

# 60-Year Old Construction Yard REMEDIATED AND REDEVELOPED



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**FOCUS**

Engineering - Geomatics - Planning  
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# OUTLINE

- BACKGROUND
- SITE DESCRIPTION
- SITE REMEDIATION
- SITE RESORATION
- PROPERTY DEVELOPMENT

# A Brownfield is

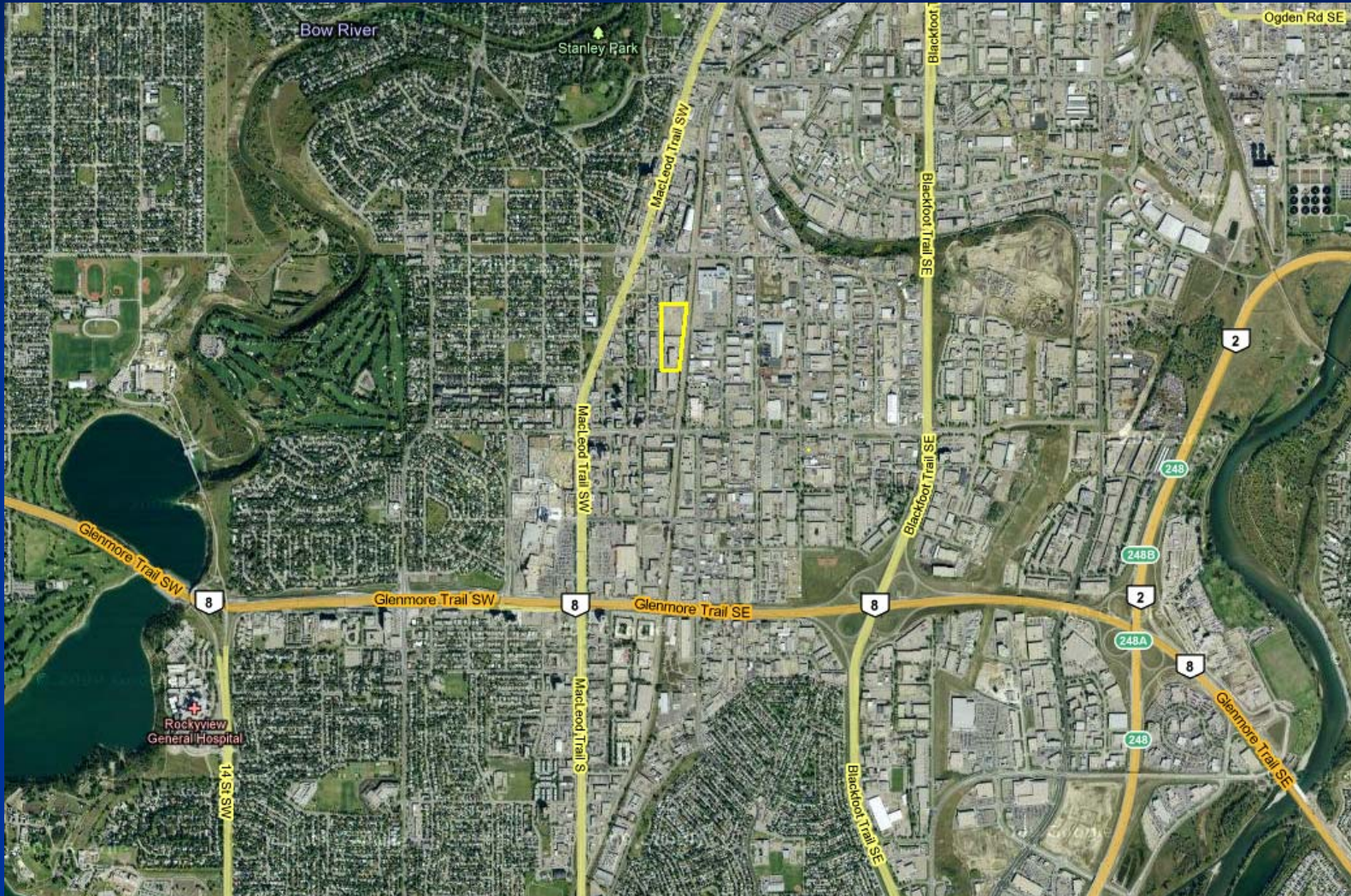
**According to the US Environmental Protection Agency,** a **brownfield** is *real property; the expansion, redevelopment, or reuse of which may be complicated by the presence or potential presence of a hazardous substance, pollutant, or contaminant.*

**Canadian Brownfield 2009 Conference** web page. A **brownfield** is an abandoned, vacant, derelict or underutilized commercial or industrial property where past action has resulted in actual or perceived contamination and where there is an active potential for development.

