Port Colborne Historical & Marine
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Heritage Sub Committee
Meeting Agenda

Date: Monday, March 18, 2024
Time: 6:00 pm
Location: Committee Room 3-City Hall
66 Charlotte Street, Port Colborne, Ontario, L3K 3C8

Pages

1. Call to Order

2. Adoption of the Agenda

3. Disclosures of Interest

4. New Business

5. Approval of Minutes

6. Staff Updates

7. Order of Business

8. Adjournment

Preliminary Research Report
5446 Sherkston Road/825 Pleasant Beach Road
Port Colborne, ON submitted by Nora A. Reid, M.A., Hist. of Art, Feb. 2024.

This property contains three separate structures:

1. Old blacksmith shop 5446 Sherkston Road facing Sherkston Road (Figs. 1 - 4)

This is a small one storey building facing Sherkston Road with two garage style doors and a peaked roof that is bell cast at front (Fig. 1). Local oral tradition has long maintained that this was once a blacksmith shop for the area[1]. This is supported by both the general appearance of the building and the historical record.

The structure has three six paned windows on the west side (Fig. 2), one six paned window on the east side and a wooden slat door on the north side with strap hinges (Figs. 3-4). The windows and door have an appearance of age. It can be assumed that the roof is much more recent as is the stucco on the walls.[2]

The entire property was purchased by 30-year-old Abner J. Lee in 1895 who owned it until 1911. Humberstone Township Assessment Rolls between 1896 and 1911 list Abner Lee as a blacksmith. Later Rolls (1907 to 1910) also include a business tax assessment. Details: please see History of Property below, p.p. 15-18.

Age: given the above, it is safe to assume that this building was likely constructed by or for Abner J. Lee as a blacksmith shop in 1895 and used for that purpose until he sold the property in 1911. It is unknown whether this is the only 19th century blacksmith shop still in existence on the Sherkston area.

Fig. 1 Old Blacksmith Shop south side 5446 Sherkston Road facing Sherkston Road

Fig. 2 Old Blacksmith Shop west side 5446 Sherkston Road

Fig. 3 Old Blacksmith Shop east side 5446 Sherkston Road

Fig. 4 Old Blacksmith Shop north Side 5446 Sherkston Road

2. Old Stables 5446 Sherkston Road/825 Pleasant Beach Road facing Pleasant Beach Road (Figs. 5-9)

Current owner Toni Pidsadnick states that this is believed to be the oldest building on the property and was originally used as a stable for horses. Currently the ground floor is used for storage and the second floor is a rental unit.[3] The second storey appears to have been added later. As the entire building is stuccoed there are no visible clues to confirm this. However this is supported both by the buildings appearance and family oral tradition.

This is a two storey L-shaped building with peaked roofs and dormers with a one story extension with shed roof on the north side. Front façade ground floor (Fig. 5) facing Pleasant Beach Road has two garage type doors flanked on either side by two four over four windows, and an entrance door at the south end. On the second story above the garage doors under the peak is a set of three double hung windows. To the right of these is a second story dormer containing a set of paired windows. A smaller second storey dormer is located at the back of the building on the east façade (Fig. 7).

The windows on the ground floor appear original - older double hung wooden windows with 4 over 4 panes on front (east) façade (Figs. 5 and 6) and 2 over 2 panes on all the other sides (Figs. 7-9) whereas all the second story double hung windows are single

paned and appear much newer, supporting the conclusion that this was originally a stable that was later expanded and upgraded for residential use.[4]

This was confirmed in a post on the “Sherkston – the Town” Facebook page by Cindy Fraser, a descendant of the Benner family who owned the property from 1925 to 2009 (Details on Benner family please see History of Property below).

Ms. Fraser posted:

> The garage /apartment was created about ? A neighbor complained to Grandpa Benner that it should be torn down. Stubborn Grandpa, added the apartment and had wonderful tenants for years.
> Jerry and Mary Sherk
> Kerkulfs?
> Ruth Benner and Carol Coopman for 30 years.

Fig. 5 Old stables facing Pleasant Beach Road west side

Fig. 6 Old stables west and south sides

Fig. 7 Old stable south and east sides

Fig. 8 Old stables east and north sides

Fig. 9 Old stables north side

3. House 5446 Sherkston Road/825 Pleasant Beach Road facing Sherkston Road (Figs. 10 –20)

This house is L-shaped and consists of two houses joined together. The oldest part of the main house faces Sherkston Road and is a rectangular two storey wing with a central front gable in the eave of the upper storey (Figs 10-12). The front gable is decorated with “fish scale” shingles.[5]

The north wing creating the tail of the “L” facing Pleasant Beach Road (Figs. 13-14) was moved onto the property sometime after the original house was constructed. The current owner states that evidence for this north section being originally a separate house can be seen in the attic, where the north wing is a full 18 inches lower than the front (south) wing.[6]

The architectural style of the original part of the house facing Sherkston Road appears to reflect the style of an “Ontario House” – a type of small one and one-half storey farmhouse with a central front gable in the eave of the upper storey. A window or windows in the central peak gave light to the upper storey. This was the most popular form of farm dwelling in Ontario from the 1840’s to the 1870’s.

“Ontario Houses” were usually limited to one and one-half storeys due to tax laws. However, as time went on many of these were enlarged, as this one was, by adding a “tail” giving it an L shaped plan.[7] It is likely that the upper part became a full second storey when the second house was moved to the property and attached to the north side.

Age:

The architectural style as well as the historical record supports an early date for the original (south) wing of the house, possibly as early as the 1870’s.

Blacksmith Abner J. Lee purchased the 1 ½ acre property for $1000.00 in 1895, a value that would indicate that there were structures, likely more than one, on the property at the time. Although the name the person he purchased from is less than legible in the records, it appears to be Samuel Zavitz, who himself purchased 1 ½ acres, part lot 2 for $700.00 from Joseph House in 1885. Once again the value indicates the presence of buildings on the property during the early 1880’s.

A sale from 20 May 1866 of 1 ½ acres of Lot 2, Concession 1 “on the north side of the Fort Erie Road” for only $155.00 suggests there was no building on the property at that

time and that the original house was probably constructed during the 1870's, after 1866 and before the 1880's. Further research would be needed to narrow this down. (Details please see History of Property below).

No further information is available at this time about the origins of the second house and when it was added as a north wing. As to the date that this occurred, the historical record does provide for some speculation. Humberstone Township Assessment Rolls show the Lee family growing from a family of four in 1897 to a family of nine in 1910 which suggests a need to expand the area of the house to accommodate a growing family. (Details please see History of Property below).

Porch, south and west sides; large front (picture windows) south side (Figs 11,12,19, 20): Circa 1900 to 1920's.

