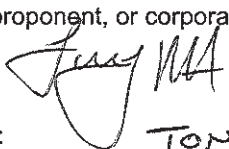


Environment Act Proposal Form



| | |
|---|--|
| Name of the development: STRUCTURAL COMPOSITE TECHNOLOGIES LTD | |
| Type of development per Classes of Development Regulation (Manitoba Regulation 164/88): CLASS 1 | |
| Legal name of the applicant: STEUTURAL COMPOSITE TECHNOLOGIES LTD | |
| Mailing address of the applicant: Contact Person: TONY MA City: WPG. Province: MB Postal Code: R2C 3N2 Phone Number: ²⁰⁴ 668-9320 Fax: ²⁰⁴ 663-9115 email: TMA@SCTFRP.COM | |
| Location of the development: 100 HOKA ST. Contact Person: TONY MA Street Address: 200-100 HOKA ST. Legal Description: STRUCTURAL COMPOSITE TECHNOLOGIES LTD City/Town: WPG. Province: MB Postal Code: R2C 3N2 Phone Number: ²⁰⁴ 668-9320 Fax: ²⁰⁴ 663-9115 email: TMA@SCTFRP.COM | |
| Name of proponent contact person for purposes of the environmental assessment: TONY MA | |
| Phone: 204-668-9320 Fax: 204-663-9115 | Mailing address: SAME AS ABOVE |
| Email address: TMA@SCTFRP.COM. | |
| Webpage address: WWW.STRUCTURAL-COMPOSITE.COM | |
| Date: APRIL 1, 2014 | Signature of proponent, or corporate principal of corporate proponent:  Printed name: TONY MA |

STRUCTURAL COMPOSITE TECHNOLOGIES LTD
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EXECUTIVE SUMMARY

Structural Composite Technologies Ltd. is a leading fibreglass fabricator serving the needs of a broad range of industries. We provide design, engineering and manufacturing expertise specifically related to fibreglass reinforced plastic products and process equipment. This EAP submission is for the move from our prior location on 20 Brunett Street to our current location at 100 Hoka Street. (Attachment A, 100 Hoka Street floor plan)

Since our incorporation in 1961, Structural Composite Technologies Ltd. has designed, engineered and manufactured custom fabricated fibreglass reinforced plastic equipment for mining, milling, smelting, refining, processing and manufacturing companies both at home and abroad. In addition, we serve the needs of many branches of the Federal, Provincial and Municipal governments.

Under new ownership since 1992, Structural Composite Technologies Ltd. continues to grow and diversify while maintaining a focus on products designed for value and engineered to last.

Our Mission Statement:

“To manufacture well built and well engineered quality composite based products and components that meet or exceed our customer’s requirements”.

Critical to achieving our mission are five basic values:

1. Uncompromising Integrity – Structural tradition of ethics and honest business conduct is the foundation of our organization.
2. People – The value our employees bring in creating customer solutions provides the backbone of our team’s success.
3. Innovation – Through teamwork we constantly strive to find new and better ways to meet our customers’ needs and exceed their expectations.
4. Learning/continuous Improvement – Our workplace is an atmosphere which supports continuous learning development and personal growth.
5. Operational Excellence – We will provide the best value to our customers through continuously improving our processes and cost structure.

Our Vision:

“To become the best that we can be as individuals, the best in the operation of our business and the industry best in providing value to our customers”.

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SECTION 1.0
INTRODUCTION AND BACKGROUND

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SECTION 1.0
INTRODUCTION AND BACKGROUND

1.1 PRODUCTS

Structural Composite Technologies product lines include fiberglass:

- tankage of all descriptions,
- pipe
- fittings
- duct work
- stacks
- scrubber systems
- cooling towers
- process equipment
- covers
- electrolytic cells
- trench covers
- fan housings
- blowers
- transformer pads
- vehicle components
- electrical components
- grating, handrail, ladders and structures
- well casing
- shower stalls, bases, and bathtubs

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1.2 SERVICES

Structural Composite Technologies services include:

- consulting
- engineering
- design
- custom fabrication
- assembly
- installation
- on-site and in-house repair and service
- training
- inspection

1.3 MANUFACTURING PROCESSES TECHNOLOGIES

1.3.1 Composites Manufacturing Processes

Structural Composite Technologies uses the open molding manufacturing processes (sometimes called contact molding). There are a few processing methods within the open molding category:

1.3.2 Open Molding

- Hand Lay-Up
 - Manual Resin Application
- Chopped Laminate Process
 - Atomized Spray-Up
 - Non-Atomized Application
- Filament Winding

1.3.3 Open Molding Applications

The heart of the open molding process is saturating a reinforcement fibre with resin, then using manual roll-out techniques to consolidate the laminate and remove entrapped air. A major factor in this operation is the transfer of resin from a drum or storage tank to the mold. The means used to transport the resin, in many cases, characterizes the specific process

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method. For example: If the resin is applied manually, using a bucket and brush, the process is known as *Hand Lay-Up*; if resin is applied using a traditional chopper gun, the process is referred to as *Spray-Up*. In years past the lines between spray applied hand lay-up and spray-up have been somewhat blurred. If one were wetting out roll stock materials (e.g., chopped strand mat or knitted fabric) with a spray gun, the method would be referred to as hand lay-up, even though the resin was applied by spray application. By virtue of the reinforcement being applied by hand, as opposed to chopper gun application, the *molding process* is hand lay-up, while the *resin application* is atomized spray.

In order to clarify the methods being used, the industry has developed more accurate descriptions of the processes. The *Molding Process* is defined by the method of fiber placement (i.e. by hand, or by chopping). The *Resin Application Method* is defined by the means used to transfer resin to the mold. Official definitions for open molding process and application methods are as follows:

1.3.4 Open Molding Process Definitions:

Hand Lay-Up Laminating Process – The use of roll stock reinforcements, such as chopped strand mat, woven, knitted, or textile fabrics, where the reinforcement is placed by hand, then saturated with resin. Resin can be applied either by manual or mechanical means.

Chopped Laminate Process – The use of a chopper applicator, which cuts continuous strand roving into short fiber lengths, and deposits resin and fiber, known as "chop", on a mold surface. This process includes traditional atomized chopping (spray-up) as well as non-atomized flow chop application.

1.3.5 Resin Application Definition:

Manual Resin Application – The manual transfer of a thermoset resin from a container to a fibre reinforcement. Bucket and tool application, with the resin being hand mixed in a container and manually applied to the laminate with a brush, paint roller, squeegee, or other tool.

Gel Coat Application – The application of gel coat products using atomized spray with either controlled application method.

- **Controlled Spraying:** Spray gun pressure calibration verified, mold containment flanges in place, and operator training documented.

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1.3.6 Hand Lay-Up

Hand lay-up is an open molding method suitable for making a wide variety of composites products including: boats, tanks, bathware, housings, RV/truck/auto components, architectural products, and many other products ranging from very small to very large. Production volume per mold is low; however, it is feasible to produce substantial production quantities using multiple molds.

