXCEED THE REQUIREMENTS OF ANY AND ALL RELATED CONSTRUCTION DOCUMENTS, AND THAT THE MATERIALS SUIT THE SITE CONDITIONS AND FIT IN THE AVAILABLE SPACE.

# DRAWING TRANSMITTAL SHEET





SASKATOON SALES OFFICE

#102-2366 AVENUE C NORTH SASKATOON SK S7H 5X8 (306) 653-5291 CANADIAN HEAD OFFICE CALGARY AB CANADIAN FACTORY CALGARY AB EDMONTON AB NEWMARKET ON JOB NO. PRELIMINARY

DATE OCTOBER 25, 2018

# OTHER CANADIAN SALES OFFICES

VANCOUVER, EDMONTON, CALGARY, REGINA, WINNIPEG, LONDON, SUDBURY, TORONTO, HAMILTON, OTTAWA, MONTREAL, HALIFAX, MONCTON

306) 653-5291	HALIFAX, MONCTON						
CONTRACTOR	PRO-WESTERN MECHANICAL LTD						
ADDRESS	3703 10 MITCHELMORE AVE						
	SASKATOON SK						
	S7P 0C5						
ENGINEER	ARROW ENGINEERING INC						
JOB NAME	ONE 792 PEMBINA						
THIS ORDER THESE FORM	IS SUBJECT TO APPROVAL. MANUFACTURING IS HELD PENDING RETURN OF ONE APPROVED COPY OF //S TO THE INDICATED OFFICE.						
THIS ORDER	IS NOT SUBJECT TO APPROVAL AND IS BEING MANUFACTURED ACCORDING TO THE ATTACHED FORMS.						
COPIES ENCLOSED	DESCRIPTION						
1	EngA Submittal Record MAU-1						
1	EngA Mechanical Drawing						
1	EngA Electrical Data Sheet MAU-1						
1	EngA Field Wiring Diagram						
1	EngA Submittal Record CPU-1 to 4						
1	EngA Mechanical Drawing						
1	EngA Electrical Data Sheet CPU-1 to 4						
I -							
_							
-	-						
-							
-							
_							
_							
-							
_							
_							
-							
_							
	· · · ·						

DATE OCTOBER 25, 2018

#### NO. OF PIECES 1 Unit

• Intertek cETL approval.

#### SUPPLY AIR DATA

AIR FLOW 36,000 CFM (16,981 l/s)	<sup>:</sup> AN SIZE (1) 36/30 FC DIDW	TSP	2.6 in w.c. (647 Pa)	RPM	670
MOTOR SIZE 40 HP (29.8 kW)	TYPE (RPM) Super 'E' ODP (1750)	ESP	1.5 in w.c. (374 Pa)	BHP	27.9 BHP (20.8 kW)
Supply air fan/motor c/w spring vib	pration isolation and pillow block bearings.				

#### **AIR OPENING DATA**

AIR OPENING	LOCATION	DAMPER TYPE	OPERATION
SUPPLY AIR	Front		
OUTSIDE AIR	Back	EngA Parallel Blade	Two Position

#### **CONSTRUCTION DATA**

UNIT CABINET	Heavy gauge satin coat galvanized sheet metal on entire unit casing.
UNIT FLOOR	Satin coat galvanized sheet metal on entire unit floor.
EXTERIOR PAINT	Electrostatically applied Alkyd Enamel in Aluminum Gray color on all exterior surface but not including unit underside.
AIRSIDE DOOR	All access - hinged c/w camlock fasteners
SERVICE DOOR	Electrical access - hinged c/w camlock fasteners
Unit comes with	single side access extension.

#### **ELECTRICAL DATA**

POWER SUPPLY	MINIMUM CIRCUIT AMPACITY	MAXIMUM FUSE(D.E.)	MAXIMUM BREAKER
575 / 3 / 60	30.3 AMPS	50 AMPS	50 AMPS
See Electrical Data She	eet for details.		

#### **FILTER SECTION DATA - Side Loaded**

FILTER TYPE High Velocity Washable Filter with MERV 3 rating c/w Metal Frame					
QTY/SIZE <sup>24</sup> QTY/SIZE					
TOTAL GROSS AREA 75 SQ. FT. (6.99 SQ. MTRS)	FACE VELOCITY 480 FPM (2.43 m/s)				
Filters may be shipped loose or mounted in the tracks.					

#### **BURNER HEATING DATA - DIRECT FIRED (HE-131)**

ATMOSPHERIC BURNER EngA Line Burner		HEAT INPUT 4,672,800 Btuh (1369 kW)		TEMP. RISE 110 F (61.1 C)				
FUEL	Natural Gas	INLET PRESSURE	7 in wc. (1743 Pa)	GAS FIELD CON	<b>N.</b> 2" (50 mm)			
• MTI	RAC discharge air control.							
• Hea	<ul> <li>Heating locked out above 65°F (18.3°C) ambient temperature.</li> </ul>							
• Inte	gral low limit auto bypass; set @ 40°F (4.4°	C).						
_								

• Reverse interlock package (Exhaust fan air proving switch by others).

SUBMITTAL RECORD

# JOB NO: PRELIMINARY

CUSTOMER: PRO-WESTERN MECHANICAL LTD ENGINEER: ARROW ENGINEERING INC

ACCESS As Per Drawing

**OPERATING WEIGHT** 4,500 lbs (2,045 kgs)

QTY: <u>1</u> TAG: <u>MAU-1</u>

SHIPPING AND APPROVAL INFORMATION

EngA MODEL: HE401

MOUNTING Indoor Base Mounted

SHIPPING WEIGHT 4,500 lbs (2,045 kgs)

Eng	<b>A</b> <sub>R</sub>	EN	IGINE
	ONE 7	'92 P	EMBINA

JOB NAME:

**ENGINEERED AIR** 



### JOB NAME: ONE 792 PEMBINA

EngA MODEL: HE401

QTY: <u>1</u> TAG: <u>MAU-1</u>

#### SHIPPED LOOSE ITEMS (See filter section for filters)

Remote panel - 8" x 6" x 3"(203 x 152 x 76) wall mounted type panel c/w standard sticker face(See field wiring diagram for detail)(1) ENGE863







JOB NO: PRELIMINARY

EngA MODEL: HE401

JOB NAME:

**QTY: 1** 

TAG: MAU-1

Power Supply	Minimum Circu Ampacity	it Terminal Block to Accept	Maximum Fuse (Dual Element)	Maximum Breaker
575 / 3 / 60 50.4 AMPS		6 Awg	90 AMPS	90 AMPS
Compo	nents	Model	Minimum Conductor Size	Ampacity FLA / LRA
Supply Fan Motor		Super 'E' ODP (1750) 40 HP	12 Awg	40
Join Control Vfmr			14 Awa	0.43

WIRING DRAWING LEGEND						
APS	Air Proving Switch	DM	Damper Motor	NFD	Non Fused Disconnect	
ASF	Auto Fan Switch	FR	Fan Relay	OL	Thermal Overload	
AUX	Auxiliary Contact	GND	Ground	PS	Pressure Sensor	
BM	Burner Motor	GV	Gas Valve	PV	Pilot Gas Valve	
С	Contactor	HL	High Limit	R	Relay	
CCH	Compressor Crankcase Heater	HPC	High Pressure Control	RevHL	Reverse Airflow High Limit	
CFC	Condenser Fan Control	HR	Heating Relay	ТВ	Terminal Block	
CLC	Compressor Loading Control	IGN	Ignition Control	TDF	Time Delay Fuse	
CPM	Compressor Protection Module	ITP	Internal Thermo Protection	TDR	Time Delay Relay	
CR	Cooling Relay	LPC	Low Pressure Control	TS	Temperature Sensor	
CS	Current Sensor	М	Motor	VFD	Variable Frequency Drive	
DHSS	Draft Hood Spill Switch	MV	Main Gas Valve	XFMR	Transformer	

#### UNIT FUNCTION

Disconnect switch (by others) 'on', service switch 'on', fire alarm contacts (by others) 'closed' (jumper if not required).

On/auto switch 'on' -or-On/auto switch 'auto' with CO sensor contact (by others) 'closed', outside air damper opens. Blower will delay on and run continuously.

The Mtrac allows 50 seconds to prove minimum airflow (if minimum airflow is not met, Mtrac locks out and shuts down the unit). When supply air is proven, AL contacts on Mtrac 'close', allowing exhaust fan (by others) to start. With the exhaust fan air proving switch (by others) 'closed', heat is enabled. The Mtrac controller with an adjustable remote set point set at 70°F (21.1°C) will modulate the gas flow to maintain constant discharge air temperature.

Whenever the outdoor ambient is above 65°F (18.3°C) heating is locked out.

On/auto switch 'auto' with CO sensor contact (by others) 'open', outside air damper closes. Unit is off.

Exhaust fan air proving switch (by others) 'open', heating locks out, and the supply air blower runs continuously until the low limit condition.

MTRAC integral auto bypass low limit will stop unit operation if the discharge air temperature falls below 40°F (4.4°C).

MTRAC will shut down the unit if the profile plate airflow is too high or too low.



# DA

# • |

#### **ONE 792 PEMBINA** JOB NAME:

CUSTOMER: PRO-WESTERN MECHANICAL LTD ENGINEER: ARROW ENGINEERING INC

**ENGINEERED AIR** 

EngA MODEL: DJS100/O

**MOUNTING** Indoor Base Mounted

#### SHIPPING AND APPROVAL INFORMATION

SHIPPING WEIGHT         3800 lbs (1,727 kgs)           NO. OF PIECES         1 Unit + Curb	<b>OPERATING WEIGHT</b> 3800 lbs (1,727 kgs)
• Intertek <sub>c</sub> ETL approval.	

#### SUPPLY AIR DATA

AIR FLOW 6,000 CFM (2,830 l/s)	FAN SIZE (1) 18/18 FC DIDW	TSP	2.85 in w.c. (710 Pa)	RPM	976 RPM	
MOTOR SIZE 7.5 HP (5.6 kW)	TYPE (RPM) Super 'E' ODP (1750)	ESP	1.5 in w.c. (374 Pa)	BHP	5.5 BHP (4.1 kW)	
Supply air fan/motor c/w rubber in shear vibration isolation and pillow block bearings.						

#### **AIR OPENING DATA**

AIR OPENING	LOCATION	DAMPER TYPE	OPERATION
SUPPLY AIR	Front		
OUTSIDE AIR	Back	EngA Parallel Blade	Two Position

#### **CONSTRUCTION DATA**

UNIT CABINET	18 gauge satin coat galvanized sheet metal c/w 2" (50 mm) 1.5 lb/ft <sup>3</sup> (24 kg/m <sup>3</sup> ) insulation on entire unit casing.
UNIT FLOOR	18 gauge satin coat galvanized sheet metal on entire unit floor.
EXTERIOR PAINT	Electrostatically applied Alkyd Enamel in Aluminum Gray color on all exterior surface but not including unit underside.
AIRSIDE DOOR	All access - hinged c/w lever type door handles
SERVICE DOOR	Electrical and burner access - hinged c/w lever type door handles

#### ELECTRICAL DATA

POWER SUPPLY	MINIMUM CIRCUIT AMPACITY	MAXIMUM FUSE(D.E.)	MAXIMUM BREAKER				
575 / 3 / 60	12.6 AMPS	20 AMPS	20 AMPS				
See Electrical Data Sheet for details.							

#### FILTER SECTION DATA - Side Loaded

FILTER TYPE Pleated Filter with MERV 8 rating c/w Metal Fram	le
QTY/SIZE 6 - 25 x 20 x 2" (635 x 508 x 51 mm)	QTY/SIZE
TOTAL GROSS AREA 20.84 SQ. FT. (1.94 SQ. MTRS)	FACE VELOCITY 288 FPM (1.46 m/s)
Filters may be shipped loose or mounted in the tracks.	