The wrap around front porch was added after both wings were in place and reflects a much later, early twentieth century style, "Edwardian Classical" Porches with short colonettes with classical capitals (in this case Ionic scrolls) set on square piers were a feature of this style. The central peak over the front door has a sunburst design . Although it has had some alterations (see Alterations below) its overall early 20th century character remains intact.

Given its architectural style, this porch was likely built sometime between 1900 and 1930 when Edwardian Classicism was in vogue.[8] This may have been done by blacksmith Abner Lee, who owned the property until 1911, Minister Noah Honsberger who purchased it in 1920 or possibly even by the Benner family who purchased it in 1925. It is possible but unlikely that the owners from 1911 to 1920, the Kennedys, would have made this type of upgrade as the Assessment Rolls for those years list them as out-of-town landlords.

The two large (picture) windows under the front porch were also likely added around the same period as panes of glass of that size were not commonly used until the turn of the twentieth century.

Alterations:

As well as the addition of the wrap around front porch and two large front "picture" windows, the following 20th century alterations were observed during the site visit February 3rd and by comparing the current photos of the house to those taken in the 1930's:

- Piers supporting half columns of the porch were originally wood and have been replaced by stone; wooden railings and spindles have been removed (compare Figs.10 through 13 to Fig. 16; 19-20)
- Original clapboard siding has been replaced with new siding
- Original two over two double hung windows have been replace with newer single pane double hung windows (compare Figs. 13-14 and Fig. 17)
- Front “picture” windows replaced. Originals had rectangular transom above (stained glass?). Current windows have sliding windows at bottom (compare Figs. 10-12 and Figs.19-20).
- It appears the front door was once located in a more central position under the porch and roof dormer gables and is now offset to one side (compare Fig 19 to Fig. 20 and Fig 12).

Fig. 10. House, 5446 Sherkston Road, south (front) façade facing Sherkston Road

Fig. 11. Front (south) façade

Fig. 12
Detail of sunburst pattern on front porch pediment over entrance door

Fig. 13. Porch and west side, house at 5446 Sherkston Road/825 Pleasant Beach Road

Fig. 14. Porch and west side, house at 5446 Sherkston Road/825 Pleasant Beach Road

Fig. 15 North side of house, 5446 Sherkston Road

Fig. 16 East side of house, 5446 Sherkston Road

Fig. 17 West side of house, 5446 Sherkston Road, photo taken circa 1930's
Figures 17 through 20 all taken by Benner family during the 1930's.

Fig. 18 Benner family outside house during 1930's

Fig. 19 Benner children outside front of house, 1930's.

Fig. 20 Front façade of house c. 1930's

History of Property

The property went through a number of owners over the last 200 years, including many family names familiar in the early history of Humberstone including Skinner, Schooley, Sherk and Zavitz. Blacksmith Abner J. Lee owned it from 1895 to 1911 and the Alvin Benner (Fraser) family purchased the property in 1925 and owned it for over 80 years between 1925 and 2009. The Benners had three daughters and one son, John. Their youngest daughter Millie married a Fraser.

Land transactions

All transactions cited are from Niagara South Registry Office Historical Records, Abstract/Parcel Registry books, Part Lot 2 Concession 1 Humberstone

The Crown Patent on this land went Aaron Skinner, 200 acres on lot 2 in 1795. It appears that it then passed to Abraham Laing (Bargain and Sale, 200 acres, reg. no. 2669). Abraham Laing sold Isaac Laing 165 acres in 1808 (B&S, May 15, 1808, reg. no. 5432). Asa Schooley inherited the property from Laing and sold the south 2 ½ acres to Salome Sherk in 1829 (B&S, April 13, 1829 reg. no. 8233). The next transaction that

appears to refer to this property is a sale by Elais Sherk and wife to Abraham Shisler in 1862 (reg. no. 10812). Online reproductions of abstract parcel registry transactions during the mid 1800s are of poor quality and bear further research to confirm.

However the following almost certainly refer to this parcel of land and can be directly traced to the current owners:

- sale in 1866 by Abraham Shisler to Henry Mckibben (sp?) of 1 ½ acres on the north side of Fort Erie Road for $ 155.00 (reg. no. 764)
- sale registered in 1871 Henry McKibben to Chloe Ramsden,1 ½ acres on north side of Fort Erie Road for $400.00 (reg. no. 495?)
- Probate of will of Chloe Ramsden in 1877 leaving 20 acres to J. Vanderburgh (reg. no. 1597)
- sale 7 Dec. 1882, John R. Vanderburgh to Joseph House, 1 ½ acres, $800.00 (B&S, reg. no. 2522)
- sale Sept. 29, 1885 by Joseph House to Samuel A. Zavitz of 1 ½ acres, part lot 2 for $700.00 (B&S, reg. no. 2959)
- sale, 6 Mar.1895, Samuel A. Zavitz to Abner J. Lee; 1 ½ acres for $1000.00 (B&S, reg. no. 4936)
- sale, 11 March 1911, Abner. J. Lee to Eliza Kennedy and Mary J. Kennedy, 1 ½ acres part lot 2 for $1800.00 (B&S, reg. no. 8522)
- sale, 20 April 1920, Eliza A. and Mary J. Kennedy, 1 ½ acres part lot 2 to Noah Honsberger (sp?) for $2300.00 (Grant, reg. no. 10464)
- sale, April 1925, Noah Honsberger, widower, to Alvin B. Benner,1 ½ acres part lot 2 for $3000.00 (Grant, reg. no. 11286)

The property remained in the Benner family until it was sold by Margaret Benner, John Fraser and Robert Fraser to Glen Pidsadnick and Toni Hemmati in 2009, who remain the current owners (Transfer, June 12, 2009, reg. no. SN247483).

Humberstone Township Assessment Rolls

Registry Office records are restricted to land transactions (sales, mortgages etc,). Assessment Rolls however were prepared yearly and the early rolls contain a wealth of information including names, occupations, no. of people resident in family, cattle, pigs, horses etc. along with assessments of land value and for some years valuation of land and buildings separately.

1897 Assessment Roll lists Abner Lee, blacksmith, age 30 as owner of 1 ½ acres, part lot 2, with four in the family. Value of property $400.00

1898 Assessment Roll – same as 1897 with exception of one birth during the year; 5 in family. 1 hog, 1 horse.

1899 and 1900 Assessment Rolls – no change

1901 Assessment Roll – only change 1 birth in year, 6 in family, 1 cow, 2 hogs, 1 horse, 3 dogs

1902 through 1904- no change

1905 Assessment Roll – This year indicates that the family had grown to 7 people and the Lees were members of the Methodist Church. The Roll divides the property value into value of property only at $50.00 and value of buildings at $350.00 for a total of $400.00 and adds a business assessment of $250.00 for a total assessment of $650.00

1907 Assessment Roll – Lee, Abner, blacksmith, 39 years old, 8 in family with last birth May 16, 1906. Property assessed at $50.00, buildings at $485.00, and business assessment of $115.00 for total of $650.00

1910 Assessment Roll – Abner Lee, 44, real property (land) assessed at $75.00, value of buildings $475.00 and business assessment at $100.00 for total of $650.00. Another birth was recorded that year on February 18th making a total of 9 people in the family.

