Bersch & Associates Ltd.

TRANSIT REPAIR TERMINAL NORTH BUILDING
ASBESTOS SURVEY REPORT

April 2014

Prepared For: **City of Saskatoon – Infrastructure Services Department**
1101 Avenue P North, Saskatoon SK, Canada S7L 7K6
Attn: Brent Anderson

Prepared By: **Bersch & Associates Ltd.**
Project No. : **B67SRD21**

1.0 EXECUTIVE SUMMARY

The asbestos audit of the Transit Repair Terminal North Building located at 315 Avenue C North, Saskatoon, SK. entailed the inspection of all accessible suspect asbestos-containing materials (ACM) located within the facility. Materials inspected included insulation materials, floor covering materials, mechanical insulation materials, ceiling tiles, tool boards, sealant materials and gasket materials.

Bulk sample analysis results indicate the presence of "Chrysotile" asbestos within the Transit Repair Terminal North Building located in Saskatoon, SK. Please refer to ***Appendix I* for Bulk Sample Analysis** results. The recommended actions to be implemented in reference to the ACM identified are Management. Please refer to section 5 Asbestos Abatement Discussion for definitions. It should be noted that the recommendation of "Management" as part of the asbestos action plan is based upon the premise that renovations are not scheduled throughout the area that would impact the asbestos containing material present. ***Prior to any major renovation/demolition activity, a destructive investigation is recommended to identify any inaccessible ACM that is physically concealed or isolated in areas such as enclosed wall/ceiling/floor cavities and pipe chases***. Asbestos was detected in the following forms throughout the facility:

- **Transite Roof Drain Pipe** is located in 104, 105, 108, 109, 111 and 117. The Asbestos Drain Pipe has been identified with an "ASBESTOS" stencil signifying the entire pipe is to be considered ACM.

- **The Block Walls were tested for Vermiculite Content throughout the facility. No Vermiculite was found to sample during our survey but further investigation may be required prior to demolition of the building. Although it is unlikely due to sample results and investigation, any material located within ceilings, wall cavities, pipe chases or other inaccessible areas or areas of limited access shall be considered asbestos-containing until testing of the material can determine the presence or absence of asbestos.**

Bersch & Associates Ltd. implemented the use of doorjamb labels that are applied to all the doorjambs of the rooms containing asbestos within the facility. This permits anyone accessing the room to easily identify the ACM present without having to reference the written report. Legends providing explanation of the abbreviations used on doorjambs were placed on the backside of all maintenance/custodial doors within the facility. Employees and contractors will use the legend as a reference to identify ACM within the areas they are working.

2.0 INTRODUCTION

Bersch & Associates Ltd. was retained by the City of Saskatoon to conduct an Asbestos Survey and Hazard Assessment of the Transit Repair Terminal North Building located at 315 Avenue C North, Saskatoon, SK. The survey entailed the inspection of all accessible areas of the facility; including ceiling spaces, pipe chases, and attics. The purpose of the survey was to locate, identify and assess the condition of all Asbestos Containing Materials (ACM) located throughout the facility. This report gives a detailed account of the inspection results and our firm's recommendations on control options to be implemented to bring the facility in compliance with the Province of Saskatchewan Occupational Health and Safety Act and Regulations. Bersch & Associates Ltd. conducted the survey in April 2014. A review of this report shall be conducted with all trades that are entering the facility to perform maintenance or renovation activity. This will ensure they are familiar with the types and locations of asbestos-containing materials present and prevent any uncontrolled disturbance and/or possible exposure to asbestos.

3.0 METHODOLOGY

Bersch & Associates Ltd. conducted the survey of the Transit Repair Terminal North Building in April 2014. The primary documents for guidance and criteria in this survey were the Province of Saskatchewan "Occupational Health and Safety Act and Regulations, 1996", Province of Saskatchewan "Managing Asbestos", and the U.S. Environmental Protection Agency "Guidance for Controlling Asbestos Containing Materials in Buildings". The USEPA document identifies factors associated with the "condition" and the "potential for disturbance or erosion" of asbestos containing materials (ACM). These factors help to determine potential for exposure to ACM and were used to make a qualitative evaluation of the material. It should be noted that the recommendation of "Management" Asbestos Abatement Action is based upon the premise that renovations are not scheduled in that area that will require disturbing or violating the asbestos containing material. In the event that renovations are scheduled that impact upon the areas of asbestos containing material then pre-removal of the asbestos containing materials may be necessary.