Process Description

Gel coat is first applied to the mold using a spray gun for a high-quality surface. When the gel coat has cured sufficiently, roll stock fiberglass reinforcement is manually placed on the mold. The laminating resin is applied by pouring, brushing, spraying, or using a paint roller. FRP rollers, paint rollers, or squeegees are used to consolidate the laminate, thoroughly wetting the reinforcement, and removing entrapped air. Subsequent layers of fiberglass reinforcement are added to build laminate thickness.

Low density core materials, such as end-grain balsa, foam, and honeycomb, are commonly used to stiffen the laminate. This is known as sandwich construction.

Molds

Simple, single-cavity molds of fiberglass composites construction are generally used. Molds can range from very small to very large and are low cost in the spectrum of composites molds.

1.3.7 Spray-Up (Chopping)

Spray-up or chopping is an open mold method similar to hand lay-up in its suitability for making boats, tanks, transportation components and tub/shower units in a large variety of shapes and sizes. A chopped laminate has good conformability and is sometimes faster than hand lay-up in molding complex shapes. In the spray-up process the operator controls thickness and consistency, therefore the process is more operator dependent than hand lay-up. Although production volume per mold is low, it is feasible to produce substantial production quantities using multiple molds.

Process Description

As with hand lay-up, gel coat is first applied to the mold prior to spray-up of the substrate laminate. Continuous strand glass roving and catalyzed resin are fed through a chopper gun, which deposits the resin-saturated "chop" on the mold. The laminate is then rolled to thoroughly saturate the glass strands and compact the chop. Additional layers of chop

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laminates are added as required for thickness. Roll stock reinforcements, such as woven roving or knitted fabrics, can be used in conjunction with the chopped laminates. Core materials of the same variety as used in hand lay-up are easily incorporated.

Molds

These are the same molds as in hand lay-up simple, single-cavity, molds of fiberglass composites construction. Molds can range from very small to very large and are low cost in the spectrum of composites molds.

1.3.8 Filament Winding

Filament winding is an automated open molding process that uses a rotating mandrel as the mold. The male mold configuration produces a finished inner surface and a laminate surface on the outside diameter of the product. Filament winding results in a high degree of fibre loading, which provides high tensile strengths in the manufacture of hollow, generally cylindrical products such as chemical and fuel storage tanks, pipes, stacks, pressure vessels, and rocket motor cases.

Process Description

Continuous strand roving is fed through a resin bath and wound onto a rotating mandrel. The roving feed runs on a trolley that traverses the length of the mandrel. The filament is laid down in a predetermined geometric pattern to provide maximum strength in the directions required. When sufficient layers have been applied, the laminate is cured on the mandrel. The molded part is then stripped from the mandrel. Equipment is available for filament winding on a continuous basis and two axis winding for pressure cylinders. Filament winding can be combined with the chopping process and is known as the hoop chop process.

Molds

Mandrels of suitable size and shape, made of steel or aluminum form the inner surface of the hollow part. Some mandrels are collapsible to facilitate part removal.

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1.4 Quantitative Information

Structural Composite Technologies categorizes our product lines into the following revenue streams:

- Bathware
- Industrial
- Transformer Pads
- Well Casing
- Other

Charted below is our approximate volume of production and annual revenue for each of these categories.

| REVENUE STREAM | PRODUCTION VOLUME (parts) | APPROX. ANNUAL REVENUE |
|------------------|------------------------------|------------------------|
| Bathware | 4500 | 1.8 M |
| Industrial | Various project scopes | 3.3 M |
| Transformer Pads | 1200 | 675 K |
| Well Casing | 8160 | 250 K |
| Other | n/a | 38 K |

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1.5 PREVIOUS STUDIES

1.5.1 Independent Environmental Assessment

Structural Composite Technologies contracted with M.P. Wiebe Environmental Engineering to conduct an Environmental Site Assessment on the property location at 100 Hoka Street.

A copy of the report has been included as Attachment B following this document.

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SECTION 2.0
DESCRIPTION OF DEVELOPMENT

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SECTION 2.0 DESCRIPTION OF DEVELOPMENT

2.1 Certificate of Title

A City of Winnipeg Certificate of Title number 2274783 for Parcel A and 2274786 for Parcel B has been included as Attachment C-A and C-B respectively, following this document.

2.2 Name of Mineral Rights Owner

Not applicable

2.3 Existing Land Use and Land Adjoining

The property located at 100 Hoka Street in the City of Winnipeg is a manufacturing facility. Surrounding this property are other manufacturing facilities and warehouse facilities. To the north of our operation is Manitoba Hydro (zoned M3), to the south is a Warehouse/Office building (zoned M2), to the east is CN Yard space (zoned M3) and to the west is New Flyer Industries zoned M3).

2.4 Land Use Designation

The property located at 100 Hoka Street in the City of Winnipeg is zoned M3. A City of Winnipeg Zoning Memorandum has been included as Attachment D following this document.

2.5 Development Description

Structural Composite Technologies Ltd designs, engineers and manufactures custom fabricated fibreglass reinforced plastic (FRP) equipment for mining, milling, smelting, refining, processing and manufacturing companies around the world. In addition, we serve the needs of many branches of the Federal, Provincial and Municipal governments.

Our product line includes: tankage of all descriptions, pipe, fittings, duct work, stacks, scrubber systems, cooling towers, process equipment, covers, electrolytic cells, fans, blowers, transformer pads, vehicle components, electrical components, architectural structures, shower stalls, and bathtubs.

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2.5.1 Custom Tanks

Custom tanks are primarily used for containing a corrosive liquid or a food product that must be protected from contamination. We have built vertical tanks from 1’ to 18’ in diameter using various types of resins depending on chemical resistant requirements.

2.5.2 Process Equipment

Whether it’s a slurry or a containment box, we have built a wide variety of process equipment specific to customer requirements. If abrasion is a concern, we can Tile Line or use Silica Carbide to handle the abuse.

2.5.3 Pipe and Ducting

Structural Composite Technologies Ltd. manufactures a complete line of piping and ducting to suit your needs.

2.5.4 Scrubbers

We have been manufacturing Scrubbers since 1961. Our Scrubbers are performance proven, having mastered air pollution problems in many industries.

2.5.5 Structures

Whatever your building needs are, we can provide a lightweight, corrosion resistant, easy to handle alternative to your building products. Not only are our structures economical to install, they will not deteriorate in the environment over time and will look brand new for years.

2.5.6 Grating

We distribute a fibreglass reinforced plastic molded mesh grating and also pultruded grating to use for platforms and trenches that require human traffic in corrosive environments.

2.5.7 Field Work

We have a ready to move field crew, available across Canada, experienced in several areas such as: installation, assembly, repairs, relining, and modification for your on-site requirements.

