GOLDER

REVISED REPORT

Cultural Heritage Assessment

Ferguson Avenue Pumping Station, 231 Ferguson Avenue South, City of Hamilton, Ontario

Submitted to:

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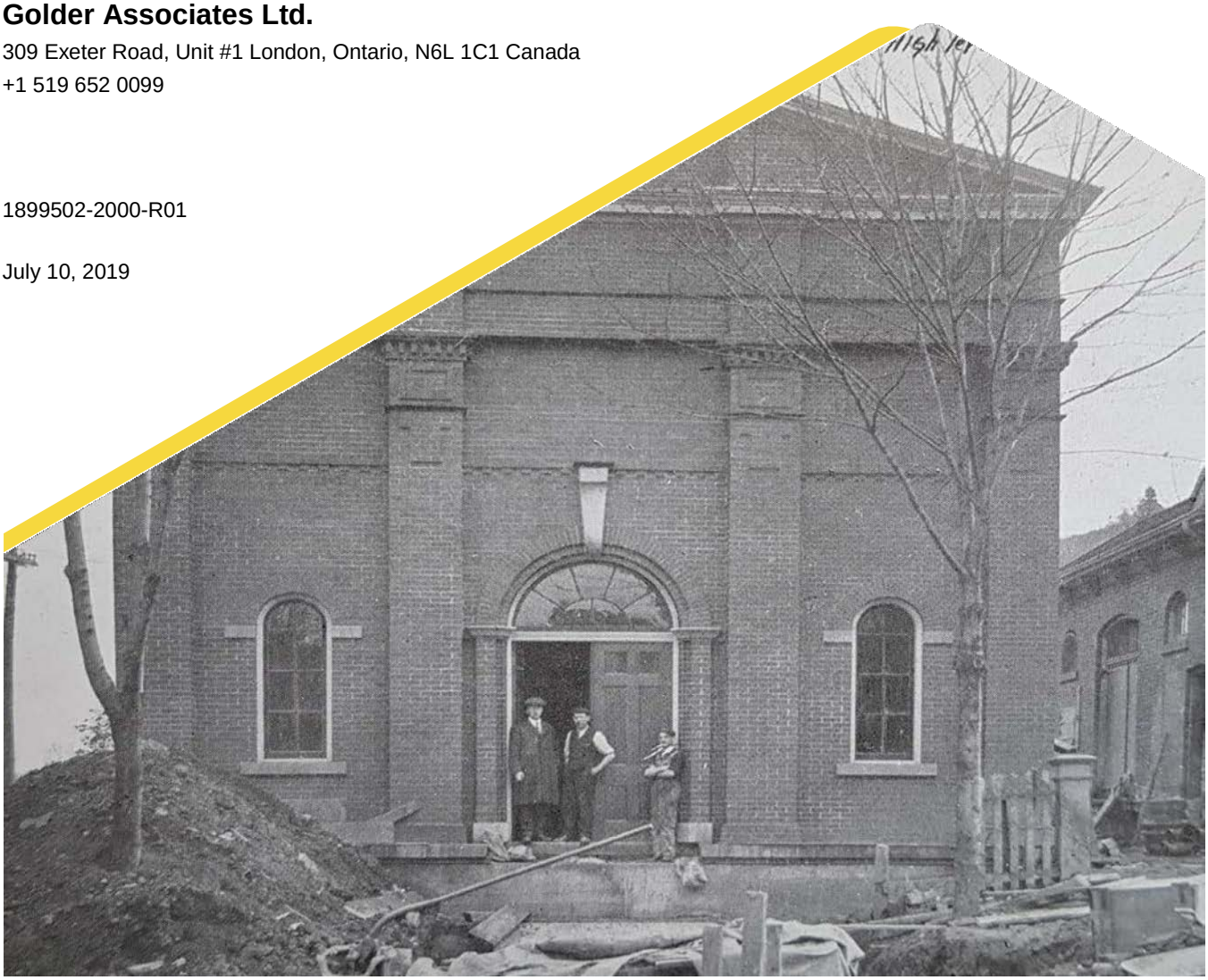

1899502-2000-R01

July 10, 2019

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Acknowledgements

City of Hamilton	David Addington, RPP, Cultural Heritage Planner

Executive Summary

The Executive Summary highlights key points from the report only, for complete information and findings as well as limitations, the reader should examine the complete report.

In May 2018, the City of Hamilton (the City) retained Golder Associates Ltd. (Golder) to conduct a cultural heritage assessment of the Ferguson Avenue Pumping Station at 231 Ferguson Avenue South in the City of Hamilton, Ontario. The City initiated the assessment after receiving a third-party request in 2011 that the property be considered for designation under Part IV of the *Ontario Heritage Act.* The property is currently listed on the municipal *Register of Properties of Cultural Heritage Value or Interest* as a non-designated property, and no longer in operation since its replacement in 2012 by the New Ferguson Avenue Water Booster Pumping Station, built immediately to the east.

A preliminary evaluation of the property by City staff recommended further cultural heritage assessment, and this was assigned to Golder as part of the City's low priority workplan under the City's Roster of Professional Consulting 2016-2017 (Category 27: Built Heritage and Cultural Heritage Landscapes).

Following guidelines provided in the City's *A Framework for Evaluating the Cultural Heritage Value or Interest of Property for Designation under Part IV of the Ontario Heritage Act* (2016) and the *City of Hamilton Cultural Heritage Assessment Report Outline* (n.d.), this document provides: an overview of the property's geographic and historical context; an inventory of its landscape and built features; an analysis of the structural sequence, construction and architectural style of built features on the property; an evaluation of the property's cultural heritage value based on criteria developed by the City and those prescribed under *Ontario Regulation 9/06;* and conclusions and recommendations for future action.

Golder's cultural heritage assessment concluded that:

- ***The property at 231 Ferguson Avenue South (the Ferguson Avenue Pumping Station) be designated under Part IV of the* Ontario Heritage Act.**

Additionally, to guide rehabilitation of the Ferguson Avenue Pumping Station as office space as recommended in WSP's *Old Ferguson Pump Station Facility Repurposing Study* (Draft Version 6, October 22, 2018), Golder recommends that the City ***prepare a Heritage Conservation Plan (HCP) with***:

- ***Collection management strategy to guide the retention, conservation, and long-term management of machinery and other representative artefacts currently housed in the Ferguson Avenue Pumping Station;* and,**
- ***Detailed advice and as-found documentation to guide the rehabilitation effort and ensure the property's heritage attributes are protected, conserved, and enhanced into the future.***

Study Limitations

Golder Associates Ltd. has prepared this report in a manner consistent with guidance developed by the City of Hamilton, the Ontario Ministry of Tourism, Culture and Sport, and Canada's Historic Places, subject to the time limits and physical constraints applicable to this report. No other warranty expressed or implied is made.

This report has been prepared for the specific site, design objective, developments and purpose described to Golder Associates Ltd. by the City of Hamilton (the Client). The factual data, interpretations and recommendations pertain to a specific project as described in this report and are not applicable to any other project or site location.

The information, recommendations and opinions expressed in this report are for the sole benefit of the Client. No other party may use or rely on this report or any portion thereof without Golder Associates Ltd.'s express written consent. If the report was prepared to be included for a specific permit application process, then upon the reasonable request of the Client, Golder Associates Ltd. may authorize in writing the use of this report by the regulatory agency as an Approved User for the specific and identified purpose of the applicable permit review process. Any other use of this report by others is prohibited and is without responsibility to Golder Associates Ltd. The report, all plans, data, drawings and other documents as well as electronic media prepared by Golder Associates Ltd. are considered its professional work product and shall remain the copyright property of Golder Associates Ltd., who authorizes only the Client and Approved Users to make copies of the report, but only in such quantities as are reasonably necessary for the use of the report by those parties. The Client and Approved Users may not give, lend, sell, or otherwise make available the report or any portion thereof to any other party without the express written permission of Golder Associates Ltd. The Client acknowledges the electronic media is susceptible to unauthorized modification, deterioration and incompatibility and therefore the Client cannot rely upon the electronic media versions of Golder Associates Ltd.'s report or other work products.

Unless otherwise stated, the suggestions, recommendations and opinions given in this report are intended only for the guidance of the Client in the design of the specific project.

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In May 2018, the City of Hamilton (the City) retained Golder Associates Ltd. (Golder) to conduct a cultural heritage assessment of the Ferguson Avenue Pumping Station at 231 Ferguson Avenue South in the City of Hamilton, Ontario. The City initiated the assessment after receiving a third-party request in 2011 that the property be considered for designation under Part IV of the *Ontario Heritage Act.* The property is currently listed on the municipal *Register of Properties of Cultural Heritage Value or Interest* as a non-designated property, and no longer in operation since its replacement in 2012 by the New Ferguson Avenue Water Booster Pumping Station, built immediately to the east.

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- An overview of the property's geographic context and historical context;
- An inventory of the property's landscape and built features;
- An analysis of the structural sequence, construction, and architectural style of built features on the property;
- An evaluation of the property's cultural heritage value or interest (CHVI) based on criteria developed by the City and those prescribed under *Ontario Regulation 9/06;* and,
- Recommendations for future action including draft Statement of Cultural Heritage Value or Interest (CHVI).

2.0 SCOPE AND METHOD

To assess the property, Golder conducted:

- Archival and secondary source research;
- Field investigations to document and identify any heritage attributes, and to understand the wider built and landscape context; and,
- Resource evaluation using municipal, provincial, and federal government guidance.

Primary and secondary sources, including historic maps and plans, aerial imagery, photographs, and newspaper and research articles were compiled from the McMaster University Lloyd Reeds Map Collection and Digital Archives, the Local History and Archives at the Hamilton Public Library, the Ontario Land Registry, Mount Allison University, and online sources. The City's department for Development Planning, Heritage & Design - Rural & Suburban also provided a number of documents to aid in this study.

Field investigations were conducted on May 23, 2018 and included photographing all exterior and interior features on the property and wider context with an Olympus E-volt E500 single lens reflex and Samsung Galaxy S6 digital cameras. Architectural features were documented with a *Canadian Inventory of Historic Buildings Recording Form*

(Parks Canada 1980) and a floor plan was sketched from measurements taken using hand tapes and Bosch Professional GLM 50C laser distance measurer.

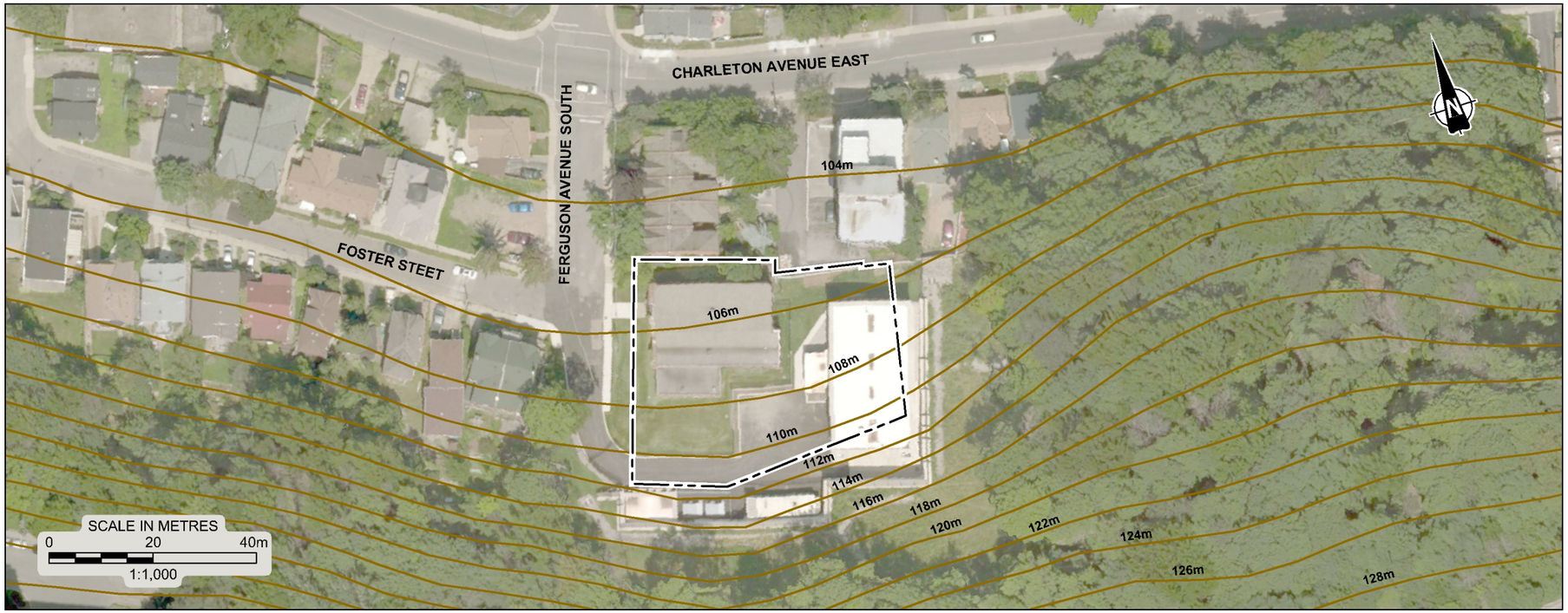
From the collected information, the property was evaluated using the City's *A Framework for Evaluating the Cultural Heritage Value or Interest of Property for Designation under Part IV of the* Ontario Heritage Act (2016) and *Ontario Regulation 9/06, Criteria for Determining Cultural Heritage Value or Interest.* Other widely used and recognized manuals relating to evaluating cultural heritage resources were also consulted including:

- *Ontario Heritage Tool Kit* series (5 vols., Ministry of Tourism, Culture and Sport [MTCS] 2006);
- *Municipal Water and Sewage Works: A Guide to the Conservation of Municipal Sewage and Waterworks* (MTCS 1990);
- *Well-Preserved: The Ontario Heritage Foundation's Manual of Principles and Practices for Architectural Conservation* (Fram 2003);
- *Standards and Guidelines for the Conservation of Historic Places in Canada* (Canada's Historic Places 2010);
- *The Evaluation of Historic Buildings* and *Heritage Planning: Principles and Practice (*Kalman 1979, 2014);
- *Informed Conservation: Understanding Historic Buildings and their Landscapes for Conservation* (Clark 2001); and,
- *Industrial Heritage Re-Tooled: The TICCIH Guide to Industrial Heritage Conservation* (Douet, ed. 2012).

3.0 PROPERTY LOCATION

The Ferguson Avenue Pumping Station at civic address 231 Ferguson Avenue South was originally within Lot 3, Concession 13 of the former Barton Township, now in the southern portion of Ward 2 in the single-tier municipality City of Hamilton (Figure 1). It is less than 1 km from the City's downtown core, and on the east side and south terminus of Ferguson Avenue South, to the south of Charlton Avenue East. It is also immediately east of the intersection with Foster Street, approximately 2.6 km south of Hamilton Harbour.

An irregular rectangle in shape, the property parcel is approximately 59 m long east-west by approximately 43.3 m long north-south. Overall, the property covers 0.1987 hectares (0.49 acres).



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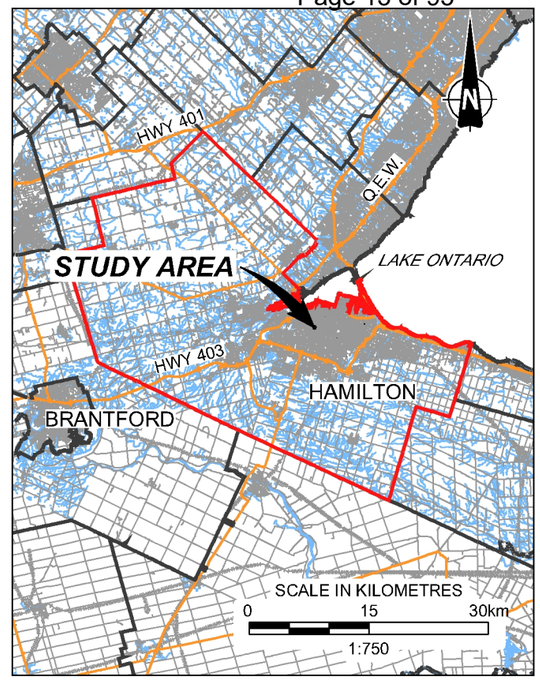
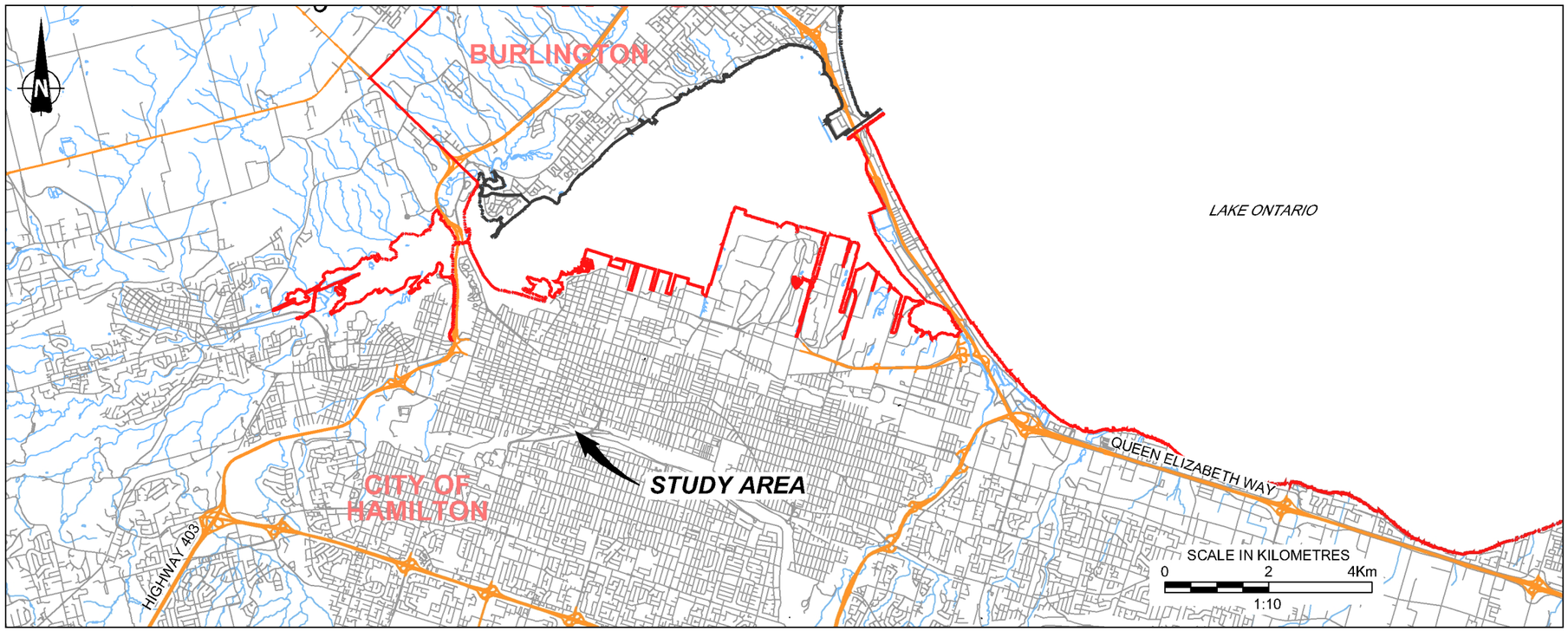


KEY PLAN



REGIONAL MAP

LEGEND

- APPROXIMATE STUDY AREA
- CITY OF HAMILTON BOUNDARY
- TOWNSHIP/MUNICIPALITY BOUNDARY
- HAMILTON — TOWNSHIP/MUNICIPALITY

REFERENCE

DRAWING BASED ON MNR LIO, OBTAINED 2018, PRODUCED BY GOLDER ASSOCIATES LTD UNDER LICENCE FROM ONTARIO MINISTRY OF NATURAL RESOURCES, © QUEENS PRINTER 2018;

PROPERTY LINE DATA PROVIDED BY THE CITY OF HAMILTON.