**City of Brantford, Ontario.** A “brownfield site” is hereby defined to be a lot (as that term is defined in Bylaw 160-90) either with or without buildings or structures, having a history of either industrial or commercial uses and which, as a result of these uses, has become environmentally contaminated under circumstances where there is no reasonable prospect that the remediation of such contamination will be accomplished solely by the private sector.



# 5340 – 1<sup>st</sup> Street SW, Calgary, Alberta





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# Site Description

- Construction Company Maintenance Yard
- Located approximately 0.5 k north of Chinook Shopping Centre
- Contained 5 buildings
  - Office Building;
  - Maintenance Shop;
  - Quonset;
  - Warehouse; and
  - Welding Shop.

# Site Description cont'd..

- 3 Steel UST (2 diesel and 1 gasoline);
- 2 In-ground concrete tanks (wood preserving);
- 1 AST (diesel);
- New and Used Engine Oil Storage Tanks ( $\sim 1\text{m}^3$ );
- 2 In-ground Hydraulic Hoists and Hoist Bay;
- Used and abandoned equipment; and,
- Storage and parts compound.

# Site History

- Construction Company Yard since 1956
- In 1996 an UST located north of Quonset was removed
- In 2002, Initial Soil and Groundwater Assessment was conducted around UST (Environmental Diagnostics Ltd.)
- In 2003, Detailed Soil and Groundwater Quality Assessment (EBA Engineering)
- In 2004, Remedial Activities Commenced



# Impacted Areas

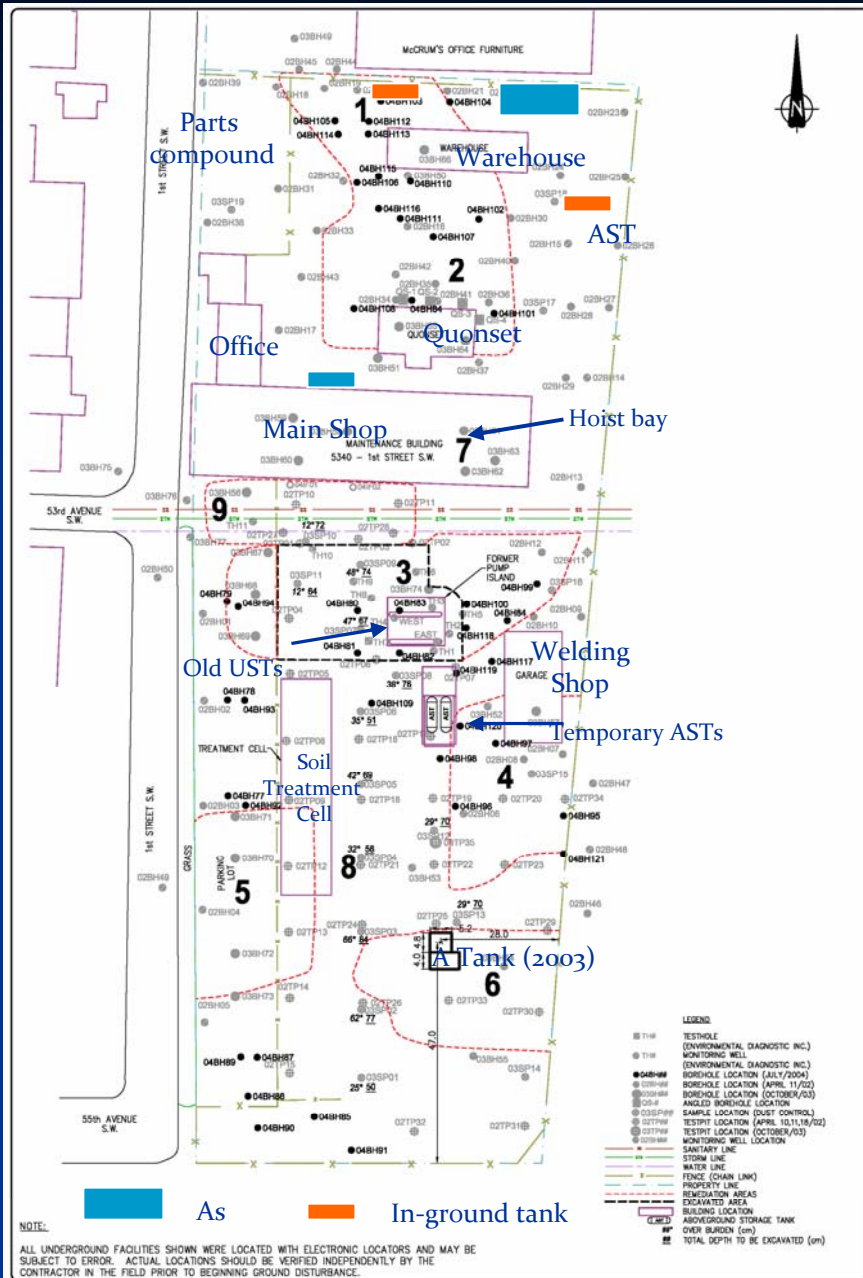
#	Area	Source	Media Impacted	CoC*
1	Warehouse	In-ground tank	soil and groundwater	PHC and Metals
2	Quonset	former UST	soil and groundwater	PHC
3	Fuel Storage	3 USTs	soil and groundwater	PHC
4	Welding Shop	Hoist Bay	soil	PHC
5	Parking Lot	unknown	soil	PHC and Metals
6	SE Corner	concrete USTs	soil and groundwater	PHC and Metals
7	Main Shop – hoist bay	Hydraulic hoist	soil	PHC
8	South Part	dust suppression	soil	PHC and Metals
9	Utility Corridor	3 USTs	groundwater	PHC