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2.5.8 Bathware

We manufacture two lines of bathware - Venco and Echo.

All bathware units are manufactured with fibreglass reinforced resins. Fibreglass provides a durable, glassy, nonconductive surface, immune to rust or corrosion, and is always warm to the touch. Light in weight yet exceptionally strong, fibreglass is the ultimate material for manufacturing bathware. Integral colour gelcoat eliminates problems of colour peeling, chipping or flaking encountered with other bathware materials. Fibreglass is tough, resists surface scratching and material fatigue. Our units offer superior rigid strength through its unique core wall construction. Two layers of fibreglass are used instead of the industry standard one layer. The result is enhanced sound dampening and added rigid strength.

2.5.9 Transformer Pads

Our transformer pads are lightweight, easy to install and will not corrode over time. Our variable sizes and weight capacity can fit most transformers cabinets on the market. If one of our pads is not the appropriate size we can custom make one to fit customer requirements.

2.5.10 Well Casing

Our Fibreglass Well Casing is a ribbed, filament-wound, corrosion resistant and durable fibreglass pipe, manufactured using food-grade resin and continuous roving. The finished product exhibits a high level of quality, uniformity and strength. Some of the uses are: well liners, sump tanks, lift stations, carwash pits, air release chambers, floatation (dock floats), ventilation ducting, concrete forms, valve switch stations and pipe tanks.

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SECTION 3.0
DESCRIPTION OF EXISTING ENVIRONMENT
IN THE PROJECT AREA

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SECTION 3.0
DESCRIPTION OF EXISTING ENVIRONMENT
IN THE PROJECT AREA

3.1 Description of Existing Environment in the Project Area

This section is not applicable. Structural Composite Technologies Ltd. is situated at 100 Hoka Street located in the City of Winnipeg in an Industrial Park.

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SECTION 4.0
DESCRIPTION OF ENVIRONMENTAL EFFECTS OF
THE DEVELOPMENT

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SECTION 4.0
DESCRIPTION OF ENVIRONMENTAL AND HUMAN
EFFECTS OF THE DEVELOPMENT

4.1 Environmental Impact

The main chemicals used in the composite manufacturing processes are resin, methyl ethyl ketone peroxide and/or benzoil peroxide (initiators). Dimethylaniline, and Cobalt 6% are used as promoting agents in specific resins where and when required by the manufacture. During the manufacturing process initiated resins cause an off gassing of styrene. Pva (Polyvinylalcohol) is used as a mold release agent which causes odors. Acetone is used in our shop for testing and clean-up purposes.

We also use diesel and propane for our equipment (forklift and bobcat). Propane is only stored on the forklift and diesel is stored outside in an approved container.

When manufactured parts require sanding or cutting dust particles can become airborne.

Air dispersion and point of impingement modelling has been completed by Pinchin Environmental. The final report is included as Attachment Z.

4.2 Handling and Storage

Chemicals are used only in areas provided with appropriate exhaust ventilation. Chemicals are stored in containers with tightly closed lids in a dry, cool and well ventilated area away from heat sources and protected from direct sunlight. Spill containers and berms are utilized at storage locations. Container electrical grounding is utilized. All containers are properly labelled. Average storage amounts of these chemicals are as follows:

| | |
|------------------------------|---|
| Resin | 50 drums |
| Methyl Ethyl Ketone Peroxide | 10 gallons |
| Cobalt 6% | 40 lbs |
| Honey Wax | 10 lbs |
| Acetone | 750 litres stored in an approved containers inside and outside the building |
| Propane | 8 – 30 lb cylinders stored/used on the forklift |
| Diesel | 800 litres in an approved container outside the building |

Please see attachments E though to O for material safety data sheets on these products.

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4.3 Worker Safety and Health

All workers are educated and trained in accordance to our Workplace Safety and Health Program and Safe Work Procedure Practices. Our Safety and Health Program covers but is not limited to the following areas:

- Administration
- Responsibilities and Accountabilities
- Workplace Safety and Health Committee
- Education and Training
- Supervision of Workers
- Inspection and Hazard Identification
- Accident Investigation and Documentation
- Hazardous Materials and Substances
- Workplace and Health Monitoring
- First Aid Service and Equipment
- Records
- Modified Return to Work Program

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SECTION 5.0
MITIGATION MEASURES AND RESIDUAL
ENVIRONMENTAL EFFECTS

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SECTION 5.0
MITIGATION MEASURES AND RESIDUAL
ENVIRONMENTAL EFFECTS

5.1 Environmental Management Practices

We have identified that our manufacturing processes have emissions. In preparation for our business move to the property at 100 Hoka Street, management had researched the county for a suitable air flow and dust containment system for our new location.

Considering regulatory compliance, worker safety and health, and protection of environmental health, we have investigated systems since 2007, to ensure we were making the best possible decision. We commissioned Frees, Inc. to install a Frees Directed Air Flow System and a Frees Dust Free dust containment system. Frees, Inc. started working with us in October 2007 and completed their system installation at our shop in September 2008.

We have signed a Confidential & Non-Confidential Proprietary Nature of the Frees Directed Air Flow System of which details can be provided if necessary.

Fibreglass manufacturing plants face a number of air quality struggles that are unique to the fibreglass industry. With more stringent regulations on all segments of the fibreglass industry, it was clear that a conventional ventilation system would not stand the test of the air quality requirements that we were facing. The system we installed has a unique concept in airflow designed to specifically solve ventilation struggles in fibreglass manufacturing. The system deals with the styrene monomer content in vapors produced by manufacturing processes and keep the exposures within the limits. The Dust-FreeTM system removes up to 99% of airborne dust particles and returns clean, fresh air to the work environment with no heat loss. We also installed a state-of-the-art automatic control and monitoring system (DDC). These controls provide automatic operation of expensive makeup air systems to minimize operating costs and equipment wear and tear. These intelligent systems determine when styrene producing activity is occurring, and insures proper ventilation levels. When an area is idle, the ventilation equipment is cycled off or reduced to minimum levels.

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5.2 Follow-up Plans, Monitoring and Reporting

As noted in other parts of this document Structural Composite Technologies Ltd. is in a new facility. The firm has adopted the highest level of technology presently available in North America for composite facilities in addressing its emissions requirements. Accordingly Structural Composite Technologies Ltd. meets and exceeds the present provincial legislation regarding these matters. Our evaluation and monitoring systems themselves are therefore open to review by senior management as we gain more experience with our new facility.