BING AERIAL IMAGE AS OF JUNE 6, 2018 (IMAGE DATE UNKNOWN); AND

CANMAP STREETFILES V2008.4.

NOTES

THIS DRAWING IS SCHEMATIC ONLY AND IS TO BE READ IN CONJUNCTION WITH ACCOMPANYING TEXT.

BING IMAGERY USED FOR ILLUSTRATION PURPOSES ONLY AND NOT TO BE USED FOR MEASUREMENTS.

ALL LOCATIONS ARE APPROXIMATE.

PROJECT

CULTURAL HERITAGE ASSESSMENT REPORT
231 FERGUSON AVENUE SOUTH
HAMILTON, ONTARIO

TITLE

LOCATION MAP

GOLDER

PROJECT No.		1899502	FILE No. 1899502-2000-R01001
			SCALE AS SHOWN REV.
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FIGURE 1

4.0 PHYSIOGRAPHIC CONTEXT

The property is within the Iroquois Plain physiographic region, an area of rolling terrain encompassing much of the Lake Ontario shoreline from Cobourg to Niagara. The property's physiographic context can be further defined as within the Ontario Lakehead subsection of the Iroquois Plain, and is composed of well-drained, stone-free and sandy loam soil plains (Chapman & Putnam 1984:190). Immediately to the south is the Niagara Escarpment physiographic region, a massive limestone and dolostone outcrop running from the Niagara River to the Bruce Peninsula and Manitoulin Island.

The topography of the property rises in elevation from 105 metres above sea level (masl) to 112 masl from north to south. Just beyond the south property line the elevation increases sharply up to Niagara Escarpment to plateau at 190 masl approximately 200 m to the south.

5.0 SETTLEMENT CONTEXT

5.1 Barton Township, Wentworth County

Following the Toronto Purchase of 1787, today's southern Ontario was divided into four political districts — Lunenburg, Mechlenburg, Nassau, and Hesse— all within the old Province of Quebec. These became part of the Province of Upper Canada in 1791, and renamed the Eastern, Midland, Home, and Western Districts, respectively. The property was within the former Nassau District, then later the Home District, which originally included all lands between an arbitrary line on the west running north from Long Point on Lake Erie to Georgian Bay, and a line on the east running north from Presqu'ile Point on Lake Ontario to the Ottawa River. Each district was further subdivided into counties and townships; the property was originally within Wentworth County and Barton Township.

In 1816, Wentworth County was created within Gore District from the southwest portion of York County in the Home District and the west portion of the Niagara Districts. Of Wentworth's eight townships (later eleven), Barton Township was initially surveyed by Deputy Provincial Land Surveyor Augustus Jones, who completed the work in 1796 (Gentilcore & Donkin 1973:42). Jones employed the single-front method, where only the concessions were surveyed and lots of 120 to 200 acres were delineated to be five times as long as they were wide (Schott 1981:77-93; Figure 2). In Barton Township, the concession lines were oriented east to west and numbered north to south (McIlwraith 1999:54).

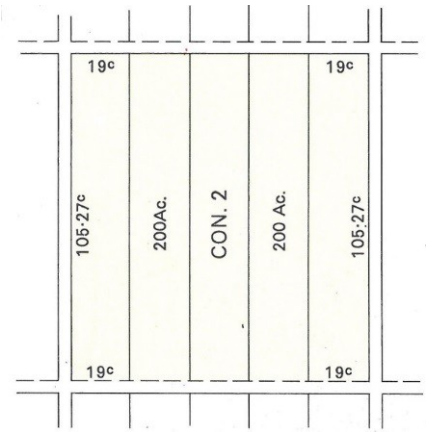

Figure 2: The single front survey system, used from 1783 to 1818. As depicted here, each lot is 200 acres created from surveying 19 chains by 105.27 chains (1 chain = 66 feet/20.12 metres; Gentilcore 1969:61)

Similar to most counties along the north shore of Lake Ontario, initial European settlement was by soldiers and refugees displaced by the American War of Independence, but the settlement of Barton Township appears to have begun well before Augustus Jones' survey. Early American immigrant Richard Beasely had established a post to trade with Mississauga and other western Ojibwa groups at the 'Head-of-the-Lake', or Burlington Heights, as early as 1785 (Triggs 2004:159), and Robert Land was believed to have squatted on land near Barton and Leeming Streets (Freeman 2001:13). Once the survey was complete, European settlement of the township accelerated, although the system of land allocation disproportionately favoured those with social status. James Kirkpatrick and Samuel Ryckman, both of whom had aided Jones on the land survey, were generously compensated for their labour: Ryckman received 11,042 acres and Kirkpatrick 4,147 acres, which together comprised 6.3% of Barton Township (Widdis 1982:447).

Nevertheless, the population grew exponentially. In 1815 Barton Township had 102 ratepayers and 72 one-storey houses, yet just under a decade later in 1823, the township had three saw mills and one grist mill, and close to 4,978 acres of improved land, with 2,841 acres above the 'mountain' and 2,137 acres below. The 1832 assessment for Barton Township shows that growth in the area had more than doubled since the end of the War of 1812, with almost 6,500 acres made arable, and 152 framed or log houses under two storeys, 42 houses with two storeys, and two brick or stone houses had been erected. There were also sixteen merchant shops and six storehouses, while farm animals included 314 horses over the age of three, 149 oxen, 547 milk cows and 140 young cattle (Page and Smith 1875).

Smith's *Canadian Gazetteer*, published in 1846, recorded the cultivated land of Barton Township as extending over 8,993 acres and quoted the 1841 census, which enumerated 1,434 inhabitants living in the township (Smith 1846:8). By this time Hamilton —named for early merchant George Hamilton, who had laid out the town in 1813— was the district town for Gore District and regarded as the 'key to the west' for its strategic position at the head of Lake Ontario (Smith 1846:65, 75). Incorporated as a town in 1833, by 1845 it could boast an urban population of 6,475 that supported a thriving roster of 'Professions and Trades', a stone jail and courthouse, a brick market house, and eleven churches for the Catholic and Protestant denominations, including Baptist and Methodist African-Canadian congregations. Daily stagecoach and steamboat service to the other major towns of southwestern Ontario was also available (Smith 1846:75-76).

Hamilton's development during the second half of the 19th century was marred by a failed investment in the Great Western Railway and the depression of 1857-58, but the town eventually recovered and by the 1870s had emerged as a manufacturing centre, earning the moniker of being the 'Birmingham of Canada', then later 'Steeltown' (Palmer 1979:15). This had a knock-on effect for the building industry, which increased 92% between 1850 and 1871 (Palmer 1979:16). Hamilton continued to grow through the first half of the 20th century, playing a leading role in supporting the war effort during both the First and Second World Wars. However, its textile industry would falter in the 1960s, and by the 1980s significant manufacturing and steel plant employers such as International Harvester and Stelco were forced to institute major layoffs.

In 1974, Wentworth County was replaced by the Regional Municipality of Hamilton-Wentworth, and in 2001, the Regional Municipality and its six constituent municipalities were amalgamated into the City of Hamilton. Population growth since then has been modest. In 2006, the population numbered 504,560 while in 2016 it had grown to 536,917 (Statistics Canada 2016).

5.2 A Brief History of Hamilton's Water System

The origins of Hamilton's waterworks system can be traced to 1833, when an increasing frequency of accidental fires led the Board of Police to provide five public wells (James and James 1978:2). Despite this effort, pressure from dissatisfied citizens to replace the wells with a waterworks system prompted the Board to make a call for tenders in 1835 (Campbell 1966:117; James and James 1978:2). A lack of municipal funds, however, prevented construction of the winning submission, and hundreds of public and private wells remained the primary source of water for households, and civic, commercial, and industrial operations. A devastating cholera outbreak in September 1854 however spurred City Council to adopt a formal resolution to establish a waterworks system (Newell & Greenhill 1989:69; James and James 1978:21). *By-Law No. 110 – For Supplying the City of Hamilton with Water*, gave Council the authority to release funds to purchase lands for waterworks, retain engineers to design the system, and to have the plans constructed. The bylaw was passed on August 10, 1854.

The following month, on September 16, 1854, the Chairman of the Committee on Fire and Water Robert McElroy announced a public competition to design Hamilton's waterworks system, which would involve pumping water from Burlington Bay (James and James 1978:25-31). The City offered $1000 for the best proposal, which would be judged by Engineer of the Montreal Water Works Thomas Coltrin Keefer (City of Hamilton 1959). Keefer selected a design by American engineer Samuel McElroy on December 23, 1854 that proposed drawing water from an intake well located off shore in the Burlington Bay and constructing a reservoir in Dundurn Park (City of Hamilton 1959). McElroy's design never came to fruition as several parties had voiced concerns about the propriety of taking water from Burlington Bay, which by then had become polluted and as a result, on January 28, 1855, the Committee on Fire and Water commissioned Keefer to assess the possible options (Newell & Greenhill 1989:69; James and James 1978:33-39). After dismissing several watercourses in the area as inadequate, Keefer ultimately determined Lake Ontario as the most appropriate source for domestic and industrial use based on its purity and supply, and that a pumping system would be required (Drakich 1990:513).

This opinion was seconded by two American engineers also retained by the City to consult on the water supply issue, prompting the newly appointed Board of Water Commissioners —chaired by Adam Brown and with D. B. Galbreaith, M. W. Browne, and Peter Balfour as members— to engage Keefer as Chief Engineer for the Hamilton Waterworks on January 28, 1857 (Newell & Greenhill 1989:69; James and James 1978:33-39). Keefer was instructed to proceed immediately with all necessary surveys and estimates to build the system. Despite the financial constraints of the depressed economy and the physical challenges, the waterworks with its grand Italianate Enginehouse and Pumphouse at 900 Woodward Avenue were officially inaugurated in 1860 by no less

a celebrity than His Royal Highness Albert Edward, Prince of Wales, later King Edward VII (Drakich 1990:513). The system, installed at a cost of $786,479.34[1], pumped 2.5-million gallons of water per day and could supply a population of 50,000, at that point double the number of people residing in Hamilton.

In 1860, the Board of Water Commissioners hired James McFarlane as Chief Engineer, a position he held for next 50 years, and the following year City Council took over responsibility for the Waterworks (City of Hamilton 2010:96). Just five years later water shortages became increasingly common, and in a bid to increase the flow of water into the basin at the 900 Woodward Avenue works, two openings to Lake Ontario were cut and filled with boulders in 1870 (City of Hamilton 1959:8). As this attempt failed further connection measures were undertaken in 1871 and the basin modified, and another added in 1876. Another expansion to the system occurred two years later when a 'Repumping Station' was built at the south terminus of Ferguson Avenue. This station was to increase the supply of water to the 'High-Level District' of Charlton Avenue, Forest Avenue, Herkimer Street, the Niagara Escarpment, and a section of James Street (City of Hamilton 1959:9).

Nevertheless, a major fire at King and John Streets in August 1879 prompted Keefer and John Kennedy to report on the need for additional water mains and other waterworks improvements in the City. In addition to new or expanded watermains, by 1888 a new pumping station at the 'Beach Plant' had been constructed and two years later a second pumping engine with 400,000 gallons per day capacity was installed at the Ferguson Avenue Repumping Station (City of Hamilton 1959:10, 13).

With the population surpassing 50,000 by 1900, more expansion of the system was required. Filter basins were enlarged, intakes added, and watermains increased in diameter, and in 1904 the 2 ½ million-gallon capacity James Street Reservoir was constructed to provide additional water storage in case of emergencies (City of Hamilton 1959:13-14). Five years later an Air Lift Station was added on Wentworth Street to provide water to residents living on the Escarpment plateau.

Changes to address the rapidly expanding city as well as issues with water supply and ice blockage necessitated yet more work, the most notable by 1913 was construction of a new pumping station at Ferguson Avenue to replace the now inadequate repumping station and building an elevated tank near Jolly Cut (Mountain Brow Park West) to replace the Air Lift Station on Wentworth Street. The following year at the Beach Pumping Station two 6.5 million-gallon pumps were installed, as was a larger force main running from the beach to the City centre (City of Hamilton 1959:16-17).

As Hamilton's population grew into the 1920s calls to improve the water system increased, prompting the City in 1926 to retain engineers Gore, Nasmith and Storrie to conduct a thorough review. Among other improvements, such as a 13.5 million-gallon reservoir on Mountain Avenue, they recommended a filtration and purification plant and chlorination, which was introduced in 1929. On November 3, 1931 the cornerstone for the Water Filtration Plant on Woodward Avenue was laid and the plant entered operation on March 17, 1933 (City of Hamilton 1959:21; 2010:108-109).

Through the 1940s and 1950s the issues with supplying water to the Mountain were incrementally addressed, leading by 1960 to construction of a High Lift Pumping Station at the Beach plant, construction of the Kenilworth

[1] This number is listed in the *Canadian Illustrated News* (1863, reprinted in Sinclair *et al.* 1974), and by Crossman & Maitland (1977:201). However, Newell & Greenhill (1989:70) report the estimates as $590,000 and the cost of the individual elements in a 1903 Engineering Report (City of Hamilton 1903) add to $622,185.67. Nevertheless, Keefer is generally credited with building the system within estimates.

Reservoir, improvements to the Ferguson Avenue Pumping Station and extensions to the Water Filtration Plant, and installation of a number of new mains and storage tanks.

Components of the original waterworks system, such as the Barton Reservoir, continued to operate until 1958 and in 1977 the surviving buildings of the Waterworks complex at 900 Woodward Avenue was designated as a National Historic Site of Canada in 1977 (Canada's Historic Places 2017). Improvements in water distribution and treatment continued, and in 2010 the City could boast a 150-year heritage of municipal drinking water. One of the more significant recent developments was construction of a new plant at Ferguson Avenue in 2012 to replace the original plant.

5.3 City Engineers Andrew F. Macallum & William L. McFaul

5.3.1 Andrew F. Macallum, City Engineer from 1909 to 1916

Succeeding City Engineer Ernest G. Barrow in 1909 was then 39-year old (b. August 9, 1870) Toronto-born and educated Andrew F. Macallum, B.A.Sc., C.E (Figure 3). Before his employment at the City, Macallum had gained a wide range of experience in Canada and the US, including as Resident Engineer for the 'Toronto, Hamilton and Buffalo Railway' and the 'Minneapolis and St. Paul Railway' in Chicago, and as 'Engineer in Charge of Waterworks' for the towns of Midland, Grimsby, and Bridgeburg (today Fort Erie). A biography published in the 1916 *Who's Who and Why: A Biographical Dictionary of Men and Women of Canada and Newfoundland* noted that 'among the more important affairs accomplished at Hamilton', Macallum had:

> (1) Rebuilt whole waterworks system, including intake pipes into Lake Ontario, conduits, pumping stations (3 levels) and new mains costing over a million dollars; (2) Reported on scheme for bringing water by gravity from Lake Erie to Hamilton; (3) Built new asphalt plant and constructed during 6 years about 50 miles of permanent pavement under day labour; (4) Built trunk sewer system for annexed portion (east end) of city, also west end trunk sewer, 6 ½ feet diameter; (5) Designed and built sewage disposal system for west portion of city (Parker 1916:677).

Interestingly, not mentioned were Macallum's role in designing the Pumping Station at 900 Woodward Avenue with architect W.A. Edwards (City of Hamilton 2004:149) in 1913 and the Ferguson Avenue Pumping Station the previous year. He was also noted for his numerous reports on topics as diverse as viaducts in Bracebridge, to the cable railway and plant for the Milton Brick Works, to the Alaska Central Railway. He also held memberships in the Hamilton Club, Royal Hamilton Yacht Club, and Engineer's Club, among others. The same year his biography was published, Macallum was serving as president of the American Society of Municipal Improvements, which merged with the International Association of Public Works Officials in 1937 to become the American Public Works Association.

However, Macallum left the City for Hamilton in 1916, his reputation possibly damaged as a result of the findings of a public inquiry led by Judge Colin George Snider that found widespread irregularities in the Hamilton works department, then under Macallum's supervision (Campbell 1966:215; Reilly 2013). Local papers included a picture of Macallum with captions such as 'Officials who are in the limelight' and 'Controllers want him to grip his department firmly, smoke fewer cigars, and not talk to newspapermen' (Reilly 2013). Controversy seemed to dog Macallum's later career too; in 1929 and 1931 sewer explosions blew as many as 28 maintenance covers into the air, forcing Macallum to resign as Ottawa's Commissioner of Works (Taylor 2001:340). Nothing could be found on

Macallum's life after his resignation but he may have retired, since by then he was 61; when he died is also unknown.

ANDREW F. MACALLUM, B.A.Sc., C.E.

Figure 3: Macallum's portrait in the 1916 *Who's Who and Why: A Biographical Dictionary of Men and Women of Canada and Newfoundland* (Parker 1916:676)

5.3.2 William Lawrence McFaul, City Engineer from 1923 to 1959

In 1923, William Lawrence McFaul succeeded Macallum's replacement E.R. Gray, and oversaw waterworks operations for the next thirty-six years. When interviewed by Marjorie Freeman Campbell for her 1966 book *A Mountain and a City: The Story of Hamilton* the 'chain-smoking' McFaul related that during his tenure the works department:

> 'supplied Westdale with sewers, watermains and roads; had two bridges built over the Grand Trunk in 1922 and '23, and the High Level Bridge in '32'; built the circle around York Street and Longwood Road to bypass the bridge over the canal; and opened Longwood through to Main Street and then south, past the Canadian Westinghouse plant which was then only a foundry and lamp division until World War II. Then came the Valley Street Road.' (Campbell 1966:216).

McFaul's work for the Longwood Road included designing a bridge, which like the High-Level Bridge still stands today (Historicbridges.org). For waterworks, McFaul could boast that he had 'built a new reservoir at the south end of Mountain Avenue' in 1931, and the 'prestige' water purification plant in 1933 (Campbell 1966:216). Again, work at the Ferguson Avenue Pumping Station is not mentioned.

McFaul had also served as Department Head or Building Commissioner for the Building Department until 1944, and his departure in that year may have been due to the findings of a judicial enquiry following 'Hamilton's deadliest fire' at Moose Temple dance hall that claimed the lives of 10, injured 47 and left 12 children orphaned (*Hamilton Spectator* 2014). The Building Commissioner and Building Inspectors were found 'negligent in the performance of their duties', primarily since 'The Commissioner had failed to prepare annual reports, building records had not been kept, proper inspections had not been undertaken, permits for places of assembly had not been issued, and the Inspectors had not used their powers to demand plans of buildings' (McMaster n.d.:72). Further research is required to determine the extent McFaul was implicated; it may not have been severe as he continued to serve as City Engineer until 1959. The year of McFaul's death is unknown, but he lived until at least the mid 1960s to be interviewed by Campbell.

5.4 Property History

5.4.1 Property History to 1878

The original and new plants on Ferguson Avenue are located within the eastern portion of Lot 13, Concession 3, once part of Barton Township, Wentworth County. The property is also in the historic neighbourhood of Corktown, bound by Wellington Street South on the east, James Street South on the west, Main Street East on the north and the Niagara Escarpment on the south (Figure 4). Corktown was predominately, though not exclusively, settled by Irish Catholics, and it is presumed that its name is derived from the south-western Irish city from which most had embarked (Weaver 1982:32; Campbell 1966:172).