Between 1911 and 1917 the Assessment Rolls list Liza A. and Mary J. Kennedy as owners. The value of the buildings in the 1917 Assessment jumped to $650.00, land was assessed at $150.00 for a total of $800.00. This Roll also indicates that the Kennedys were non-resident landowners, with their home address listed at Mulgraw, Ont.

1920 Assessment Roll – lists owner Noah Hunsberger as Minister (no denomination given). Value of land $150.00, buildings $650.00 for total assessment of $800.00.

References:

1 Interview, Feb. 2, 2024 with current owner Toni Pidsadnick.
2 Site visit, Feb. 3, 2024.
3 Interview, T. Pidsadnick, Feb. 2, 2024
4 Site visit, Feb. 3, 2024
5 Site visit, Feb. 3, 2024
6 T. Pidsadnick, interview Feb. 2nd and site visit Feb. 3, 2024

[7] Ondaatje, K. Old Ontario Houses, p. 530
[8] Blumenson, J. Ontario Architecture, p.p. 166 to 175.

Picture credits: Figs 1-15; Nora Reid
Figs. 16-19 from T. Pidsadnick; also posted on Sherkston "The Town" Facebook page

Recommendation:

Owners of this property over the years include many associated with early Humberstone Township settlers and there is more historical data to be found on these early families.

The oldest part of the house facing Sherkston Road dates back at least to the 1880's, likely the 1870's and while there have been a number of alterations over the years the basic characteristics of an "Ontario House" farmhouse style are still evident. Its early 20th century porch has also retained most of its original fabric and character especially in the upper portion with some alterations to the lower half. The character of the former stable building north of the house can also be discerned despite the later addition of a second storey and this building also likely was constructed during the second half of the 19th century.

Of particular interest, however, with regard to designation under the Ontario Heritage Act is the presence of the old Abner Lee Blacksmith Shop facing Sherkston Road dating to 1895 which survives in large part unchanged with original windows, door and roofline. It may be the last surviving Blacksmith Shop in Sherkston but that would need further research to confirm.

This feature alone would recommend that the Port Colborne Heritage Advisory Committee consider the entire property for potential heritage designation.

Heritage Research Report 214 Steele St. – Steele Street Public School

Lot 30, Concession 1, Humberstone Township

Formerly called Port Colborne Public School and West Side Public School

Architectural Features:

The school building at 214 Steele St., which opened in September, 1916, is a rectangular, two-and-a-half-storey red brick structure, with a raised, rusticated stone foundation. It had eight classrooms, four teachers' rooms and offices, and the basement was designed to be used as a gymnasium space. The building's symmetrical front façade (the building's east side facing Steele St.) features unique decorative brickwork in a diaper pattern running horizontally between the first and second floor window rows. The brick was manufactured in Ridgeway, Ohio.[1] There is also ornamental, yellow terracotta tiling that decorates the brickwork in geometric patterns, most notably on the corners of the building and the porch pillars. All five of the original brick chimneys remain.

The window surrounds on the front and rear of the building, and the lintels and windowsills on the sides are made of the same terracotta tiles which decorate the brickwork. Six swept dormers, also known as eyebrow windows, adorn the roof of the building, adding an element of the Arts and Crafts style. The original interior trim and windows were made of Georgia pine, and the flooring throughout the school was polished hardwood.[2] All the windows except for the dormers have been replaced, and all the first- and second-storey windows on the façade have been partially covered by metal siding, while several on the north and south sides of the building have been entirely bricked over. A small window has been added to the corner on the southern end of the façade, on the first floor.

The front façade has several Classical Revival style elements. It features a prominent central gable with a broken pediment, supported by two large, square, brick pillars. The tympanum was originally decorated with fish-scale style wooden shingles, sympathetic with the diamond pattern in the brick, while on its underside, or soffit, were dentils that ran around the entire building (See Appendices 2 and 4); both the shingles and dentils were removed after the 1979 survey photos were taken, and replaced with vinyl siding. The door surround, made of yellow terracotta tiles, echoes the Classical motif of the gable and pillars, with a pediment overhead, and decorative pilasters on either side. The tympanum features a moulded, decorative design. The original entryway, which is no longer in use, had French doors and a large transom window overhead with a starburst pattern (See Appendix 3), but these have been replaced by a modern window. In addition to the central entryway, the school also originally had separate entrances for boys and girls—one on the north side, and one on the south (See Appendix 2). The north side entrance is still in use, but only the upper floor of the southern entrance remains visible from the exterior, as the first floor is covered by an extension.

The first addition to the school was built in 1968, extending from the southwest corner of the main building, containing a gymnasium and some offices.[3] Another extension was built on the south end of the building following the 1979 heritage inventory assessment — a one-storey, rectangular structure, which, as noted above, necessitated the partial removal of the southern entrance. The third addition is a one-story, semi-hexagonal building. The new additions made to the school over the years were designed for

[1] *Port Colborne Citizen and Humberstone News*, June 24, 1915.
[2] *Port Colborne Citizen and Humberstone News*, June 24, 1915.
[3] *Early Education and Port Colborne*, p. 146.

practical reasons and in keeping with contemporary design trends, without reference to the style or character of the original building.

History:

Early Education and Port Colborne tells us that, in 1914, the school board purchased the land on the west side of Steele Street from a Mrs. Zavitz (most likely Hannah A., who resided at 228 Steele St., the house immediately north of the school) for $4500, in order to build a much larger replacement for Central School which served the west side of the village.[4] In the early years of the twentieth century, the population of the Village of Port Colborne and the surrounding area was growing quite rapidly with industrial developments bringing more employment opportunities.[5] Elm St. School in Stonebridge (Humberstone) had to be rebuilt ca. 1907 in order to accommodate a growing school population, and already required the building of two additional classrooms in 1913.[6] DeWitt Carter School, originally called East Side School, was built in 1912. Port Colborne High School, then called Port Colborne Continuation School, opened in 1921. The proliferation of these early twentieth century school buildings in Port Colborne evinces the need to accommodate a growing population, and the greater value that parents were placing on the education of their children.

Charles Martin Borter of Niagara Falls, who would go on to design St. James Church the next year, and Port Colborne Continuation School (Port Colborne High School) a few years later, was engaged by the school board as the architect for Steele Street School on May 28, 1915.[7] Borter is notable for his work locally: he designed many of Niagara's public buildings, with much of his body of work comprised of school designs.[8] In August 1915, the building contract for Steele Street School was awarded to Ryan and Gardner of Welland for $33,982.[9] Ryan and Gardner were also the contractors hired to build St. James Church, also of Borter's design, between 1916 and 1917.