#### BURNER HEATING DATA - INDIRECT FIRED (DJS-60)

POWE	R BURNER	EngA 'HT' Series	HEAT EXCH. M	ATERIAL Stainless Steel		
FUEL	Natural Gas	INLET PRESSURE	7 in wc. (1743 Pa)	GAS FIELD CONN. 1" (25 mm	)	
HEAT	<b>INPUT</b> 1,000	),000 Btuh (293 kW)	HEAT OUTPUT	810,000 Btuh (237 kW)	TEMP. RISE	125 F (69.4 C)
• Eng	gA (15 : 1) hig	jh turndown burner				
• Two	o pass heat e	xchanger c/w condensa	ate drain connection			
• Hea	at exchanger	section has 1"(25 mm)	1.5 lb/ft(24 kg/m³) insula	tion with 22 gauge solid liner		
• Mo	dulating comb	oustion air and gas conf	rol.			
• Gas	s manifold c/v	v auxiliary shutoff valve				
• DJN	∕I-3 discharge	e air control.				
Inte	gral low limit	auto bypass; set @ 40°	°F (4.4°C).			
DATE	OCTOBER	25, 2018	-	1-		Continued on page 2





# JOB NO: PRELIMINARY

ACCESS As Per Drawing

TAG: CPU-1 QTY: 1



JOB NAME:	ONE 792 PEMBINA
CUSTOMER:	PRO-WESTERN MECHANICAL LTD
EngA MODEL:	DJS100/O

JOB NO: PRELIMINARY

ENGINEER: ARROW ENGINEERING INC

QTY: 1 TAG: CPU-1

#### SHIPPED LOOSE ITEMS (See filter section for filters)

- 1 Cold Weather Vent
- 1 Remote panel 8" x 6" x 3"(203 x 152 x 76) wall mounted type panel c/w lamicoid face(See field wiring diagram for detail)(1) ENGE863
- 1 Engineered Air TE6000-EA3 Discharge Air Sensor







JOB NO: PRELIMINARY

EngA MODEL: DJS100/O

JOB NAME:

TAG: CPU-1 QTY: 1

Power	Minimum Circuit	Terminal Block to	Maximum Fuse	Maximum Breaker
Supply	Ampacity	Accept	(Dual Element)	
575 / 3 / 60	12.6 AMPS	14 Awg	20 Awg	20 Awg

Components	Model	Minimum Conductor Size	Ampacity FLA / LRA
Supply Fan Motor	Super 'E' ODP (1750) 7.5 HP	14 Awg	8.01
Burner Motor(Xfmr)	PSC(Use Xfmr) 1/2 HP	14(14) Awg	8 @ 120/1/60
Main Control Xfmr		14 Awa	.7

	UNIT CONTROL PANEL(S) SHORT CIRCUIT CURRENT RATING (SCCR)						
	Short circuit current	5	_kA rms symmetrical,208	V maxi	imum		
		W	RING DRAWING LEGEND				
APS	Air Proving Switch	DM	Damper Motor	NFD	Non Fused Disconnect		
ASF	Auto Fan Switch	FR	Fan Relay	OL	Thermal Overload		
AUX	Auxiliary Contact	GND	Ground	PS	Pressure Sensor		
BM	Burner Motor	GV	Gas Valve	PV	Pilot Gas Valve		
С	Contactor	HL	High Limit	R	Relay		
ССН	Compressor Crankcase Heater	HPC	High Pressure Control	RevHL	Reverse Airflow High Limit		
CFC	Condenser Fan Control	HR	Heating Relay	ТВ	Terminal Block		
CLC	Compressor Loading Control	IGN	Ignition Control	TDF	Time Delay Fuse		
СРМ	Compressor Protection Module	ITP	Internal Thermo Protection	TDR	Time Delay Relay		
CR	Cooling Relay	LPC	Low Pressure Control	TS	Temperature Sensor		
CS	Current Sensor	М	Motor	VFD	Variable Frequency Drive		
DHSS	Draft Hood Spill Switch	MV	Main Gas Valve	XFMR	Transformer		

#### UNIT FUNCTION

Disconnect switch(by others) 'on', service switch 'on', fire alarm contacts(by others) 'closed' (jumper if not required).

Unit on/off switch 'on', outside air damper opens. Blower will delay on and runs continuously.

The DJM controller with an adjustable remote setpoint set at 65°F (18.3°C) will modulate the gas flow and combustion air to maintain constant discharge air temperature.

Unit on/off switch 'off', outside air damper closes. Unit is off.

DJM integral auto bypass low limit will stop unit operation if the discharge air temperature falls below 40°F (4.4°C).



# DATE OCTOBER 25, 2018

# EngA MODEL: DJS100/O

### SHIPPING AND APPROVAL INFORMATION

NO. OF PIECES 1 Unit + Curb • Intertek <sub>c</sub>ETL approval.

#### SUPPLY AIR DATA

AIR FLOW 6,000 CFM (2,830 l/s)	FAN SIZE (1) 18/18 FC DIDW	TSP	2.85 in w.c. (710 Pa)	RPM	976 RPM
MOTOR SIZE 7.5 HP (5.6 kW)	TYPE (RPM) Super 'E' ODP (1750)	ESP	1.5 in w.c. (374 Pa)	BHP	5.5 BHP (4.1 kW)
Supply air fan/motor c/w rubber in	shear vibration isolation and pillow block	bearings.			

#### **AIR OPENING DATA**

AIR OPENING	LOCATION	DAMPER TYPE	OPERATION
SUPPLY AIR	Front		
OUTSIDE AIR	Back	EngA Parallel Blade	Two Position

#### **CONSTRUCTION DATA**

UNIT CABINET	18 gauge satin coat galvanized sheet metal c/w 2" (50 mm) 1.5 lb/ft³ (24 kg/m³) insulation on entire unit casing.
UNIT FLOOR	18 gauge satin coat galvanized sheet metal on entire unit floor.
EXTERIOR PAINT	Electrostatically applied Alkyd Enamel in Aluminum Gray color on all exterior surface but not including unit underside.
AIRSIDE DOOR	All access - hinged c/w lever type door handles
SERVICE DOOR	Electrical and burner access - hinged c/w lever type door handles

#### **ELECTRICAL DATA**

POWER SUPPLY	MINIMUM CIRCUIT AMPACITY	MAXIMUM FUSE(D.E.)	MAXIMUM BREAKER							
575 / 3 / 60	575 / 3 / 60 12.6 AMPS 20 AMPS		20 AMPS							
See Electrical Data She	See Electrical Data Sheet for details.									

#### FILTER SECTION DATA - Side Loaded

FILTER TYPE Pleated Filter with MERV 8 rating c/w Metal Fram	10
QTY/SIZE 6 - 25 x 20 x 2" (635 x 508 x 51 mm)	QTY/SIZE
TOTAL GROSS AREA 20.84 SQ. FT. (1.94 SQ. MTRS)	FACE VELOCITY 288 FPM (1.46 m/s)
Filters may be shipped loose or mounted in the tracks.	

#### **BURNER HEATING DATA - INDIRECT FIRED (DJS-60)**

POWE	R BURNER	EngA 'HT' Series	HEAT EXCH. M	ATERIAL Stainless Steel		
FUEL HEAT I	Natural Gas	INLET PRESSURE 0,000 Btuh (293 kW)	7 in wc. (1743 Pa) HEAT OUTPUT	GAS FIELD CONN. <u>1" (25 r</u> 810,000 Btuh (237 kW)	mm) TEMP. RISE	125 F (69.4 C)
• Eng	JA (15 : 1) hig	gh turndown burner				
• Two	o pass heat e	xchanger c/w condensa	te drain connection			
• Hea	at exchanger	section has 1"(25 mm)	1.5 lb/ft(24 kg/m³) insula	tion with 22 gauge solid liner		
• Moo	dulating com	bustion air and gas cont	rol.			
• Gas	s manifold c/v	w auxiliary shutoff valve.				
• DJN	∕I-3 discharge	e air control.				
Inte	gral low limit	auto bypass; set @ 40°	F (4.4°C).			
DATE	OCTOBER	25, 2018	-	1-		Continued on page 2

#### **ONE 792 PEMBINA** JOB NAME:

CUSTOMER: PRO-WESTERN MECHANICAL LTD

SHIPPING WEIGHT 3800 lbs (1,727 kgs)

TAG: CPU-2

JOB NO: PRELIMINARY

**ENGINEER: ARROW ENGINEERING INC** 

ACCESS As Per Drawing

**OPERATING WEIGHT** 3800 lbs (1,727 kgs)

**ENGINEERED AIR** 

**MOUNTING** Indoor Base Mounted

EngA

QTY: 1



JOB NAME:	ONE 792 PEMBINA
CUSTOMER:	PRO-WESTERN MECHANICAL LTD
EngA MODEL:	DJS100/O

JOB NO: PRELIMINARY

ENGINEER: ARROW ENGINEERING INC

QTY: <u>1</u> TAG: CPU-2

#### SHIPPED LOOSE ITEMS (See filter section for filters)

- 1 Cold Weather Vent
- 1 Remote panel 8" x 6" x 3"(203 x 152 x 76) wall mounted type panel c/w lamicoid face(See field wiring diagram for detail)(1) ENGE863
- 1 Engineered Air TE6000-EA3 Discharge Air Sensor







JOB NO: PRELIMINARY

TAG: CPU-2

EngA MODEL: DJS100/O

JOB NAME:

QTY: 1

Power	Minimum Circuit	Terminal Block to	Maximum Fuse	Maximum Breaker
Supply	Ampacity	Accept	(Dual Element)	
575 / 3 / 60	12.6 AMPS	14 Awg	20 Awg	20 Awg

Components	Model	Minimum Conductor Size	Ampacity FLA / LRA
Supply Fan Motor	Super 'E' ODP (1750) 7.5 HP	14 Awg	8.01
Burner Motor(Xfmr)	PSC(Use Xfmr) 1/2 HP	14(14) Awg	8 @ 120/1/60
Main Control Xfmr		14 Awa	.7

	UNIT CONTROL PANEL(S) SHORT CIRCUIT CURRENT RATING (SCCR)						
	Short circuit current	5	kA rms symmetrical,20	8V ma	ximum		
		W	RING DRAWING LEGEND				
APS	Air Proving Switch	DM	Damper Motor	NFD	Non Fused Disconnect		
ASF	Auto Fan Switch	FR	Fan Relay	OL	Thermal Overload		
AUX	Auxiliary Contact	GND	Ground	PS	Pressure Sensor		
BM	Burner Motor	GV	Gas Valve	PV	Pilot Gas Valve		
С	Contactor	HL	High Limit	R	Relay		
ССН	Compressor Crankcase Heater	HPC	High Pressure Control	RevH	L Reverse Airflow High Limit		
CFC	Condenser Fan Control	HR	Heating Relay	ТВ	Terminal Block		
CLC	Compressor Loading Control	IGN	Ignition Control	TDF	Time Delay Fuse		
CPM	Compressor Protection Module	ITP	Internal Thermo Protection	TDR	Time Delay Relay		
CR	Cooling Relay	LPC	Low Pressure Control	TS	Temperature Sensor		
CS	Current Sensor	Μ	Motor	VFD	Variable Frequency Drive		
DHSS	Draft Hood Spill Switch	MV	Main Gas Valve	XFMF	R Transformer		

#### UNIT FUNCTION

Disconnect switch(by others) 'on', service switch 'on', fire alarm contacts(by others) 'closed' (jumper if not required).

Unit on/off switch 'on', outside air damper opens. Blower will delay on and runs continuously.

The DJM controller with an adjustable remote setpoint set at 65°F (18.3°C) will modulate the gas flow and combustion air to maintain constant discharge air temperature.

Unit on/off switch 'off', outside air damper closes. Unit is off.

DJM integral auto bypass low limit will stop unit operation if the discharge air temperature falls below 40°F (4.4°C).

### JOB NAME: ONE 792 PEMBINA

CUSTOMER: PRO-WESTERN MECHANICAL LTD ENGINEER: ARROW ENGINEERING INC

**Enga** || ENGINEERED AIR

EngA MODEL: DJS100/O

\_\_\_\_ ENGINEER. <u>ARKOW ENGINEER</u>

JOB NO: PRELIMINARY

QTY: <u>1</u> TAG: <u>CPU-3</u>

#### SHIPPING AND APPROVAL INFORMATION

MOUNTING Indoor Base Mounted	ACCESS As Per Drawing
SHIPPING WEIGHT 3800 lbs (1,727 kgs)	OPERATING WEIGHT 3800 lbs (1,727 kgs)
NO. OF PIECES 1 Unit + Curb	
<ul> <li>Intertek <sub>c</sub>ETL approval.</li> </ul>	

#### SUPPLY AIR DATA

AIR FLOW 7,000 CFM (3,302 l/s)	FAN SIZE (1) 18/18 FC DIDW	TSP	2.85 in w.c. (710 Pa)	RPM	976 RPM		
MOTOR SIZE 7.5 HP (5.6 kW)	TYPE (RPM) Super 'E' ODP (1750)	ESP	1.5 in w.c. (374 Pa)	BHP	6.5 BHP (4.8 kW)		
Supply air fan/motor c/w rubber in shear vibration isolation and pillow block bearings.							

#### **AIR OPENING DATA**

AIR OPENING	LOCATION	DAMPER TYPE	OPERATION
SUPPLY AIR	Front		
OUTSIDE AIR	Back	EngA Parallel Blade	Two Position

#### **CONSTRUCTION DATA**

UNIT CABINET	18 gauge satin coat galvanized sheet metal c/w 2" (50 mm) 1.5 lb/ft <sup>3</sup> (24 kg/m <sup>3</sup> ) insulation on entire unit casing.
UNIT FLOOR	18 gauge satin coat galvanized sheet metal on entire unit floor.
EXTERIOR PAINT	Electrostatically applied Alkyd Enamel in Aluminum Gray color on all exterior surface but not including unit underside.
AIRSIDE DOOR	All access - hinged c/w lever type door handles
SERVICE DOOR	Electrical and burner access - hinged c/w lever type door handles

#### ELECTRICAL DATA

POWER SUPPLY	MINIMUM CIRCUIT AMPACITY	MAXIMUM FUSE(D.E.)	MAXIMUM BREAKER		
575 / 3 / 60	12.6 AMPS	20 AMPS	20 AMPS		
See Electrical Data Sheet for details.					