The Crown Patent from 1801 lists Richard Springer as the first owner of the 100-acre Lot 13 (APPENDIX A), and he is believed to be a United Empire Loyalist from Delaware who arrived in Hamilton by way of Niagara-on-the-Lake (United Empire Loyalists' Association of Canada 2011). In 1806, Springer sold 19 acres to Captain James Durand, but the latter ran into financial difficulty after the War of 1812 and subsequently sold the property to George Hamilton, the City's namesake, in 1815 (Corktown Neighbourhood Association n.d.). An additional seven acres was purchased by George Hamilton in 1818 as he began to develop much of Corktown. George named several streets in Corktown after his children, including Augusta, Catharina, George, Robert Jarvis, Hunter, Hannah, Jarvis, and Maria. After George's death in 1836, these lots were transferred to son Robert Jarvis Hamilton, a banker who by 1851 was listed in the census as an Episcopalian, married to Mary J. Hamilton with six children, and owning 3 acres of land and a stone house.

In 1847 the Town of Hamilton had purchased from Robert Jarvis Hamilton two acres at the base of the Escarpment on Cherry Street (today Ferguson Avenue) to establish a permanent hospital (City of Hamilton 2009b). Three years later the hospital was built and served as an infirmary and 'House of Industry', but was also selected as the site of a municipal animal pound and powder magazine (Campbell 1966:104, 132). However, in 1851 the hospital was found to be continually impacted by rock slides from the quarry up the Escarpment on Wellington Street and in 1852 the hospital function was moved to the corner of John and Guy Street by the lakefront (Campbell 1966:133). From the 1859 prospect of 'Hamilton, C.W.' it is difficult to discern whether the hospital building survives, although it may be the two-storey structure north of the 'Residence of R.J. Hamilton, Esq.) (Figure 6).

No structures are depicted in the area of the subject property in the 1876 *Bird's Eye* (Figure 7), in contrast to a 'House of Refuge' shown on the 1883 Copp Clark & Co. *Map of the City of Hamilton* along with the pound. Although this map has led to speculation that the site was still being used as a poor house into the 1880s (ASI 2009:13), the later map is a cartographic error as in 1878 the first pumping station had been constructed. This

1878 date was inscribed on the plaque erected for the 1929-30 construction (Figure 8), and would have been within living memory of the politicians and engineers whose names also appear on the commemoration. Other late 19th century references to the 'House of Refuge' in Legislature of Ontario records (e.g. 1885) refer to another site in Hamilton.

Figure 4: 1842 *Plan of the Town of Hamilton District of Gore Canada* indicating 'Corktown'. The arrow indicates the approximate location of the subject property. George Hamilton's residence is depicted at bottom centre (Gentilcore & Head 1984:243).

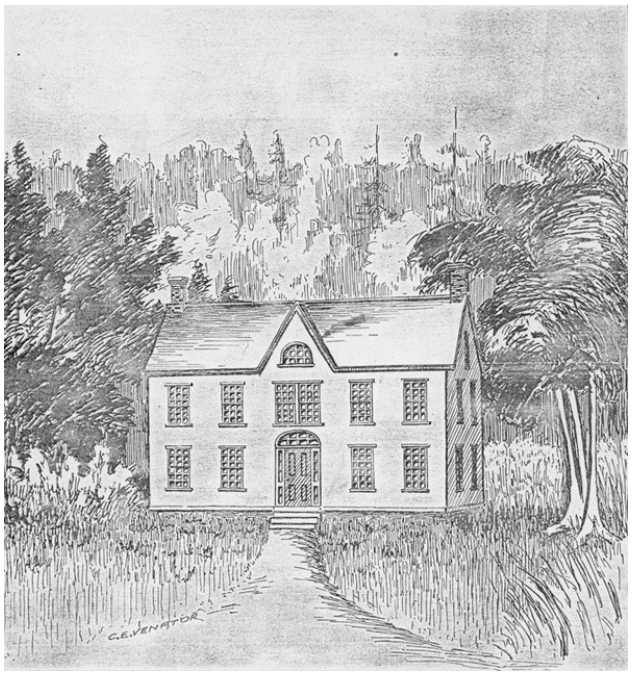

Figure 5: Hamilton's First Hospital (McMaster University 2018).

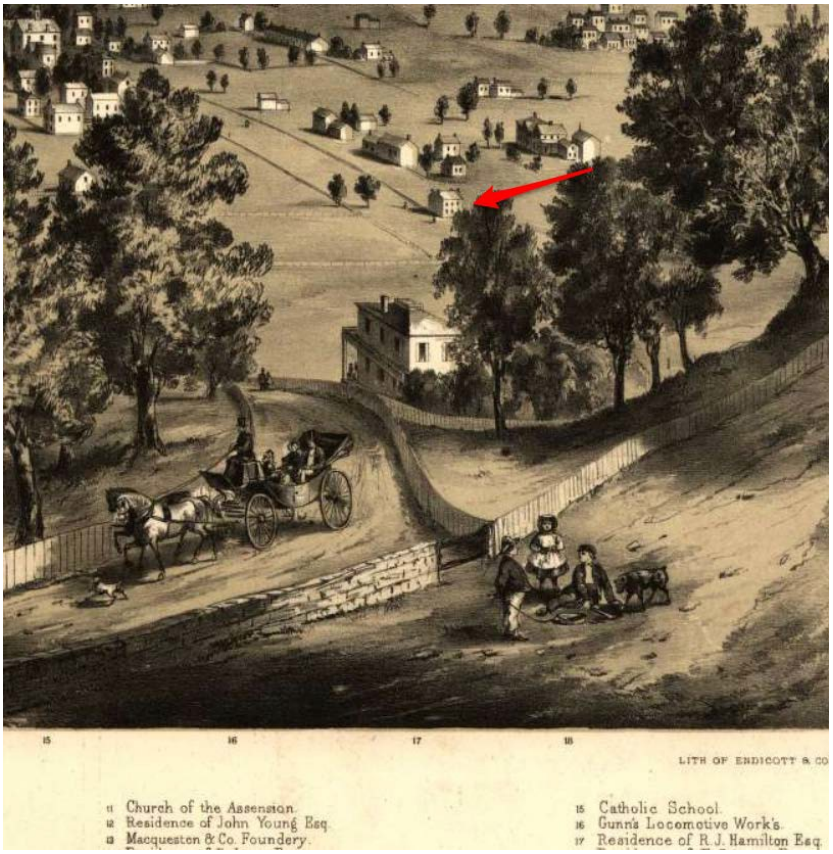

Figure 6: Detail from the 1859 'Hamilton, C.W.' with possible location of the first hospital (courtesy http://www.haalsa.org).

Figure 7: Detail from the 1876 *Bird's eye view of the City of Hamilton.* The arrow indicates the subject property (McMaster Digital Archive).

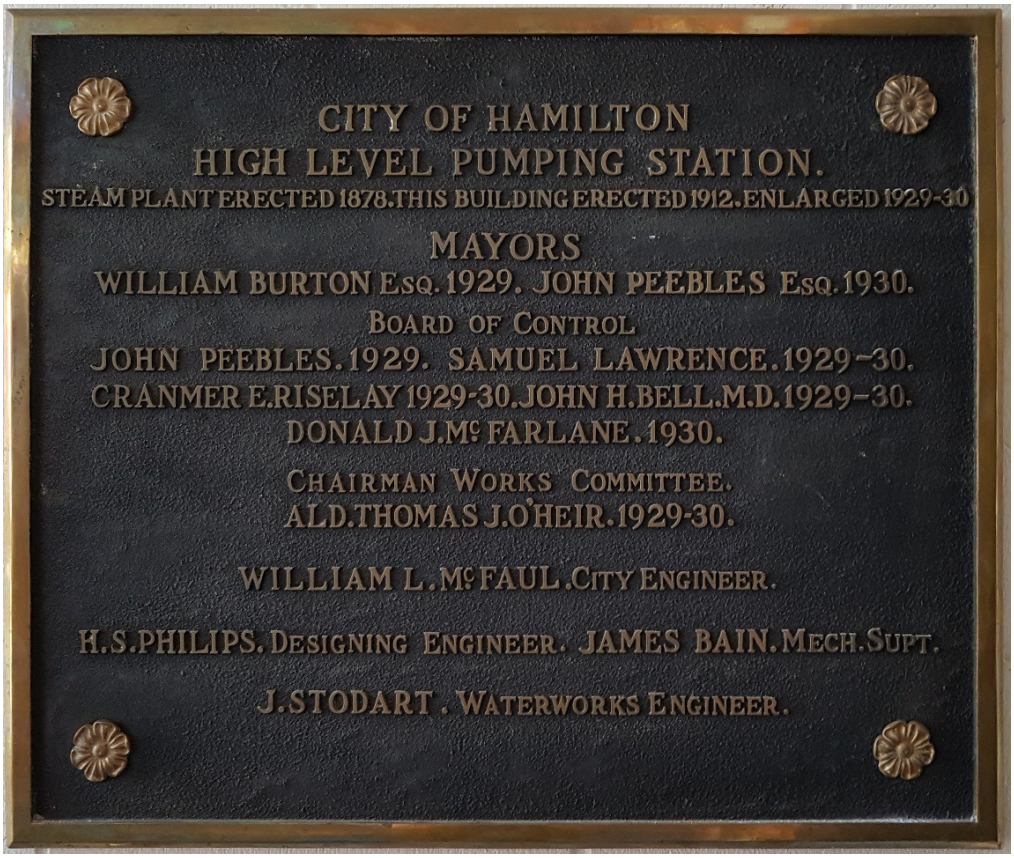

Figure 8: Plaque marking completion of the 1929-30 Ferguson Avenue Pumping Station extension, with 'steam plant erected 1878'.

5.4.2 First Waterworks at Ferguson Avenue, 1878 to 1912

When it entered operation in 1878 the Repumping Station had a Killey steam pump with 300-thousand gallon per day capacity and could lift water 196 feet (60 m) to a small reservoir of 400-thousand gallons capacity on the Mountain (City of Hamilton 1959:9). Just over a decade later in 1888 the second 400-thousand gallon per day pumping engine was added, and the 1893 *Bird's Eye* and shows that the surrounding neighbourhood had developed significantly (Figure 9). On the 1898 Goad's Fire Insurance Plan (FIP) the Ferguson station is referred to as a 'High Level Pumping House' and its single storey five-part L-shaped plan having a section for 'Coal' on the northeast and the two west sections annotated as having '2 Pumps' (Figure 10).

A 1905 Annual Report stated that the 'High-Level Pumping House' had new boilers installed along with several unnamed 'improvements' installed in response to the 'great danger of a breakdown or explosion of the boilers, which were very old' (City of Hamilton 1906:15) (Figure 11). Nevertheless, Willis Chipman and Andrew F. Macallum's 1911 *Report No.1 on Waterworks Improvements* noted that the Ferguson Repumping Station and reservoir were 'taxed to its limit this season' and the station's 'steam pumping machinery…is of a low duty type, of insufficient capacity, and old enough to be retired to the reserve list'; a picture of the growing city the pumping station was now required to service can be seen in a 1913 postcard (Figure 12).

Figure 9: Detail from the 1893 *Bird's eye view of the City of Hamilton* showing the 1878 Repumping Station with billowing stack (McMaster Digital Archive).

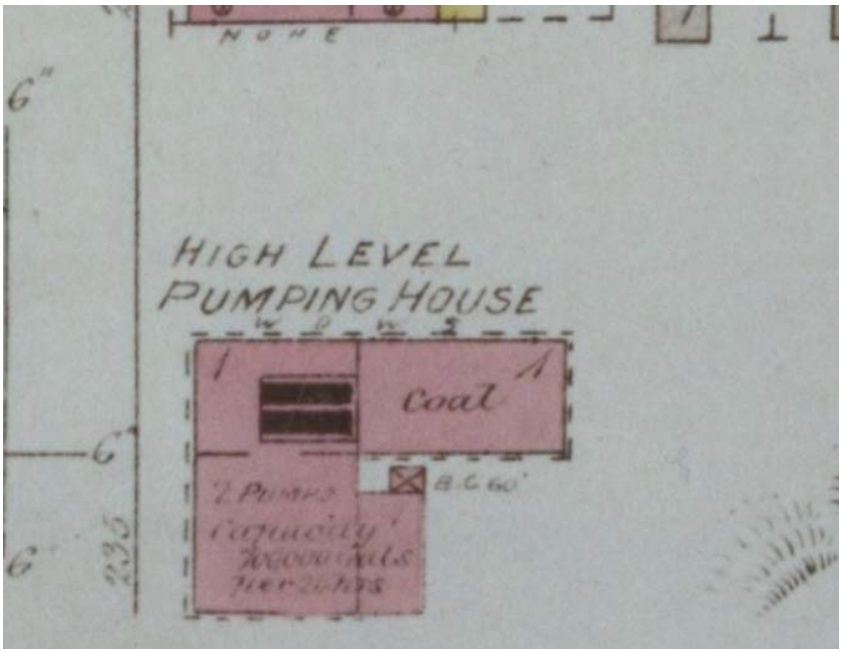

Figure 10: Detail from Goad's 1898 FIP of the 1878 Repumping Station (McMaster Digital Archive).

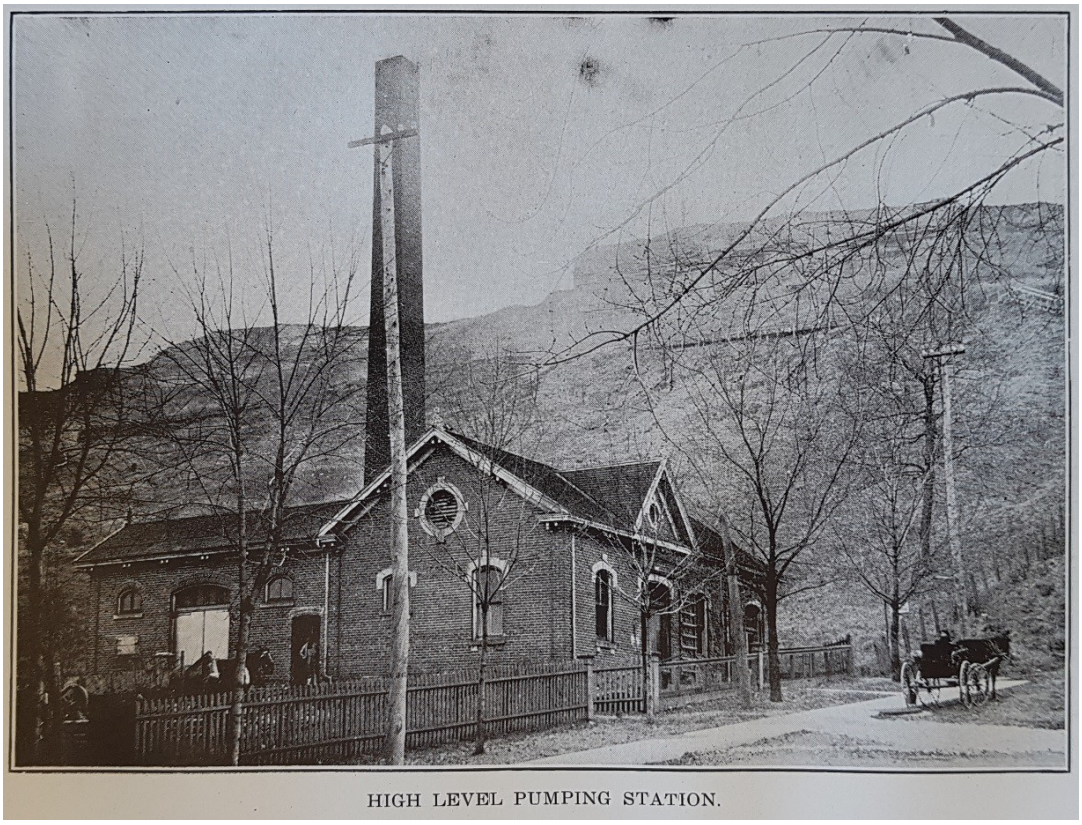
HIGH LEVEL PUMPING STATION.

Figure 11: Circa 1905 photograph of the 1878 High-Level Pumping Station (City of Hamilton 1906).

Figure 12: 1913 postcard showing the 1878 Repumping Station and an open space to the north where the new Ferguson Avenue Pumping Station would be constructed (courtesy 'Vintage Hamilton').

5.4.3 A New Waterworks on Ferguson Avenue, 1913-1929

To replace the High-Level Pumping Station, Chipman and Macallum recommended a 'new building be constructed adjoining the present building' and that 'two electrically operated units should be adapted, each with a capacity of one million gallons per 24 hours' (Chipman & Macallum 1911:8-9). Building this new station was estimated to cost $67,000.00 (Chipman & Macallum 1911:16). Drafting its design fell to City engineer Andrew F. Macallum, and its construction was to be by City workers (City of Hamilton 2010:104) (Figure 13 and Figure 14).

During the following year and into 1913 the new Ferguson Avenue Pumping Station was erected immediately north of the existing repumping station (Figure 15). As the 1912 Annual Report of the Board of Works Department described:

> Work was commenced upon the foundation and wells for the new station which, when completed, will be built completely around the present electrical pumping station, and that station removed. The foundation and four pump wells have already been finished and tenders called for the pumping station. When completed the new pumping station will have sufficient accommodation for six electric driven turbine pumps.
>
> Contracts for two electrical driven turbine pumps, each with a capacity of 6,500,000 gallons per twenty four hours, were given to the Canada Foundry Company, and the motors and electrical equipment to the Canadian General Electric Company. These pumps have about the same capacity as the present electric pumps and will pump to the same head of three hundred feet (City of Hamilton 1912:7).

By 1913, the Annual Report of the City Engineer could state that:

> A new high level pumping station was built at the head of Ferguson Avenue, and four electric-driven turbine pumps, each of one million gallons capacity, were installed. Two of these units pump to the present high level reservoir, giving a supply for the high level district equal to three times the steam units on the same service (City of Hamilton 1913:8).

The 1913 report also included a photograph of the electric pumps with retouched 'Canada Foundry Company Limited Toronto Ontario' marking on the nearest pump (Figure 16). The February 1911 FIP map was revised in 1916 to show the new rectangular Ferguson Avenue Pumping Station between the row housing on the corner of Ferguson and newly named Charlton Avenue, and annotates it as between one and two storeys, and having 13-inch thick walls and 'Electric Pumps' (Figure 17).