The school building was designed with large windows to offer the most natural light possible, and equipped with a telephone system connecting all the classrooms and offices, hot water central heating, modern plumbing in the washrooms, and electric lighting. When Steele Street School opened on the 5th September, 1916, it was said to be "equipped in the most modern manner [and] a credit to the town."[10]

Architectural and Historical Significance:

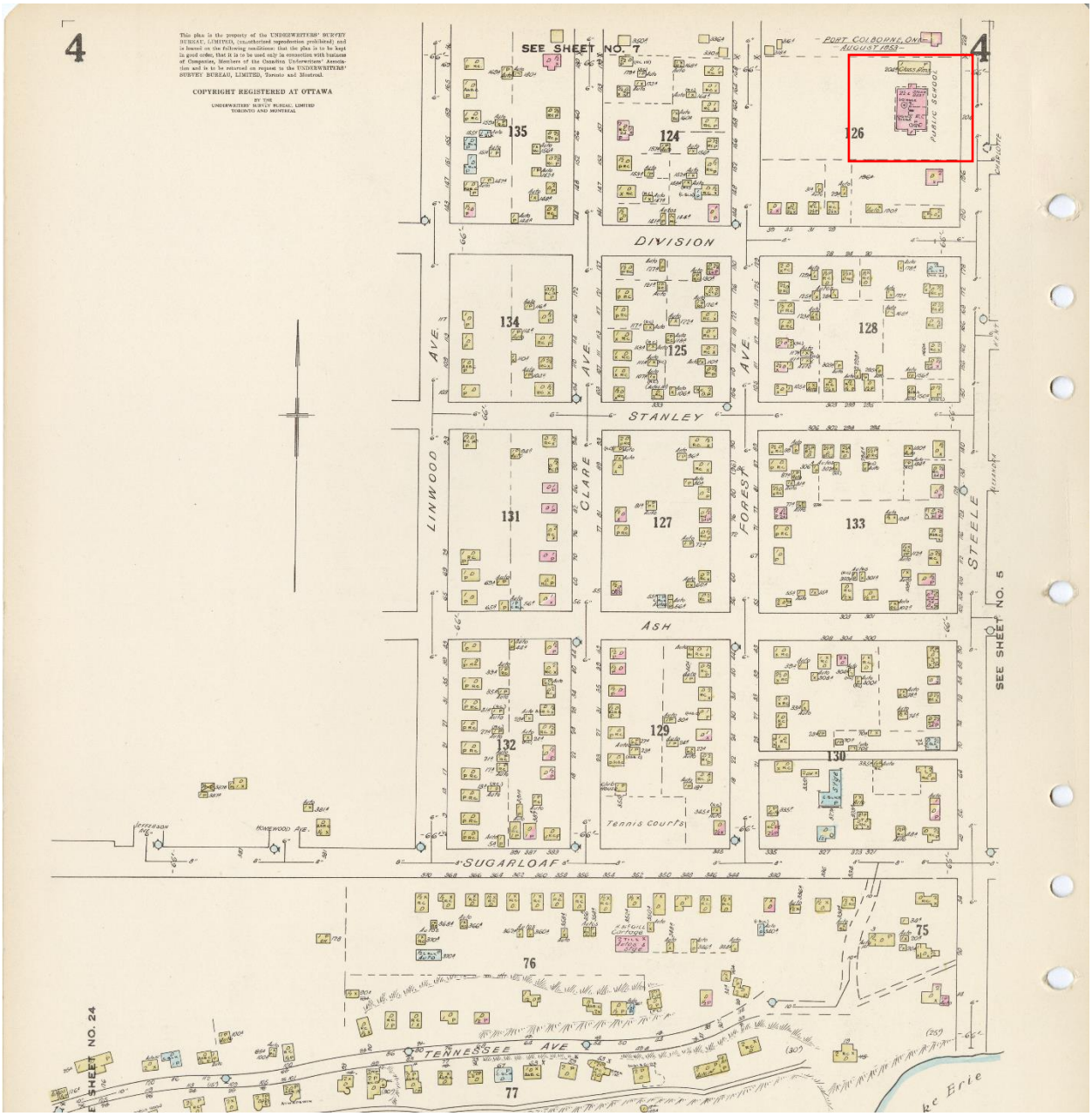
Second only to DeWitt Carter Public School, which was built in 1912, Steele Street School is the oldest school building still being used as a school in the former village of Port Colborne. Dewitt Carter School shares architectural features with Steele Street School, such as its Edwardian, symmetrical façade and decorative terracotta tilework; however, the Steele St. decoration is far more ornate, and much of the tilework on DeWitt Carter has been covered up recently with metal siding. Steele Street School exemplifies the work of C.M. Borter, who designed many of Niagara's public buildings, and made a significant contribution to the built landscape of the region. When the opening of the school was announced in the *Tribune*, it was heralded as "one of the best built, arranged, and equipped school buildings to be found in

[4] *Early Education and Port Colborne*, p. 145.
[5] *Early Education and Port Colborne*, p. 135.
[6] *Early Education and Port Colborne*, pps. 131-132.
[7] *Tribune,* June 1, 1915.
[8] Biographical Dictionary of Architects in Canada
[9] *Port Colborne Citizen and Humberstone News*, August 9, 1915.
[10] *Port Colborne Citizen and Humberstone News*, August 31, 1916.