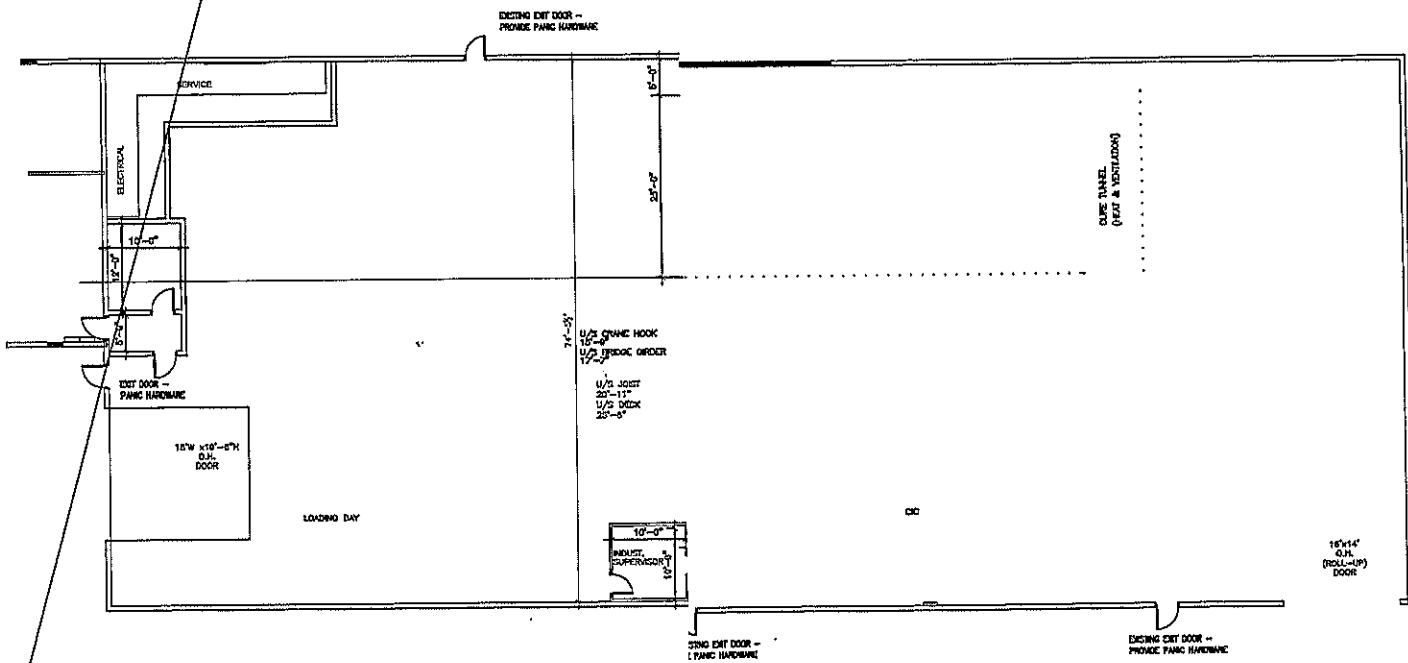
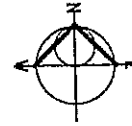
To ensure that we continue to meet our obligations the company presently has two methods of ongoing evaluation and monitoring.

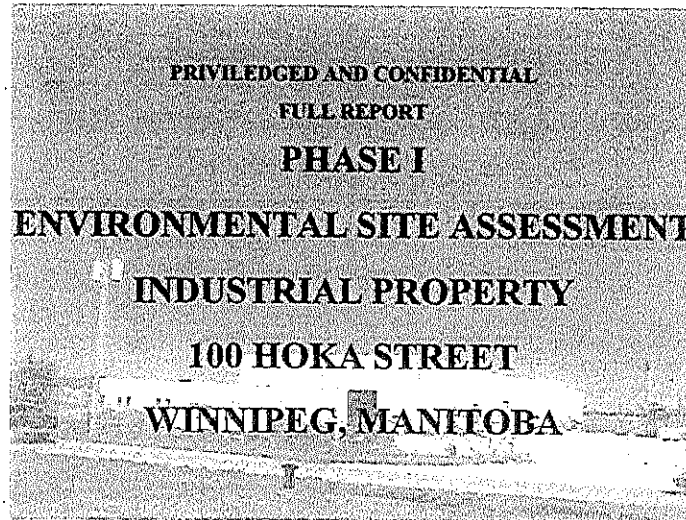
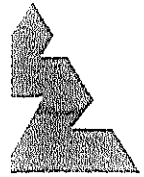
1. Our engineering department undertakes the monitoring of styrene levels at strategic locations throughout the plant on a regular basis. These results are recorded and records maintained. The results are reported to the President on a quarterly basis in graph form with recommendations as may be necessary in the event readings are trending in a non conformance direction.
2. Our emission control system is fully computer controlled, maintained and monitored to ensure that emissions are controlled. This is largely done through the maintenance of a slight negative pressure inside the building, large exchanges of scrubbed heat recovered air and internal filtration systems. This system is on line monitored and is monitored by both our maintenance department and also Frees, Inc., the system installer, on a daily basis. Adjustments to the system are inter-active between the computer, our maintenance and Frees Inc. on both a conditional and seasonal basis thereby enabling the company to be continuously in conformance in meeting its environmental obligations.

5.3 Schedule

Structural Composite Technologies Ltd formerly Structural Glass Ltd has been in business in the City of Winnipeg since 1961. We previously held an environmental licence for our previous location.

Since we have moved our facility, we are applying for continued operations.





Client:

STRUCTURAL GLASS LTD.
20 Burnett Avenue
Winnipeg, MB
R2G 1C1

*Attention: Mr. John R. Zadro, P. Eng.
President*

October 10, 2007

EXECUTIVE SUMMARY

M.P. Wiebe Environmental Engineering, a division of 4969821 Manitoba Ltd. (Wiebe) was commissioned by Structural Glass Ltd. to conduct a Phase I Environmental Site Assessment (ESA) of the industrial property located at 100 Hoka Street in Winnipeg, Manitoba (the "Property").

The objective of the Phase I ESA is to identify actual site contamination and assist in reducing uncertainty about potential environmental liabilities. The assignment was performed for mortgage financing purposes. This Phase I ESA was conducted as prescribed in the Canadian Standard Association's Z768-01 Phase I Environmental Site Assessment. The work scope for the Phase I ESA included: a records review; a site visit; interviews; an evaluation of information; and reporting.

The Property spans about 2.8 hectares and is occupied by a one storey, office/warehouse building with a footprint of about 4366 square metres. The building is occupied by Canital Granite, Premier Gymnastics and Premier Tae Kwon Doe and North Star Trailer Manufacturing.

The Phase I ESA revealed the following issues.

1. The Property was originally improved with the erection of the existing building in 1974. The north wing of the building was added in 2001. Adjacent properties were improved for industrial use between pre1916 and pre1988. None of the developments either on- or off-site is expected to pose a significant environmental risk to human or environmental health on Property.

Based on the findings of this Phase I ESA, no potentially significant environmental issue was identified. As a result, no additional action is recommended at this time.

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1.0 INTRODUCTION

M.P. Wiebe Environmental Engineering, a division of 4969821 Manitoba Ltd. (Wiebe) was commissioned by Structural Glass Ltd. to conduct a Phase I Environmental Site Assessment (ESA) of the industrial property located at 100 Hoka Street in the City of Winnipeg, Manitoba (the "Property").