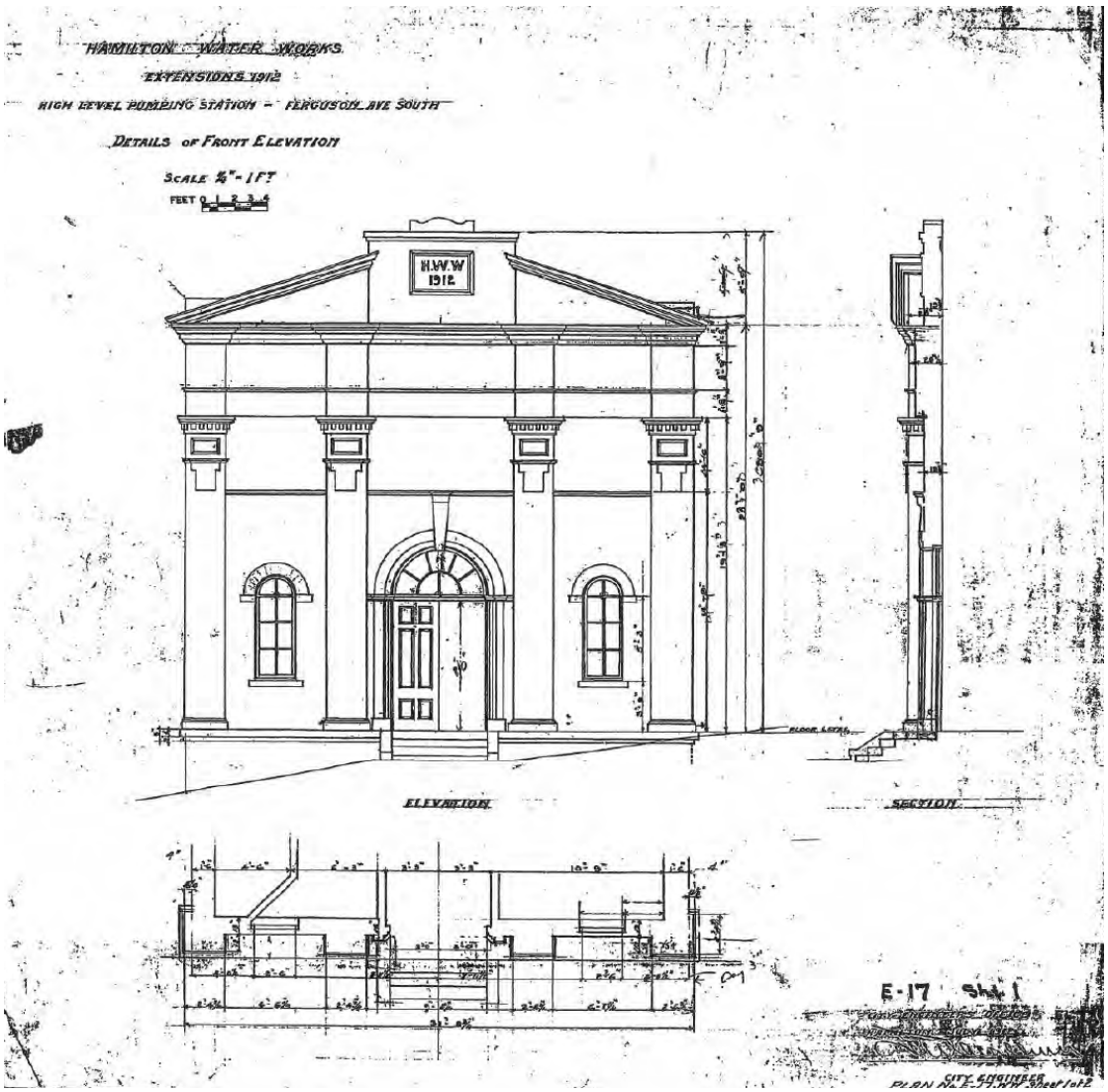

Figure 13: The west façade of the new station in elevation (top), plan (bottom), and section (right) (City of Hamilton 1913).

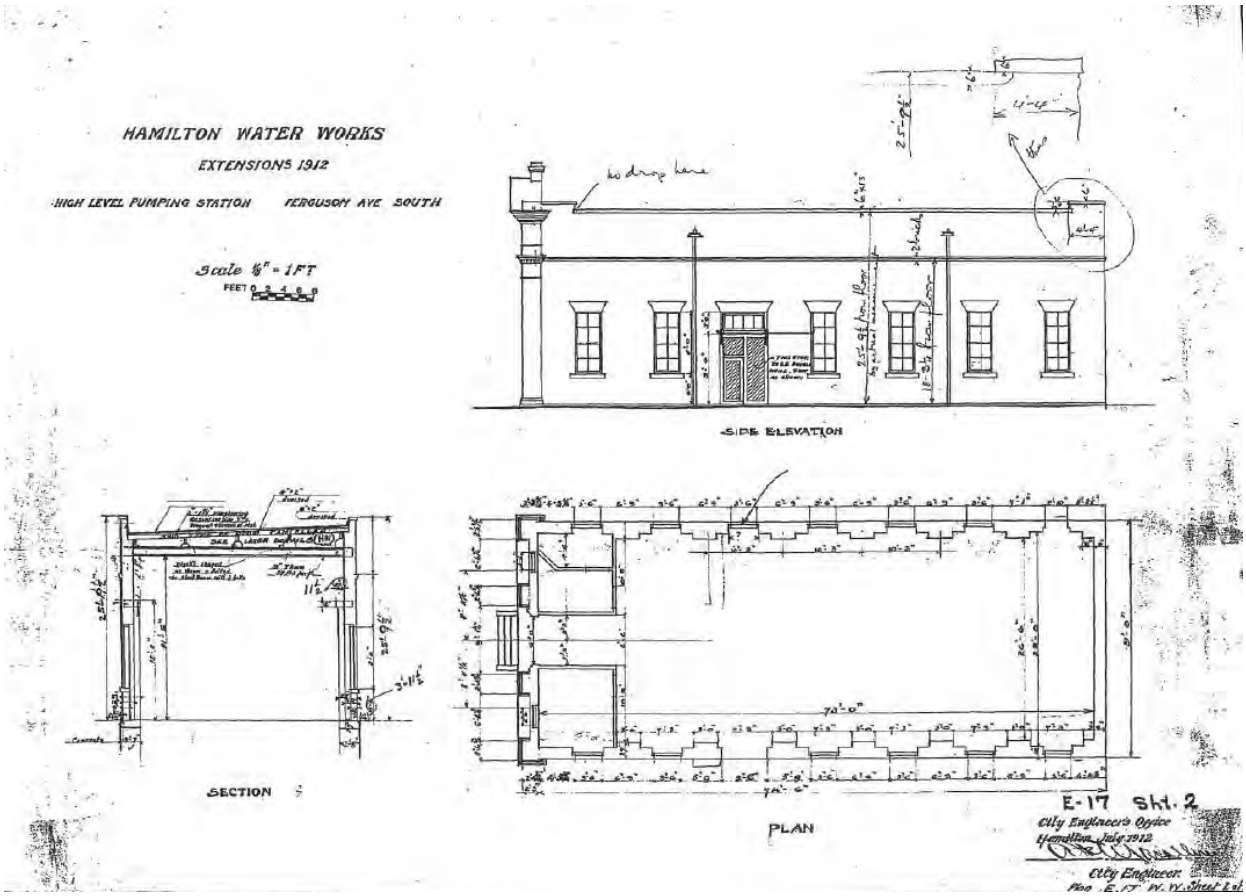

Figure 14: South elevation (top), section (bottom left), and plan (bottom right) of the new station (City of Hamilton 1913).

Figure 15: The new pumping station under construction in 1912. The earlier 1878 Repumping Station is visible at right (City of Hamilton 1913).

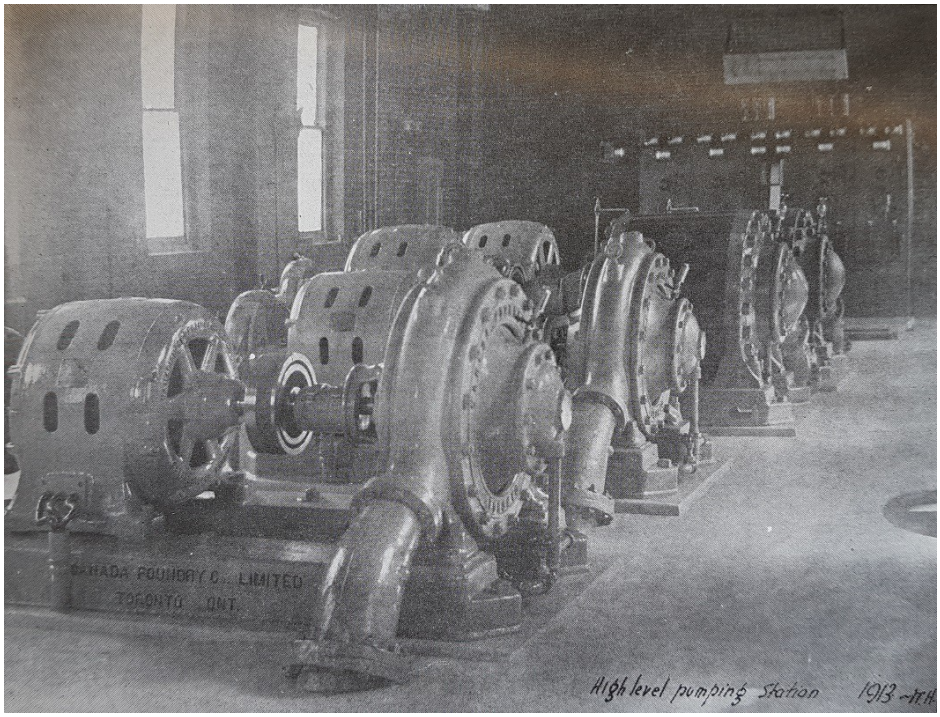

Figure 16: New pumps at the Ferguson Avenue Pumping Station, manufactured by Canada Foundry Company Limited of Toronto (City of Hamilton 1913).

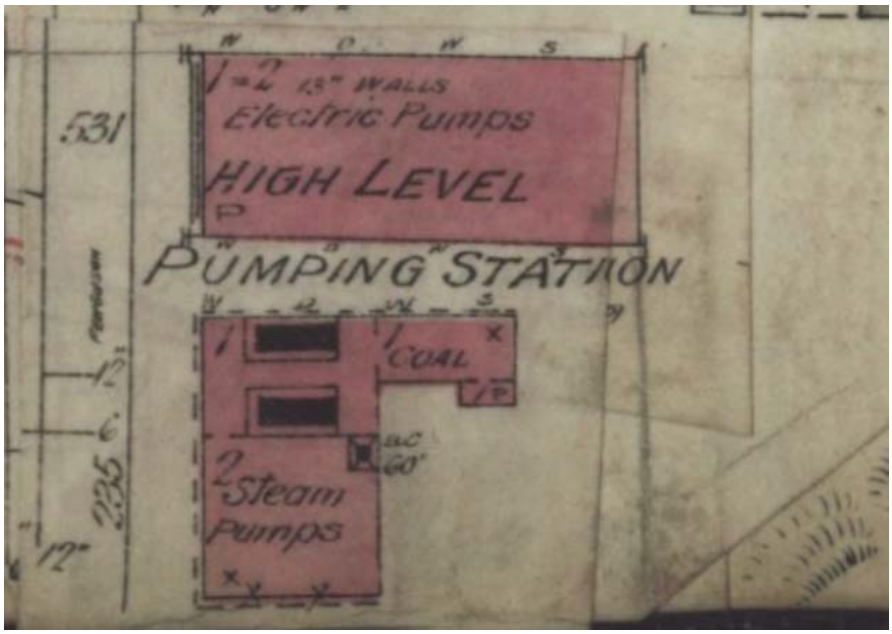

Figure 17: Detail from the 1911 (later updated) Fire Insurance Plan of the coexistent 1878 Repumping Station on the south, and new Ferguson Avenue Pumping Station to the north (McMaster Digital Archive).

5.4.4 Expansion and Replacement, 1929 to 2018

During improvements between 1929 and 1930 the original 1878 station was demolished, and the 1912-13 building expanded to house three new electric pumps and 400-horsepower Mirrlees diesel backup generator (City of Hamilton 1959:20). Architectural drawings and a 1930 photograph detail the extent of this expansion to the south and east, while an undated piping plan shows the high number of lines now running into the facility (Figure 18 to Figure 21).

Another pump with 2 million gallons per day capacity and a 16-inch diameter watermain was installed between 1945 and 1946. The next year, installation of five new pumps and electrical switching gear was recommended but would not be implemented until 1955 to match efforts by Ontario Hydro to convert the electrical system from 25 cycle to 60 cycle (City of Hamilton 1959:28). Replacing the now obsolete two original Mountain pumps and two High Level District electrical pumps were two pumping units capable of transporting 3-million gallons per day and a 2-million-gallon and 5-million-gallon pump for the Mountain, and a 7 ½ million-gallon pump and one 10-million-gallon pump for the Middle Level District (City of Hamilton 1959:29). Housing these new pumps and gear necessitated again expanding the station to the south.

This change did not make it onto the 1960 FIP, which shows the 1930 configuration, but it was depicted on the 1964 FIP (Figure 22). On this map the southwest wing is identified as an Engine Room and there is also an unidentified one-storey building south of the station; a photograph taken the previous year reveals few details of this building and its function (Figure 23).

By the early 21st century, the City identified several issues with the Ferguson Avenue Pumping Station: the existing equipment was in poor condition with no standby power, and there were accessibility issues. The City considered several options, including expanding and refurbishing the existing structure, establishing a new station

adjacent to the existing building but demolishing the Engine Room, and constructing a new station at Charlton Avenue East. The decision to demolish the Engine Room and construct a new adjacent building won out, and the facility was opened in 2012. As reported in 2013, the New Ferguson Avenue Water Booster Pumping Station services 'two water districts from Corktown, all the way to Dundas, as well as parts of the west mountain, near the escarpment, serving two hospitals, a university, and scores of schools, restaurants, and downtown businesses' (CHCH 2013) (Figure 24). With completion of the new station, the Ferguson Avenue Pumping Station was decommissioned, and it has been maintained but vacant ever since although a Doors Open event in 2013 drew over 400 people (City of Hamilton 2014) (Figure 25).

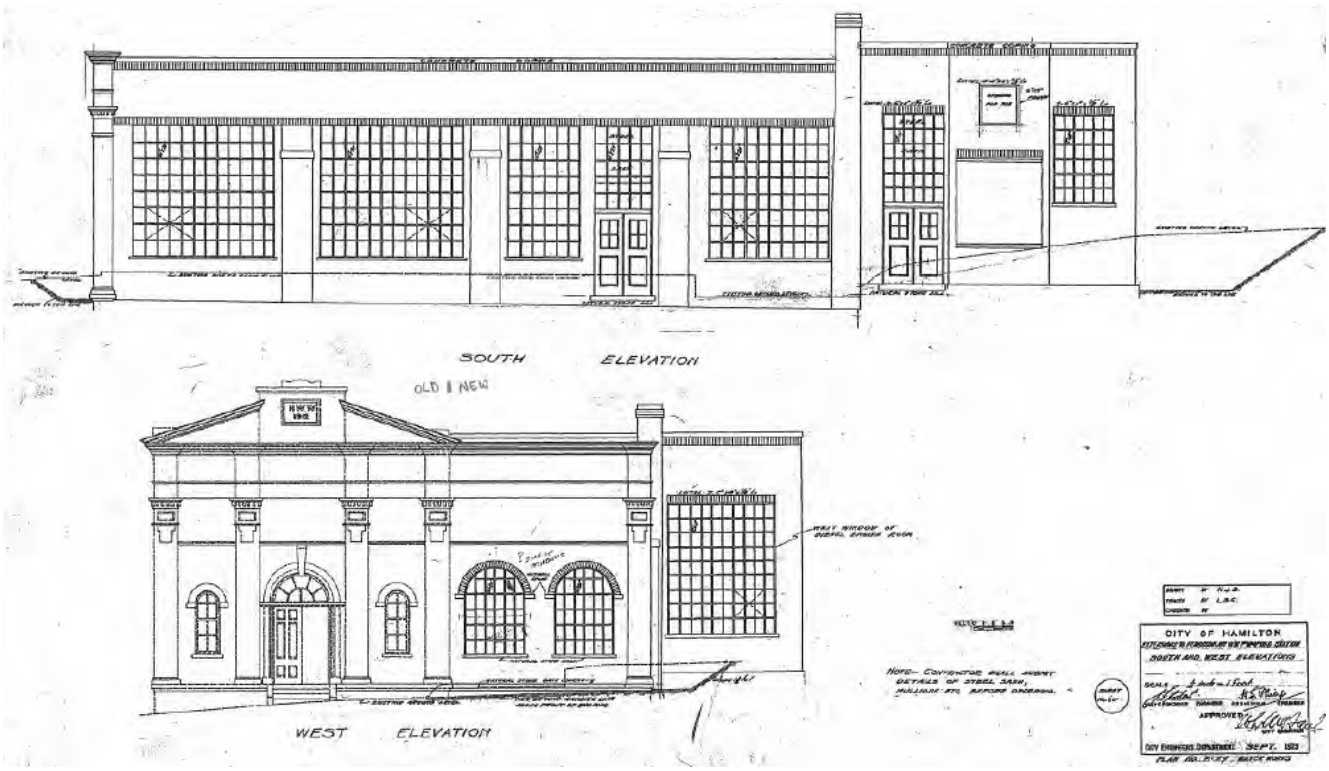

Figure 18: South and west elevations of the Ferguson Avenue Pumping Station showing the 1929-1930 extension.

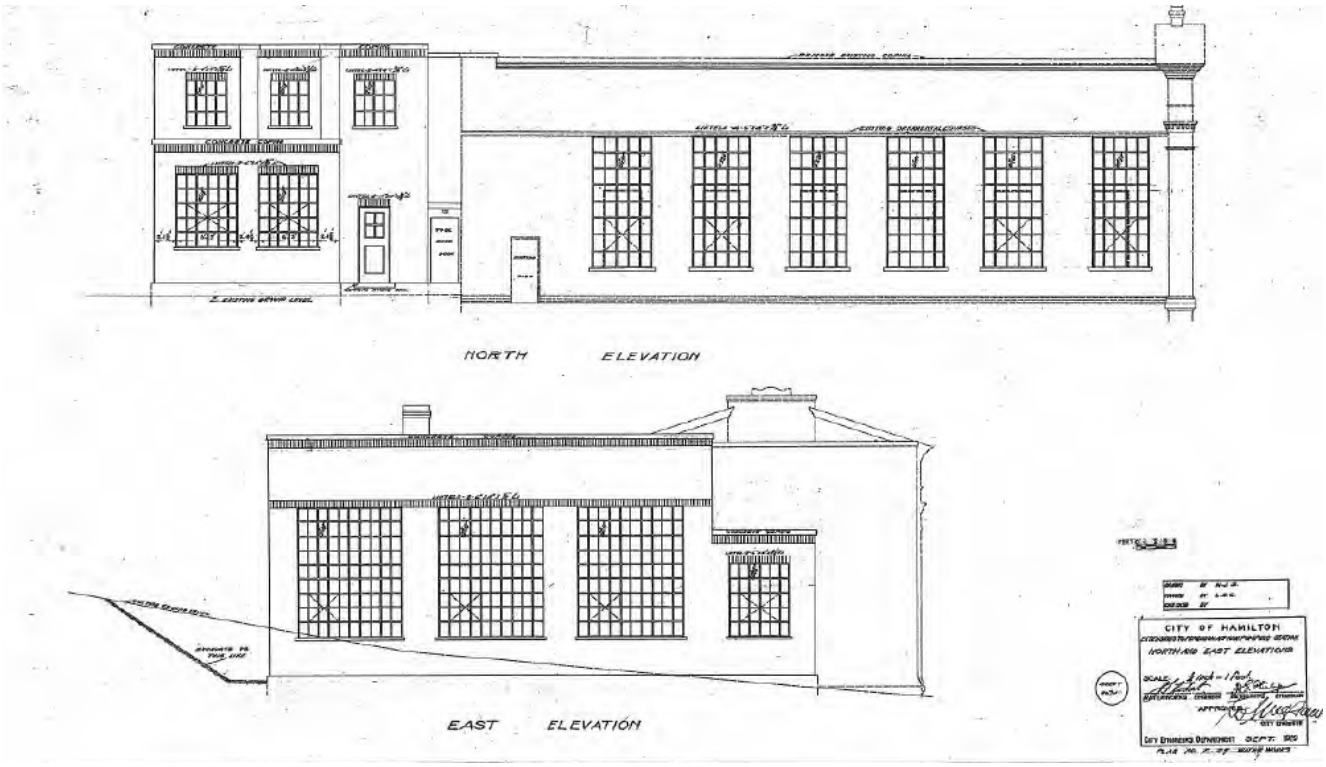

Figure 19: North and east elevations showing the 1929-1930 extension.