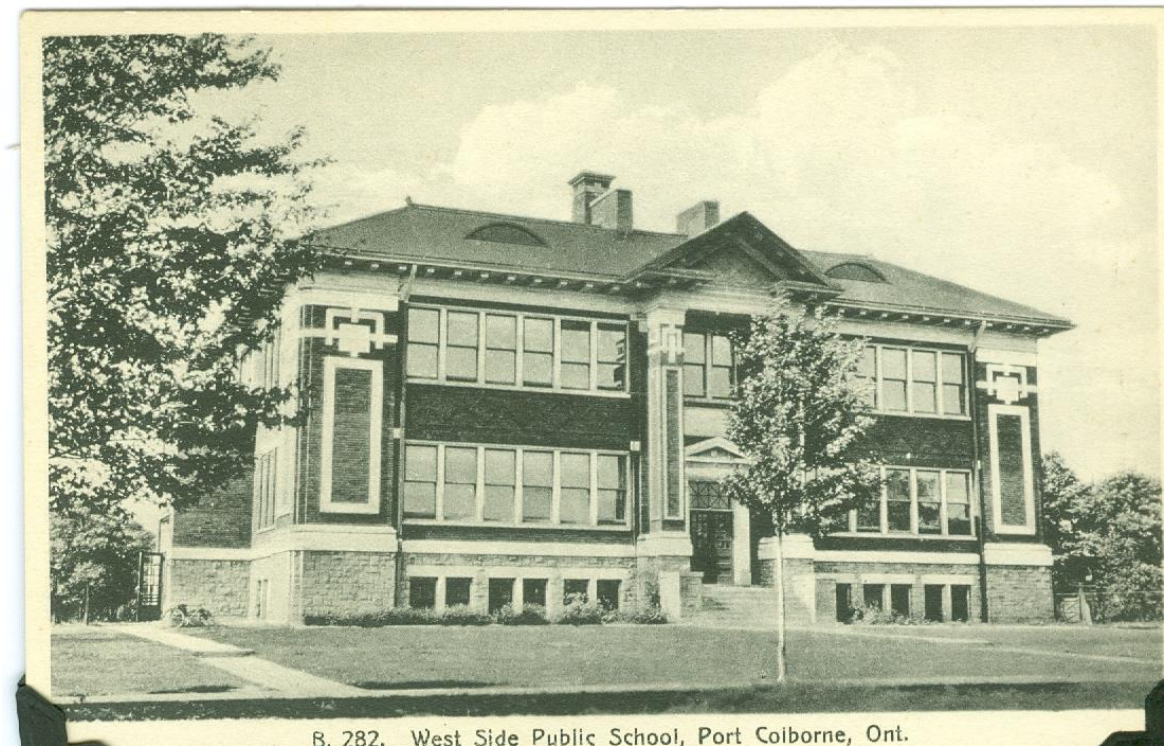
Canada."[11] Although there have been alterations made to Steele St. Public School, most of its notable architectural features—the tilework, diaper patterned brick, eyebrow windows, and monumental entryway—remain intact and visible. Steele Street School is a well-preserved example of the Edwardian Classic style typical in Ontaria public buildings, particularly urban schools, of the early twentieth century.

[11] *Tribune,* August 31, 1916.

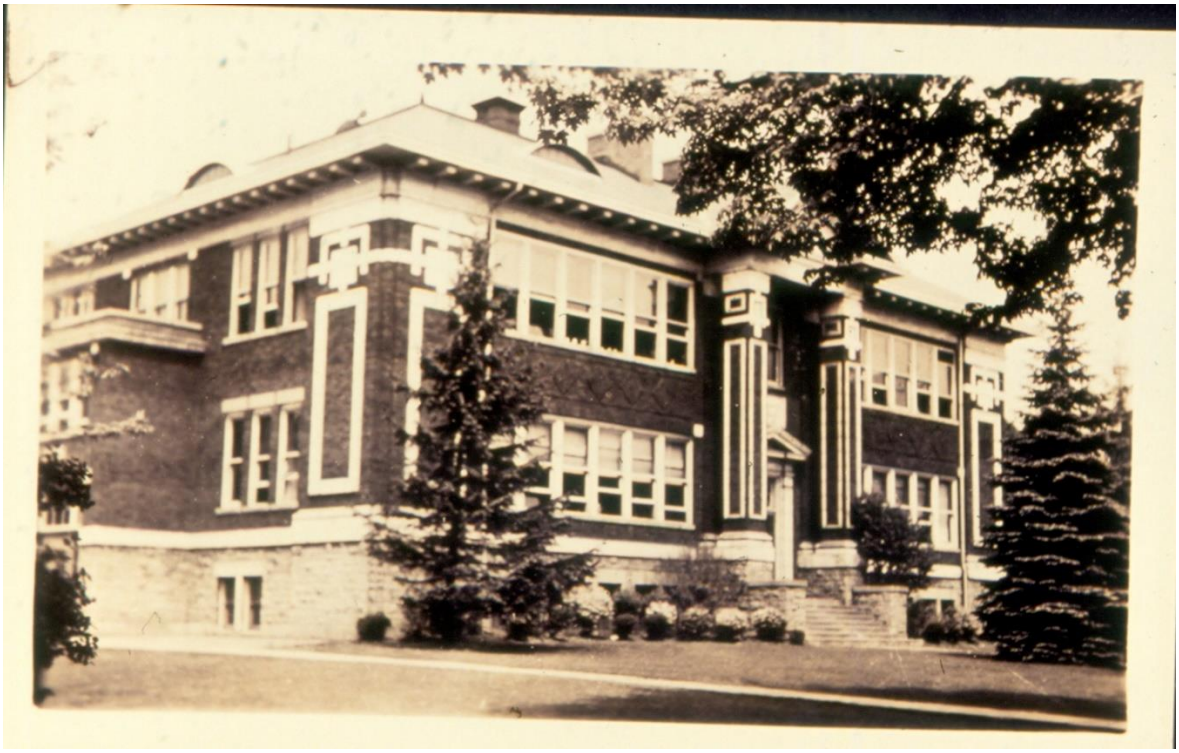
Appendix 1 1953 Fire Insurance Plan



Appendix 2 Photographs of Steele Street School, southeast view



2010.3.157.90 (c.1920)



2015.3.5.37 (c.1920)

Appendix 3

Appendix 4 1979 Heritage Inventory and Assessment Project Contact Prints

Bibliography

Biographical Dictionary of Architects in Canada: Borter, Charles Martin
http://dictionaryofarchitectsincanada.org/node/1162

Cerenzia, Ivana, et al. *Early Education and Port Colborne*, Port Colborne Historical and Marine Museum, 1977.

Heritage Research Report 5222 Second Concession Rd.

Humberstone Township Lot 4 Concession 3

NOTE: There has been extensive research done on the Sherk family, this location, and the contributions of the Sherk family to the development of the community, most notably, the work done by author Don Anger, in his book, *Casper Sherk (1750-1813) and the Story of 'Sherk's Mills': Site of the Antique Power Association* (Port Colborne Historical and Marine Museum, 2004).

Architectural Features:

The 1861 Humberstone Township Census indicates that the original portion of the home at 5222 Second Concession Rd. was built in 1854 by Andrew Sherk. The one-and-a-half-storey, five bay, red brick building has a simple, rectangular layout and symmetrical façade. It is built in the Georgian style with some Classical Revival elements, the latter of which are most apparent in the detailed wooden door-surround, which features pilasters and dentils. The simplicity of the Georgian façade was favoured by groups like the Mennonites after it had gone out of style elsewhere in Ontario.[1] The trace of a small peaked roof can be seen in the brickwork over the door, indicating a no longer extant porch or overhang. There are curved, bonded-arch voussoirs over the windows and door on the original portion of the building, but the windows and door themselves are replacements. The brick would have been handmade at this date, possibly by John C. Deterling, who opened a brickyard in the nearby second concession in approximately 1850, just a few years before Andrew Sherk built his house.