In total, eighteen (18) bulk samples of suspect asbestos-containing materials were collected within the Transit Repair Terminal North Building. As a result Chrysotile asbestos was detected within the facility. Refer to Appendix I for a copy of the Bulk Sample Analysis Report. All bulk samples collected were analyzed by Bersch & Associates Ltd. laboratory in accordance with the current U.S. 40 CFR Part 763, Vol. 52, No.210 for the analysis of asbestos in building materials using polarized light microscopy and dispersion staining techniques. The detection limit of this method is listed as less than 1%.

4.0 RECOMMENDATIONS

1. **104, 105 and 111 Work Shop Areas**
   Transite Drain Pipe is located at ceiling height running throughout the Shop Areas. This material is considered a non-friable material and will not produce an elevated airborne fibre release unless mechanically disturbed. Recommendation is for the management of this material until renovations warrant removal.

PRIORITY:	**THREE**
CONDITION:	**GOOD**
POTENTIAL FOR DISTURBANCE:	**LOW**
ACTION:	**MANAGE**

2. **108 Locker Room, 109 Washroom and 117 Office**
   Transite Drain Pipe is located above the suspended ceiling within these areas. The pipe was inaccessible to identify with a stencil but entire pipe should be considered to be ACM. This material is considered a non-friable material and will not produce an elevated airborne fibre release unless mechanically disturbed. Recommendation is for the management of this material until renovations warrant removal

PRIORITY:	**THREE**
CONDITION:	**GOOD**
POTENTIAL FOR DISTURBANCE:	**LOW**
ACTION:	**MANAGE**

5.0 ASBESTOS ABATEMENT DISCUSSION

Asbestos is a known carcinogen and is listed in the Province of Saskatchewan under the Occupational Health and Safety Appendix, Part V as a Hazardous Chemical Substance and any release of asbestos fibres into the atmosphere creates a potential health hazard. Although the mechanism and epidemiology of asbestos carcinogenisis is not yet well defined, accumulating evidence suggests the significance of exposure at even very low fibre concentrations and hence human exposure should be kept to a minimum. It should be noted however that asbestos is a natural mineral and a measurable background concentration can be detected in any location sampled (inside buildings, outside buildings, urban, rural, etc.). The recommendations of the report are therefore intended to keep the potential exposure to an absolute minimum with the knowledge that a zero exposure is not possible.

Asbestos containing materials have been used in a wide variety of applications. Of particular concern, is the group of so called friable products. A friable product is one which can be crumbled or reduced to powder or smaller fragments by hand pressure. Publications from the U.S.E.P.A. as early as 1977 have indicated the potential hazard of asbestos exposure in buildings containing these friable products. The two main uses of friable asbestos products are as spray insulation (thermal, acoustic or fireproofing) on deck and/or beams or as thermal insulation on piping or mechanical equipment. A large amount of non-friable asbestos-containing materials

have also been used in building construction such as asbestos cement board and asbestos containing vinyl flooring.

The mere presence of a friable asbestos containing material does not imply that there is an actual presence of elevated airborne fibre. As numerous studies have indicated, elevated asbestos fibre levels are generally found when settled dust or the actual asbestos containing material itself is disturbed by maintenance, renovation, inadvertent contact or vibration. The factors considered in the Environmental Protection Agency (USEPA) exposure assessment (condition of material, water damage, activity, movement, exposed surface area, accessibility, friability and presence in an air stream) often give some indication of the likelihood of fibre release but are not in any way definitive in determining whether a hazard exists or not. That is, even if the most friable product exists in a building, elevated fibre levels will not likely occur unless there is some disturbance by physical contact, vibration or an air stream.

There are four possible approaches to control exposure to airborne asbestos once a friable material is identified in a building. These methods briefly are as follows:

A) Removal - Asbestos material is removed and disposed of by burial and replaced by non-asbestos materials.

B) Encapsulation - Asbestos material is coated with a bridging or penetrating sealant.

C) Enclosure - Asbestos containing materials are separated from the building environment by barriers such as suspended ceilings or cladding materials.