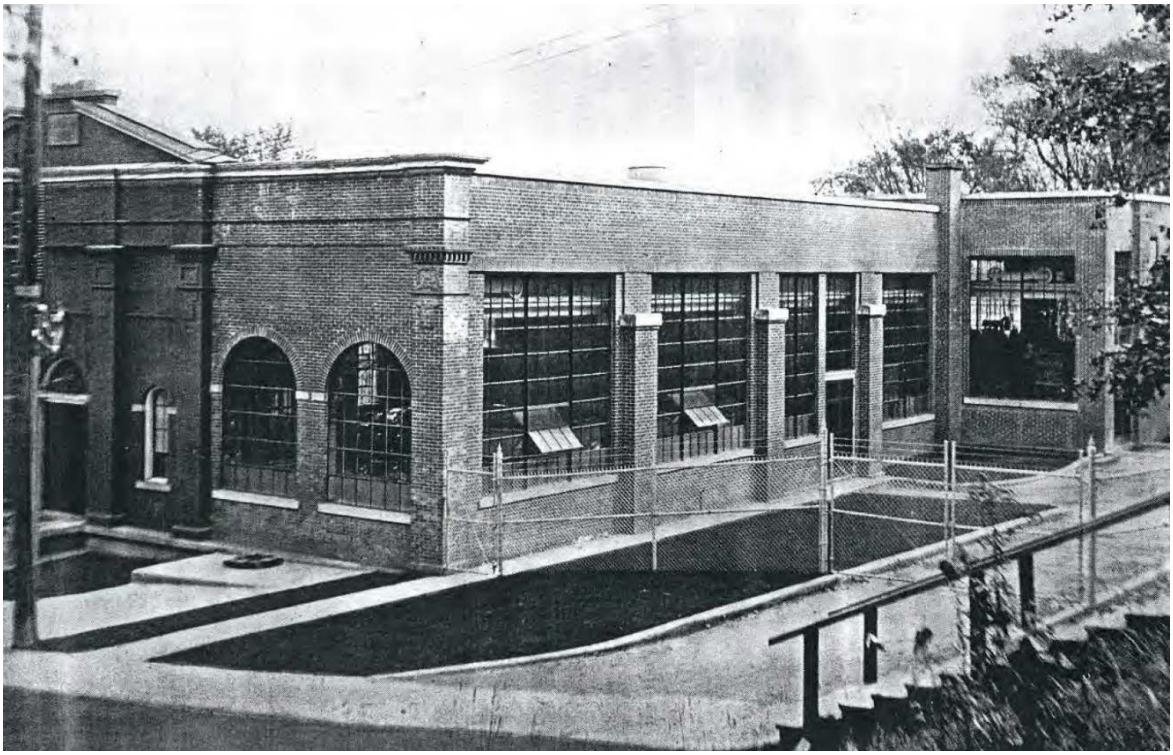

Figure 20: View of the completed extension, circa 1930.

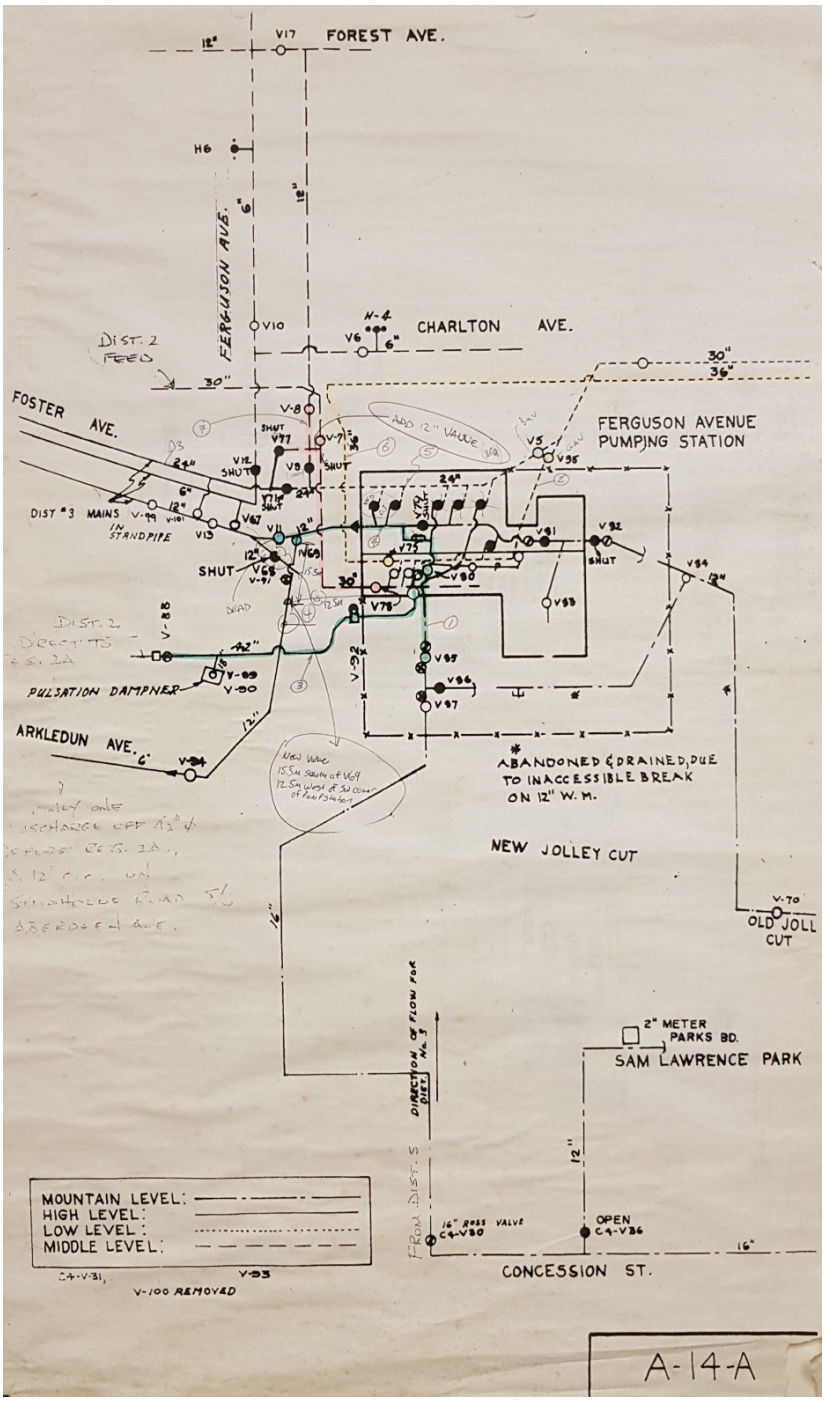

Figure 21: Schematic piping diagram for the Ferguson Avenue Pumping Station, dating after 1930 and prior to 1955.

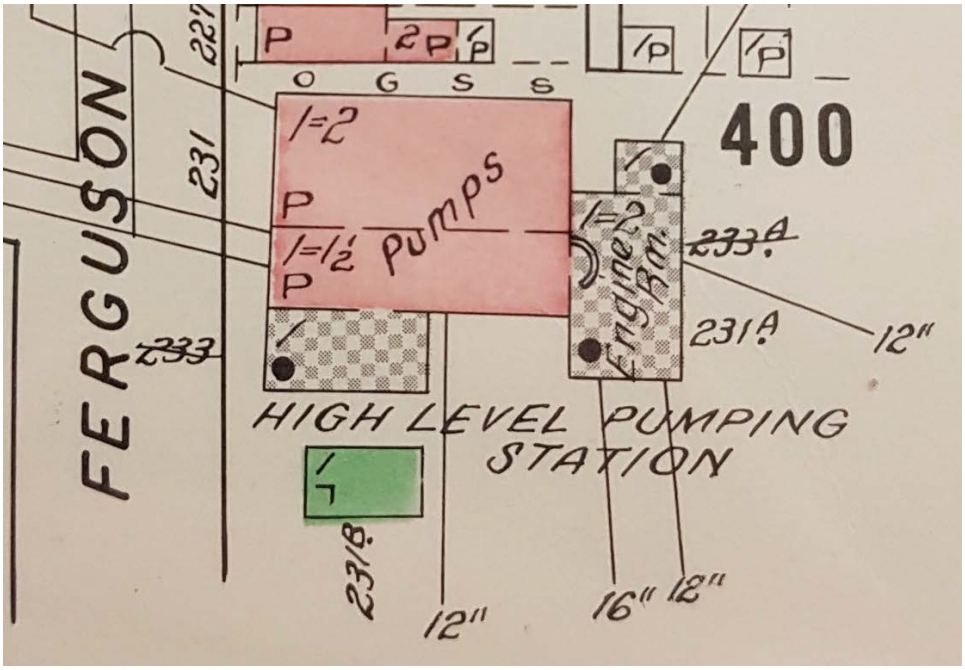

Figure 22: Detail from the 1964 FIP showing the 1929-30 and 1955 extensions (McMaster Digital Archive).

Figure 23: 1963 photo with the now fully expanded Ferguson Avenue Pumping Station in the foreground at bottom right (Local History & Public Archives Hamilton Flickr 2018).

Figure 24: West facade of the 2012 New Ferguson Avenue Water Booster Pumping Station.

Figure 25: Visitors to the 2013 Doors Open at the Ferguson Avenue Pumping Station (City of Hamilton 2014:41).

6.0 PROPERTY DESCRIPTION

6.1 Setting

With the exception of the natural topography and thick vegetation of the Escarpment to the south, the property's setting can be characterized as urban residential. On the west side of Ferguson Avenue and along Foster Street are late 19th to mid 20th century single detached and double semi-detached one to two-storey dwellings constructed predominately in red brick, with some taller residential developments located a further distance to the west and northeast (Figure 26 and Figure 27). Immediately north of the property at 219 to 227 Ferguson Avenue South is two-storey, red-brick 'High Victorian' row housing built in 1894 and designated under Part IV of the *Ontario Heritage Act* in 1989 (Figure 26). Further north across Charlton Avenue at 207 to 215 Ferguson Avenue South, is more two-storey and red-brick row housing dating between 1886 and 1887 and designated under Part IV of the *Ontario Heritage Act* in 1995, while on the northwest corner of the intersection is the Queen Victoria School. Ferguson Avenue South is one lane in each direction with a narrow sidewalk (approximately 2 m), and since it is a dead end at the property it has noticeably limited and intermittent traffic compared to Charlton Avenue.

The topography of the property is uneven due to the artificial landscaping associated with the later pumping station but covered in maintained lawn devoid of trees (Figure 28). With a setback of approximately 9 m from Ferguson Avenue South and less than 2 m from the north property line, the earlier pumping station is situated at the northwest corner of the lot, and at its lowest elevation. Apart from a wide concrete path to the entrance of the early station and concrete retaining walls around the southeast corner of the building, there are no small-scale features although further away retaining walls, gabion walls, and chain link fencing defines the wider property boundaries.

Vehicle and pedestrian access to the property is only from Ferguson Avenue South as the other property boundaries are surrounded a high chain link fence. Conspicuous in both the road surface and sidewalk of Ferguson Avenue South immediately west of the pumping station is the high number of cast iron maintenance covers, some of which are marked with 'HWW' for Hamilton Water Works (Figure 29 and Figure 30).

Although there are no street trees, mature deciduous vegetation on private property along the sidewalk partially mask views of the Ferguson Avenue Pumping Station from north of Charlton Avenue, and views of the station from further west on Charlton are blocked by the structures on the west side of Ferguson Avenue and north side of Foster Street (Figure 31 and Figure 32). The clearest views into and out from the property are east-west on Foster Street (Figure 33 to Figure 34), while views outward from between the new and old pumping station are either obscured or channelled by surrounding structures and mature trees (Figure 35).

Figure 26: View facing east of the Ferguson Avenue Pumping Station (far right) and protected heritage properties at 219 to 227 Ferguson Avenue South (left).

Figure 27: View facing east along Foster Street toward the Ferguson Avenue Pumping Station (centre).

Figure 28: View facing northeast of the Ferguson Avenue Pumping Station (left) and new station (right) showing the irregular topography.

Figure 29: 'HWW' (Hamilton Water Works) maintenance cover west of the Ferguson Avenue Pumping Station entrance.

Figure 30: Numerous round and square maintenance covers west of the Ferguson Avenue Pumping Station.

Figure 31: View facing southeast from the intersection with Charlton Avenue East. The pumping station is just visible behind the trees at centre, and the designated heritage properties of 221-227 Ferguson Avenue South are at left.

Figure 32: View of the pumping station facing southwest from east on Charlton Avenue East. The 1912-13 and 1929-30 elements of the pumping station are visible at centre.

Figure 33: View facing north from the property of Ferguson Avenue South. Note the maintenance covers.

Figure 34: View facing west from the property of Foster Street. Also note the maintenance covers in the foreground.

Figure 35: View of the irregular topography and views out from the centre of the property facing northwest from east of the pumping station (far left). The rear sides of the protected heritage properties at 219 to 227 Ferguson Avenue South are visible at centre-left, and the protected heritage properties of 207 to 215 Ferguson Avenue South visible at centre right across Charlton Avenue East.

6.2 Built Features

Overall, the Ferguson Avenue Pumping Station is a single detached, storey-and-a-half and six-bay red-brick industrial building with flat roof and irregular plan (Figure 36 to Figure 41). At its furthest extents it measures approximately 25.5 m east-west by 21.8 m north-south and is composed of three distinct sections: an original 1912-1913 block (1912-13 Block); a 1929-1930 extension and wing (1929-30 Extension); and a 1955 extension (1955 Extension) (Figure 42). Each are described individually in the following sections.

Figure 36: West façade of Ferguson Avenue Pumping Station (rectified to remove distortion).

Figure 37: West and south façades.

Figure 38: South façade (rectified to minimize distortion).

Figure 39: South and east façades (rectified to minimize distortion).

Figure 40: East façade (rectified to minimize distortion).

Figure 41: East and north façades (rectified to minimize distortion).

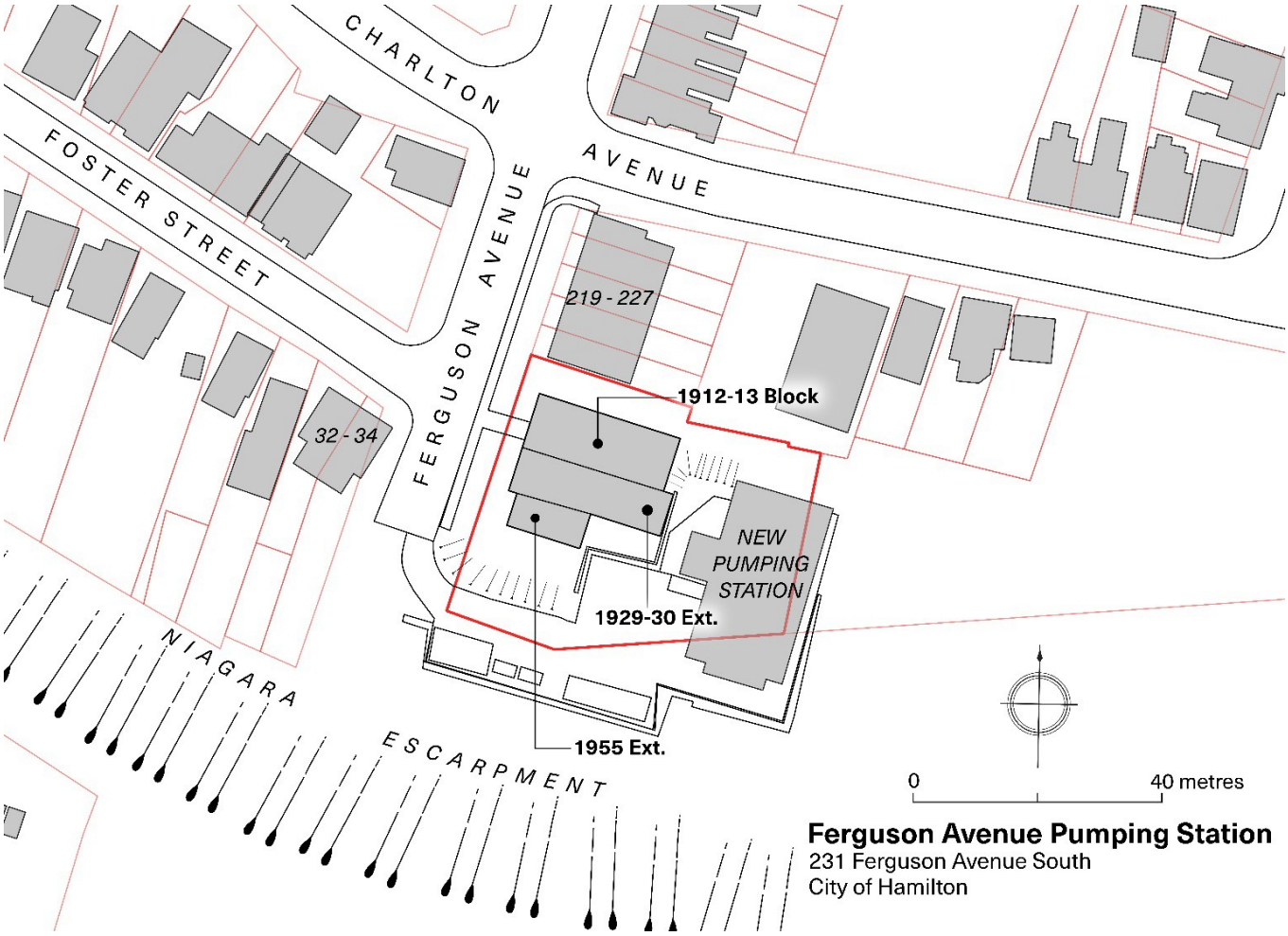

Figure 42: Site plan.

6.2.1 1912-13 Block

6.2.1.1 Exterior

The three-bay and nearly two-storey high 1912-1913 Block is rectangular in plan and measures approximately 23.8 m east-west by 8.9 m north-south. It stands on a wide poured concrete foundation partially visible above grade; on the west façade this is covered by a course of brick under a concrete plinth, while on the north façade there is burnished or blackened stepped brickwork ascending to a splayed stretcher water table (Figure 43 and Figure 44). The walls on the principal west façade are a finer quality and brighter red colour, as well as bonded entirely in stretcher course, compared to those on the north and east façades, which are fired at a lower temperature and laid in one-in-six American or common bond (Figure 45).

Prominent but not full height pilasters mark the three bays, and their bases on the concrete plinth are decorated with burnished and cavetto shaped bricks forming the apophyge. These pilasters terminate at a full entablature with capitals decorated with a T-shaped motif, filet, niche, and dentils beneath the echinus and abacus. Between each pilaster at the one-storey height is a raised string course with widely spaced dentils, while above the capitals the projecting entablature has an architrave with filet, a frieze, and then a yellow-painted, sheet-metal-clad cornice

with alternating ovolos and coronas (Figure 46). Above this is an open pediment with recessed tympanum, which has a large rectangular date stone with sans-serif ‘HWW 1912’ in relief (Figure 47). The tympanum is capped by stone and shaped block centred over the date stone. Though classically inspired, the tristyle temple front of the 1912-1913 Block does not conform to any single Order. The north side wall has only a belt course for decoration, although this has a course of dog-tooth brickwork or cogging on its underside (Figure 45). At the top of the wall here and on the east end wall is a concrete slab coping. Other wall features include louvres on the Ferguson street facade, perforated metal brackets on the east facade for now disconnected electrical insulators, and outside lights and security cameras.