\* CoC - Contaminants of Concern

PHC - Petroleum Hydrocarbons

# Site Plan

In 2006, Additional areas with metal impacts were detected around Main Shop and Warehouse and remediated.



# Remediation Objectives

- Alberta Environment (AENV) Risk Management Guidelines for Petroleum Storage Tanks (AENV October 2001) for PHC and Lead
- Canadian Council of Ministers of Environment (CCME) Guidelines for Heavy Metals in Soil (1999) and Canadian Drinking Water Quality Guidelines (2004)

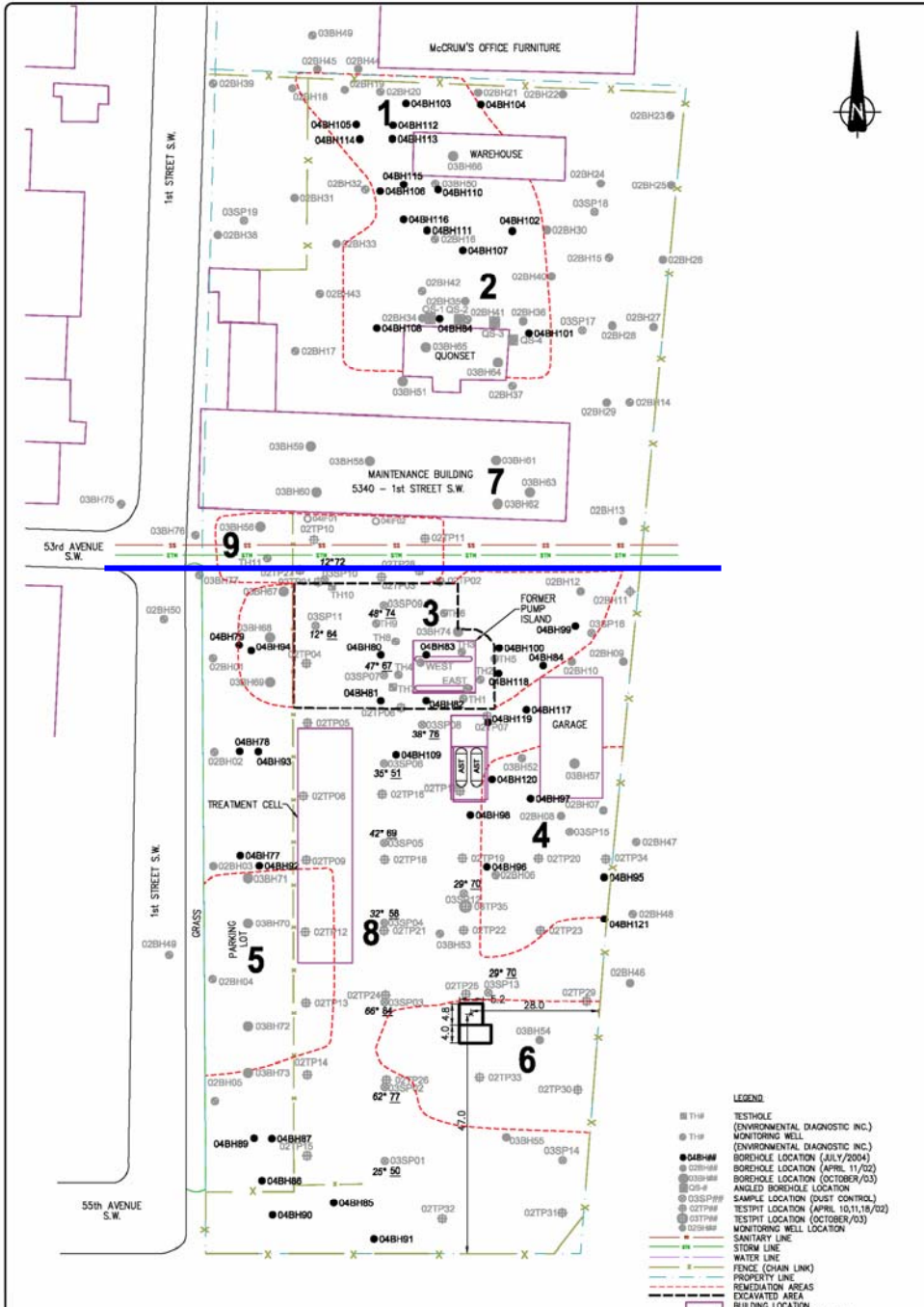


# Site Remediation

- In 2006, the remediation was completed in all areas except:
  - Underneath one of the supporting pillars in Hoist Bay area; and
  - Underneath the south end of Welding Shop.
- The RAP was developed by EBA Engineering Consultants in 2004 and remedial activities presented at Remtech 2005.

# Property Development

- In January 2006, Inland sold the site to Oktagon Properties Ltd.
- Two months later, Oktagon subdivided the site in two parcels (south and north);
- Three months later, South Parcel was sold to Manchester Properties; and
- Four months later, North Parcel was sold to a Consortium of 7 Eye Doctors managed by Courtenay Real Estate Services Inc. (CRESI).



**NOTE:**  
 ALL UNDERGROUND FACILITIES SHOWN WERE LOCATED WITH ELECTRONIC LOCATORS AND MAY BE SUBJECT TO ERROR. ACTUAL LOCATIONS SHOULD BE VERIFIED INDEPENDENTLY BY THE CONTRACTOR IN THE FIELD PRIOR TO BEGINNING GROUND DISTURBANCE.



# South Property Restoration

- In February 2007, Welding Shop was demolished and associated PHC impacted soils excavated and disposed (managed by ARCADIS Canada)

One of the doors from Welding Shop was salvaged by me  
and installed on my Garden Shed



# Welding Shop Demolishment



# South Property Re-development

- Second Building Construction (2006)





# South Property Re-developed (2008)



# North Property Re-development

- In May 2007, CRESI submitted property development application to the City of Calgary
- Ecoterra Solutions Inc. prepared:
  - Risk Management Plan (RMP); and,
  - Tendering package for buildings demolition and site restoration

# RMP

- RMP was developed to address potential health risks that could result from exposure to contaminants of concern (CoC) during the demolition and soil excavation.