#### FILTER SECTION DATA - Side Loaded

FILTER TYPE Pleated Filter with MERV 8 rating c/w Metal Fram	ne
QTY/SIZE 6 - 25 x 20 x 2" (635 x 508 x 51 mm)	QTY/SIZE
TOTAL GROSS AREA 20.84 SQ. FT. (1.94 SQ. MTRS)	FACE VELOCITY 336 FPM (1.70 m/s)
Filters may be shipped loose or mounted in the tracks.	

#### **BURNER HEATING DATA - INDIRECT FIRED (DJS-60)**

POWER BURNER EngA 'HT' Series	HEAT EXCH. M	ATERIAL Stainless Steel			
FUEL         Natural Gas         INLET PRESSURE         7 in 1           HEAT INPUT         1,000,000 Btuh (293 kW)	wc. (1743 Pa) HEAT OUTPUT	GAS FIELD CONN. <u>1" (25 mm</u> 810,000 Btuh (237 kW)	) TEMP. RISE	107 F (59.4 C)	
EngA (15 : 1) high turndown burner					
Two pass heat exchanger c/w condensate dra	ain connection				
Heat exchanger section has 1"(25 mm) 1.5 lb	/ft(24 kg/m³) insula	tion with 22 gauge solid liner			
• Modulating combustion air and gas control.					
Gas manifold c/w auxiliary shutoff valve.					
DJM-3 discharge air control.					
Integral low limit auto bypass; set @ 40°F (4.4)	ŀ°C).				



JOB NAME:	ONE 792 PEMBINA
CUSTOMER:	PRO-WESTERN MECHANICAL LTD
EngA MODEL:	DJS100/O

JOB NO: PRELIMINARY

ENGINEER: ARROW ENGINEERING INC

QTY: 1 TAG: CPU-3

#### SHIPPED LOOSE ITEMS (See filter section for filters)

- 1 Cold Weather Vent
- 1 Remote panel 8" x 6" x 3"(203 x 152 x 76) wall mounted type panel c/w lamicoid face(See field wiring diagram for detail)(1) ENGE863
- 1 Engineered Air TE6000-EA3 Discharge Air Sensor







JOB NO: PRELIMINARY

EngA MODEL: DJS100/O

JOB NAME:

TAG: CPU-3 QTY: 1

Power	Minimum Circuit	Terminal Block to	Maximum Fuse	Maximum Breaker
Supply	Ampacity	Accept	(Dual Element)	
575 / 3 / 60	12.6 AMPS	14 Awg	20 Awg	20 Awg

Components	Model	Minimum Conductor Size	Ampacity FLA / LRA
Supply Fan Motor	Super 'E' ODP (1750) 7.5 HP	14 Awg	8.01
Burner Motor(Xfmr)	PSC(Use Xfmr) 1/2 HP	14(14) Awg	8 @ 120/1/60
Main Control Xfmr		14 Awa	.7

UNIT CONTROL PANEL(S) SHORT CIRCUIT CURRENT RATING (SCCR)					
	Short circuit current	5	kA rms symmetrical, 208	V max	imum
		W	RING DRAWING LEGEND		
APS	Air Proving Switch	DM	Damper Motor	NFD	Non Fused Disconnect
ASF	Auto Fan Switch	FR	Fan Relay	OL	Thermal Overload
AUX	Auxiliary Contact	GND	Ground	PS	Pressure Sensor
BM	Burner Motor	GV	Gas Valve	PV	Pilot Gas Valve
С	Contactor	HL	High Limit	R	Relay
CCH	Compressor Crankcase Heater	HPC	High Pressure Control	RevHL	Reverse Airflow High Limit
CFC	Condenser Fan Control	HR	Heating Relay	ΤB	Terminal Block
CLC	Compressor Loading Control	IGN	Ignition Control	TDF	Time Delay Fuse
CPM	Compressor Protection Module	ITP	Internal Thermo Protection	TDR	Time Delay Relay
CR	Cooling Relay	LPC	Low Pressure Control	TS	Temperature Sensor
CS	Current Sensor	Μ	Motor	VFD	Variable Frequency Drive
DHSS	Draft Hood Spill Switch	MV	Main Gas Valve	XFMR	Transformer

#### UNIT FUNCTION

Disconnect switch(by others) 'on', service switch 'on', fire alarm contacts(by others) 'closed' (jumper if not required).

Unit on/off switch 'on', outside air damper opens. Blower will delay on and runs continuously.

The DJM controller with an adjustable remote setpoint set at 65°F (18.3°C) will modulate the gas flow and combustion air to maintain constant discharge air temperature.

Unit on/off switch 'off', outside air damper closes. Unit is off.

DJM integral auto bypass low limit will stop unit operation if the discharge air temperature falls below 40°F (4.4°C).

	•	Supply air fan/motor	c/w rubber in	shear vibration	isolation and	pillow block	bearings.
--	---	----------------------	---------------	-----------------	---------------	--------------	-----------

#### **AIR OPENING DATA**

AIR OPENING	LOCATION	DAMPER TYPE	OPERATION
SUPPLY AIR	Front		
OUTSIDE AIR	Back	EngA Parallel Blade	Two Position
	Buok		

#### **CONSTRUCTION DATA**

UNIT CABINET	18 gauge satin coat galvanized sheet metal c/w 2" (50 mm) 1.5 lb/ft <sup>3</sup> (24 kg/m <sup>3</sup> ) insulation on entire unit casing.
UNIT FLOOR	18 gauge satin coat galvanized sheet metal on entire unit floor.
EXTERIOR PAINT	Electrostatically applied Alkyd Enamel in Aluminum Gray color on all exterior surface but not including unit underside.
AIRSIDE DOOR	All access - hinged c/w lever type door handles
SERVICE DOOR	Electrical and burner access - hinged c/w lever type door handles

#### ELECTRICAL DATA

POWER SUPPLY	MINIMUM CIRCUIT AMPACITY	MAXIMUM FUSE(D.E.)	MAXIMUM BREAKER
575 / 3 / 60	12.6 AMPS	20 AMPS	20 AMPS
See Electrical Data She	eet for details.		

#### **FILTER SECTION DATA - Side Loaded**

FILTER TYPE Pleated Filter with MERV 8 rating c/w Metal Fram	le
QTY/SIZE 6 - 25 x 20 x 2" (635 x 508 x 51 mm)	QTY/SIZE
TOTAL GROSS AREA 20.84 SQ. FT. (1.94 SQ. MTRS)	FACE VELOCITY 312 FPM (1.08 m/s)
Filters may be shipped loose or mounted in the tracks.	

#### **BURNER HEATING DATA - INDIRECT FIRED (DJS-60)**

POWER BURNER EngA 'HT' Se	ries HEAT EXCH. M	ATERIAL Stainless Steel		
FUEL Natural Gas INLET PR	ESSURE 7 in wc. (1743 Pa)	GAS FIELD CONN. 1" (25 mm)		
HEAT INPUT 1,000,000 Btuh (293	B kW) HEAT OUTPUT	810,000 Btuh (237 kW)	TEMP. RISE	115 F (64.1 C)
<ul> <li>EngA (15 : 1) high turndown bu</li> </ul>	Irner			
Two pass heat exchanger c/w of the second seco	condensate drain connection			
Heat exchanger section has 1	(25 mm) 1.5 lb/ft(24 kg/m³) insula	tion with 22 gauge solid liner		
Modulating combustion air and	gas control.			
Gas manifold c/w auxiliary shut	off valve.			
• DJM-3 discharge air control.				
• Integral low limit auto bypass; s	set @ 40°F (4.4°C).			



JOB NAME:	ONE 792 PEMBINA

CUSTOMER: PRO-WESTERN MECHANICAL LTD

EngA MODEL: DJS100/O

**TSP** 2.85 in w.c. (710 Pa)

ESP

1.5 in w.c. (374 Pa)

JOB NO: PRELIMINARY

**ENGINEER: ARROW ENGINEERING INC** 

QTY: 1 TAG: CPU-4

SHIPPING AND APPROVAL INFORMATION

FAN SIZE (1) 18/18 FC DIDW

TYPE (RPM) Super 'E' ODP (1750)

ACCESS As Per Drawing

**RPM** 976 RPM

BHP 6.0 BHP (4.5 kW)

OPERATING WEIGHT 3800 lbs (1,727 kgs)

NO. OF PIECES 1 Unit + Curb

AIR FLOW 6,500 CFM (3,066 l/s) **MOTOR SIZE** 7.5 HP (5.6 kW)

**MOUNTING** Indoor Base Mounted

SHIPPING WEIGHT 3800 lbs (1,727 kgs)

• Intertek cETL approval.

#### SUPPLY AIR DATA



JOB NAME:	ONE 792 PEMBINA
CUSTOMER:	PRO-WESTERN MECHANICAL LTD
EngA MODEL:	DJS100/O

JOB NO: PRELIMINARY

ENGINEER: ARROW ENGINEERING INC

QTY: <u>1</u> TAG: <u>CPU</u>-4

#### SHIPPED LOOSE ITEMS (See filter section for filters)

- 1 Cold Weather Vent
- 1 Remote panel 8" x 6" x 3"(203 x 152 x 76) wall mounted type panel c/w lamicoid face(See field wiring diagram for detail)(1) ENGE863
- 1 Engineered Air TE6000-EA3 Discharge Air Sensor







JOB NO: PRELIMINARY

TAG: CPU-4

EngA MODEL: DJS100/O

JOB NAME:

QTY: 1

Power	Minimum Circuit	Terminal Block to	Maximum Fuse	Maximum Breaker
Supply	Ampacity	Accept	(Dual Element)	
575 / 3 / 60	12.6 AMPS	14 Awg	20 Awg	20 Awg

Components	Model	Minimum Conductor Size	Ampacity FLA / LRA
Supply Fan Motor	Super 'E' ODP (1750) 7.5 HP	14 Awg	8.01
Burner Motor(Xfmr)	PSC(Use Xfmr) 1/2 HP	14(14) Awg	8 @ 120/1/60
Main Control Xfmr		14 Awa	.7

	UNIT CONTROL PANEL(S) SHORT CIRCUIT CURRENT RATING (SCCR)										
	Short circuit current	5	kA rms symmetrical, 208	V max	imum						
		W	RING DRAWING LEGEND								
APS	Air Proving Switch	DM	Damper Motor	NFD	Non Fused Disconnect						
ASF	Auto Fan Switch	FR	Fan Relay	OL	Thermal Overload						
AUX	Auxiliary Contact	GND	Ground	PS	Pressure Sensor						
BM	Burner Motor	GV	Gas Valve	PV	Pilot Gas Valve						
С	Contactor	HL	High Limit	R	Relay						
CCH	Compressor Crankcase Heater	HPC	High Pressure Control	RevHL	Reverse Airflow High Limit						
CFC	Condenser Fan Control	HR	Heating Relay	ΤB	Terminal Block						
CLC	Compressor Loading Control	IGN	Ignition Control	TDF	Time Delay Fuse						
CPM	Compressor Protection Module	ITP	Internal Thermo Protection	TDR	Time Delay Relay						
CR	Cooling Relay	LPC	Low Pressure Control	TS	Temperature Sensor						
CS	Current Sensor	Μ	Motor	VFD	Variable Frequency Drive						
DHSS	Draft Hood Spill Switch	MV	Main Gas Valve	XFMR	Transformer						

#### UNIT FUNCTION

Disconnect switch(by others) 'on', service switch 'on', fire alarm contacts(by others) 'closed' (jumper if not required).

Unit on/off switch 'on', outside air damper opens. Blower will delay on and runs continuously.

The DJM controller with an adjustable remote setpoint set at 65°F (18.3°C) will modulate the gas flow and combustion air to maintain constant discharge air temperature.

Unit on/off switch 'off', outside air damper closes. Unit is off.

DJM integral auto bypass low limit will stop unit operation if the discharge air temperature falls below 40°F (4.4°C).