D) Deferred Action or Management and Custodial Control - The Province of Saskatchewan Human Resources, Labor and Employment Branch under the Occupational health and Safety Regulations publish a document outlining "The Management of Asbestos". In the guide for compliance, an action plan is outlined for management of the asbestos materials identified and in summary is:

1. Identification, which has been accomplished by this report.

2. Development of Written Handling Procedures for maintenance personnel or often arrangements are made for a qualified contractor to conduct the necessary removal or spot maintenance prior to the regular staff conducting maintenance.

3. Asbestos Abatement Awareness and Process Training if the regular maintenance personnel are required to conduct asbestos related activities.

4. Inspection on regular basis is conducted to determine the ongoing condition of the material.

6.0 REFERENCES

.1 Province of Saskatchewan "The Occupational Health and Safety Act and The Occupational Health and Safety Regulations" Office Consolidation, December 1996.

.2 Province of Saskatchewan Human Resources, Labor, and Employment "The Management of Asbestos" January, 1991.

.3 USEPA, U.S. Environmental Protection Agency, "Guidance for Controlling Asbestos-Containing Materials in Buildings". Washington, DC: Office of Toxic Substances, USEPA.

.4 Midwest Centre for Occupational Health & Safety St. Paul's, Minnesota – Asbestos Training For Inspectors & Management Planners

.5 McCrone Research Institute Course Hayward California " Asbestos Identification"

.6 Environment Management and Protection Act, Saskatchewan Environment, October 2002

.7 Hazardous Substances and waste Dangerous Goods Regulations, Saskatchewan Environment, April 1989

APPENDIX I

BULK SAMPLE ANALYSIS REPORT

BERSCH & ASSOCIATES LTD.

April 30, 2014

City of Saskatoon
Infrastructure Services Department
1101 Avenue P North
Saskatoon, Sk.
S7L 7K6

ATTENTION: Brent Anderson

SUBJECT: Transit Repair Terminal North Building – Bulk Sample Report

Please find attached our laboratory's results for the bulk material samples taken from the Transit Repair Terminal North Building located at 315 Avenue C North, Saskatoon, SK. The samples were analyzed in our laboratory for the identification of asbestos.

The results for the samples submitted were obtained by examination in accordance with the current USEPA 600/R-93/116 Method for the analysis of asbestos in building materials using polarized light microscopy and dispersion staining techniques. The detection limit of this method is listed as less than 1% by volume.

This test report relates only to the materials sent for examination and any use or extension of the information by the client of these results is the responsibility of the client. If any questions arise on the results of the attached information please contact our office. Thank you for this opportunity of service to your firm.

Sincerely,

Wes Berschiminsky
Bersch & Associates Ltd.
File: B67BLD21

Bersch & Associates Ltd.
Box 3568
Humboldt, Sask. S0K 2A0

B67BAD21

BULK SAMPLE ANALYSIS REPORT

PROJECT NO. B67.14
CLIENT: City of Saskatoon
Infrastructures Services- Facility Branch
Contact : Brent Anderson
LOCATION: Transit Repair Terminal North - 315 Avenue C North, Saskatoon, SK

NO.	DATE	SAMPLE INFORMATION	ASBESTOS	%	ANALYST
1	21-May-13	Room # 110 - 1' x 1' Floor Tile, off white with dark streak	None detected		WB
2	21-May-13	Room # 111 - Transite Roof Drain Pipe	Chrysotile	40%	WB
3	21-May-13	Room # 111 - Lineal Pipeline Insulation on Hot Water Supply Line adjacent to Room # 114	None detected		WB
4	21-Apr-14	Room # 117- Office - 1' x 1' Floor Tile, off white with dark streak	None detected		WB
5	21-Apr-14	Room # 117- Office - 2' x 4' Ceiling Tile with pin hole and gash mark pattern	None detected		WB
6	21-Apr-14	Room # 117- Office - Ducting Insulation above suspended ceiling in northwest corner	None detected		WB
7	21-Apr-14	Room # 111- Repair Area - Green Tool Board on center of west wall	None detected		WB

Bersch & Associates Ltd.
Box 3568
Humboldt, Sask. S0K 2A0

B67BAD21

BULK SAMPLE ANALYSIS REPORT

PROJECT NO. B67.14
CLIENT: City of Saskatoon
Infrastructures Services- Facility Branch
Contact : Brent Anderson
LOCATION: Transit Repair Terminal North - 315 Avenue C North, Saskatoon, SK