The four dormers on the roof of the main building are recent additions and were not present in the 1979 survey photographs. In the 1979 survey photographs and in the 1930s air photograph, a small, stone extension is visible on the east end of the building. This was probably not an original structure, as evinced by the semi-coursed stone, and was replaced with a much larger, one-storey, brick extension following the 1979 survey (See Appendices 2 to 4). There was a chimney on either end of the building in the 1979 survey photos, but both have since been removed.

Where the extension meets the main part of the house, the original exterior brick wall, with its voussoir-topped door openings, has been preserved, and is visible from the interior of the new extension. What appear to be the original wooden floors, ceiling beams, and possibly, a corner cupboard also remain (See Appendix 4). The two bedrooms on the upper storey also retain what appear to be the original, double-panelled wooden doors.

There is a barn with board and batten siding on the property southeast of the home that is believed to have been built in the 1860s (See Appendix 4). The low-slung roof of the barn indicates that this is a reasonable time frame for its construction.

[1] Ontario Architectural Style Guide, HPI Nomination Team, University of Waterloo, January 2009 <https://www.therealtydeal.com/wp-content/uploads/2018/06/Heritage-Resource-Centre-Achitectural-Styles-Guide.pdf>

History:

In 1797, the patent for the 200 acres comprising Lot 4 Concession 3 was issued to the Loyalist settler, Frederick House, and his wife, Margaret. They were already in possession of the property earlier than 1797, however, as the Houses are recorded as releasing the south half of the lot, amounting to 100 acres, to Casper Sherk (variant spellings include Gasper, Gasher, Caspar, and Shirk, Scherch) in 1790 – nine years before he is recorded as purchasing this land for £40 New York Currency (See Appendix 1). In 1790, or very soon after, Casper built a log cabin and began to farm this land. In 1810, along with his third son, Jacob, he built Saw and Grist Mills, taking advantage of the natural waterpower source provided by Black Creek which flowed in a northeast direction across the lot. Dams built across the creek to manage the waterflow created a large millpond which extended south into lot 4, concession 2, and the road between concessions 2 and 3 was diverted to go around the end of the pond.[2]

Upon his death in 1813, Casper left the farm and mill to Jacob, who in 1844 built a larger, plank house on the lot (Anger, p. 16). At Jacob's death in 1847, the southern 25 acres of lot 4, which included the mill, were left to his fifth son, Andrew (See Appendix 1). Jacob's seventh son, Peter, inherited the plank house and the rest of the portion of Lot 4 that had been in Jacob's possession. For several years prior to Jacob's death, Andrew and his wife, Eleanor, and their children, had been living in Casper's old log cabin, and continued to do so until Andrew built the new brick house in 1854. Andrew only had charge of the mills for a brief period, as they went out of business between 1848 and 1851, when the flow of the Black Creek diminished due to the loss of forests and wetlands.[3] Much of the machinery from the Sherk saw and grist mills apparently went to the new mill built nearby by Peter Troup in 1848, in the second concession.[4] After the Sherk mills were shut down, the dams creating the millpond were removed. In 1851, by which time the millpond had disappeared, the Humberstone township council voted to close the "old road" which had gone around the pond.[5] Andrew continued to live there and farm the property until he and his son, Andrew N. Sherk, sold the property to Isaac Haun, farmer, in 1897, within whose family it stayed until 1938 (See Appendix 1).

In 1867, Andrew subdivided a quarter acre in the southwest corner of Lot 4 and gave the trustees of School Section No. 7 a ninety-year lease of it for eight dollars (See Appendix 1). The 1861 Census for Humberstone township lists the schoolteacher as residing in the log cabin on the property along with Jacob's widow, Sarah, and her daughter and son-in-law; it is highly likely that they boarded other teachers who came and went from the school as well.[6] The original schoolhouse was a timber frame building, but this was replaced with a brick building in 1955, built with materials from both Sherk Lumber Co. Limited and Beam Building and Supply Co.

[2] See Don Anger, *Casper Sherk (1750-1813) and The Story of 'Sherk's Mills'*, 2004, pps. 7-21.
[3] Don Anger, *Casper Sherk (1750-1813) and The Story of 'Sherk's Mills'*, 2004, p.16.
[4] Don Anger, *Casper Sherk (1750-1813) and The Story of 'Sherk's Mills'*, 2004, pps. 20-21.
[5] Humberstone Township Minutes, 1850-60.
[6] Don Anger, *Casper Sherk (1750-1813) and The Story of 'Sherk's Mills'*, 2004, p. 21.

Limited (See Appendix 1). It remained in operation as a school until approximately 1965.[7] This brick building still stands, but is now a private residence.

Architectural and Historical Significance:

The home at 5222 Second Concession Road is both architecturally and historically significant in the early history of the community. It was built in 1854 by a member of one of the earliest pioneering families in Humberstone Township. Casper Sherk and his family played a highly significant role in shaping the landscape of the area; their saw and grist mills bolstered the economic development of what was then called Sherk's Crossing, providing immensely important services to the local agricultural population. Sherkston, as it later became known, continued to grow, drawing other agricultural, industrial, educational, and commercial activity, all of which contributed to creating a unique community. The Sherk family, by providing land for a school, and housing for early teachers, were also instrumental in the development of education for local families. Further adding to the property's heritage value is the presence of an unmarked family burial ground near the location of the original log cabin, containing the graves of Casper Sherk, his wife, Feronica, his son, Jacob, and other family members.[8]

The home's architectural style and character reflects the Sherk family's Mennonite heritage in its simplicity. Although additions and changes have been made to the Georgian-style farmhouse, they are largely sympathetic to the character and design of the original 170-year-old building. The home still retains much of its early appearance and features, including its Classical Revival-style ornamental door trim and handmade brickwork. The home's interior has also undergone few changes, with much of its original wood trim well-preserved.

[7] *History of Education in Port Colborne*, pps. 127-128.
[8] Don Anger, *Casper Sherk (1750-1813) and The Story of 'Sherk's Mills'*, 2004, p.10.