A location plan for the Property is presented as Figure No. 1 in Appendix I.

1.1 Objectives

The objective of the Phase I ESA is to identify actual site contamination and assist in reducing uncertainty about potential environmental liabilities. In addition, the Phase I ESA provides a basis for additional investigation and/or site remediation and provides specific baseline environmental conditions.

This Phase I ESA was conducted as prescribed in the Canadian Standard Association's Z768-01 Phase I Environmental Site Assessment.

1.2 Work Scope and Methodology

The work scope for the Phase I ESA included:

1. a records review;
2. a site visit;
3. interviews;
4. evaluating information; and
5. report preparation.

1.2.1 Records Review

The archival records review typically includes property-use records, which can be useful in identifying chemical storage tanks on properties.

Other information including municipal property assessment and water and waste records and geological information is routinely reviewed.

Information on file with Manitoba Conservation including any ESA and site remediation reports, listings in the contaminated sites database, environmental licenses, permits and

orders and hazardous waste generator and petroleum storage tank registrations is reviewed.

1.2.2 Site Visit

A typical site visit includes recording visual evidence of current and past uses of a site related to the generation, storage, handling and disposal of hazardous materials, land-filling, or the storage of wastewater in lagoons. The presence of above ground storage tanks (ASTs), underground storage tanks (USTs), containers with a minimum capacity of 205 litres and the experiencing of strong or noxious odours is noted, if applicable. Special attention is paid to the potential presence of asbestos, polychlorinated biphenyls (PCBs), lead, ozone-depleting substances (ODSs) including chlorofluorocarbons (CFCs), formaldehyde and mould.

1.2.3 Interviews

Where possible, interviews are conducted with site representatives of management and employees, second parties such as product suppliers and waste carriers and third parties such as representatives of neighbouring properties and former employees.

1.2.4 Evaluation of Information

The information obtained in the records review, site visit and interviews is evaluated and reported in a manner to assist the client in comprehending the importance of the findings.

1.2.5 Reporting

Reporting includes providing a preliminary verbal report, followed by a summary report and finally a full report. The report includes appendices such as site plans.

2.0 RECORDS REVIEW

Noted below are the significant findings of the archival and regulatory records review.

2.1 Archival Records

The information presented below for the Property is based on a review of the following information sources unless otherwise noted:

1. fire insurance plans circa 1916 and 1953 (from Manitoba Archives);

2. aerial photographs circa 1948, 1959, 1968, 1979, 1988, 1997 and 2005 (from Manitoba Conservation and the City of Winnipeg); and
3. Henderson and Polk's Winnipeg Directories from 1890 to 2000 at 10 year intervals (from Manitoba Archives).

The Property was originally improved with the erection of the existing building in 1974. A spur line was placed along the north perimeter of the Property at that time. The building was first occupied by Pole Systems (steel product manufacturer). Canital Granite replaced Pole Systems in pre1990. The north wing of the building was added in 2001. In pre2005, the spur line was removed.

The site positioned to the north of the Property at 414 Pandora Avenue West was developed on vacant land for industrial use in pre1988. Dominion Lumber was the first site occupant. The site occupant was replaced with Dominion Pallet in pre2000. The other site to the north of the Property at 450 Pandora Avenue West was first improved by Guaranteed Homes in pre1979. A Manitoba Hydro storage yard replaced Guaranteed Homes in pre1990.

The CNR Transcona Yards to the east of the Property have been in-place since pre1916. The site is situated up gradient of the Property with respect to the implied groundwater flow direction (west). CNR railway tracks have been situated to the east of the Property since pre1916. Based on Wiebe's experience, there is a moderate potential that the soils on Property have been impacted with heavy metals and wood preservatives. However, the entire Property is covered with either asphalt pavement or gravel surfacing. As a result, the probability of any contaminants on Property significantly impacting human or environmental receptors on Property is deemed to be low.

The site situated across Hoka Street to the west of the Property was first developed by Green Cross (insecticide distributor) in pre1979. Kodiak Industries (safety supplies) replaced Green Cross in pre1990.

The property to the south of the Property which includes 84 and 90 to 94 Hoka Street was first improved in pre1979 by Dominion Blueline (stationary) and Intergraphics Decal, respectively. Unisys Peripheral Products is listed as an additional site tenant at 94 Hoka Street in 1990.

With the exception of CNR's site to the east, none of the historical developments either on or off-site is expected to have resulted in a significant environmental impact to the Property.

Historical aerial photographs of the Property and surrounding sites are provided in Appendix II.

2.2 Regulatory Records

The Property is not listed in Manitoba Conservation's contaminated sites database. Any other information Manitoba Conservation may have on file regarding the Property was not received at the time this report was issued.

The CNR Transcona Yards at 150 Pandora Avenue West (to the west of the Property) is listed under four individual file numbers in Manitoba Conservation's contaminated sites database.

None of the other adjacent properties are listed in Manitoba Conservation's contaminated sites database.

According to the City of Winnipeg Water and Waste Department, there is no active or closed landfill situated near the Property. As a result, the Property is not subject to developmental restrictions.

A search of City of Winnipeg sewer by-law infractions was not completed. A review of historical records for the Property did not reveal the presence of any commercial or industrial development that would generate an effluent requiring an over-strength permit.

Environment Canada was not requested to complete a file search for the Property since there has never been a federal tenant on-Property and the Property is not on federal land.

Any correspondence received from regulatory authorities is provided in Appendix III.

3.0 **SITE SETTING**

The rectangular-shaped Property spans about 2.8 hectares. The Property is occupied by a one storey, office/warehouse building with a footprint of about 4366 square metres situated near the centre of the Property. The building includes small mezzanines in the north wing and in the west half of the building (northeast corner). The building is

founded on a concrete slab on grade foundation. The remainder of the Property not occupied by the building is asphalt paved and used for vehicle parking (northwest portion) or gravel covered (south half) and used for site access. The building is occupied by Canital Granite (north wing), Premier Gymnastics and Premier Tae Kwon Doe (east half) and North Star Trailer Manufacturing (west half).

The abbreviated legal description of the Property is as follows:

- *Lots A and B, Plan No. 38269 in Winnipeg Land Titles Office in South Half of Section No. 5, Township No. 11, Range No. 4 East of the Principal Meridian.*

A site plan for the Property is provided as Figure No. 2 in Appendix I.

3.1 Natural Setting

The Winnipeg region is situated on the northeast fringe of a series of gently sloping sedimentary rock units including sandstones, shales and limestone which overly Precambrian basement rocks (University of Manitoba 1983). The surficial Lake Agassiz deposits comprise of water-bearing, silty tills overlain by glaciolacustrine silty clays and silts and glaciofluvial deposits, averaging 18 metres in combined thickness. Perched water is regularly found in the silt units; however, this water is not considered to be an aquifer and has no known use in Winnipeg.