NO.	DATE	SAMPLE INFORMATION	ASBESTOS	%	ANALYST
8	21-Apr-14	Room # 111- Repair Area - Lineal Pipeline Insulation on HWS line adjacent to Unit # 3	None detected		WB
9	21-Apr-14	Room # 111- Repair Area - Bulletin Board in northeast corner adjacent to Room # 109	None detected		WB
10	21-Apr-14	Room # 111- Repair Area - Duct Expansion Gasket on AHU5 adjacent to Room # 117	None detected		WB
11	21-Apr-14	Room # 109 - Men's Washroom - Duct Sealant at seams	None detected		WB
12	21-Apr-14	Exterior of Room # 103 - Insulation behind sheet metal siding on west side of Room # 103	None detected		WB
13	21-Apr-14	Room # 102 - Storage - Fire-stop material at pipe penetration into east wall	None detected		WB
14	21-Apr-14	Room # 102 - Storage - Pipeline Insulation on small HWR line adjacent to east wall	None detected		WB

Bersch & Associates Ltd.
Box 3568
Humboldt, Sask. S0K 2A0

B67BAD21

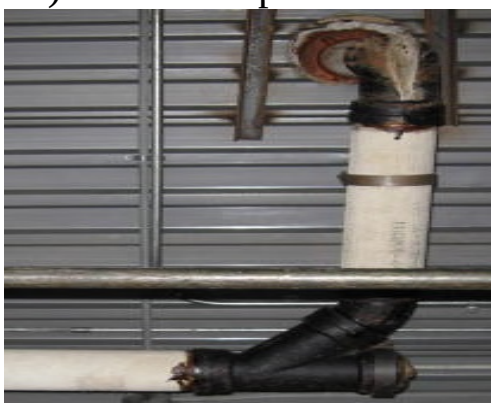
BULK SAMPLE ANALYSIS REPORT

PROJECT NO. B67.14
CLIENT: City of Saskatoon
Infrastructures Services- Facility Branch
Contact : Brent Anderson
LOCATION: Transit Repair Terminal North - 315 Avenue C North, Saskatoon, SK

NO.	DATE	SAMPLE INFORMATION	ASBESTOS	%	ANALYST
15	21-Apr-14	Room # 112 - Women's Locker Room - Sheet Flooring, white with beige/green stone pattern	None detected		WB
16	21-Apr-14	Room # 112 - Women's Locker Room - Lineal Pipeline Insulation adjacent to shower	None detected		WB
17	21-Apr-14	Basement Boiler Room - Pipeline Insulation beneath metal cladding on furnace exhaust	None detected		WB
18	21-Apr-14	Basement Boiler Room - Insulation beneath plastic jacking on pipeline south of furnaces	None detected		WB