Appendix 1 Abstract Lot 4 Concession 3 Humberstone Township

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TOWNSHIP OF HUMBERSTONE, LOT No. 4 in 3rd Concession from Lake Erie

No. of Abstract.	No. of Volume.	No. of Instrument.	Instrument.	Its Date.	Date of Registry.	Grantor.	Grantee.	Quantity of Land.	Consideration or Amount of Mortgage.	Remarks.
1	"		Patent	Mar 16th 1797		Crown	Frederick House	all 200 acres		
2	A 7	247	Release	Mar 22nd 1790	11th Feby 1801	Frederick House and Margaret his wife	Gasher Sherk	1/2 Lot 4 100 acres the S. side of said Lot No 4		
3	A 12	489	B & S	Mar 30th 1803	Mar 22 1803	Frederick House and Margaret his wife	Alexander Douglas	N 1/2 Lot No 4 100 acres		
4	A 15	5552	B & S.	Mar 22nd 1799	Mar 4th 1819	Frederick House and Margaret his wife	Gasper Sherk	100 acres S 1/2 Lot No 4 con 3	£ 40	N. Y. currency
5	A 192	8618.	B & S.	Apl 7th 1832.	May 21st 1832.	Alexr. Douglas.	Jacob Sherk	50 acres S pt. of N 1/2 Lot No 4 con 3	£31. 5. ..	
6	A 218.	8951	Will Probate	Feby 1st 1813.	Decr 19th 1832	Casper Sherk.	He devised to Jacob Sherk his and to his heirs and assigns	The farm whereon he then lived described by Lots No 4 & 5 con 3 Humberstone.		
						Township Registry.				
7	A 21	392	Will	17 Septr. 1847.	18 Novr. 1847.	Jacob Sherk	He devised to his son Andrew Sherk and his heirs and assigns	25 acres S. end lot 4 con 3.		
8	A 21	392	Will	17 Septr. 1847.	18 Novr. 1847.	Jacob Sherk.	He devised to his son Peter Sherk			
9	6 21	10689.	Last Will	24 Jany 1857.	9 Septr 1862.	Alexander Douglas				
10.	6 31.	10830	B & S	10 Octr. 1862.	6 Novr. 1862.	Exrs. of Alexr. Douglas.	Jacob J. Bemer	50 acres S pt. of N 1/2	$300	"

(Note under entry 7:) and he ordered that his sons Andrew and Peter were to be at equal expense of supporting his wife Sarah so long as she remained his widow and to pay certain legacies in the manner therein mentioned

(Note under entry 8:) Peter Sherk and to his heirs and assigns 125 acres all of Lot 4 con 3 except the 25 acres above devised to his son Andrew and 50 acres of the North end of said lot, also 175 acres of lot No 4 Con 3 and subject as above to the support of his wife Sarah and to the legacies same as Andrew

(Note under entry 2:) The following memorandum is on the margin of the copy of the memorial [illegible]

Carried to Abstract in Duplicate Registry page 71.

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TOWNSHIP OF HUMBERSTONE, LOT No. 4 in 3rd Concession from [illegible] page 70

No. of Abstract.	No. of Volume.	No. of Instrument.	Instrument.	Its Date.	Date of Registry.	Grantor.	Grantee.	Quantity of Land.	Consideration or Amount of Mortgage.	Remarks.
11	Q. 324	2299	Lease for 90 years	8 Jany 1887	23 Jany 1888	Andrew Shenk	Trustees of School Section No. 7 Humberstone and their successors in office	1/4 of an acre at S. angle of lot for a school site	$ 8 00	
12.	R	3343	B&S.	7 Jany 1888.	9 Jany 1888.	Peter Shenk	Allen R. Shenk	125 a pt 4 Con 3	$ 500	
13	R	3344	Lease	7 Jany 1888.	9 Jany 1888.	Allen R. Shenk	Peter Shenk	same as 12. during life	$ 100 yearly	
14	R	3371	B&S.	19 Mch 1888.	10 Apl 1888.	Jacob S. Benner	Albert Benner	25 a N1/4 of N1/2	$ 200	
15	R	3372	B&S.	2 Apl 1888.	10 Apl 1888.	Jacob S. Benner	Alex Benner	25 a S1/2 of N1/2 of N1/2	$ 200	
16	O	3394	M	11 May 1888.	14 June 1888.	Albert Benner	Geo Grim	25 a N1/4 of N1/2	$ 100	
17	O	3456	Dis	9 Nov 1888.	15 Jany 1889	George Grim ex	Albert Benner	of M 3394		
18	O	3560	Lease	27 May 1889	24 July 1889	Andrew Shenk	Peter McLaren	Interalia 25 a S pt		
19	O	3626	Lease	1 June 1889	3 Sept 1889	Allen Shenk Peter Shenk	Peter McLaren	125 a Central pt		
20	O	3686	Lease	28 May 1889	4 Sept 1889	Alex Benner	Peter McLaren	20 a S pt N1/4		
21	P	3860	Assign	27 June 1890	11 July 1890	P McLaren	P.N.G.&F. Co	of 3560 3686 - 3626,	1	
22	R	4117	Lease	14 Aug 1891	3 Sept 1891	George Leier	P.N.G.&F. Co	Interalia [illegible] 14 a [illegible]	$1 00	
23	Q	4193	Lease	28 Oct 1891	7 Nov 1891	John Leier	P.N.G.&F. Co	24 a S1/2 of N1/4	$1	
24	R	4494	Lease	28 Nov 1892	2 Dec 1892	Peter Shenk Allan Shenk	Pro. N.G.&F. Co	125 a Central pt	$1	No 3626 [illegible]
25	R	4876	Lease	28 Oct 1894	15 Dec 1894	John Leier	[illegible] Co	[illegible]	$5	[illegible] 28 [illegible]
26	S	4939	B&S	15 March 1895	27 March 1895	Andrew Shenk	Andrew N. Shenk	Interalia 10 a [illegible]	$1500	
~~27~~	~~S~~	~~4940~~	~~M~~	~~16 March 1895~~	~~27 March 1895~~	~~Andrew N. Shenk~~ Andrew Shenk	~~Andrew Shenk~~ OCT 25 1929	~~Interalia 25 a [illegible]~~	~~$1500~~	Registered in full
28	S	4941	Life Lease	15 March 1895	27 March 1895	Andrew N. Shenk	Andrew Shenk	Interalia [illegible]	$1	
29	S	5373	B&S	9 Feby 1897	11 Feby 1897	Andrew N. Shenk Andrew Shenk	[illegible]	Interalia 25 a [illegible]	$250	Subject
30	S	5382	Probate of Will	30 [illegible] 18[illegible]	25 Feby 1897	Jacob S. Benner	[illegible]	[illegible]		[illegible] Alexander Benner [illegible]

[illegible] B. 122

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TOWNSHIP OF HUMBERSTONE, *Lot No.* 4 *in* 3rd *Concession* From Book A 71