A confined Paleozoic carbonate bedrock aquifer is present in the fractured upper 15 metres of the bedrock underlying Winnipeg and constitutes a major aquifer in the Winnipeg area. Because of its constant low temperature, the groundwater is used mainly for commercial and industrial cooling. Because of the overlying low permeability soils, the confined aquifer is generally not considered to be susceptible to contamination from point sources at prairie level.

The implied groundwater flow direction in the area of the Property is toward the Red River, situated 7 km to the west. On Property, groundwater beneath the north half is expected to flow towards a storm water catch basin situated on Property. Groundwater below the south half of the Property is expected to drain towards Hoka Street to the immediate west.

4.0 **SITE INSPECTION**

Mr. Mike Wiebe, P.Eng. of Wiebe inspected the Property on September 4, 2007. Mr. Wiebe was escorted by Mr. Murray Leighton of Canital Granite Ltd. Mr. Leighton was interviewed during the site inspection. Mr. Wiebe's qualifications are provided in Section No. 9.

A photographic record of the site inspection is provided in Appendix IV.

The site inspection included documenting observations and experiences related to the following issues.

4.1 **Property Use**

The Property was documented by The City of Winnipeg to be zoned M2, industrial district. The Property was observed being used for multi-tenant industrial purposes.

4.2 **Hazardous Materials**

Hazardous materials include hazardous wastes, dangerous goods, controlled products and designated substances. These substances are regulated by Transportation of Dangerous Goods (TDG) and Workplace Hazardous Materials Information System (WHMIS) legislation. The purpose of TDG legislation is to protect the public when dangerous goods are transported by road, rail, sea and air and to provide the proper information to people who handle, offer for transport or transport dangerous goods. The WHMIS legislation applies to hazardous materials that are intended for use at workplaces. It was developed to ensure that workers have the information they need to work safely with hazardous materials.

Mr. Leighton reported that no hazardous waste is generated on Property.

A few cylinders of welding gases were observed in North Star Trailer Manufacturing's unit in near the southwest corner of the warehouse. Some containers of paint ranging in size from 4 to 20 L were observed in a storage room situated near the southeast corner of the warehouse.

Limited quantities of building maintenance products, cleaners and other custodial products including paint in containers not exceeding 4 litres were observed within the building in storage, mechanical and lunch rooms.

All of the above products were observed to be neatly stored in manufacturer-supplied containers with no signs of significant spillage. No other chemicals were observed nor reported during the site inspection.

No evidence of the historic disposal of a hazardous waste or a chemical on Property was observed nor reported during the site inspection.

4.3 Unidentified Substances

One of the requirements of the WHMIS legislation is that essentially every controlled product within the workplace be labelled.

No unidentified container was observed nor reported during the site inspection.

4.4 Storage Tanks

Storage tanks in Manitoba are regulated under the Dangerous Goods Handling and Transportation Act, Storage and Handling of Petroleum Products and Allied Products Regulation (188/2001). All USTs and ASTs with a capacity of greater than 5000 litres or more fall under this regulation. In addition, any ASTs having a capacity ranging from 230 litres to 5000 litres may require secondary containment in sensitive areas, as determined by a Manitoba Conservation Environment Officer.

No AST or UST was observed nor reported during the site inspection.

4.5 Odours

Provincial and local governments regulate odours in buildings indirectly by setting maximum exposure limits for specific parameters such as ozone, particulate matter, lead, volatile organic compounds and microbes. To determine regulatory compliance, air samples have to be collected and chemically analyzed.

No abnormal odours were experienced nor reported during the site inspection.

Canital Granite generates dust from the cutting and polishing of granite. The dust is contained in a dust booth situated near the southeast corner of their warehouse area. Workers don dust masks when working in this area. The area is cleaned with water on a regular basis to minimize the generation of airborne dust.

4.6 Water Supply

Potable water for the City of Winnipeg is provided by a municipal supply and distribution system, sourcing water from Shoal Lake, situated 150 km east of Winnipeg. Some private wells used for industrial purposes or heating/cooling systems are set in the Upper Carbonate bedrock aquifer, situated at a depth ranging from 15 metres to 30 metres below grade.

No water well was observed nor reported during the site inspection.

4.7 Liquid Discharges

The City of Winnipeg has established a by-law entitled "The Sewer By-law, No. 7070/97" for regulating the discharge of effluents into sanitary and storm sewers. Over-strength discharges into sewers require a permit from the City.

Domestic grey and black waters were observed to be generated on Property. The liquids were reported by Mr. Leighton to be discharged into the City of Winnipeg's sewer system.

No other liquid discharge was observed nor reported during the site inspection.

4.8 Noise and Vibration

The City of Winnipeg By-law No. 2480/79 regulates unnecessary and harmful noises generated within the City limits. Manitoba Labour has set sound thresholds for the protection of workers; exceeding these thresholds requires the installation of engineered controls and/or workers to don hearing protection.

No area with a significant noise was experienced nor reported during the site inspection.

No area with a significant vibration was experienced nor reported during the site inspection.

4.9 Radon Gas

Radon gas is generated from the natural breakdown of uranium in soil or bedrock. Uranium ore is not mined in the Winnipeg area; however, elevated levels of uranium have been detected in the soils and groundwater in isolated locations in the Winnipeg

area. A study completed by the Manitoba Government from 1983 to 1990 for radon gas did not show an increase in lung cancer risk in home occupants (Health Canada 1994).

Radon gas is not expected to be a significant health concern at the Property considering that the building was observed to be equipped with ventilation equipment and no substructures were observed. However, air sampling would be required to ultimately confirm this.

4.10 Polychlorinated Biphenyls

PCB-containing equipment was phased-out of use in 1980, following the introduction of a Canadian ban on the manufacture, importation and non-electrical uses of PCBs. Prior to 1980, PCBs could typically be found in fluorescent lighting ballasts, high intensity discharge lamps, and other electrical equipment. In Manitoba, PCBs can still be found in the cooling oil of transformers, the majority which are owned by Manitoba Hydro; however, Manitoba Hydro has a program in-place to replace the cooling oil containing PCBs with non-PCB containing oil as transformers are scheduled for maintenance.

Fluorescent lights were observed within the building in office areas. High intensity discharge lamps were observed in warehouse areas. The lighting in the areas occupied by Premier Gymnastics and North Star Trailer Manufacturing may contain PCBs. As a result of regular building maintenance, the presence of a significant quantity of ballasts potentially containing PCBs is not expected. All of the lighting appeared to be in good condition and is common for a building of this vintage.

A pad set transformer was observed near the northwest corner of the exterior of the building. Three pole-mounted transformers were observed along the west perimeter of the Property. The units were either labelled to indicate that their cooling oil contained less than 5 parts per million of PCBs or they were not labelled. The transformers are expected to be owned by Manitoba Hydro, who is responsible for maintaining them and remediating any PCB- or oil-impacts associated with them. These devices are common for a Property of this vintage.