#### EXTERIOR WALL TYPES: INTERIOR WALL TYPES: EXTERIOR WALL ASSEMBLY -HARDIE PANEL (ARCTIC WHITE) EFFECTIVE R=16.4 -1/2" CCA TREATED PLYWOOD FURRING STRIPS@ 16" 0/C -SELF-ADHERED, VAPOR PERMEABLE AIR/MOISTURE BARRIER -7/16" OSB SHEATHING INTERIO -2X6 WOOD STUDS@ 16" O.C. -R22 FIBRE GLASS BATT INSULATION -6 MIL POLYETHYLENE VAPOUR BARRIER -5/8" TYPE 'X' GWB EXTERIOR WALL ASSEMBLY -HARDIE PANEL (IRON GREY) -1/2" CCA TREATED PLYWOOD FURRING STRIPS@ 16" 0/C EXTERIOR -SELF-ADHERED, VAPOR PERMEABLE AIR/MOISTURE BARRIER -7/16" OSB SHEATHING INTERIOR -2X6 WOOD STUDS@ 16" O.C. -R22 FIBRE GLASS BATT INSULATION -6 MIL POLYETHYLENE VAPOUR BARRIER -5/8" TYPE 'X' GWB EXTERIOR DECK/PONY -HARDIE PANEL (IRON GREY) EW16 WALL ASSEMBLY -1/2" CCA TREATED PLYWOOD DECK/EXTERIOR FURRING STRIPS@ 16" 0/C -SELF-ADHERED, VAPOR PERMEABLE AIR/MOISTURE BARRIER -7/16" OSB SHEATHING × -2X6 WOOD STUDS@ 16" O.C. DECK/EXTERIOR -VENT STUD CAVITIES -7/16" OSB SHEATHING -SELF-ADHERED. VAPOR PERMEABLE AIR/MOISTURE BARRIER -1/2" CCA TREATED PLYWOOD FURRING STRIPS@ 16" 0/C -HARDIE PANEL (IRON GREY) EXTERIOR DECK/PONY -HARDIE PANEL (ARCTIC WHITE) €W1¢ WALL ASSEMBLY

-1/2" CCA TREATED PLYWOOD FURRING STRIPS@ 16" 0/C -SELF-ADHERED, VAPOR PERMEABLE AIR/MOISTURE BARRIER -7/16" OSB SHEATHING

- -2X12 WOOD STUDS@ 16" O.C. -VENT STUD CAVITIES
- -7/16" OSB SHEATHING -SELF-ADHERED, VAPOR PERMEABLE AIR/MOISTURE BARRIER
- -1/2" CCA TREATED PLYWOOD
- FURRING STRIPS@ 16" 0/C -HARDIE PANEL (ARCTIC WHITE)
- EXTERIOR WALL ASSEMBLY EFFECTIVE R=16.4 -FIBER CEMENT LAP SIDING (CEDAR) -1/2" CCA TREATED PLYWOOD FURRING STRIPS@ 16" 0/C EXTERIOR -SELF-ADHERED, VAPOR PERMEABLE AIR/MOISTURE BARRIER -7/16" OSB SHEATHING INTERIOF -2X6 WOOD STUDS@ 16" O.C. -R22 FIBRE GLASS BATT INSULATION -6 MIL POLYETHYLENE VAPOUR BARRIER -5/8" TYPE 'X' GWB EXTERIOR DECK/PONY -FIBER CEMENT LAP SIDING (CEDAR) WALL ASSEMBLY -1/2" CCA TREATED PLYWOOD FURRING STRIPS@ 16" 0/C ×..... -SELF-ADHERED, VAPOR PERMEABLE AIR/MOISTURE BARRIER -7/16" OSB SHEATHING -2X6 WOOD STUDS@ 16" O.C. -VENT STUD CAVITIES -7/16" OSB SHEATHING -SELF-ADHERED. VAPOR PERMEABLE AIR/MOISTURE BARRIER -1/2" CCA TREATED PLYWOOD FURRING STRIPS@ 16" 0/C -HARDIE PANEL (IRON GREY) -ACRYLIC STUCCO EW3> EXTERIOR WALL ASSEMBLY -GALV. EXPANDED METAL MESH

-SELF-ADHERED, VAPOR PERMEABLE **EXTERIO** AIR/MOISTURE BARRIER -7/16" OSB SHEATHING -2X6 WOOD STUDS@ 16" O.C. INTERIOR -R20 FIBRE GLASS BATT INSULATION -6 MIL POLYETHYLENE VAPOUR BARRIER -5/8" TYPE 'X' GWB EXTERIOR WALL ASSEMBLY -CULIURED STONE (BLACK) EFFECTIVE R=16.4 -MORTAR SETTING BED -GALV. EXPANDED METAL MESH exterior -HAL-TEX RAINBOARD AND RAINSCREEN STRAPPING

-SELF-ADHERED, VAPOR PERMEABLE AIR/MOISTURE BARRIER INTERIOR -7/16" OSB SHEATHING -2X6 WOOD STUDS@ 16" O.C. -R22 FIBRE GLASS BATT INSULATION -6 MIL POLYETHYLENE VAPOUR BARRIEF -5/8" TYPE 'X' GWB

#### -2 LAYERS 5/8" TYPE 'X' GWB 3 HR. STC-56 (B10a SIM.) -1/2" RESILIENT CHANNEL @ 16" O.C. CORRIDOR -8" CONCRETE MASONRY UNIT LEVATOR

#### W10 ELEVATOR SHAFT WALL/ATTIC 1.5 HR. STC-50 (B1b SIM.) ATTIC SPACE

ELEVATOR SHAFT WALL

△ PARTY WALL ASSEMBLY W2 CORRIDOR/STAIR TO SUITE 1.0 HR. STC-58 (W6b) CORRIDOR/STAIR

ΥΥΥ

#### W3 MECHANICAL SHAFT WALL 2 HR. STC-58 (W6b) INTERIOR

#### SHAFT

W4 LOAD BEARING/PLUMBING WALL IN SUITES 1HR. F.R.R. (W1d)

# LOAD BEARING/PLUMBING $\langle W4_{0} \rangle$ WALL IN SUITES 1HR. F.R.R.

$\sim$	(W1d)		
		SUITES	_
$\mathbb{X}$		M	$\langle$
		SUITES	

PARTY WALL ASSEMBLY  $\langle W6 \rangle$  PARTY WALL BETWEEN SUITES -2X6 WOOD STUDS@16" O.C. HORZ. 1 HR. F.R.R. STC-57 (W13a) ALIGN (STAGGERED)

### -222222224)/+222222224)/

<b>W7</b> >	INTERIOR NON-BEARING PARTITION WALL	WALI
	INTERIOR	
M	M	M

# W8 STAIR/ ELEVATOR/ MECH./ ELECT./ VESTIBULE 2 HR. F.R.R. SEE STRUCTURAL DRAWINGS INTERIOR

INTERIOR

### 10" EXTERIOR FOUNDATION WALL -CEMENTITIOUS BOARD W9 SEE STRUCTURAL DRAWINGS.

EXTERIOR \_\_\_\_\_\_ <u>aladadadadadadadadadadada</u> 4 4 4 4 INTERIOR

#### ₩10> EXTERIOR RETAINING WALL EXTERIOR

EXTERIOR

AREA SEPARATION FIREWALL ₩11> /LOAD BEARING



# W12 ELEVATOR LOBBY/VESTIBULE 2 HR. F.R.R.

SUITES

INTERIOR INTERIOR/EXTERIOR

#### SHAFT/SEPARATION WALL /LOAD BEARING 2 HR. F.R.R. STC-57

SHAFT

-8" CONCRETE MASONRY UNIT -2 LAYERS 5/8" TYPE 'X' GWB -1/2" RESILIENT CHANNEL @ 24" O.C.

-2X6 WOOD STUDS@ 16" O.C. FILL CAVITY W/ FIBRE GLASS BATT INSULATION -5/8" TYPE 'X' GWB

### -2 LAYERS 5/8" TYPE 'X' GWB -1/2" RESILIENT CHANNEL @ 24" O.C. -2X4 WOOD STUDS@ 16" O.C. FILL CAVITY W/ FIBRE GLASS BATT INSULATION -2 LAYERS 5/8" TYPE 'X' GWB

-5/8" TYPE 'X' GWB

-2X6 WOOD STUDS@ 16" O.C. -5/8" TYPE 'X' GWB

#### -5/8" TYPE 'X' GWB -2X8 WOOD STUDS@ 16" O.C. -5/8" TYPE 'X' GWB

-5/8" TYPE 'X' GWB

-3 1/2" BATT INSULATION

-1" AIR SPACE -7/16" OSB SHEATHING

-3 1/2" BATT INSULATION -2X6 WOOD STUDS@ 16" O.C. HORZ. ALIGN -5/8" TYPE 'X' GWB

# L -1/2"GWB -2X4 WOOD STUDS@ 16" O.C. -1/2"GWB

-CONCRETE WALL (2HR. F.R.R.)

# (SEE STRUCTURAL)

-4" RIGID INSULATION -COMPOSITE DRAINAGE MAT -DAMP PROOFING MEMBRANE -CONCRETE WALL SEE STRUCTURAL.

#### -COMPOSITE DRAINAGE MAT -DAMP PROOFING MEMBRANE -CONCRETE WALL (SEE STRUCTURAL)

# −1/2"GWB -2X6 WOOD STUDS@16" O.C.

- 2 HR. F.R.R. STC-61 (W311) -R20 FIBRE GLASS BATT INSULATION -3/4" AIR SPACE -2 LAYERS 1" SHAFTLINER TYPE "X" C/W GALV. STEEL "H" STUDS
  - AND ALUMINUM ANGLE CLIPS -3/4" AIR SPACE
  - -R20 FIBRE GLASS BATT INSULATION -2X6 WOOD STUDS@16" O.C. -1/2"GWB
  - -5/8" TYPE 'X' GWB
  - -1/2" RESILIENT CHANNEL -CONCRETE WALL (2HR. F.R.R.) (SEE STRUCTURAL)

# -2 LAYERS 1" SHAFTLINER TYPE "X" C/W GALV. STEEL "H" STUDS AND ALUMINUM ANGLE CLIPS

-3/4" AIR SPACE -2X6 WOOD STUDS@16" O.C.

-R22 FIBRE GLASS BATT INSULATION -6 MIL POLYETHYLENE VAPOUR BARRIER -5/8" TYPE 'X' GWB

DECK/EXTERIOR

DECK/EXTERIOR

# MECHANICAL SHAFT WALL √W14> ULC. DESIGN No. W507 Assembly Rating-2HR. CORRIDOR LOAD BEARING, FIRE RATED WALL ₩15> 2HR. F.R.R. STC-58 (SIMILAR TO ULC Des.U301) SUITES

# FLOOR TYPES:

2ND TO 6TH FLOOR LEVELF11.0 HR. F.R.R., STC-64 (F15c SIM.)

 $(X X X X) \mathbb{I} \mathbb{K} X X X X$ 

F2 MAIN FLOOR SURE 2 HR. F.R.R., STC-52

F3 PARKADE FLOOR SLAB

F4 BALCONY FLOOR (F4a SIM.)



F5 CANTILEVEN F ...... STC-45, (F13b SIM.) CANTILEVER 1 HR. F.R.R.

´ X X X X X X I ( X X X X X I | . 

F6 MAIN DECK FLOOR SLAB

F7 ELEVATOR PIT FLOOR SLAB

F8 RAMP FLOOR SLAB

CORRIDOR FLOOR F9 ASSEMBLY 1.0 HR. F.R.R. STC-59 (F15b SIM.)



F10 EXTERIOR PODIUM SLAB 2% SLOPE 

ASPHALT PAVING 2% SLOPE

-1" GYPSUM LINER PANELS C/W GALV. STEEL "C-H" SECTION STUDS @ 24" O.C. -2 LAYERS 5/8" TYPE 'X' GWB

-2 LAYERS 5/8" TYPE 'X' GWB -2X6 WOOD STUDS@ 16" O.C. -FILL STUD CAVITIES WITH MINERAL WOOL FIBRE BATT INSULATION -2 LAYERS 5/8" TYPE 'X' GWB

-FINISHED FLOORING MATERIALS

-9 1/4" WOOD JOIST @ 16" O.C.

-6" THK. FIBREGLASS BATT INSULATION

-1" GYPCRETE TOPPING

(SEE STRUCTURAL)

(SEE STRUCTURAL)

-5/8" OSB T&G SHEATHING

-1/2" RESILIENT CHANNEL

-2 LAYERS 5/8" TYPE 'X' GWB

-SUSPENDED CONCRETE SLAB

-R11 SPRAY APPLIED CELLULOSE

-STRUCTURAL CONCRETE SLAB

-VINYL-COMPOSITE DECKING MEMBRANE

-2 LAYERS 5/8" TYPE 'X' DENSGLASS

-1/2" PREFIN. METAL PERFORATED

-FINISHED FLOORING MATERIALS

-9 1/4" WOOD JOIST @ 16" O.C.

-5/8" OSB PLYWOOD SHEATHING

-STRUCTURAL CONCRETE SLAB

-STRUCTURAL CONCRETE SLAB

-STRUCTURAL CONCRETE SLAB

-FINISHED FLOORING MATERIALS

-2x8" SOLID WOOD JOIST @ 16" O.C.