- Pathways: inhalation and direct contact; CoC were:
  - Volatile hydrocarbons (benzene); and
  - Asbestos (previous asbestos survey report was not available)
- Subsequent Asbestos Survey detected asbestos in:
  - Drywall mud,
  - Window caulking,
  - Linoleum, and
  - Pipe insulation (elbows).




# Asbestos Abatement



Old linoleum

A close-up photograph of old linoleum flooring. The floor is composed of several large, rectangular tiles in shades of green and brown. A significant portion of the linoleum is missing, revealing a dark, textured underlayment and wooden subflooring. The remaining linoleum shows signs of wear, including scuffing and discoloration.



Window caulking

A close-up photograph of a window frame. The window is set in a metal frame. The area around the window is filled with a thick, greyish-white material, likely caulking or sealant, which is being applied to the joint between the window frame and the surrounding structure. A white arrow points to the caulking.



Office Building after drywall removal

A photograph showing the interior of an office building during a renovation project. The room is empty, with the walls and ceiling exposed. The ceiling consists of a grid of metal beams and pipes. The walls are made of metal studs and are partially covered with drywall. The floor is concrete. The overall appearance is that of a building in the process of being gutted or renovated.

# Getting Ready



Quonset

Main Shop



# Getting Ready

These trees are protected by the City of Calgary - Parks and have not been disturbed during the site restoration.



# Hazardous Waste Disposal



Hazardous materials disposal





# Liquid Waste Disposal

- 2 in-ground storage tanks



# Warehouse Demolishment





# Main Shop Demolishment



# Hoist Bay Soil Remediation





# Site Re-contouring



# In summary

- Demolition Debris - Approx. 1223 m<sup>3</sup>
- Asphalt Demolition and Removal - 585 m<sup>3</sup>
- Concrete Demolition including slabs and foundation walls - 1050 m<sup>3</sup>
- Excavation and stockpiling of clean soil - 429 m<sup>3</sup>
- Disposal of impacted soil - 86 MT
- Backfilling site - 546 m<sup>3</sup>
- Steel Salvage - 450 MT

# South Alberta Eye Center



Southern Alberta Eye Center  
5340 - 1st Street, S.W., Calgary, Alberta



**Thank you!**

**Any Questions ?**