If properly controlled, PCBs present a low risk to site occupants. PCBs are subject to federal regulations upon removal from service.

4.11 Asbestos

Asbestos was commonly used up to the late 1970s in various building materials including spray on insulation, ceiling tiles, floor tiles, sheet flooring, exterior transite siding, mechanical insulation, texture coat and plaster. Asbestos is classified as either being friable (able to disturb by hand pressure) or non-friable. Friable asbestos has a greater potential to release harmful asbestos fibres when disturbed; the fibres are an inhalation hazard to humans. Friable asbestos was banned from use in the late 1970s while non-friable asbestos was used up to the late 1980s.

The Manitoba Workplace Safety and Health Regulation (M. Reg. 217/2006) has recently been revised. A notable revision is that any material that is likely to contain asbestos is deemed to be asbestos-containing material until it is determined to be asbestos free. M. Reg. 217/2006 comes into force on February 1, 2007. Duties of the employer and owner include maintaining an inventory of asbestos-containing material in the workplace and maintaining the material in a condition that will not release any asbestos into the air.

No material potentially containing friable asbestos (i.e. sprayed on fireproofing or texture coat) was observed within the building.

Material potentially containing semi-friable asbestos in ceiling tiles was observed in the office area within the unit occupied by North Star Trailer Manufacturing.

Material potentially containing non-friable asbestos in the form of floor tiles and/or sheet flooring was observed within wash rooms within the office area of North Star Trailer Manufacturing's unit.

All of the above materials were observed to be in good condition and are common for a building of this vintage.

Prior to demolition, coring into walls and ceilings is required to ultimately determine whether or not concealed asbestos is present within a building.

4.12 Lead

Organic (carbon-containing) lead, namely tetraethyl lead, was added to gasoline as an anti-knock agent until it was phased out from 1974 to 1990. Inorganic lead can still be found in older water service lines, solder used to fuse internal copper water lines and in

paint. Lead in paint was eventually phased-out over a period ranging from 1976 to 1990. The water in service and internal lines can leach lead from the pipe and/or solder when left unused for extended periods of time; in this event, The City of Winnipeg recommends that the water be discharged for 5 to 10 minutes prior to consumption. Lead-based paint poses an inhalation risk to building occupants when disturbed by mechanical abrasion or heating which creates lead dust and lead oxide fumes, respectively.

According to the City of Winnipeg Water and Waste Department, the water line servicing the building is composed of cast iron.

Given the age of the building, there is a moderate potential that lead may be present in any paint coating exterior and interior building components. The paint appeared to be in generally good condition. Assuming the building has undergone regular maintenance, any lead-based paint has likely been coated with lead-free paint. If properly controlled, lead in the workplace presents a low risk to building occupants.

4.13 Ozone-depleting Substances

ODSs including CFCs have been progressively phased-out for use as coolants in the manufacturing of refrigeration, cooling and other equipment including fire extinguishers since 1987. Manitoba introduced legislation in 1992, which was subsequently revised in 1994 (Manitoba Regulation 103/94) to reduce and eventually eliminate the use of ODSs and the potential release of ODSs into the atmosphere. ODSs included in 103/94 and scheduled for phase-out include CFC-11 to CFC-13, CFC-111 to CFC-115 and several others.

As of 1996, no new CFCs were to be manufactured or imported in Canada. The federal National Action Plan for the Environmental Control of ODS (2001) includes several requirements; a notable requirement is that CFC-11 or CFC-12 in any chillers scheduled for major overhaul after 2005 be replaced with a non-ODS.

In Manitoba, in order to continue using CFC-11 or CFC-12 in any chiller after 2005, a valid Class 1 Permit will have to be obtained from the Manitoba Government. The permit will expire at the first scheduled major overhaul of the chiller or when the year 2015 is reached. At this point, the chiller and the coolant will have to be replaced.

Mr. Leighton reported that the office areas of the building are equipped with roof top air conditioners. The unit above North Star Trailer Manufacturing's unit is original and may contain an ODS. Older fridges were observed within the lunch room within North Star Trailer Manufacturing's unit and in the gym within Premier Gymnastics' unit. These units may contain an ODS.

The above equipment was reported (by Mr. Leighton) to be in good condition. The presence of equipment containing an ODS is common for a building of this vintage.

If properly controlled, equipment containing ODSs present a low risk to the environment and are to be serviced by technicians licensed to perform the work properly.

4.14 Mould

Mould is an asexually reproducing, quickly growing fungus and poses the greatest concern in the indoor environment compared to other organisms of the fungal kingdom. However, only a few moulds are toxic to humans including *Stachybotrys chartarum*, *Aspergillus fumigatus* and *Fusarium moniliforme*. Infants, senior citizens and individuals with deficient immune systems are the most susceptible to being affected.

Minor water damage in the form of water stains on ceiling tiles was observed in North Star Trailer Manufacturing's unit in isolated locations within the office area. Minor mould growth was observed on the walls at the southeast corner of the janitor's room in this unit. Minor water damage and mould growth are common for a building of this vintage.

Because of the nature of mould growth, coring into perimeter walls, ceilings and other potentially impacted areas is required to ultimately determine whether or not mould is present within a building where visible mould is present.

4.15 Formaldehyde

Formaldehyde was formerly used as an additive of sprayed-on foams called urea formaldehyde foam insulation (UFFI). In the early 1970s, UFFI was used to insulate buildings until it was discovered that it released harmful levels of formaldehyde gas, which destroys living tissue and is a suspected human carcinogen. If found in buildings today, formaldehyde normally does not pose a human health risk anymore since the majority of the gas contained in the foam has dissipated. Formaldehyde is still used today

in the manufacture of resins, particleboard, plywood and other products; however, the products do not release formaldehyde gas at a high enough concentration to be considered a significant health risk.

No suspect UFFI or product off-gassing a harmful amount of formaldehyde was observed nor reported during the site inspection.

Coring into perimeter walls and ceilings is required to ultimately determine whether or not UFFI is present within a building.

4.16 Electromagnetic Fields

Electromagnetic fields (EMFs) are invisible forces that are generated by and surround electrical equipment including power lines, transformers, lighting, computers, cellular phones and any other electrical device. The International Agency for Research on Cancer classified EMFs as "possibly carcinogenic" to humans. The International Commission on Non-Ionizing Radiation Protection have set exposure limits for EMFs to prevent acute health effects at high levels of exposure. Manitoba Hydro adheres to safety standards when constructing and/or installing their facilities including transmission lines and electrical substations, pole pad-set transformers, etc. Buffer zones and barriers are used to protect the public from strong EMF sources.

Three dry transformers were observed in North Star Trailer Manufacturing's unit near the northwest corner of the warehouse area. One dry transformer was observed near the south end of Canital Granite's warehouse. No work stations were observed in areas where these devices were situated.