-LANDSCAPE SURFACING & SUBSTRATE

-COMPOSITE DRAINAGE MAT

-2-PLY SBS TORCH-ON WATERPROOFING MEMBRANE -STRUCTURAL CONCRETE SLAB

-2-PLY MODIFIED BITUMEN

-TRAFFIC ROCK CAP SHEET

-STRUCTURAL CONCRETE SLAB

-CONTINUOUS BASE SHEET

(SEE STRUCTURAL)

ROOFING MEMBRANE

(SEE STRUCTURAL)

-6 MIL POLYETHYLENE UNDERSLAB MEMBRANE

-6 MIL POLYETHYLENE UNDERSLAB MEMBRANE

-SELF-ADHERED, VAPOR PERMEABLE

-1/2" PREFIN. METAL PERFORATED

-MINERAL WOOL FIBRE BATT INSULATION

-5/8" PLYWOOD SHEATHING

-1" GYPCRETE TOPPING

FULL CAVITY DEPTH

SOFFIT PANEL

(SEE STRUCTURAL)

(SEE STRUCTURAL)

(SEE STRUCTURAL)

-1" GYPCRETE TOPPING

(SEE STRUCTURAL)

-5/8" OSB T&G SHEATHING

-1/2" RESILIENT CHANNEL

-R18 SPRAY APPLIED

FIBRE GLASS INSULATION

AIR/MOISTURE BARRIER

-3/4" G1S PLYWOOD SHEATHING

-9 1/4" WOOD JOIST 2 % SLOPE,

VENTED THROUGH THE RIM JOIST

-10 MIL POLYETHYLENE

(SEE STRUCTURAL)

(SEE STRUCTURAL)

SOFFIT PANEL

UNDERSLAB MEMBRANE

# ROOF TYPES:

# R1 MAIN ROOF

R2

 $\sim$ 

ROOF DECK 1 HR. F.R.R.



\_\_\_\_\_

\_\_\_\_\_

 $\square$ 

#### -PREFINISHED STANDING SEAM METAL ROOFING (SEE ELEVATIONS)

-OPEN FIBER DRAINAGE LAYER

- (ENKAMAT ASV OR APPROVED EQUAL) -FULLY ADHERED ICE & WATER SHIELD MEMBRANE
- -7/16" OSB SHEATHING C/W 'H' CLIP -PRE-ENGINEERED ROOF TRUSS (SEE STRUCTURAL)
- -R40 FIBREGLASS BATT INSULATION
- -6 MIL POLYETHYLENE VAPOUR BARRIER -1/2" RESILIENT CHANNEL
- -2 LAYERS 5/8" TYPE 'X' GWB

#### -2-PLY MODIFIED BITUMEN ROOFING MEMBRANE

- -PLYWOOD SHEATHING (SEE STRUCTURAL)
- -WOOD TAPERS 2% SLOPE TO DRAIN -2X4 CROSS STRAPPING (VENTILATION)
- -WOOD I-JOISTS (SEE STRUCTURAL)
- -R40 FIBRE GLASS BATT INSULATION
- -6 MIL POLYETHYLENE VAPOUR BARRIER -2 LAYERS 5/8" TYPE 'X' GWB

-ROOF PAVERS ON PEDESTAL SYSTEM -FILTER CLOTH

- -2" RIGID INSULATION -COMPOSITE DRAINAGE MAT
- -2-PLY MODIFIED BITUMEN ROOFING MEMBRANE
- -PROTECTION BOARD
- -3/4" P.T. PLYWOOD -P.T. WOOD JOISTS (SEE STRUCTURAL)
- (1% SLOPE TO DRAIN)
- -2 LAYERS 5/8" TYPE 'X' GWB





ALL WEATHER WINDOWS LTD 18550 118A AVENUE NW EDMONTON, ALBERTA CANADA T5S 2K7 PHONE: (780) 451-0670 FAX: (780) 454-7474 www.allweatherwindows.com chitectural@allweatherwindows.com

A Similar shop drawings will be developed for Eagleson Development meeting the STC requirements within the report

# **IRONCLAD DEVELOPMENTS INC. ONE792 PEMBINA APARTMENTS** (6 - STOREY BUILDING) WINNIPEG, MANITOBA

- 424 per A902

WIN	WINDOW SCHEDULE																								
Туре	Qty.	OSM 8	ize (w x	h)	RO Si	ze (v	v x h)	Series	Frame Colour	Hardw are Op		Operation	Screen	Jamb Depth	Glazing	Rein	forcing								
(	$\frown$	(mill	limeters)		nillimeters)		(millimeters)		(millimeters)		illimeters)		(ir	(inches)				Туре	Colour					Vertical	Horizor
W1	425	500	x 15	00	60	х	60	6800	White	Sash Lock	White	FO/P	White	PVC 3 1/4"	HS1 (Clear / Low E), Argon	No	65-M2								
	-	Z												1/2" Return											
W2	120	600	x 15	00	24 5/8	х	60	6800	White	Sash Lock	White	V	White	PVC 3 1/4"	HS1 (Clear / Low E), Argon	No	64-M								
	L	{								Restrictor				1/2" Return											
W3	49	750	x 15	00	30 1/2	Х	60	6800	White	Sash Lock	White	V	White	PVC 3 1/4"	HS1 (Clear / Low E), Argon	No	64-M								
										Restrictor				1/2" Return											
			11	9 - c	count 1	119	which																		

matches A902

DOC	OOR SCHEDULE																		
Туре	Qty.	OSM Size (w x	h)	RO Size (w	vxh)	Series	Frame Colour	Hardw are / Prep.		Hardw are / Prep.		Hardw are / Prep.		Operation	Screen	Jamb Depth	Glazing	Reinf	forcing
		(millimeters)		(inches)				Туре	Colour					Vertical	Horizonta				
203R	127	1816 x 202	22	72 1/2 x	80 1/8	Viscount	White	Handle	White	FO	White	PVC 3 1/2"	HS1 (Clear / Low E), Argon	52-S8	No				
								Foot Lock				1/2" Return		52-S9					
														52-M7					
D03L	155	1816 x 202	22	72 1/2 x	80 1/8	Viscount	White	Handle	White	OF	White	PVC 3 1/2"	HS1 (Clear / Low E), Argon	52-S8	No				
								Foot Lock				1/2" Return		52-S9					
														52-M7					

Project Performance Requirements (Rough Terrain)			
Performance Grade (PG)	PG25		
Minimum Positive Design Pressure (Pa)	1200		
Minimum Negative Design Pressure (Pa)	-1200		
Minimum Water Penetration Resistance Test Pressure (Pa)	220		
Minimum Canadian Air Infiltration / Exfiltration	A2		
Maximum U-Value (W/m²K)	2.20		

Based on requirements to NAFS Standard AAMA/WDMA/CSA 101/1.S.2/ A440, the Canadian Supplement A440S1-09, and the NECB 2011.

Summary of Product Test Results				
Series	6800	6800	6800	
Product Type	Glider	Single Hung	Picture	
Product Size	1600x1100	1000x1600	2000x2000	
Performance Class/Grade (PG)	R-PG40	R-PG45	CW-PG55	
Positive Design Pressure (Pa)	2880	3840	2640	
Negative Design Pressure (Pa)	-2880	-3840	-2640	
Water Penetration Resistance Test Pressure (Pa)	290	330	730	
Canadian Air Infiltration / Exfiltration	A3	A3	Fixed	
U-Value (W/m²K)	1.7	1.7	1.53	

Performance tests conducted in accordance with NAFS Standard AAMA/WDMA/CSA 101/1.S.2/ A440 and NFRC 100. Results based on individual windows of standard test sizes and not combination or composite windows.

### **Project Notes**

PG ratings are derived from a combination of testing of single windows and mullion test data and calculations whichever number is low er.

All Elevations are shown from the exterior view of the building.

See schedules and details for reinforcing requirements.



					ALL WI 1855 FD	EATHER WINDOW 50 118A AVENUE MONTON ALBER	S LTD. NW
Glazing	Rein Vertical	forcing Horizontal	PG Rating*	ALL WEATHER WINDOWS	C. PHON FAX	ANADA T5S 2K NE: (780) 451– (: (780) 454–74 allweatherwindow	7 0670 474 s.com
ear / Low E), Argon	No	65-M26	PG55		architect	ural@allweatherwind	iows.com
ear / Low E), Argon	No	64-M8	PG45	MAT PALACIOS 18550-118A AVE	, PROJEC	T ANALYST	
ear / Low E), Argon	No	64-M8	PG45	EDMONTON, ALBEI PH: 780–447–68 FAX: 780–447–5 EMAIL: mpalacios	RTA, T5S 2K 389 027 @allweatherw	(7 vindows.com	
				ROB SIEMENS 124 terracon p winnipeg, manito ph: 204–947–24	, SALES F 'LACE )BA, R2J 4G 133	PROFESSIONA	
Glazing	Reinforc	ing rizontal		CELL: 204-781-	8308		
/ Low E), Argon	52-S8 52-S9 52-M7 52-S8	No		SEALS:			
· _ · · · · · · · · · · · · · · · · · ·	52-S9 52-M7						
INCORE 101-57158 Symingto R2J 4L6 - Ph.204.77 SHOP DRAWING RE REVIEWED AS FOR YOUR INF INCOMPLETE REVISE AND R SUBMIT DATE:	PORATED in Road, Spring 77.1972 - info@i VIEW NOTED FORMATION AN SUBMITTAL RESUBMIT ICT.2/18	ield, MB cdev.ca		Copyright ©2018: THESE DRAWIN METRIC	This drawing is windows Ltd., a either in whole written consent NGS ARE ALL DIMEN: N	the property of All V and shall not be rep or in part without the of All Weather Wind NOT TO BE S SIONS UNLESS OTI VOTED ARE IN MILL	Veather roduced prior tows Ltd. SCALED HERWISE IMETRES
REVIEW DATE:	CI. TU/ TO				DE		BY
This review is only for with design concept of compliance with the in Contract Documents, as a professional cour comments made on t this review do not reli compliance with the and specifications. Any shall not include appr which the item is a co Contractor is respons confirmed and correla information that perta fabrication processes methods, techniques, cedures of construction Work of all trades; an in a safe and satisfact	r general conform of the project and normation giver This review is rtesy. Correction he shop drawing eve the Contract equirements of to poroval of a spec- oval of an asser imponent. ible for dimension ated at the jobsit ins solely to the or to the means sequences and on; coordination d for performing tory manner.	mance d general n in the provided ns or js during tor from the plans cific item mbly of ons to be e; s, l pro- of the all work		DATE: OCT. 1, 2 DATE: DATE: OCT. 1, 2 DWN BY: MP FILE NAME: ONE792	SCHEDU D DEVELO PEMBINA INIPEG, M 018 sc 018 sc 018 sc 018 sc 018 sc 018 sc	JLES DPMENTS INC APARTMENT ANITOBA CALE: N/A PP'D BY: MP	2. 
REVIEWED BY:	and inter t					07	



ALL WEATHER WINDOWS LTD. 18550 118A AVENUE NW EDMONTON, ALBERTA CANADA T55 2K7 PHONE: (780) 451-0670 FAX: (780) 451-0670 FAX: (780) 454-7474 www.allweatherwindows.com architectural@allweatherwindows.com			
MAT PALACIOS, PROJECT ANALYST 18550-118A AVE NW EDMONTON, ALBERTA, T5S 2K7 PH: 780-447-6889 FAX: 780-447-65027 EMAIL: mpalacios@allweatherwindows.com			
ROB SIEMENS, SALES PROFESSIONAL 124 TERRACON PLACE WINNIPEG, MANITOBA, R2J 4G7 PH: 204–947–2433 CELL: 204–781–8308			
SEALS:			
Copyright ©2018: This drawing is the property of All Weather Windows Ltd., and shall not be reproduced either in whole or in part without the prior written consent of All Weather Windows Ltd.			
THESE DRAWINGS ARE NOT TO BE SCALED METRIC ALL DIMENSIONS UNLESS OTHERWISE NOTED ARE IN MILLIMETRES			
REVISIONS: REV DATE DESCRIPTION BY			
TITLE: WINDOW & PATIO DOOR ELEVATIONS IRONCLAD DEVELOPMENTS INC. ONE792 PEMBINA APARTMENTS WINNIPEG, MANITOBA			
DATE: OCT. 1, 2018 DWN BY: MP MP MP			
ONE792 PEMBINA APTS			