Centred in the outer bays are tall, semi-circular headed windows with soldier brick voussoirs terminating at fine concrete imposts (Figure 48). The lug sill is also fine concrete, and plain. Although blind, there is wood moulding within the structural opening, a louvre, and the plywood has been painted to replicate an eight-pane window. The central entrance is more grandly decorated; it too is semi-circular headed but there are is an inner order of header brick, an outer order of soldier brick, and shaped keystone and imposts (Figure 49). The former is a tall console extending all the way up to a notch in the denticulated string course, while the imposts have a cyma reversa profile and visually form a capital for brick pilasters framing the door, which stand on stone bases. The semi-circular transom with moulding has been filled with painted wood, and the double-leaf doors are a four-hinged steel security type. Straight concrete steps lead to the narrow entrance platform, and may have had railings set in brick, which have since been partially demolished.

Seven tall and wide blind windows line the north facade, and have flat heads of stretcher brick and plain lug sills. A single leaf security door with segmental arch head and moulded wood trim is located near the northeast corner. On the east facade is a large blind entrance that corresponds to a taller blind entrance on the northeast wall of the 1955 Extension. This once led to the 1929-30 Extension, the roof for which was sealed in tar and has left a stain over both blind doors of this east façade (Figure 41).

Figure 43: Concrete foundation, pedestal, and pilaster bases at the northwest corner.

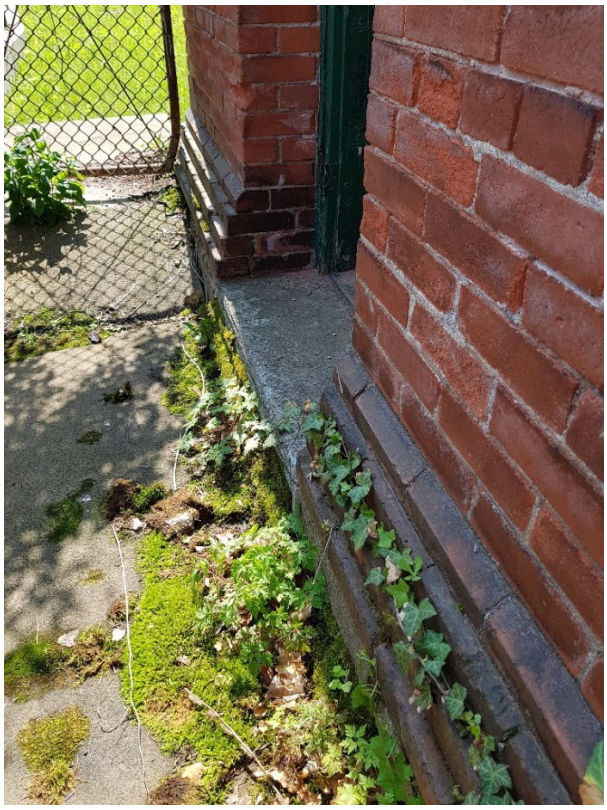

Figure 44: Brick water table at the northeast entrance.

Figure 45: Blind windows and lower quality brick laid in common bond on the north façade. Note also the cogging course above the windows.

Figure 46: Denticulated string course, pilaster capitals, and entablature above the north bay of the west façade.

Figure 47: Date stone in the open pediment and recessed tympanum.

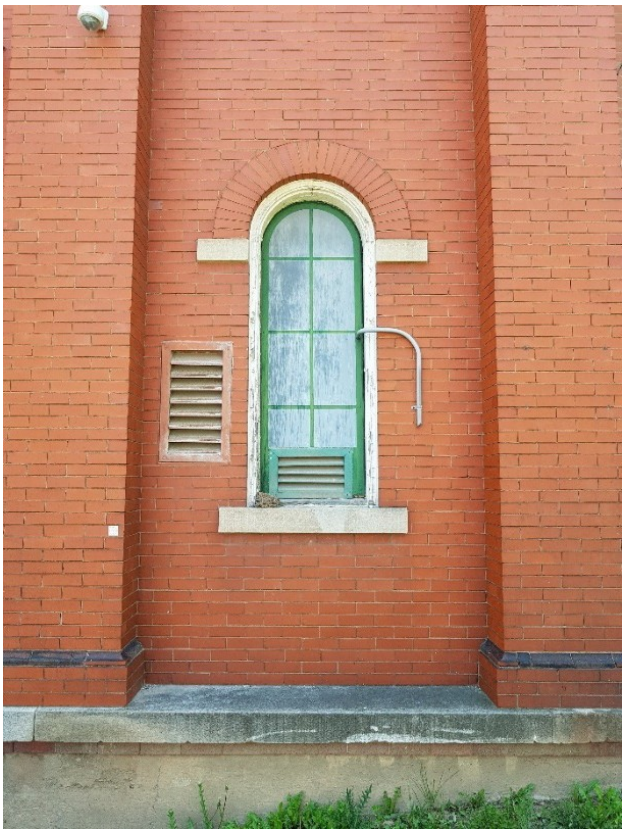

Figure 48: Window of the south bay on the west façade.

Figure 49: The west façade entrance and the south bay.

6.2.1.2 Interior

6.2.1.2.1 Ground Level

The interior of the 1912-13 Block is primarily an open, single-level plan, with more recent room divisions in the east and west ends, and opens directly into the 1929-30 Extension on the south (Figure 50 and Figure 51). Three Mountain Level Pump Trains, two High Lift Pump Trains, a Control Panel, and a Control Station are distributed over the floor, which is covered in square ceramic tiles (Figure 52 and Figure 53). The exposed brick wall on the north is interspersed with pilasters between each window opening, each of which is filled with concrete masonry units (CMUs) (Figure 54). Stone blocks at the top of these chamfered pilasters support an iron I-beam that runs the full length of the north wall. There are no features on the east wall except for numerous perforations, which mark the place of brackets to hold what must have been a high number of electrical cables. Like the main facade, the bricks on the interior are a highly fired, high quality type.

The Block's south boundary is marked by pillars or columns and an upper wall with I-beam and brick masonry. Although the columns are part of the 1929-30 construction, the upper wall is a remnant of the original Block and its dog-tooth brickwork can be seen from inside the 1929-30 Extension. A complete section of 1912-13 wall also survives in the southwest, and here there is a tall blind window with segmental arch head with gauged brick voussoirs, and it has a plain lug sill (Figure 55 and Figure 56).

The roof of the 1912-13 Block is supported by I-beams with 'Northern Engineering Works, Detroit, Mich. U.S.A.' plaques that run the width of the building, and some have chain hoists on beam trolleys (Figure 57). Above these is a wood strip ceiling that runs the length of the interior. Lighting is provided by fluorescents suspended from the ceiling (Figure 50).

The northwest corner was enclosed for a bathroom at some point relatively early in the Block's history, and in the late 20th century a room for a chlorine storage tank was built in CMUs in the southwest corner, south of the central entrance (Figure 51). At the northeast corner is a space enclosed to create an engineers' office during construction of the 2012 Pumping Station.

6.2.1.2.2 Basement

The basement is entered via metal straight stairs descending from a breach in the southwest corner of the floor. It leads to a narrow passage with large diameter pipes suspended along the north side (Figure 58). On the north is an arcade of cast-in-place concrete (the impressions from the formwork planking is clearly visible), through which runs even larger diameter pipes and valves (Figure 59). These lead to wider piping, which is supported by concrete buttresses and brackets, and exits through the east end wall through formed concrete arches. The ceiling is also formed concreted, and most electrical lines run along that surface or the south wall. At the southwest corner is a breach providing access to the basement of the 1929-30 Extension.

Figure 50: Interior of the 1912-13 Block, facing east.

Figure 51: Interior of the 1912-13 Block, facing west.

Figure 52: Mountain Level Pump Trains, High Lift Pump Trains, and Control Panel on the north portion of the floor.

Figure 53: Control Station on the southeast portion of the floor.

Figure 54: I-beams, engaged columns, and blind windows on the north wall interior.

Figure 55: Exterior wall with cogging of the 1912-13 Block as seen from within the 1929-30 Extension.

Figure 56: Surviving bay and window of the south wall as seen from inside the 1929-30 Extension.

Figure 57: Northern Engineering Works plaque on a lateral I-beam.

Figure 58: View facing east of the south basement passageway.

Figure 59: Arched cast-in-place concrete arches in the north portion of the basement.

6.2.2 1929-30 Extension

6.2.2.1 Exterior

Built onto the south wall of the 1912-13 Block is the two-bay, storey-and-a-half height 1929-30 Extension, which measures approximately 25.5 m long (east-west) and 7 m wide (north-south). Its rectangular plan therefore extends approximately 1 m further to the east than the 1912-13 Block, and was further lengthened by new masonry presumably added in 2012 (Figure 40 and Figure 41). Like the 1912-13 Block it has a concrete foundation and stretcher bond red brick facade, while its south facade was built in one-in-five American or common bond with a top course and continuous lintel in soldier brick (Figure 37).

The Ferguson Avenue facade continues the pilaster, entablature, and sheet-metal clad cornice of the 1912-13 Block, although there is only a single pilaster at the corner and the entablature is more subtly defined with a recessed string course and at the level of the capital, and course of cyma reversa shaped brick to define the top of the architrave (Figure 36). The metal clad cornice continues around the corner pilaster, then transitions to a concrete slab, or possibly stone, coping. The east end wall projects past the south wall to mirror the pilaster on the southwest corner but is treated only with a projecting coping. A pilaster is also located on the south wall between two blind openings and has a plain shaped stone capital but no base.

Although there are double-leaf metal doors on the south facade and single-leaf security door entrance on the east end wall, entrance to the extension is primarily through the 1912-13 Block. On the principal facade of the extension are two large window openings with semi-circular heads and plain concrete lugsills. The arches are formed in a single order of soldier brick and terminate at relatively small stone or concrete blocks at the imposts. Both windows are blind but retain their mouldings and metal muntins (Figure 60). Three exposed window openings on the south facade are also blind, this time filled with brick and the double leaf doorway. As mentioned above these have a continuous lintel, and have plain concrete lug sills (Figure 39).

Figure 60: Large windows of the 1929-30 Extension west façade.

6.2.2.2 Interior

6.2.2.2.1 Ground Level

As described in Section 6.2.1.2.1, the north division of the 1929-30 Extension is marked by the corbelled pillars, which are brighter in colour to the 1912-13 bricks (Figure 61 to Figure 63). There is no corresponding division in the floor between the 1912-13 and 1929-30 sections, suggesting both were tiled when the latter section was built, or possibly during a later refurbishment. Chamfered pilasters line the south wall and are taller than the pillars, and between each are blind windows filled with CMUs. CMUs have also been used to fill the large breach in the east wall, which originally led to the 1929-30 wing. An exception is found near the southwest corner, where a 20-pane fixed sash window was retained and lights the 1955 Extension (Figure 64). A door to the 1955 Extension is at the southwest corner, and to access it is a set of metal straight stairs with landing.

Wood strips were used to cover the ceiling and the space is lit by long fluorescents. Steel I-beams run the width of the Extension and also have chain pulley hoists on beam trolleys. These beams are plaqued with ‘The Herbert Morris Chain and Hoist Company Ltd. Niagara Falls [US]’ (Figure 65). Distributed relatively evenly across the floor are five Middle Level Pump Trains, and near the centre of the south wall is ladder access to the basement (Figure 66).

6.2.2.2.2 Basement

The basement is open in plan, with parged concrete walls and ceiling, and two rows of large diameter piping running east-west supported on concrete brackets (Figure 67 and Figure 68). Electrical conduit is suspended from the ceiling or run high against the walls.

Figure 61: Interior of the 1929-30 Extension, facing west.

Figure 62: Interior of the 1929-30 Extension, facing east.

Figure 63: Chamfered and corbelled pillar or column supporting the 1929-30 breach into the 1912-13 Block, as seen facing south from inside the 1912-13 Block.

Figure 64: 20-pane fixed sash window on the south wall

Figure 65: Chain pulley hoists suspended from lateral I-beams with Herbert Morris Chain and Hoist Company Ltd plaque.

Figure 66: One of five Middle Level Pump Trains in the 1929-30 Extension.

Figure 67: View facing east of the piping beneath the 1929-30 Extension.

Figure 68: View facing west of the piping beneath the 1929-30 Extension.

6.2.3 1955 Extension

6.2.3.1 Exterior

Setback the width of the corner pilaster at the southwest corner of the 1929-30 Extension is the storey-and-a-half height, single-bay 1955 Extension, which measures 12.4 m long (east-west) by 5.8 m wide (north-south), approximately 11.75 m shorter than the 1929-30 Extension. Unlike the other sections of the pumping station, it has a high formed concrete foundation with chamfered top, and the walls are constructed entirely in stretcher bond, except at the top of the wall where there is a course of soldier brick. Above this course is a projecting concrete slab coping for the flat roof. Two large conical capped vents exit the roof near the south wall (Figure 37 and Figure 38).

A blind, nearly square and flat head window with concrete lugsill and soldier course voussoirs is slightly off-centre on the Ferguson Avenue facade, while the south wall has two slightly smaller asymmetrically placed blind windows. Centrally located on the east end wall is a blind window. Direct entrance from the exterior is via an off-centre double leaf, steel reinforced wood doors placed between the two windows on the south facade; like the 1929-30 Extension, this exterior door is secondary to the primary access through building from the central entrance of the 1912-13 Block.

6.2.3.2 Interior

6.2.3.2.1 Ground Level

The 1955 Extension is divided into a large room on the west and a smaller room on the east. On the north wall of the large room can be seen the exterior pilasters of the 1929-30 Extension, and on the south wall are the blind window openings filled with CMUs (Figure 69 and Figure 70). The floor is poured concrete and, in contrast to the exterior, the exposed brick walls are one-in-five American or Common bond. There is a corrugated metal fire-proof ceiling with relatively light I-beams running laterally and an even lighter steel beam running the length of the interior. This has a ‘Cyclone 1/2-ton’ beam trolley with hanging chain hoist manufactured by Buffalo-based company Columbus McKinnon (Figure 71). Lighting is through large downlights with elliptical reflectors. Both rooms were used for electrical systems.

6.2.3.2.2 Basement

The basement was not investigated since it is considered a confined space.

Figure 69: North interior portion of the 1955 Extension facing east.

Figure 70: South wall entrance and blind windows of the 1955 Extension facing southwest. The ladder to the basement is in the far corner.

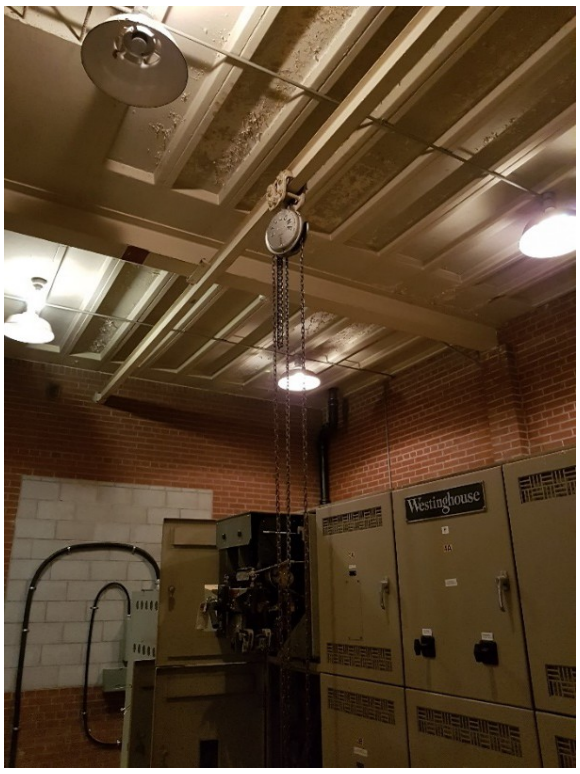

Figure 71: Fire proof ceiling with elliptical lights, and Columbus McKinnon Cyclone 1/2-ton beam trolley with hanging chain hoist.

6.3 Structural History

The structural history for the property can be divided into six phases, the first two are archaeological, and the others are represented in the standing buildings on the site today. These are listed below and illustrated in Figure 72.

Phase 1: circa 1850 to 1877

This first phase represents the establishment of the hospital, its demolition prior to 1878, and the site's use as a powder magazine and animal pound. It is unlikely that remnants of structures from this period survive as archaeological remains on the property.

Phase 2: 1878 to 1911

This second phase represents construction of the Ferguson Repumping Station in 1878 and its operation until 1911. Based on the schematic piping diagram and map overlays (Figure 21 and Figure 72), it is possible that archaeological remains of the south portion of this station survive beneath in the grassed area south of the Ferguson Avenue Pumping Station.

Phase 3: 1912 to 1929

This phase is represented by construction and operation of the 1912-13 Block of the Ferguson Avenue Pumping Station.

Phase 4: 1930 to 1954

This phase includes demolition of the 1878 Repumping Station and construction of the 1929-30 Extension, which also required:

- Partial demolition of the 1912-13 Block south wall and south basement wall;
- Pillar and I-beam construction to support the breach in the 1912-13 Block south wall; and,
- Replacement of the 1912-13 Block flooring in tile.

Phase 5: 1955-2011

This phase includes operation of the station but is marked by construction of the 1955 Extension. Also included in this phase are:

- New pumping equipment installed all sections;
- In fill of all windows in CMUs; and,
- Addition of the chlorine room in the 1912-13 Block.

Phase 7: 2012-present

Structural changes in the past six years include:

- Enclosing the temporary office for engineers in the 1912-13 Block;
- Demolition of the east wing of the 1929-30 Extension, lowering its southeast corner pillar, and refacing its east wall in brick;
- Construction of the New Ferguson Avenue Water Booster Pumping Station to the east;

- Landscaping around the new and existing station; and,
- Disconnection of all systems in the Ferguson Avenue Pumping Station.

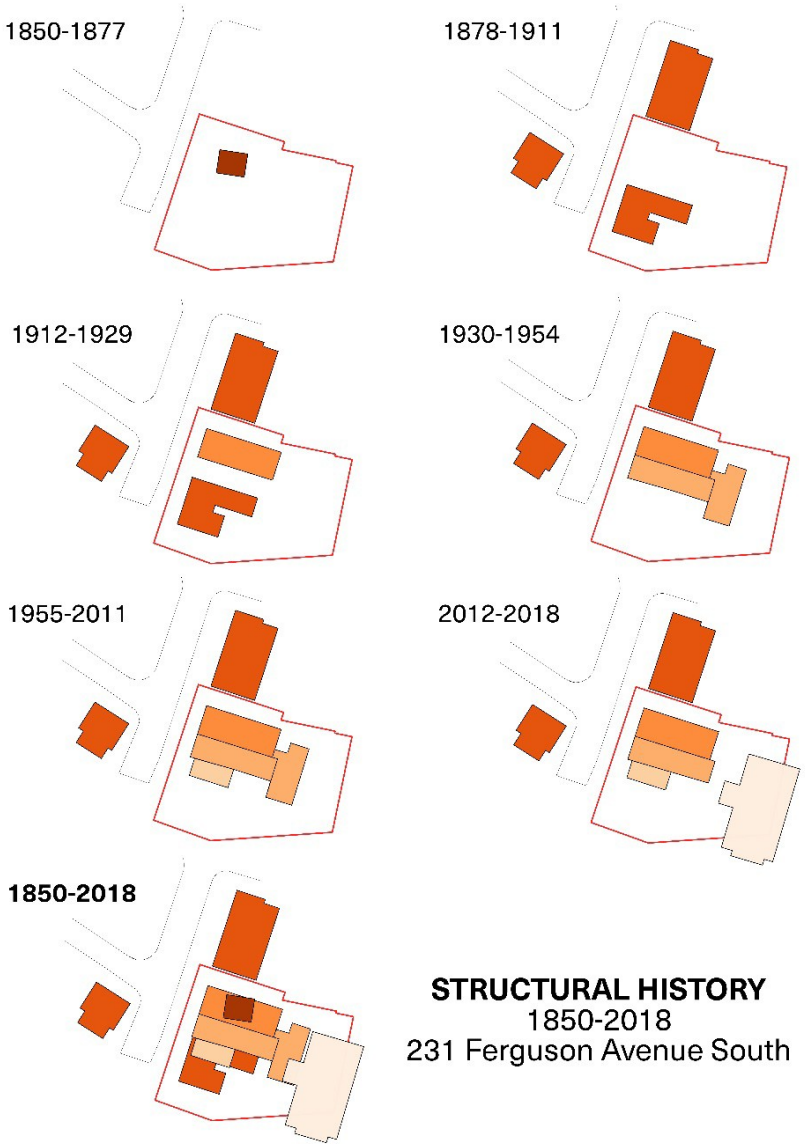

Figure 72: Structural phases at the Ferguson Avenue Pumping Station property.