No other significant source of EMF was observed nor reported to be situated within the building during the site inspection.

4.17 Ionizing Radiation

Radiation can be classified as either ionizing or non-ionizing. The damaging effects of ionizing radiation result from its ability to change the chemical composition of matter. Ionizing radiation includes those produced by X-ray machines and ultrasound devices. Microwave ovens and cellular telephones emit non-ionizing radiation. The use of all types of radiation devices are strictly regulated and controlled by Health Canada. The

Canadian Nuclear Safety Commission regulates the use of nuclear energy. Radiation in the workplace is regulated by Manitoba Labour.

No equipment producing harmful amounts of ionizing radiation was observed nor reported during the site inspection.

4.18 Hydraulic Equipment

Hydraulic equipment including hoists, elevators and compressors typically contains hydraulic oil. These types of equipment have a tendency to release small amounts of oil when operating and should be checked on a regular basis to ensure any leaking oil is not escaping the site through floor drains or floor openings.

One compressor containing hydraulic oil was observed in the warehouse of Canital Granite's unit. No evidence of significant oil leakage was noted on or under the unit.

Metal fabricating equipment and two compressors containing hydraulic oil were observed in North Star Trailer Manufacturing's unit in the warehouse area. Minor oil stains were observed on the concrete floor in areas where these devices were situated, which is common.

No other equipment containing hydraulic oil was observed nor reported during the site inspection.

4.19 Waste Management

Non-hazardous wastes observed to be generated on Property included domestic and packaging (paper, cardboard and cellophane). Canital Granite generates granite dust which is used as fill on the Property. In addition, North Star Trailer Manufacturing was observed to generate scrap metal. Based on the labels observed on metal bins situated on Property, the wastes are expected to be collected by Waste Management and Johnson Control, both licensed carriers for disposal off Property.

No evidence of the historic disposal of any of the above wastes on Property was observed nor reported during the site inspection.

4.20 Adjacent Property Use

The Property is surrounded by: a Manitoba Hydro storage yard and Dominion Pallet & Crate to the north; CNR's Transcona Yards to the east; Burnbrae Farms (egg processor) to the west across Hoka Street; and a multi-tenant industrial building to the south. With the exception of CNR's site to the east (discussed in Section Nos. 2.1 and 2.2), none of the activities on these adjacent properties is expected to pose a significant environmental risk to human or environmental health on Property.

5.0 CONCLUSIONS

On the basis of the information gathered to date as a part of this Phase I ESA for the Property, no potentially significant environmental issue was identified.

6.0 RECOMMENDATIONS

No additional action is recommended at this time.

7.0 LIMITATIONS

The spatial limit of the Phase I ESA included a detailed evaluation of the Property and a cursory review of neighbouring properties. The temporal limit of the Phase I ESA was from present to as early as readily available information would warrant (1890 in this case).

Wiebe's observation of the Property was not limited by any physical obstructions.

A historical land title search (from Manitoba Justice) was not conducted as property use records were available for the Property.

The scope of this commission is limited to matters expressly covered. Implementation or use of the findings of this report does not preclude the potential for present or future environmental liability or ensure the fulfilment of a site responsible authority's duty to complete environmental disclosure in accordance with any government laws.

This report was prepared on behalf of and for the exclusive use of Structural Glass Ltd. (CLIENT). Reliance on this report, in whole or in part by any third party without the expressed written consent of Wiebe is prohibited. Wiebe will not be responsible for any damages, direct or indirect related to the reliance of the report beyond its intended

purpose by a third party. Wiebe makes no guarantees, expressed or implied, as to the saleability of the Property or suitability for a specific use.

This work was conducted according to certain CLIENT requests and industry standard methods for engineering and scientific work including those required by government agencies for the geographic area. This report is subject to any limitations stated in this report and/or the standards referenced. The services performed acknowledge practical limits on work scope, schedule and cost.

The findings of this assessment are based on the observations of Wiebe in conjunction with information obtained from a number of sources, which is assumed to be correct. Wiebe has not undertaken any independent investigations to verify the accuracy or completeness of the information obtained from personal interviews or secondary sources. Wiebe's site observations are based on the conditions present at the time of the work. The absence of environmental hazards in the subsurface could not be guaranteed based on observed surface conditions.

Any results regarding site conditions, different from those described herein, which provides the basis for this report may change Wiebe's conclusions and recommendations; in this event, the information should be provided to Wiebe so that the conditions can be reviewed. Wiebe reserves the right to change our conclusions and recommendations based on the information obtained beyond the work scope described herein.

8.0 REFERENCES

The following persons were interviewed and the following organizations, web sites and publications provided information used in preparing this report:

1. Mr. Murray Leighton, Canital Granite;
2. Henderson and Polk's Winnipeg Directories;
3. Manitoba Archives;
4. Manitoba Conservation;
5. Health Canada web site;
6. Manitoba Hydro web site;
7. The City of Winnipeg;
8. The City of Winnipeg web site;
9. World Health Organization web site;

10. Health Canada, Case-Control Study of Residential Radon and Lung Cancer in Winnipeg, Manitoba, Canada, 1994;
11. University of Manitoba, Department of Geological Engineering, Geological Engineering Maps and Report for Urban Development in Winnipeg, 1983; and
12. The City of Winnipeg, Boundaries of Landfills and Dumps in the Winnipeg Area, No. SWD-E-13, 1993.

9.0 ASSESSOR QUALIFICATIONS

Mr. Mike Wiebe, P.Eng., has seventeen years of experience in Environmental Engineering, as well as in Occupational Health and Safety. Mr. Wiebe graduated from the University of Manitoba in 1989 with a degree in Geological Engineering and has taken several courses regarding contaminated lands, environmental chemistry, asbestos and mould management and ISO environmental auditing. He has been employed by national engineering and health and safety consulting firms. His experience encompasses Phase I, II, III ESAs and Site Remediation projects. The facilities assessed or audited include: municipal waste incinerators; concrete and asphalt batch plants; meat packers and milk processors; bulk petroleum storage sites; metal plating operations; various manufacturing facilities; institutions; communication facilities; industrial parks; residential complexes and landfills. Contaminated sites remediated or managed include metal plating and shredding facilities, bulk petroleum storage facilities, auto and transit garages, asphalt batch plants, electrical substations and airports. Clients serviced include major financial institutions, real estate and law firms, property managers and developers, all levels of government, industry and private individuals.

Please call if you have any questions regarding this project. Wiebe appreciates this opportunity to be of service.

Sincerely,

M.P. WIEBE ENVIRONMENTAL ENGINEERING
(a division of 4969821 Manitoba Ltd.)

Per:



Mike Wiebe, P.Eng.
President and Chief Engineer

File: WiebeJobsStructural Glass - 100 Hoka - Phase I ESA Report.doc