6800 SERIES GLIDER/PICTURE – MULLION C/W DUAL SEALED UNIT AND 65–M26 REINFORCING

B SILL DETAIL SCALE: 1:3mm

ALL WEATH WINDOV	ALL WEATHER WINDOWS LTD. 18550 118A AVENUE NW EDMONTON, ALBERTA CANADA T5S 2K7 PHONE: (780) 451–0670 FAX: (780) 454–7474 www.allweatherwindows.com architectura@allweatherwindows.com
MAT PALACIO 18550–118A A EDMONTON, ALL PH: 780–447– FAX: 780–447– EMAIL: mpalaci	OS, PROJECT ANALYST VE NW BERTA, T5S 2K7 -6889 -5027 os@allweatherwindows.com
ROB SIEMEN 124 TERRACON WINNIPEG, MAN PH: 204-947- CELL: 204-787	NS, SALES PROFESSIONAL PLACE IITOBA, R2J 4G7 -2433 1–8308
Copyright ©2018:	This drawing is the property of All Weather Windows Ltd., and shall not be reproduced either in whole or in part without the prior written consent of All Weather Windows Ltd
Copyright ©2018: THESE DRAV METRIC	: This drawing is the property of All Weather Windows Ltd., and shall not be reproduced either in whole or in part without the prior written consent of All Weather Windows Ltd WINGS ARE NOT TO BE SCALE ALL DIMENSIONS UNLESS OTHERWISI NOTED ARE IN MILLIMETRE
Copyright ©2018: THESE DRAV METRIC	This drawing is the property of All Weather Windows Ltd., and shall not be reproduced either in whole or in part without the prior written consent of All Weather Windows Ltd WINGS ARE NOT TO BE SCALEI ALL DIMENSIONS UNLESS OTHERWISI NOTED ARE IN MILLIMETRE DESCRIPTION B
Copyright ©2018: THESE DRAV METRIC	This drawing is the property of All Weather Windows Ltd., and shall not be reproduced either in whole or in part without the prior written consent of All Weather Windows Ltd WINGS ARE NOT TO BE SCALEI ALL DIMENSIONS UNLESS OTHERWISI NOTED ARE IN MILLIMETRE DESCRIPTION B
Copyright ©2018: THESE DRAV METRIC REVISIONS: REV DATE	This drawing is the property of All Weather Windows Ltd., and shall not be reproduced either in whole or in part without the prior written consent of All Weather Windows Ltd WINGS ARE NOT TO BE SCALED ALL DIMENSIONS UNLESS OTHERWISI NOTED ARE IN MILLIMETRE DESCRIPTION B DESCRIPTION B WINDOW DETAILS LAD DEVELOPMENTS INC. 12 PEMBINA APARTMENTS VINNIPEG, MANITOBA
Copyright ©2018: THESE DRAV METRIC REVISIONS: REV DATE I I I I I I I I I I I I I	This drawing is the property of All Weather Windows Ltd., and shall not be reproduced either in whole or in part without the prior written consent of All Weather Windows Ltd WINGS ARE NOT TO BE SCALEI ALL DIMENSIONS UNLESS OTHERWISI NOTED ARE IN MILLIMETRE DESCRIPTION B DESCRIPTION B WINDOW DETAILS LAD DEVELOPMENTS INC. 12 PEMBINA APARTMENTS VINNIPEG, MANITOBA SCALE: 2018 1:3
Copyright ©2018: THESE DRAV METRIC REVISIONS: REV DATE INTLE: IRONCI ONE 79 W DATE: OCT. 1, DWN BY: MP FILE NAME:	This drawing is the property of All Weather         Windows Ltd., and shall not be reproduced         either in whole or in part without the prior         written consent of All Weather Windows Ltd         MINGS ARE NOT TO BE SCALEI         ALL DIMENSIONS UNLESS OTHERWISI         NOTED ARE IN MILLIMETRE         DESCRIPTION         B         UNDOW DETAILS         LAD DEVELOPMENTS INC.         22 PEMBINA APARTMENTS         VINNIPEG, MANITOBA         SCALE:         2018       1:3         APP'D BY:



ALLWEATH	ALL WEATHER WINDOWS LTD. 18550 118A AVENUE NW EDMONTON, ALBERTA CANADA T5S 2K7 PHONE: (780) 451–0670 FAX: (780) 454–7474
WINDOW	www.dllweatherwindows.com architectural@allweatherwindows.com
MAT PALACIO 18550–118A AI EDMONTON, ALE PH: 780–447– FAX: 780–447– EMAIL: mpalacio	DS, PROJECT ANALYST /E NW BERTA, T5S 2K7 6889 -5027 ps@allweatherwindows.com
ROB SIEMEN 124 TERRACON WINNIPEG, MANI PH: 204–947– CELL: 204–781	S, SALES PROFESSIONAL PLACE TOBA, R2J 4G7 2433 –8308
SEALS:	
Copyright ©2018:	This drawing is the property of All Weather Windows Ltd., and shall not be reproduced either in whole or in part without the prior written consent of All Weather Windows Ltd.
THESE DRAW	VINGS ARE NOT TO BE SCALED ALL DIMENSIONS UNLESS OTHERWISE NOTED ARE IN MILLIMETRES
REVISIONS: REV DATE	DESCRIPTION BY
IRONCL ONE79	WINDOW DETAILS AD DEVELOPMENTS INC. 2 PEMBINA APARTMENTS INNIPEG MANITORA
DATE: OCT. 1,	2018 SCALE: 1:3
dwn by: MP	app'd by: MP
ONE792	PEMBINA APTS.






ALL WEATHER WINDOWS LTD. 18550 118A AVENUE NW EDMONTON, ALBERTA CANADA TSS 2K7 PHONE: (780) 451–0670 FAX: (780) 451–0670 FAX: (780) 454–7474 www.allweatherwindows.com architectural@allweatherwindows.com	
MAT PALACIOS, PROJECT ANALYST 18550–118A AVE NW EDMONTON, ALBERTA, T5S 2K7 PH: 780–447–6889 FAX: 780–447–5027 EMAIL: mpalacios@allweatherwindows.com	
ROB SIEMENS, SALES PROFESSIONAL 124 TERRACON PLACE WINNIPEG, MANITOBA, R2J 4G7 PH: 204–947–2433 CELL: 204–781–8308	
SEALS:	
Copyright @2018: This drawing is the property of All Weather	
Windows Ltd., and shall not be reproduced either in whole or in part without the prior written consent of All Weather Windows Ltd.	
THESE DRAWINGS ARE NOT TO BE SCALED METRIC ALL DIMENSIONS UNLESS OTHERWISE NOTED ARE IN MILLIMETRES	/
REVISIONS: REV DATE DESCRIPTION BY	)
TITLE: WINDOW DETAILS IRONCLAD DEVELOPMENTS INC. ONE792 PEMBINA APARTMENTS WINNIPEG, MANITOBA	
DATE: OCT 1 2018 SCALE: 1.3	
DATE: OCT. 1, 2018 DWN BY: MP MP MP	





JAMB DETAIL С



ALL WEATHER WINDOWS LTD. 18550 118A AVENUE NW EDMONTON, ALBERTA CANADA TSS 2K7 PHONE: (780) 451–0670 FAX: (780) 454–7474 www.allweatherwindows.com architectural@allweatherwindows.com
MAT PALACIOS, PROJECT ANALYST 18550–118A AVE NW EDMONTON, ALBERTA, T5S 2K7 PH: 780–447–6889 FAX: 780–447–5027 EMAIL: mpalacios@allweatherwindows.com
ROB SIEMENS, SALES PROFESSIONAL 124 TERRACON PLACE WINNIPEG, MANITOBA, R2J 4G7 PH: 204–947–2433 CELL: 204–781–8308
Copyright ©2018: This drawing is the property of All Weather Windows Ltd., and shall not be reproduced
either in whole or in part without the prior written consent of All Weather Windows Ltd.
METRIC ALL DIMENSIONS UNLESS OTHERWISE NOTED ARE IN MILLIMETRES
REVISIONS:       REV       DATE       DESCRIPTION       BY
TITLE: PATIO DOOR DETAILS IRONCLAD DEVELOPMENTS INC. ONE792 PEMBINA APARTMENTS WINNIPEG, MANITOBA
DATE: OCT. 1, 2018 DWN BY: MP MP MP MP
ONE792 PEMBINA APTS.



- 4 EIFS (LIGHT GRAY)
- 5 EIFS (DARK GRAY)
- $\left< 6 \right>$  EIFS (RED)
- $\langle 7 \rangle$  EIFS (FAUX CHARCOAL GRAY BRICK FINISH)
- 8 ACRYLIC STUCCO (LIGHT GRAY)
- $\langle 9 \rangle$  acrylic stucco (dark gray)
- $\langle 10 \rangle$  ASPHALT SHINGLE (MIDNIGHT BLACK)
- $\langle 11 \rangle$  black aluminum railing & Pickets
- 12 3" DEEP PRE-FIN. ALUM. FIN (PAINTED LIGHT GRAY TO MATCH HARDIE LIGHT GRAY)
- $\langle 13 \rangle$  GLULAM COLUMNS

- $\langle 16 \rangle$  alum. Cladding (light gray)
- $\langle 17 \rangle$  MAIN FLOOR PATIO (P.T. WOOD)
- (18) METAL POST
- SECTIONAL OVERHEAD DOOR C/W AUTO EXIT SENSOR  $\langle 19 \rangle$

	3 21'-7"	9		21'-7 3/8"		16 (18)	16'-5 1/2"	22 2 3'-6 7/8" 29 7/8 10	23 24	25) /4" 10'-5 1/	26
				TYP. (10) t	(4) 3.5 12 (1) (1) (1) (1) (1) (1) (1) (1)	9 6 4	TYP.           √10         (2)	12 3.5		3.5	
7											
) (1	.5 (14)	(12)	(11) (1	.0) (	9 (8	) (7	6	5	4	3	
b) (1 1-5 1/2" 8 (2)	14'-4     1/8"     10'       9     8     4	12 -11 1/4" 21'-7 3/8" 4	11 10'-11 1/4" TYP. 1 1 1	.0) ( 21'-7"	9 8	21'-7"	6 10'-11 1/4" 10'-7	5 3/4" 21'-	-6 1/2* 1	0 3	32
	5 14 14'-4 1/8" 10' 9 8 < (-	12 -11 1/4" 21'-7 3/8"	11 10'-11 1/4* TYP. 1 10 10 10 10 10 10 10 10 10		9 8			5 3/4" 21'-			









### EXTERIOR ELEVATION KEYNOTES:

- 1 HARDIE PANEL (ARCTIC WHITE)
- $\langle 2 \rangle$  hardle panel (light gray)
- $\langle 3 \rangle$  hardle panel (stained cedar)
- $\langle 4 \rangle$  EIFS (LIGHT GRAY)
- $\left< 5 \right>$  EIFS (DARK GRAY)
- 6 EIFS (RED)
- $\langle 7 \rangle$  EIFS (FAUX CHARCOAL GRAY BRICK FINISH)
- $\langle 8 \rangle$  ACRYLIC STUCCO (LIGHT GRAY)
- $\langle 9 \rangle$  acrylic stucco (dark gray)
- $\langle 10 \rangle$  asphalt shingle (Midnight Black)
- (11) BLACK ALUMINUM RAILING & PICKETS
- (12) 3" DEEP PRE-FIN. ALUM. FIN (PAINTED LIGHT GRAY TO MATCH HARDIE LIGHT GRAY)
- (13) GLULAM COLUMNS
- $\langle 14 \rangle$  prefin. alum. Soffit (stained cedar)
- (15) SIGNAGE (C/W BLOCKING/ BACKER TO SUIT)
- $\langle 16 \rangle$  Alum. Cladding (Light Gray)
- $\langle 17 \rangle$  main floor patio (p.t. wood)
- (18) METAL POST
- (19) SECTIONAL OVERHEAD DOOR C/W AUTO EXIT SENSOR



# **APPENDIX**

# **C** TRAFFIC DATA





## Appendix B: Table of Traffic and Road Parameters To Be Used For Sound Level Predictions

Table B1	Traffic And Road	Parameters To Be	Used For Sou	nd Level Predic	tions	
Row Width (m)	Implied Roadway Class	AADT Vehicles/Day	Posted Speed Km/Hr	Day/Night Split %	Medium Trucks %	Heavy Trucks % <sup>1</sup>
NA <sup>2</sup>	Freeway, Queensway, Highway	18,333 per lane	100	92/8	7	5
37.5-44.5	6-Lane Urban Arterial-Divided (6 UAD)	50,000	50-80	92/8	7	5
34-37.5	4-Lane Urban Arterial-Divided (4-UAD)	35,000	50-80	92/8	7	5
23-34	4-Lane Urban Arterial-Undivided (4-UAU)	30,000	50-80	92/8	7	5
23-34	4-Lane Major Collector (4-UMCU)	24,000	40-60	92/8	7	5
30-35.5	2-Lane Rural Arterial (2-RAU)	15,000	50-80	92/8	7	5
20-30	2-Lane Urban Arterial (2-UAU)	15,000	50-80	92/8	7	5
20-30	2-Lane Major Collector (2-UMCU)	12,000	40-60	92/8	7	5
30-35.5	2-Lane Outer Rural Arterial (near the extremities of the City) (2-RAU)	10,000	50-80	92/8	7	5
20-30	2-Lane Urban Collector (2-UCU)	8,000	40-50	92/8	7	5

<sup>1</sup> The MOE Vehicle Classification definitions should be used to estimate automobiles, medium trucks and heavy trucks.

 $^{2}\,$  The number of lanes is determined by the future mature state of the roadway.

EAGLESON ROAD - Currently a 2-Lane Urban Arterial, however as per City of Ottawa Review - this is to expected to be widened to a 4 lane Urban arterial undivided road.

FERNBANK ROAD - Currently a 2-Lane UrbanArterial, and is not expected to be widened at the time of submittal.

26

Environmental Noise Control Guidelines Part 4: Technical Requirements For Environmental Noise Control Studies And Implementation

> Visit us: Ottawa.ca/planning Visitez-nous : Ottawa.ca/urbanisme

Project Name: Noise Impact Study Site Name: Residential Development Site Address: 800 Eagelson Road, Ottawa WSP Project #: 181-02513-00



#### Table C1: Traffic Data

Area	Time Period	Autos	Medium Trucks	Heavy Trucks	Total
	0700-2300h	24,288	1,932	1,380	27,600
Eagleson Road	2300-0700h	2,112	168	120	2,400
	Total	26,400	2,100	1,500	30,000
	0700-2300h	12,144	966	690	13,800
Fernbank Road	2300-0700h	1,056	84	60	1,200
	Total	13,200	1,050	750	15,000

Information	Eagleson	Fernbank			
AADT	30,000	15,000			
Road Gradient %	0%	0%			
Medium Truck %	7%				
Heavy Truck %	5%				
Posted Speed Limit (kph)	60	60			
Day/Night Split	92%				
Day/Might Split	8%				

Notes:

Information obtained from the City of Ottawa ENCG

Road Gradient based on topography maps of the area.