6.4 Architectural Analysis

Although the architectural style of the Ferguson Avenue Pumping Station was been defined as Neoclassical (City of Hamilton 2012:6), similar structures of the same period or function in the City and elsewhere in Canada, Britain, and the US have been variously described as 'Italianate', 'Classical Revival', 'Romanesque Revival', or even more specifically as 'waterworks style', or 'American round-arched style'. Neoclassical is the least favourable of these as it is most commonly applied to the 'more refined' and archaeologically informed Classical architecture developing from the Georgian style from between 1800 and 1820 to 1860, and features closed pediments, pilasters or columns replicating a Classical Order, and balanced use of flat arched and semi-circular or segmental arch headed windows (Blumenson 1990:13).

Italianate has been used to describe the first Hamilton Pumphouse completed in 1859, and in addition to the popularity of this style being closer in date to when the Ferguson Avenue Pumping Station was built, from between 1855 and 1900 for industrial buildings (Jones 1985:139), it shares with Ferguson a temple front, strong cornice, and round arched windows and entrances (Figure 73). However, in general Italianate is more ornate than the architectural design of the Ferguson Avenue Pumping Station, and Drakich (1990:518) notes that the Hamilton Pumphouse is 'the sole surviving Italianate pumping station in Canada'. By contrast, Italianate style was so widely applied to waterworks in the UK that it has become known as 'waterworks style' (Douet 1992:13-17; Historic England 2017:10) and is cited as an influence for the American round-arched style widely applied to industrial buildings (Bradley 1999:235). Although it does not have semi-circular headed openings, the brackets, segmental arch heads, and pedimented front place the 1878 Ferguson Repumping Station in the Italianate tradition.

'Classical Revival' was used in the designating by-law to describe Macallum's other pumphouse, a building he designed in 1913 with architect W.A. Edwards in nearly identical style and materials at 900 Woodward Avenue (City of Hamilton 1986) (Figure 74). However, in this case too the style description is less than ideal for either the Ferguson or Woodward pumphouses; *Classic Revival* as it is more commonly referred to was popular between 1830 and 1860, and most often has a Greek temple front, balance of flat arch and semi-circular headed windows, and pilasters that conform to a Classical Order (Blumenson 1990:28-36). While the Ferguson Avenue Pumping Station has a temple front, it has an open pediment and its decoration does not conform to any one Order; the Woodward pumphouse lacks a temple front and its pilasters combine Tuscan and Roman Doric profiles.

The term that may best describe both the Ferguson and Woodward pumping stations is 'Romanesque Revival'. Although a neo-Romanesque *Rundbogenstil* style emerged primarily in Germany in the 1820s and brought to the US by emigrant architects in the 1840s (Curran 1988:366), the Romanesque Revival was popularized in the 1880s and 1890s by American architect H.H. Richardson, who in turn influenced Thomas Fuller, the Chief Dominion Architect for Canada's Department of Public Works between 1881 and 1896 (Ricketts *et al.* 97-98). Romanesque Revival, 'characterized by a repetitive use of round-arched windows set in smooth brick walls articulated by thin pilaster strips' (Ricketts *et al.* 2004:97-98), was selected for a number of municipal works in Ontario and elsewhere. In Kingston, the large three-bay Kingston Water Works completed in 1889 took the Romanesque to a high Victorian level of decoration including stone engaged columns, arched corbel tables, and roundels, while Brantford's Waterworks and associated Engineer's Residence built the same year was more subdued and built in buff brick and hipped roof variant of the Romanesque Revival (Figure 75 and Figure 76).

The trend toward decorative austerity, but also a return to classicism, helped define the Edwardian period in industrial architecture (Jones 1985:172). This can be seen in the Ferguson and Woodward pumping stations, as well as the 1913 Victoria Park Waterworks in Toronto which, like the Ferguson Avenue Pumping Station had a

'simplified Romanesque language of round-arch openings in walls of flat red brick, relieved by occasional brick quoins or stone sills and keystones' (Mannell 2012:56-57). While it's been suggested that the Romanesque Revival was selected for waterworks to reference 'Roman aqueducts which, historically for the Western world, evoked the first large-scape advances in waterworks' (Tumak 2009:8), the style was also widely applied for other industrial buildings in Ontario such as railway stations and axillary buildings (de Fort-Menares 1996:30). Selection of the style therefore may be more closely related to its popularity at the time and Fuller's influence, although like the Italianate the 'classically based architectural tradition creates a powerful image of permanence and stability' (Drakich 1990:519).

This 'powerful image' is somewhat muted by the scale of the Ferguson Avenue Pumping Station, but this is a defining characteristic of 'Electric Era' waterworks built from 1900 onward (MTCS 1990:6; Historic England 2017:10). Unlike earlier structures that had to house massive steam-powered beam engines, the electric-driven turbines could be housed in a relatively small building and as Macallum reported, just two could supply 'three times the steam units on the same service'. Nevertheless, when expansion was required, it appears to have followed the trend seen elsewhere, where initial expansion mimicked or was compatible with the existing components, while the later 20th century expansion may use some elements but lacked any decoration. For the Ferguson Avenue Pumping Station, McFaul decided to continue the Romanesque Revival style for the 1929-30 Extension instead of the contemporary Art Deco style he would use in 1933 for the 'prestige' Water Purification Plant at 900 Woodward Avenue. This is also seen at the Brantford Waterworks, where the Electrical Pump Wing added by 1912 continued the Romanesque Revival window openings of the original water works but had a flat roof and parapet. The Brantford complex was expanded considerably in the 1930s, but the sections added in the 1950s —like the 1955 Extension at the Ferguson Avenue Pumping Station— made little attempt to match the architectural style of the earlier portions. At the Ferguson Avenue Pumping Station this is perhaps a puzzling omission, since Roman relieving arches were included in the design of the 1958 Kenilworth Reservoir access building.[2]

Another similarity between the Ferguson Avenue Pumping Station and other Hamilton Waterworks sites such as the Woodward facility and Barton and Kenilworth Reservoirs, the Brantford Waterworks, and the Toronto Victoria Park Water Works is its long history as an 'institutional landscape' (Historic England 2017:10). The City has continually owned and administered the property for 170 years and has used it as a waterworks site for 140 years. Instead of being abandoned once its equipment became obsolete, it was continually expanded and upgraded until its recent replacement by the 2012 Pumping Station and, even then, on the same property. Although institutional landscapes are maintained in part as an attempt to reduce the expense of establishing a new site, they can —as in the example of the Kingston Pump House— found to be redundant. The Ferguson Avenue Pumping Station's periodic expansion, as well as continued use as a waterworks site, reflects the foresight in the original waterworks planning despite changes in technology and the City's development.

[2] Also puzzling at the Ferguson Avenue Pumping Station is the use of imported I-beams for both the 1912-13 Block and the 1929-30 Extension. Hamilton's steel industry was well developed by 1901 (Anderson 1987:209) so it appears unusual that the I-beams for both components should be imported from two US sources.

Figure 73: Italianate Boiler House (bottom), and Engine House (top right) of the Hamilton Waterworks (February 2017).

Figure 74: Macallum and Edward's 1913 Pumping Station at 900 Woodward Avenue, designated under By-law 86-310 (photo by Brian Kowalewicz, posted on Historical Hamilton 2009).

Figure 75: The 1889 Kingston Pumping Station, photographed in 1901 (Wevers 2013:2).

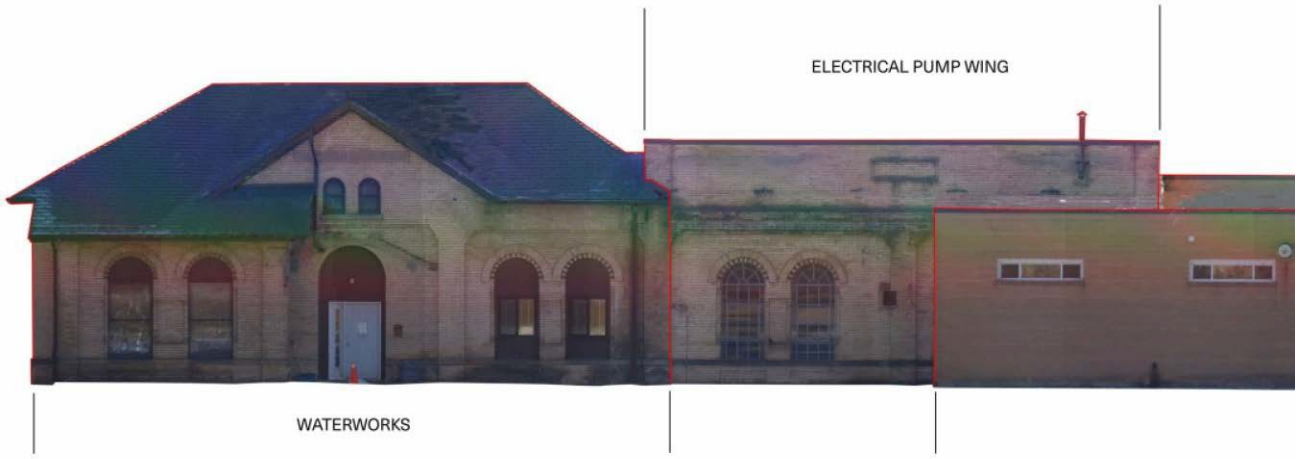

Figure 76: Photogrammetric profile of the 1889 Waterworks and circa 1910 Electrical Pump Wing of the Brantford Waterworks Complex, 2015 (Golder 2016).

7.0 CULTURAL HERITAGE EVALUATION

The following evaluation follows the City's guidance category for built heritage and cultural heritage landscapes and references the *Ontario Regulation 9/06 Criteria for Determining Cultural Heritage Value or Interest.*

7.1 Historical Associations

7.1.1 Thematic

In relation to established themes, the Ferguson Avenue Pumping Station could be linked to the 'Modern Ontario' segment of the Political theme identified in *A Topical Organization of Ontario History* (MTCS 1973), and the 'Urban Development' and 'Built Form' themes defined in the 'A Story of Us/ A Story of Place' report submitted as part of the City's Cultural Plan. Of these, however, only the 'Built Form' theme references Hamilton's water engineering and focuses on the original Hamilton Waterworks. Nevertheless, the Ferguson Avenue Pumping Station is most closely related to the theme of Urban Development since it is directly related to Hamilton's consolidation as an industrial centre in the first quarter of the 20th century and linked to Hamilton's population explosion between 1911 and 1920, by some estimates representing a 53% increase (Weaver 1982:93; Wood 1987:123). Like the original Hamilton Waterworks, the Ferguson Avenue Pumping Station and other waterworks infrastructure built before the First World War were an important response to the fire prevention and potable water needs of the City, but also a pre-condition for the development that would follow, and with expansion and upgrades could sustain it into the post-war period. Technologically, the Ferguson Avenue Pumping Station is also representative of the 'Electric Era' of waterworks development between 1880 and 1920 (MTCS 1990:6).

7.1.2 Event

The Ferguson Avenue Pumping Station is not associated with any significant events locally, provincially, or nationally. Its planning and construction was in response to a significant population increase in Hamilton from 1900 to 1913, but this in-migration to the City was not prompted by any single internal or external event (for example displacement through war).

7.1.3 Person and/or Group

The 1912-13 Block of the Ferguson Avenue Pumping Station is directly associated with Andrew F. Macallum, while the 1929-30 and 1955 Extensions built during the tenure of William L. McFaul. Macallum designed the Ferguson Avenue Pumping Station while serving as City Engineer between 1909 to 1916, and over the same period he was president of the American Society of Municipal Improvements, designed with W.A. Edwards the 1913 Woodward pumping station, and was of sufficient status to be profiled in a national 1916 'Who's Who' publication. He later served as Ottawa's Commissioner of Works.

Compared to McFaul's work elsewhere, such as the Woodward water purification plant and the Longwood Bridge, his extensions to the Ferguson Avenue Pumping Station was a minor project. Nevertheless, it is representative of McFaul's broad expertise while City Engineer for thirty-six years, a period of significant growth and change in Hamilton. It is also important to note that adding to an existing structure and site can in many ways present more engineering challenges than a new build, and a full appreciation of McFaul's work at the Ferguson Avenue Pumping Station is difficult since approximately half of the 1929-30 Extension was demolished to make way for the new station.

Although the City's *Framework* states that public buildings will seldom merit recognition under the Person and/or Group criterion, there is a strong association between the Ferguson Avenue Pumping Station and the City's Water Department, who have been responsible since the mid 19th century with ensuring a sufficient water supply and

safe drinking water to all inhabitants of the municipality. It was staff of the Water Department who not only constructed the Ferguson Avenue Pumping Station and its subsequent extensions, but who also operated and maintained it to a high degree for over a century.

7.2 Architecture & Design

7.2.1 Architectural Merit

In its scale, massing, style, materials and decoration, the 1912-13 Block and 1929-30 Extension of the Ferguson Avenue Pumping Station is representative of an early 20th century 'Electric Era' waterworks, and the application of the Romanesque Revival style to public infrastructure buildings. Its scale represents the electric pumping technology that had replaced steam power, while its style reflects a 'permanence and stability' associated with classical Roman architecture. Its decoration with stylized pilasters, single order voussoirs, limited use of additional material such as concrete and stone and sheet-metal may be due to the primacy placed on the building's function over appearance, yet it also suggests an Edwardian reaction to ostentatious Victorian decoration. There is a relatively high degree of design competence and masonry craftsmanship on the fine brick Ferguson Street facade, but this also extends to the water table of the north wall, the cogging of the north and south side walls, and the guaged brick voussoir of the surviving window of the south wall.

Also representative of historic waterworks is the extension made in 1929-30, which is typical of the widespread practice in the first half of the 20th century to expand municipal waterworks, rather than replace them. It also follows the common decision to mirror the existing architectural style than apply a new contemporary design. Instead of building an extension in the Art Deco style as McFaul used for the water purification plant built just three years later, he continued the Romanesque Revival style of the 1912-13 Block. The 1929-30 Extension was executed with a relatively high degree of craftsmanship, and addressed well the engineering challenge of breaching the 1912-13 Block by bracing the upper wall with an I-beam and large columns.

The 1955 extension represents the evolution of the waterworks and the typical approach in the post war years of favouring an entirely functional design, but to the detriment of any architectural merit.

7.2.2 Functional Merit

The functional merit of the Ferguson Avenue Pumping Station lies in its expert combination of brick, concrete, I-beam, and glass construction, which is representative of 'Electric Era' waterworks construction across Ontario. This construction could stand the vibration loads generated by the water pumping machinery and in recent years the concrete has weathered numerous flooding events. Typical of 19th century to mid 20th century waterworks, all components of the Ferguson Avenue Pumping Station have large window openings 'in response to the requirements for light and ventilation' (Historic England 2017:10), and the I-beam elements not only provide structural strength but also a means to move heavy equipment around the interior. Additionally, the cast-in-place concrete arches of the 1912-13 Block basement not only have an aesthetic appeal, they balance structural strength with access to the piping components.

7.2.3 Designer

The 1912-13 Block is perhaps the most representative of Macallum's surviving work in the City. Unlike the Woodward Pumping Station that he co-designed with architect W.A. Edwards a year later, Macallum appears to have independently designed and executed construction of the Ferguson Avenue Pumping Station, and to do so combined the functional and engineering requirements with consideration for aesthetics, an Edwardian interpretation of classical style, and effective siting.

By contrast McFaul's 1929-30 Extension to the Ferguson Avenue Pumping Station does not represent the full extent of his engineering and design expertise to the same degree as the 'prestige' Art Deco Water Purification Plant, but does illustrate his engineering and style repertoire to add a functional and architecturally compatible extension to an existing building.

7.3 Integrity

7.3.1 Locational & Built Integrity

The tabular approach used below to judge heritage integrity (Table 1) combines the advice under 'Location integrity' and 'Built integrity' in the City's *Framework for Cultural Heritage Evaluation* with Kalman's *The Evaluation of Historic Buildings* (1979), and a method for determining levels of change in conservation areas proposed in a report commissioned by Historic England in 2004 (The Conservation Studio 2004). A rating on the survival of original machinery —an important consideration for industrial site integrity— has also been added. Although the scoring for each element is inherently qualitative, when tabulated as a whole the heritage integrity of a structure can be determined more quantitatively.

Table 1: Location & Built Integrity Assessment of the Ferguson Avenue Pumping Station.

Element	Original Material / Type	Alteration	Survival (%)	Rating	Comment
Site location	231 Ferguson Avenue South	No change	100	Very Good	Original site although lot size reduced
Footprint	Rectangular	L-shaped extension added in 1929-30, rectangular addition added 1955, 1929-30 wing removed in 2012	85	Very Good	The extensions have been generally architecturally compatible with the original construction, and the 1929-30 Extension has architectural merit in its own right. A portion of this section was removed during construction of the 2012 pumping station.
Wall	Brick and poured concrete	The south wall of the 1912-13 Block was breached for the 1929-30 Extension and CMUs and brick was used to face the east wall of the 1929-30 Extension after the wing was removed in 2012.	85	Very Good	The 1929-30 Extension has architectural merit in its own right and the rating reflects the removal of its wing in 2012.

Element	Original Material / Type	Alteration	Survival (%)	Rating	Comment
Doors	Panelled wood	All doors replaced with steel security doors	0	Poor	No further comment.
Windows	Multi-pane with metal muntins	Most windows made blind with CMUs	55	Good	The rating reflects the removal of window framing and glazing, but also the survival of exterior window features and that no new window openings have been cut through in the original fabric.
Roof	Unknown covering, concrete slab coping	Asphalt	95	Very good	The manner and frequency of roof repairs is unknown but the roof maintains its original appearance and detailing
Chimneys	Unknown – only one chimney is visible on the 1929-30 Extension (see Figure 20)	Chimney removed from 1929-30 Extension, two are part of 1955 Extension design (still extant)	0	Poor	No chimneys from the 1912-13 or 1929-30 elements survive.
Water systems	None	No change	100	Very good	No potentially visually incompatible water systems have been added
Exterior decoration	Pilasters, keystones and imposts, string courses, cogging, architectural sheet-metal, date stone, transom	Decoration continued to 1929-30 Extension	95	Very Good	With the exception of the transom all exterior decoration survives unaltered.