BULK SAMPLE PHOTOS

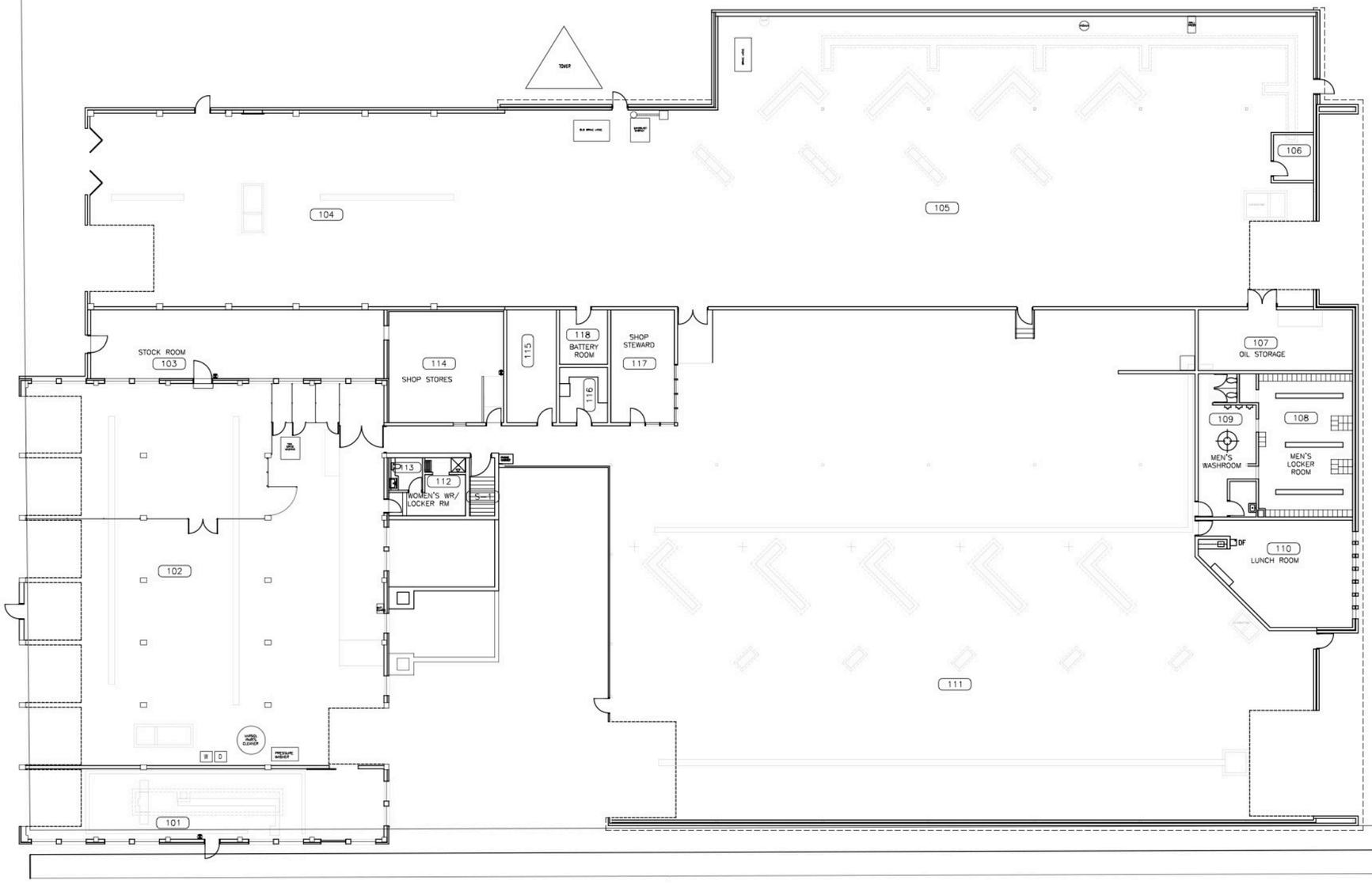
#2) Transite Pipe



P.O BOX 3568 HUMBOLDT, SK. S0K 2A0 Ph: (306) 231-5818 Fax: (306) 682-4509

APPENDIX II

FLOOR PLANS



City of Saskatoon

Infrastructure Services Department

Facilities Branch
306-975-3300

NOTE:
THESE DRAWINGS HAVE BEEN PREPARED BASED ON INFORMATION PROVIDED BY OTHERS. THE CITY HAS TAKEN STEPS TO VERIFY THE ACCURACY AND/OR COMPLETENESS OF THIS INFORMATION BUT SHALL NOT BE RESPONSIBLE FOR AND ERRORS OR OMMISSIONS THAT MAY BE INCORPORATED AS A RESULT OF ERRONEOUS INFORMATION PROVIDED BY OTHERS THAT WAS NOT ABLE TO BE VISUALLY CONFIRMED.

GENERAL NOTES:

1. ALL DIMENSIONS ARE IN MILLIMETRES
2. DRAWINGS ARE NOT TO BE SCALED.
3. ALL DRAWINGS TO BE READ IN CONJUNCTION WITH THE SPECIFICATIONS UNLESS OTHERWISE NOTED.
4. VERIFY SITE CONDITIONS, DIMENSIONS AND LOCATION OF ALL UTILITIES PRIOR TO THE START OF CONSTRUCTION.
5. REPORT ALL DISCREPANCIES TO THE CONSULTANT.

REV	ISSUED FOR	DATE

DESIGNED BY:	DRAWN BY:	CHECKED BY:	REQUESTED BY:
			LG

SCALE: 1:300

DATE: 16/02/2004

SHEET NAME: Asbuilt

Main Floor Base Plan

PROJECT TITLE

853 Transit Repair Terminal

PROJECT NO.

SHEET

REV. NO.