# **APPENDIX**

# D STAMSON OUTPUTS

Project Name: Noise Impact Study Site Name: Residential Development Site Address: 800 Eagelson Road, Ottawa WSP Project #: 181-02513-00

#### Table D1: Stamson Parameters and Results

ID	Description	Stamson File Name	Road Segment	Pavement Type	Road View A1	able Angle A2	Source - Receiver Distance (m)	Ground Type (Hard/Soft)	Topography Type	Wood Depth	No. Rows of Houses	Receiever Height (m)	Elevation Change (m)	Tota (dl Day	al Leq BA) Night	Ventilation Requirements	Warning Clause	Building Component Requirements	Mitigation Required?
А	North façade with exposure to Fernbank	EAGLOCA.TE	Fernbank	1	-90	85	22	Soft	3	0	0	1.5	17.29	62	61	Central Air Conditioning	Type D	Designed/Selected	
В	North façade with exposure to Fernbank and Eagleson	EAGLOCB.TE	Fernbank Eagleson	1 1 1	-90 -90	55 0	17 33	Soft Soft	3	0	0	1.5 1.5 1.5	17.29 17.29	70	63	Central Air Conditioning	Type D	Designed/Selected	
С	East façade with exposure to Eagleson	EAGLOCC.TE	Eagleson	1	-90	90	23	Soft	3	0	0	1.5	17.29	71	63	Central Air Conditioning	Type D	Designed/Selected	
D	East façade with exposure to Eagleson	EAGLOCD.TE	Fernbank	1	-65	90	42	Soft	3	0	0	1.5	17.29	67	59	Central Air Conditioning	Type D	Designed/Selected	
E	South façade with exposure to Eagleson and Fernbank	EAGLOCE.TE	Eagleson	1	-20	90	50	Soft	3	0	0	1.5	17.29	65	57	Forced Air	Type C	OBC	
F	West façade with exposure to Fernbank and Eagleson	EAGLOCF.TE	Fernbank Eagleson	1	-30 0	0 20	65 61	Soft Soft	3 3	0	0	1.5 1.5	17.29 17.29	59	51	Forced Air	Type C	OBC	
G	West façade with exposure to Fernbank.	EAGLOCG.TE	Fernbank	1	-90	0	31	Soft	3	0	0	1.5	17.29	64	56	Forced Air	Type C	OBC	

## wsp

Z:\18\181-02513-00 Eagleson Road Development NIA\06 - Modelling\Stamson\Peer Review 20181114\EAGLOCA Thursday, November 15, 2018 12:31 AM STAMSON 5.0 NORMAL REPORT Date: 14-11-2018 22:35:46 MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT Filename: EAGLOCA.te Time Period: Day/Night 16/8 hours Description: Sound Levels at Location A Road data, segment # 1: Eagleson (day/night) \_\_\_\_\_ Car traffic volume : 24288/2112 veh/TimePeriod \* Medium truck volume : 1932/168 veh/TimePeriod \* Heavy truck volume : 1380/120 veh/TimePeriod \* Posted speed limit : 60 km/h Road gradient : 0 % Road pavement : 1 (Typical asphalt or concrete) \* Refers to calculated road volumes based on the following input: 24 hr Traffic Volume (AADT or SADT): 30000 Percentage of Annual Growth : Number of Years of Growth : 0.00 : 0.00 Medium Truck % of Total Volume : 7.00 Heavy Truck % of Total Volume : 5.00 Day (16 hrs) % of Total Volume : 92.00 Data for Segment # 1: Eagleson (day/night) \_\_\_\_\_ Angle1Angle2: -90.00 deg0.00 degWood depth: 0(No woods.)No of house rows: 0 / 0Surface: 1(Absorptive ground surface) Receiver source distance : 123.00 / 123.00 m Receiver height:1.50 / 1.50 mTopography:3 (Elevated; no barrier)Elevation:17.29 mReference angle:0.00 ਸਾਜ Road data, segment # 2: Fernbank (day/night) \_\_\_\_\_ Car traffic volume : 12144/1056 veh/TimePeriod \* Medium truck volume : 966/84 veh/TimePeriod \* Heavy truck volume : 690/60 veh/TimePeriod \* Posted speed limit : 60 km/h Road gradient : 0 % Road pavement : 1 (Typical asphalt or concrete) \* Refers to calculated road volumes based on the following input: 24 hr Traffic Volume (AADT or SADT): 15000 Percentage of Annual Growth : Number of Years of Growth : 0.00 : 0.00 Medium Truck % of Total Volume:0.00Heavy Truck % of Total Volume:5.00Day (16 hrs) % of Total Volume:92.00 Data for Segment # 2: Fernbank (day/night) -----Angle1Angle2: -90.00 deg85.00 degWood depth:0(No woods.)No of house rows:0 / 0Surface:1(Absorptive ground surface) Receiver source distance : 22.00 / 22.00 m Receiver height: 1.50 / 1.50 mTopography: 3 (ElevElevation: 17.29 mReference angle: 0.00 3 (Elevated; no barrier)  $\mathbf{FF}$ 

Results segment # 1: Eagleson (day)

Source height = 1.5	50 m							
ROAD (0.00 + 59.17 Anglel Angle2 Alph	+ 0.00) = na RefLeq	59.17 P.Adj	dBA D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90 0 0.1	4 73.01	0.00	-10.43	-3.40	0.00	0.00	0.00	59.17
Segment Leq : 59.17	′ dBA							
Results segment # 2	2: Fernban	k (day 	)					
Source height = 1.5	50 m							
ROAD (0.00 + 67.62 Anglel Angle2 Alph	+ 0.00) = na RefLeq	67.62 P.Adj	dBA D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90 85 0.1	4 70.00	0.00	-1.90	-0.47	0.00	0.00	0.00	67.62
Segment Leq : 67.62	dBA							
Total Leq All Segme	ents: 68.2	0 dBA						
RE Results segment # 1	: Eagleso	n (nigi	ht) 					
Source height = 1.5	50 m							
ROAD (0.00 + 51.58 Angle1 Angle2 Alph	+ 0.00) = na RefLeq	51.58 P.Adj	dBA D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90 0 0.1	.4 65.41	0.00	-10.43	-3.40	0.00	0.00	0.00	51.58
Segment Leq : 51.58	B dBA							
Results segment # 2	: Fernban	k (nigi	ht) 					
Source height = 1.5	50 m							
ROAD (0.00 + 60.03 Angle1 Angle2 Alph	+ 0.00) = na RefLeq	60.03 P.Adj	dBA D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90 85 0.1	4 62.40	0.00	-1.90	-0.47	0.00	0.00	0.00	60.03
Segment Leq : 60.03	B dBA							
Total Leq All Segme	ents: 60.6	1 dBA						
FF								

TOTAL Leq FROM ALL SOURCES (DAY): 68.20 (NIGHT): 60.61

#### FF

Thursday, November 15, 2018 12:32 AM

Z:\18\181-02513-00 Eagleson Road Development NIA\06 - Modelling\Stamson\Peer Review 20181114\EAGLOCB STAMSON 5.0 NORMAL REPORT Date: 14-11-2018 22:40:21 MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT Filename: EAGLOCB.te Time Period: Day/Night 16/8 hours Description: Sound Levels at Location B Road data, segment # 1: Eagleson (day/night) \_\_\_\_\_ Car traffic volume : 24288/2112 veh/TimePeriod \* Medium truck volume : 1932/168 veh/TimePeriod \* Heavy truck volume : 1380/120 veh/TimePeriod \* Posted speed limit : 60 km/h Road gradient : 0 % Road pavement : 1 (Typical asphalt or concrete) \* Refers to calculated road volumes based on the following input: 24 hr Traffic Volume (AADT or SADT): 30000 Percentage of Annual Growth : Number of Years of Growth : 0.00 : 0.00 Medium Truck % of Total Volume : 7.00 Heavy Truck % of Total Volume : 5.00 Day (16 hrs) % of Total Volume : 92.00 Data for Segment # 1: Eagleson (day/night) \_\_\_\_\_ Angle1Angle2: -90.00 deg0.00 degWood depth: 0(No woods.)No of house rows: 0 / 0Surface: 1(Absorptive ground surface) Receiver source distance : 32.50 / 32.50 m Receiver height:1.50 / 1.50 mTopography:3 (Elevated; no barrier)Elevation:17.29 mReference angle:0.00 ਸਾਜ Road data, segment # 2: Fernbank (day/night) \_\_\_\_\_ Car traffic volume : 12144/1056 veh/TimePeriod \* Medium truck volume : 966/84 veh/TimePeriod \* Heavy truck volume : 690/60 veh/TimePeriod \* Posted speed limit : 60 km/h Road gradient : 0 % Road pavement : 1 (Typical asphalt or concrete) \* Refers to calculated road volumes based on the following input: 24 hr Traffic Volume (AADT or SADT): 15000 Percentage of Annual Growth : Number of Years of Growth : 0.00 : 0.00 Medium Truck % of Total Volume:0.00Heavy Truck % of Total Volume:5.00Day (16 hrs) % of Total Volume:92.00 Data for Segment # 2: Fernbank (day/night) -----Angle1Angle2: -90.00 deg55.00 degWood depth:0(No woods.)No of house rows:0 / 0Surface:1(Absorptive ground surface) Receiver source distance : 17.00 / 17.00 m Receiver height: 1.50 / 1.50 mTopography: 3 (ElevElevation: 17.29 mReference angle: 0.00 3 (Elevated; no barrier)  $\mathbf{FF}$ Results segment # 1: Eagleson (day)

#### 

Source height = 1.	50 m										
ROAD (0.00 + 65.77 Anglel Angle2 Alpl	+ 0.00) = na RefLeq	65.77 P.Adj	dBA D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq			
-90 0 0.2	4 73.01	0.00	-3.83	-3.40	0.00	0.00	0.00	65.77			
Segment Leq : 65.7	7 dBA										
Results segment # 2	2: Fernban	k (day	)								
Source height = 1.	50 m		_								
ROAD (0.00 + 68.16 Angle1 Angle2 Alph	+ 0.00) = na RefLeq	68.16 P.Adj	dBA D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq			
-90 55 0.2	4 70.00	0.00	-0.62	-1.22	0.00	0.00	0.00	68.16			
Segment Leq : 68.10 Total Leq All Segme	5 dBA ents: 70.1	4 dba									
Results segment # 3	Results segment # 1: Eagleson (night)										
Source height = 1.	50 m										
ROAD (0.00 + 58.17 Angle1 Angle2 Alph	+ 0.00) = na RefLeq	58.17 P.Adj	dBA D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq			
-90 0 0.2	4 65.41	0.00	-3.83	-3.40	0.00	0.00	0.00	58.17			
Segment Leq : 58.1	7 dBA										
Results segment # 2	2: Fernban	k (nig	ht) 								
Source height = 1.	50 m										
ROAD (0.00 + 60.56 Angle1 Angle2 Alph	+ 0.00) = na RefLeq	60.56 P.Adj	dBA D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq			
-90 55 0.2	62.40	0.00	-0.62	-1.22	0.00	0.00	0.00	60.56			
Segment Leq : 60.50	5 dBA										
Total Leq All Segme	ents: 62.5	4 dBA									
FF											

TOTAL Leq FROM ALL SOURCES (DAY): 70.14 (NIGHT): 62.54

#### FF FF

-2-

Z:\18\181-02513-00 Eagleson Road Development NIA\06 - Modelling\Stamson\Peer Review 20181114\EAGLOCC Thursday, November 15, 2018 12:32 AM STAMSON 5.0 NORMAL REPORT Date: 14-11-2018 22:56:38 MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT Time Period: Day/Night 16/8 hours Filename: EAGLOCC.te Description: Sound Levels at Location C Road data, segment # 1: Eagleson (day/night) \_\_\_\_\_ Car traffic volume : 24288/2112 veh/TimePeriod \* Medium truck volume : 1932/168 veh/TimePeriod \* Heavy truck volume : 1380/120 veh/TimePeriod \* Posted speed limit : 60 km/h Road gradient:0 %Road pavement:1 (I 1 (Typical asphalt or concrete) \* Refers to calculated road volumes based on the following input: 24 hr Traffic Volume (AADT or SADT): 30000 Percentage of Annual Growth : 0.00 Number of Years of Growth : 0.00 Medium Truck % of Total Volume : 7.00 Heavy Truck % of Total Volume : 5.00 Day (16 hrs) % of Total Volume : 92.00 Data for Segment # 1: Eagleson (day/night) -----Angle1Angle2: -90.00 deg90.00 degWood depth: 0(No woods (No woods.) No of house rows 0 / 0 : Surface : 1 (Absorptive ground surface) Receiver source distance : 23.00 / 23.00 m Receiver height : 1.50 / 1.50 m Topography : 3 (Elex : 3 (Elevated; no barrier) Topography : 17.29 m Elevation Reference angle 0.00 ਸਾਜ Results segment # 1: Eagleson (day) Source height = 1.50 mROAD (0.00 + 70.50 + 0.00) = 70.50 dBAAngle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq \_\_\_\_\_ -90 90 0.14 73.01 0.00 -2.12 -0.39 0.00 0.00 0.00 70.50 \_\_\_\_\_ Segment Leq : 70.50 dBA Total Leq All Segments: 70.50 dBA  $\mathbf{F}\mathbf{F}$ Results segment # 1: Eagleson (night) \_\_\_\_\_ Source height = 1.50 mROAD (0.00 + 62.90 + 0.00) = 62.90 dBAAngle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq \_\_\_\_\_ -90 90 0.14 65.41 0.00 -2.12 -0.39 0.00 0.00 0.00 62.90 \_\_\_\_\_ Segment Leq : 62.90 dBA Total Leq All Segments: 62.90 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 70.50 (NIGHT): 62.90