Element	Original Material / Type	Alteration	Survival (%)	Rating	Comment
Porches, Verandahs, or additions	Figure 20 indicates the front entrance may have had a coping over the brick either side of the straight stairs leading to the west façade entrance	Removal of coping and partial demolition of brick side walls of straight stairs	55	Good	Remnants of the side walls remain.
Interior plan	Three rooms are shown on the architectural plan for the 1912-13 Block, no plan is available for the 1929-30 Extension	Temporary office added to the east portion of the 1912-13 Block, walls of the southwest room of the 1912-13 Block replaced in CMUs to create the chlorine storage room	75	Good	The temporary office is an easily reversible alteration
Interior walls	Exposed brick masonry, exposed cast-in-place concrete	No change	100	Very Good	No further comment
Interior features (e.g., stairs, doors)	Wood doors, gas lighting (assumed)	Most interior features appear to have been replaced (e.g. lighting is now by fluorescents) although the beam trolleys and tile flooring may date to 1929-30	50	Fair	The rating assumes that the number of interior features would be relatively few, and reflects that there have been no significant alterations to the exposed interior walls
Machinery	1912-13 Block: four Canada Foundry Company Limited electric-	1950 to 1960s Westinghouse/ Ingersoll Rand, Reliance Electric/ DeLaval pumping	25	Poor	The rating reflects the preservation of wide diameter piping in the basements of the 1912-13 and 1929-30 elements

Element	Original Material / Type	Alteration	Survival (%)	Rating	Comment
	driven turbine pumps; 1929-30 Extension: three electric pumps and 400-horsepower Mirrlees diesel backup generator	and electrical equipment			
Landscape features	Figure 12 indicates the lands surrounding the 1878 station (taken the same year the 1912-13 Block was constructed) to be maintained lawn	Significant change to the surrounding landscape was made for the 2012 facility.	55	Good	The rating reflects the scale of the 2012 landscaping but also that the new facility was placed behind (when viewed from Ferguson Avenue) from the Ferguson Avenue Pumping Station.
AVERAGE OF RATE OF CHANGE/HERITAGE INTEGRITY			**61**	**Good**	**Rating of Good is based on original element survival rate of between 50-75%**

7.4 Environmental Context

7.4.1 Landmark

Although the Ferguson Avenue Pumping Station may be regarded by the surrounding community as a local landmark, it is not visually conspicuous to the passing driver or pedestrian. It is sited on high ground but at the dead end of Ferguson Avenue, a distance from the main east-west throughway of Charlton Avenue, and its scale, materials, set back and surrounding mature vegetation serve to blend it into the neighbouring residences and minimize its silhouette against the backdrop of the Escarpment. Its architectural style and massing sets it apart from surrounding buildings but this does not provide a stark contrast, particularly since it is constructed in the same hues of red brick.

7.4.2 Character

Many of the same reasons that negate the Ferguson Avenue Pumping Station from being visually conspicuous landmark instead contribute to it influencing the local architectural character. It continues the two storey height, massing, moderate setback and red-brick materials of the adjacent designated row housing at 219-227 Ferguson Avenue and double semi-detached inventoried heritage properties on Foster Street, and further reinforces this sense of architectural cohesion with these earlier buildings through its semi-circular headed openings, which are also found on the ground level of 219-227 Ferguson Avenue, and the top level of 32-34 Foster Street (Figure 77).

The Ferguson Avenue Pumping Station also serves to mask views of the new pumping station, which is faced in red brick but unlike other buildings on Ferguson Avenue and Foster Street is functional and contemporary in design and with few divisions to break up the continuous wall of its facade.

Figure 77: Semi-circular headed openings matching those of the Ferguson Avenue Pumping Station (centre) can be seen on the bottom level of 219-227 Ferguson Avenue (left), and the top level of 32-34 Foster Street (right).

7.4.3 Setting

The integrity of the setting at the Ferguson Avenue Pumping Station remains at a high level, with many of its historical relationships still intact. The land use as a municipal waterworks has continued, and the visual relationships with the Escarpment and the adjacent historic architecture on Ferguson Avenue and Foster Street are retained, as is a visual and physical relationship between the Ferguson Avenue Pumping Station and the numerous maintenance covers on the roadways and sidewalks. Just as it has been since its construction, the building can be approached from the public realm, unlike the present facility where access is prohibited.

7.5 Social Value

7.5.1 Public Perception

Measuring the symbolic importance of the Ferguson Avenue Pumping Station within the community through interviews or questionnaire survey was beyond the scope of this assessment, but it can be inferred that the building has a high level of local importance from the third party request for designation, the decision to retain most of the building in the 2014 construction, and the number of visitors reaching 400 during the 2013 Doors Open event. All these suggest that the public perception of the Ferguson Avenue Pumping Station is as a valued community asset.

7.6 *Ontario Regulation 9/06* Evaluation

For the reasons stated above, 231 Ferguson Avenue South also meets criteria of *Ontario Regulation 9/06:*

1) The property has ***design or physical value*** because it:

Criteria	Evaluation
i) is a rare, unique, representative or early example of a style, type, expression, material or construction method.	Meets criterion. See Section 7.2.1.
ii) displays a high degree of craftsmanship or artistic merit.	Meets criterion. See Section 7.2.1.
iii) demonstrates a high degree of technical or scientific achievement.	Meets criterion. See Section 7.2.2.

2) The property has ***historic value or associative value*** because it:

Criteria	Evaluation
i) has direct associations with a theme, event, belief, person, activity, organization or institution that is significant to a community.	Meets criterion. See Sections 7.1.1, 7.1.3 and 7.2.3.
ii) yields or has the potential to yield information that contributes to an understanding of a community or culture.	Does not meet criterion.
iii) demonstrates or reflects the work or ideas of an architect, artist, builder, designer or theorist who is significant to a community.	Meets criterion. See Sections 7.1.3 and 7.2.3.

3) The property has ***contextual value*** because it:

Criteria	Evaluation
i) is important in defining, maintaining or supporting the character of an area.	Meets criterion. See Sections 7.4.
ii) is physically, functionally, visually or historically linked to its surroundings.	Meets criterion. See Sections 7.4
iii) is a landmark.	Does not meet criterion. See Section 7.4.1.

8.0 CULTURAL HERITAGE VALUE: CONCLUSIONS AND RECOMMENDATIONS

8.1 Recommendation

This cultural heritage evaluation has found that the property demonstrates cultural heritage value or interest through nine of the City's ten heritage evaluation criteria for built heritage and cultural heritage landscapes, and seven of nine criteria of *Ontario Regulation 9/06*.

Golder therefore recommends that:

- ***The property at 231 Ferguson Avenue South (the Ferguson Avenue Pumping Station) be designated under Part IV of the* Ontario Heritage Act.**

To articulate the cultural heritage value of the property, the following Statement of Cultural Heritage Value or Interest (CHVI) is proposed.

8.1.1 Statement of CHVI

8.1.1.1 Description of Property

The Ferguson Avenue Pumping Station at 231 Ferguson Avenue South is located on the northwest portion of a 0.8 ha lot at the southern end and east side of Ferguson Avenue South in Ward 2 in the City of Hamilton. A short distance to the south is the foot of the Niagara Escarpment, while to the west is the intersection with Foster Street. Immediately east of the Ferguson Avenue Pumping Station is a new waterworks facility known as the New Ferguson Avenue Water Booster Pumping Station.

8.1.1.2 Statement of CHVI

Initially built from 1912 to 1913 and expanded in 1929 and 1955, the Ferguson Avenue Pumping Station is of cultural heritage value as a representative example of an early 20th century waterworks modified over a century of continued use, and occupies a site selected for municipal waterworks since 1878. In its scale and combination of cast-in-place concrete, brick, glass, and structural steel I-beams it is typical of the 'Electric Era' waterworks that replaced earlier steam facilities in the latter part of the 19th century, while its Romanesque Revival architecture rendered in red brick, stone, and architectural sheet-metal represents the classical styles favoured for public works, yet one reflecting the Edwardian taste for modest decoration. This style was also applied in its compatible 1929-30 extension despite the popularity of other contemporary styles.

The Ferguson Avenue Pumping Station's historical value lies in its association with City Engineer Andrew F. Macallum, who was responsible for construction of the 1913 Pumping Station at 900 Woodward Avenue, Hamilton, and went on to serve as Commissioner of Works for the City of Ottawa. The later additions to the Ferguson Avenue Pumping Station are associated with City Engineer William Lawrence McFaul, who constructed the Art Deco style Water Purification Plant at 900 Woodward Avenue, and oversaw a number of other important infrastructure developments in the City over his long career. The Pumping Station is also associated with the City's Water Department, who built the original and subsequent sections, and maintained the building and its water supply infrastructure over the past century.

Contextually, the Ferguson Avenue Pumping Station contributes to the local character of the area through its massing, setback, and red-brick construction, as well as its semi-circular headed openings, which match those of adjacent designated and inventoried heritage structures. It is recognized as a valued community asset and keenly explored by local residents when presented with the opportunity to visit the building.

8.1.1.3 Heritage Attributes

Three-bay, two-storey height original block constructed in 1912 to 1913 with a Romanesque Revival temple front composed of:

- Cast-in-place concrete foundation with large semi-circular arches to accommodate large piping;
- Red brick load bearing walls capped by concrete slab coping;
- Pilasters terminating at a denticulated string course;
- Double-leaf central entrance with semi-circular arch head formed with two orders of brick voussoirs, a prominent keystone, and framed with pilasters;
- Window openings with semi-circular heads formed with stretcher brick voussoirs, concrete imposts and lug sills;
- Entablature and sheet-metal clad cornice;
- Open pediment with datestone;
- North and south side walls with water table and belt-course with cogging;
- Surviving bay on the west portion of the south wall with tall segmental arch head window formed with gauged brick voussoirs and with a plain stone lug sill;
- Interior engaged brick and stone columns supporting a longitudinal I-beam; and,
- Flat roof formed with transverse I-beams with 'Northern Engineering Works, Detroit, Mich. U.S.A.' plaques and chain hoists on beam trolleys, and ceiling of wood strips running longitudinally;

Two-bay, storey-and-a-half height 1929-30 extension with:

- Cast-in-place concrete foundation
- Red brick load bearing walls matching the original block

- Large semi-circular headed windows with single order of soldier brick voussoirs, small stone or concrete imposts, plain concrete lugsills, and wood mouldings and metal muntins;
- Corner pilasters;
- Entablature and sheet-metal clad cornice;
- Internal chamfered free-standing columns supporting a longitudinal I-beam;
- 20-pane fixed sash window on the south side wall; and,
- Flat roof formed with transverse I-beams with 'Herbert Morris Chain and Hoist Company Ltd' plaques and chain hoists on beam trolleys, and ceiling of wood strips running longitudinally.

Attributes that reflect the property's contextual attributes include its

- Moderate setback from the street;
- Overall height and red brick construction mirroring adjacent built heritage resources; and,
- Visual connection with the numerous maintenance covers on the adjacent streets and sidewalks.

8.2 Additional Considerations

As part of this assignment, the City also requested that Golder review the *Old Ferguson Pump Station Facility Repurposing Study* prepared by WSP (Draft Version 6, October 22, 2018) and evaluate its conclusion that 'conversion into office space' is the preferred alternative. This was suggested as a means to address local stakeholder concerns and the property's heritage values.

The WSP study does not follow a feasibility assessment approach specific to heritage properties (e.g. Rypkema 2017; Heritage Council Victoria 2010), does not consider the pump station's embodied and passive energy as a historic masonry structure and one with considerable natural lighting if the windows were reinstated (Kalman 2014:89; Canada's Historic Places 2016), nor explores potential options for parking such as purchasing and converting the vacant lot on the northwest corner of Foster Street and Ferguson Avenue. However, it does recommend an outcome in keeping with the Canada's Historic Places (2010) *Historic Places Standards and Guidelines for the Conservation of Historic Places in Canada*, and identifies the potential social and economic benefits to the local community made possible through adaptive re-use of the building.

Waterworks of similar age and scale have been successfully adapted for new uses across Canada, the United States, and Europe. These conversions include use as:

- Restaurants (e.g. Whitby's first pumphouse, Whitby Ontario, brick, constructed 1904)
- Brew houses (e.g. Albany Pump Station, Albany New York, brick, constructed 1873)
- Event venues (e.g. Youville Pumping Station, Pointe-à-Callière Montréal, brick, constructed 1915)
- Municipal offices (e.g. Long Pond Pumping Station, Falmouth Massachusetts, brick, constructed 1898)

9.0 SUMMARY STATEMENT

Following guidelines provided in the City's *A Framework for Evaluating the Cultural Heritage Value or Interest of Property for Designation under Part IV of the Ontario Heritage Act* (2016) and the *City of Hamilton Cultural Heritage Assessment Report Outline* (n.d.), this Cultural Heritage Assessment of the Ferguson Avenue Pumping Station has investigated the property's geographic and historical context, and has inventoried its landscape and built features and determined the structural sequence, construction and architectural style of built features on the property. From this information, the property's cultural heritage value based on criteria developed by the City and those prescribed under *Ontario Regulation 9/06* was evaluated, and concludes that:

- ***The Ferguson Avenue Pumping Station at 231 Ferguson Avenue South is of cultural heritage value or interest and should be considered for designation under Part IV of the* Ontario Heritage Act.**

Additionally, to guide rehabilitation of the Ferguson Avenue Pumping Station as office space as recommended in WSP's *Old Ferguson Pump Station Facility Repurposing Study* (Draft Version 6, October 22, 2018), Golder recommends that the City ***prepare a Heritage Conservation Plan (HCP) with***:

- ***Collection management strategy to guide the retention, conservation, and long-term management of machinery and other representative artefacts currently housed in the Ferguson Avenue Pumping Station;* and,**
- ***Detailed advice and as-found documentation to guide the rehabilitation effort and ensure the property's heritage attributes are protected, conserved, and enhanced into the future.***

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Youville Pumping Station, Pointe-à-Callière Montréal - https://pacmusee.qc.ca/en/space-rental/venues/youville-pumping-station/

Long Pond Pumping Station, Falmouth Massachusetts - https://www.cpfundfalmouth.org/long-pond-pumping-station-restoration/

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Signature Page

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Senior Cultural Heritage Specialist

Bradley Drouin, M.A.
Associate, Senior Archaeologist

HC/HD/ly

APPENDIX A

Land Registry

Names of Grantors	Names of Grantees	Lands	Instrument	Consideration	Date of Instrument	Date of Recognition	No.	Remarks
The Crown	Richard Springer	All 100 acres	Patent		20 June 1801			
James Durand etux	George Hamilton	Pt 19 acres	B&S		25 July 1815	14 May 1807	5186	
Richard Springer etux	James Durand	Pt 19 acres	B&S	£12	6 Sept 1806	30 July 1816	19	
Richard Springer	George Hamilton	Pt 7 ac x 2” 12 ½	B&S		30 May 1818	6 February 1819	373	
Robert Jarvis Hamilton	George Perkins Bull	Pt et all (10.1.24)	B&S	£200	22 December 1843	2 January 1844	480	
Robert Jarvis Hamilton	George Perkins Bull	Pt 8W [illegible]	B&S	£100	22 December 1843	2 January 1844	484	
George Perkins Bull	Robert Jarvis Hamilton	Pt 65 [illegible]	B&S		31 October 1845	24 February 1846	933	
Robert Jarvis Hamilton etux	The City of Hamilton	Pt 2 acres	B&S		7 July 1847	9 July 1847	94	Hamilton

APPENDIX B

Qualifications

Henry Cary, Ph.D., CAHP

Cultural Heritage Specialist/ Archaeologist

Education

Ph.D., War Studies Programme (Military History & Architecture), Royal Military College of Canada, Kingston, Ontario, 2013

M.A., Historical Archaeology, Department of Anthropology, Memorial University, St. John's, Newfoundland, 2004

Combined Honours B.A. (with distinction), Department of Sociology & Anthropology/ and Department of Archaeology & Classics, Wilfrid Laurier University, Waterloo, Ontario, 2000

Certifications

Canadian Association of Heritage Professionals (CAHP)

Ministry of Transport Ontario RAQs-approved for Archaeology/Heritage

Province of Ontario Licence to Conduct Archaeological Fieldwork, Professional Class, No. P327.

ICOMOS Canada Professional Member

ICOFORT Associate Member

Parks Canada Research Permits, 2002-2012, 2015-2016

Certificate in Project Management, Department of Continuing Studies, Dalhousie University, 2014

PROFESSIONAL SUMMARY

Dr. Henry Cary has over 15 years public and private-sector experience directing cultural heritage projects in diverse environments across southern and northern Canada. He specialises in historic architecture and cultural landscapes, including industrial and military heritage, and since joining Golder has produced heritage impact assessments and heritage conservation plans for a wide range of properties in southern Ontario, from a pre-War of 1812 stone house in Niagara, a farmstead with log house in Caledon, a late 19th century water treatment complex in Brantford, and multiple properties in heritage conservation districts and character areas in the City of Hamilton, City of Vaughan, and Town of Collingwood. He has also written heritage property designation reports for the City of Hamilton and provided policy advice to the City of Cambridge. Prior to joining Golder, Dr. Cary worked for Parks Canada, notably for the Fort Henry National Historic Site Conservation Program and served as Heritage Manager for the Town of Lunenburg UNESCO World Heritage Site. He is a member of the Canadian Association of Heritage Professionals (CAHP) and ICOMOS Canada, and Adjunct Professor in the Department of Anthropology at Saint Mary's University.

EMPLOYMENT HISTORY

Golder Associates Ltd.
Cultural Heritage Specialist / Archaeologist (2015–present)

Saint Mary's University – Halifax, Nova Scotia
Adjunct Professor, Department of Anthropology (2014–present)

Mount Allison University – Sackville, New Brunswick
Lecturer, Department of Anthropology (2016-present)

CH2M HILL – Calgary, Alberta
Archaeology Field Manager (2014–2015)

Town of Lunenburg – Lunenburg, Nova Scotia
Heritage Manager, Corporate Services (2012–2014)

Parks Canada Agency – Inuvik, Northwest Territories
Field Unit Archaeologist/Historian, Western Arctic Field Unit (2009–2012)

Ground Truth Archaeology/ Past Recovery Archaeological Services/ Cataraqui Archaeological Research Foundation – Kingston, Ontario
Archaeological survey and mapping services (part-time) (2005–2009)

Parks Canada Agency – Cornwall, Ontario
Project Archaeologist, Ontario Service Centre (2002–2009)

Parks Canada Agency – Cornwall, Ontario
Assistant Archaeologist, Ontario Service Centre (1998, 1999)

RELEVANT EXPERIENCE

Structural Walls Policy Development for the Corporation of the City of Cambridge

City of Cambridge, ON

Principal investigator, task manager, and author of a technical memorandum assessing the heritage potential of structural walls in the City of Cambridge inventory and recommending conservation measures to support the City of Cambridge Asset Management Plan. Complete this assignment required background historical and heritage policy research, imagery-based evaluation, GIS analysis and mapping, and producing a detailed report with practical and cost-effective suggestions to manage the City's historic structural walls.

Heritage Impact Assessment – Victoria Square Boulevard

City of Markham, ON

Principal investigator and task manager for a heritage impact assessment of a 2.74-km long road improvement project within residential development and a historic hamlet. Reporting included application of Ontario heritage evaluation criteria, determining the impact of the proposed development on 30 known and designated heritage properties and the cultural heritage landscape of the hamlet, and coordinating archival research, mapping, and field investigations with junior staff.

Heritage Impact Assessment – Former Brantford Public Utilities Commission Water Treatment Complex

City of Brantford, ON

Principal investigator, task manager, and author of a heritage impact assessment for the large and sophisticated Brantford water treatment complex, constructed in phases between 1889 and the late 20th century. Reporting included photogrammetric recording, determining the structural sequence, application of Ontario heritage evaluation criteria to a multi-component industrial site, and coordinating archival research and reporting with junior staff.

Heritage Impact Assessment – TransCanada Pipelines Vaughan Mainline Extension

City of Vaughan, ON

Principal investigator and task manager for a heritage impact assessment of the 12-km long pipeline project west of Kleinburg. Reporting included field investigations of 13 heritage properties, application of Ontario heritage evaluation criteria, coordinating archival research and reporting with junior staff, and securing approvals from the Ministry of Tourism, Culture and Sport.

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