Z:\18\181-02513-00 Eagleson Road Development NIA\06 - Modelling\Stamson\Peer Review 20181114\EAGLOCD Thursday, November 15, 2018 12:33 AM STAMSON 5.0 NORMAL REPORT Date: 14-11-2018 22:59:52 MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT Time Period: Day/Night 16/8 hours Filename: EAGLOCD.te Description: Sound Levels at Location D Road data, segment # 1: Eagleson (day/night) \_\_\_\_\_ Car traffic volume : 24288/2112 veh/TimePeriod \* Medium truck volume : 1932/168 veh/TimePeriod \* Heavy truck volume : 1380/120 veh/TimePeriod \* Posted speed limit : 60 km/h Road gradient:0 %Road pavement:1 (I 1 (Typical asphalt or concrete) \* Refers to calculated road volumes based on the following input: 24 hr Traffic Volume (AADT or SADT): 30000 Percentage of Annual Growth : 0.00 Number of Years of Growth : 0.00 Medium Truck % of Total Volume : 7.00 Heavy Truck % of Total Volume : 5.00 Day (16 hrs) % of Total Volume : 92.00 Data for Segment # 1: Eagleson (day/night) \_\_\_\_\_ Angle1Angle2: -65.00 deg90.00 degWood depth: 0(No woods (No woods.) No of house rows 0 / 0 : Surface : 1 (Absorptive ground surface) Receiver source distance : 42.00 / 42.00 m Receiver height : 1.50 / 1.50 m Topography : 3 (Elev Topography Elevation : 3 (Elevated; no barrier) : 17.29 m Reference angle 0.00 ਸਾਜ Results segment # 1: Eagleson (day) Source height = 1.50 mROAD (0.00 + 66.96 + 0.00) = 66.96 dBAAngle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq \_\_\_\_\_ -65 90 0.14 73.01 0.00 -5.10 -0.94 0.00 0.00 0.00 66.96 \_\_\_\_\_ Segment Leq : 66.96 dBA Total Leq All Segments: 66.96 dBA  $\mathbf{F}\mathbf{F}$ Results segment # 1: Eagleson (night) \_\_\_\_\_ Source height = 1.50 mROAD (0.00 + 59.37 + 0.00) = 59.37 dBA Angle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq \_\_\_\_\_ -65 90 0.14 65.41 0.00 -5.10 -0.94 0.00 0.00 0.00 59.37 \_\_\_\_\_ Segment Leq : 59.37 dBA Total Leq All Segments: 59.37 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 66.96 (NIGHT): 59.37

Z:\18\181-02513-00 Eagleson Road Development NIA\06 - Modelling\Stamson\Peer Review 20181114\EAGLOCE Thursday, November 15, 2018 12:33 AM STAMSON 5.0 NORMAL REPORT Date: 14-11-2018 23:01:37 MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT Time Period: Day/Night 16/8 hours Filename: EAGLOCE.te Description: Sound Levels at Location E Road data, segment # 1: Eagleson (day/night) \_\_\_\_\_ Car traffic volume : 24288/2112 veh/TimePeriod \* Medium truck volume : 1932/168 veh/TimePeriod \* Heavy truck volume : 1380/120 veh/TimePeriod \* Posted speed limit : 60 km/h Road gradient:0 %Road pavement:1 (I 1 (Typical asphalt or concrete) \* Refers to calculated road volumes based on the following input: 24 hr Traffic Volume (AADT or SADT): 30000 Percentage of Annual Growth : 0.00 Number of Years of Growth : 0.00 Medium Truck % of Total Volume : 7.00 Heavy Truck % of Total Volume : 5.00 Day (16 hrs) % of Total Volume : 92.00 Data for Segment # 1: Eagleson (day/night) -----Angle1Angle2: -20.00 deg90.00 degWood depth: 0(No woods (No woods.) No of house rows 0 / 0 : Surface : 1 (Absorptive ground surface) Receiver source distance : 50.00 / 50.00 m Receiver height : 1.50 / 1.50 m Topography : 3 (Elex : 3 (Elevated; no barrier) Topography : 17.25 m Elevation Reference angle 0.00 ਸਾਜ Results segment # 1: Eagleson (day) Source height = 1.50 mROAD (0.00 + 64.57 + 0.00) = 64.57 dBAAngle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq \_\_\_\_\_ -20 90 0.14 73.01 0.00 -5.97 -2.46 0.00 0.00 0.00 64.57 \_\_\_\_\_ Segment Leq : 64.57 dBA Total Leq All Segments: 64.57 dBA  $\mathbf{F}\mathbf{F}$ Results segment # 1: Eagleson (night) \_\_\_\_\_ Source height = 1.50 mROAD (0.00 + 56.97 + 0.00) = 56.97 dBAAngle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq \_\_\_\_\_ -20 90 0.14 65.41 0.00 -5.97 -2.46 0.00 0.00 0.00 56.97 \_\_\_\_\_ Segment Leq : 56.97 dBA Total Leq All Segments: 56.97 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 64.57 (NIGHT): 56.97

1114\EAGLOCF Thursday, November 15, 2018 12:33 AM

Z:\18\181-02513-00 Eagleson Road Development NIA\06 - Modelling\Stamson\Peer Review 20181114\EAGLOCF STAMSON 5.0 NORMAL REPORT Date: 14-11-2018 23:05:12 MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT Filename: EAGLOCF.te Time Period: Day/Night 16/8 hours Description: Sound Levels at Location F Road data, segment # 1: Eagleson (day/night) \_\_\_\_\_ Car traffic volume : 24288/2112 veh/TimePeriod \* Medium truck volume : 1932/168 veh/TimePeriod \* Heavy truck volume : 1380/120 veh/TimePeriod \* Posted speed limit : 60 km/h Road gradient : 0 % Road pavement : 1 (Typical asphalt or concrete) \* Refers to calculated road volumes based on the following input: 24 hr Traffic Volume (AADT or SADT): 30000 Percentage of Annual Growth : Number of Years of Growth : 0.00 : 0.00 Medium Truck % of Total Volume : 7.00 Heavy Truck % of Total Volume : 5.00 Day (16 hrs) % of Total Volume : 92.00 Data for Segment # 1: Eagleson (day/night) \_\_\_\_\_ Angle1Angle2:0.00 deg20.00 degWood depth:0(No woods.)No of house rows:0 / 0Surface:1(Absorptive ground surface) Receiver source distance : 61.00 / 61.00 m Receiver height:1.50 / 1.50 mTopography:3 (Elevated; no barrier)Elevation:17.29 mReference angle:0.00 ਸਾਜ Road data, segment # 2: Fernbank (day/night) \_\_\_\_\_ Car traffic volume : 12144/1056 veh/TimePeriod \* Medium truck volume : 966/84 veh/TimePeriod \* Heavy truck volume : 690/60 veh/TimePeriod \* Posted speed limit : 60 km/h Road gradient : 0 % Road pavement : 1 (Typical asphalt or concrete) \* Refers to calculated road volumes based on the following input: 24 hr Traffic Volume (AADT or SADT): 15000 Percentage of Annual Growth : Number of Years of Growth : 0.00 : 0.00 Medium Truck % of Total Volume:0.00Heavy Truck % of Total Volume:5.00Day (16 hrs) % of Total Volume:92.00 Data for Segment # 2: Fernbank (day/night) -----Angle1Angle2: -30.00 deg0.00 degWood depth: 0(No woods.)No of house rows: 0 / 0Surface: 1(Absorptive ground surface) Receiver source distance : 65.00 / 65.00 m Receiver height: 1.50 / 1.50 mTopography: 3 (ElevElevation: 17.29 mReference angle: 0.00 3 (Elevated; no barrier)  $\mathbf{FF}$ 

Results segment # 1: Eagleson (day)

Source height	= 1.50	m							
ROAD (0.00 + Angle1 Angle2	56.50 + 2 Alpha	0.00) = RefLeq	56.50 P.Adj	dBA D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
0 20	0.14	73.01	0.00	-6.95	-9.56	0.00	0.00	0.00	56.50
Segment Leq :	56.50	dBA							
FF Results segme	ent # 2:	Fernban	k (day	)					
Source height	2 = 1.50	m							
ROAD (0.00 + Angle1 Angle2	54.92 + 2 Alpha	0.00) = RefLeq	54.92 P.Adj	dBA D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-30 0	0.14	70.00	0.00	-7.27	-7.81	0.00	0.00	0.00	54.92
Segment Leq :	54.92	dBA	د مه						
Total Leg All	. segmen	LS• 58.7	9 OBA						
Results segme	ent # 1:	Eagleso	n (nigl	ht) 					
Source height	2 = 1.50	m							
ROAD (0.00 + Angle1 Angle2	48.90 + 2 Alpha	0.00) = RefLeq	48.90 P.Adj	dBA D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
0 20	0.14	65.41	0.00	-6.95	-9.56	0.00	0.00	0.00	48.90
Segment Leq :	48.90	dBA							
Results segme	ent # 2:	Fernbani	k (nig]	nt) 					
Source height	= 1.50	m							
ROAD (0.00 + Angle1 Angle2	47.32 + 2 Alpha	0.00) = RefLeq	47.32 P.Adj	dBA D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-30 0	0.14	62.40	0.00	-7.27	-7.81	0.00	0.00	0.00	47.32
Segment Leq :	47.32	dBA							
Total Leq All	. Segmen	ts: 51.1	9 dBA						
FF									

TOTAL Leq FROM ALL SOURCES (DAY): 58.79 (NIGHT): 51.19

### FF

Z:\18\181-02513-00 Eagleson Road Development NIA\06 - Modelling\Stamson\Peer Review 20181114\EAGLOCG Thursday, November 15, 2018 12:34 AM STAMSON 5.0 NORMAL REPORT Date: 14-11-2018 23:03:18 MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT Time Period: Day/Night 16/8 hours Filename: EAGLOCG.te Description: Sound Levels at Location G Road data, segment # 1: FERNBANK (day/night) \_\_\_\_\_ Car traffic volume : 12144/1056 veh/TimePeriod \* Medium truck volume : 966/84 veh/TimePeriod \* Heavy truck volume : 690/60 veh/TimePeriod \* Heavy truck volume : Posted speed limit : 60 km/h Road gradient : 0 % Road pavement : 1 (Typical asphalt or concrete) \* Refers to calculated road volumes based on the following input: 24 hr Traffic Volume (AADT or SADT): 15000 Percentage of Annual Growth : 0.00 Number of Years of Growth : 0.00 Medium Truck % of Total Volume : 7.00 Heavy Truck % of Total Volume : 5.00 Day (16 hrs) % of Total Volume : 92.00 Data for Segment # 1: FERNBANK (day/night) -----Angle1Angle2: -90.00 deg0.00 degWood depth: 0(No wood) (No woods.) No of house rows 0 / 0 : Surface : 1 (Absorptive ground surface) Receiver source distance : 28.00 / 28.00 m Receiver height : 1.50 / 1.50 m Topography Topography Elevation : 3 (Elevated; no barrier) : 17.29 m Reference angle : 0.00 ਸਾਜ Results segment # 1: FERNBANK (day) Source height = 1.50 mROAD (0.00 + 63.50 + 0.00) = 63.50 dBAAngle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq \_\_\_\_\_ -90 0 0.14 70.00 0.00 -3.09 -3.40 0.00 0.00 0.00 63.50 \_\_\_\_\_ Segment Leq : 63.50 dBA Total Leq All Segments: 63.50 dBA  $\mathbf{F}\mathbf{F}$ Results segment # 1: FERNBANK (night) \_\_\_\_\_ Source height = 1.50 mROAD (0.00 + 55.90 + 0.00) = 55.90 dBAAngle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq \_\_\_\_\_ -90 0 0.14 62.40 0.00 -3.09 -3.40 0.00 0.00 0.00 55.90 \_\_\_\_\_ Segment Leq : 55.90 dBA Total Leq All Segments: 55.90 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 63.50 (NIGHT): 55.90