No. of Abstract.	No. of Volume.	No. of Instrument.	Instrument.	Its Date.	Date of Registry.	Grantor.	Grantee.	Quantity of Land.	Consideration or Amount of Mortgage.	Remarks
31	S	5385	[illegible] Lease	25 May 1895	4 March 1897	Pro Natl Gas [illegible] Co Ltd	Andrew Sherk	Inter alia 25 acres South Part	$1	[illegible] 17 May [illegible]
32	T	5646	Lease	25 January 1898	27 January 1898	Alexander Benner	Samuel S. Carroll	25 acres [illegible]	$1	
33	T	5567	Lease	22 January 1898	27 January 1898	George Lever	Samuel S. Carroll	Inter alia 12 1/2 acres [illegible] North 50 acres [illegible] North end [illegible]	$1	
34	T	5564	[illegible]	7 June 1895	29 January 1898	Pro Natl Gas [illegible] Co of [illegible] Ltd	Alex Benner	25 acres [illegible] South Part of North 1/2	$1	of Lease 23 [illegible]
35	T	5658	Lease	18 Feby 1898	22 Feby 1898	Allan Sherk	[illegible] Gas [illegible] Co Ltd	[illegible] part of [illegible]	$1	
36	U	5935	B/S	20 Dec 1899	21 Dec 1899	Isaac Haun	Amanda Haun	Inter alia 25 acres [illegible] south end lot 4	$2000	
~~37~~	~~U~~	~~6043~~	~~[illegible]~~	~~[illegible] 1900~~	~~25 Sept 1900~~	~~[illegible] Sherk~~ OCT 25 1929 [illegible]	~~Isaac Haun~~ in behalf of [illegible]	~~[illegible] 4940~~		
38	Y	7736	Q.C.	8 May 1905	11 May 1908	Isaac Haun & Georgia Haun	Harvey E. Haun	Inter alia 25 ac. S. End lot 4	$1	Same as 5935
~~39~~	~~Y~~	~~7737~~	~~Mtg~~	~~9 May 1908~~	~~11 May 1908~~	~~Harvey E. Haun~~ OCT 25 1929 [illegible]	~~Hugh Sherk~~	~~Same~~	~~$1000.00~~ 7736	
40	Y	8400	B&S	5 Feby 1890	5 Oct 1910	Albert Benner wife	John Lever	12 ac. S 1/2 of N 1/4 of N 1/2 Lot 4	$300	
41	Y	8500	B&S	14 Feby 1911	16 Feby 1911	Allan R. Sherk wife	Furman Haun	125 ac. pt 4	$5000	
~~42~~	~~Y~~	~~8501~~	~~Mtg~~	~~14 Feby 1911~~	~~16 Feby 1911~~	~~Furman Haun wife~~ OCT 25 1929 [illegible]	~~Allan R. Sherk~~	~~125 ac. pt 4~~	~~$[illegible]~~	~~Not recorded [illegible]~~
~~43~~	~~Y~~	~~8523~~	~~Dis.~~	~~13 March 1911~~	~~16 March 1911~~	~~Allen R. Sherk~~ OCT 25 1929 [illegible]	~~Furman Haun~~	~~of Mtg No. 8501~~		
44	Y	8524	B&S	13 March 1911	16 March 1911	Furman Haun & wife	Allen R. Sherk	125 ac. pt 4	$5000	
45	Y	8553	B&S	20 Apr. 1911	27 Apr. 1911	Allen R. Sherk wife	Furman Haun	125 ac. Pt. Lot 4	$4900	Deeded to Peter [illegible] to Jacob Sherk
~~46~~	~~Y~~	~~8554~~	~~Mtg~~	~~20 Apr. 1911~~ 5/11/[illegible]	~~27 Apr. 1911~~	~~Furman Haun wife~~	~~Allen R. Sherk~~	~~same as No. 45~~	~~$3100~~	~~[illegible]~~
47		8815	O. & G. Lease	16 Apr. 1912	17 Apr. 1912	Alex Benner	B. F. Matthews	97 Acres Inter alia [illegible] of Lot 4	$1.	
48	1	9465	Probate of Will	16 Mch 1915	22 Mch 1915	Alexander Benner	Alfred Benner his son after the death of his wife Anna	Inter alia 35 ac Pt Lot 4	Subject to [illegible] of $150 [illegible] 2 daughters [illegible]	
~~49~~	~~1~~	~~9461~~	~~[illegible]~~	~~25 Mar 1915~~	~~26 Mar 1915~~	~~Hugh Sherk~~ OCT 25 1929 [illegible]	~~Harvey E. Haun~~	~~of Mtg No. 7737~~		
50	1	9469	Grant	15 Mar 1915	26 Mar 1915	Harvey E. Haun & wife	William E. Haun	Inter alia 25 ac. S. end Lot 4 as in Deed 5935	$1. & more	
~~51~~ DEC 31 1929		~~9492~~	~~Mtg~~	~~12 April 1915~~	~~13 April 1915~~	~~Anna Benner widow & Alfred Benner & wife~~	~~Albert E. [illegible]~~	~~Inter alia 25 ac. [illegible] Lot 4~~	~~$1200~~	~~[illegible]~~
52	1	10015	Agmt.	25 Feby 1916	12 Oct 1917	Alfred Benner & Annie Benner	Benjamin Sherk	Inter alia all timber Lot 4 Except	$500.	

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Appendix 2 1930s Air Photograph

Appendix 3 1979 Heritage Inventory and Assessment Project Contact Prints

Appendix 4 Current Photographs of 5222 Second Concession Road

Taken from https://youriguide.com/5222_second_concession_rd_port_colborne_on/

Appendix 5 Bibliography

Anger, Don. *Casper Sherk (1750-1813) and the Story of 'Sherk's Mills': Site of the Antique Power Association*. Port Colborne Historical and Marine Museum, 2004.

History of Education in Port Colborne,

PROJECT NO. 221-06979-00

BID DOCUMENTS AND SPECIFICATIONS

TENNESSEE AVENUE & FIRELANE 2 HERITAGE MASONRY RESTORATION

JUNE 2, 2023

VERSION: FINAL

PREPARED FOR:
CITY OF PORT COLBORNE
66 CHARLOTTE STREET
PORT COLBORNE, ON L3K 3C8

PREPARED BY:
WSP CANADA INC.
4 HUGHSON STREET SOUTH, SUITE 300
HAMILTON, ON L8N 3Z1

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These documents shall not be used by any party for any project in which WSP Canada Inc is not retained

BID DOCUMENTS

SPECIFICATIONS

DRAWINGS

S-101	GENERAL NOTES
S-102	TYPICAL DETAILS
S-201	CONC. GRADE BEAM PLAN, ELEVATION, & SECTIONS

1 GENERAL

1.1 DESCRIPTION OF THE WORK

1.1.1 A general description of the Work to be carried out is given in Section 01 11 00. The specific requirements of the required work are given in the drawings, details and technical specifications.

1.1.2 It shall be the Bidder's responsibility to ensure that all items have been included, without repetition, in the submitted bid.

1.2 COMPLETION DATES

1.2.1 The Bidder shall state the time frame required to complete the Project in working weeks. The site is available immediately.

1.3 EXAMINATION OF SITE

1.3.1 It is the responsibility of each Bidder to conduct sufficient investigation of the site of the Work and obtain all required information about local conditions. The Bidders shall make their own estimates of the facilities and difficulties to be encountered. Bidders may not claim at any time after submission of the bid that there was any misunderstanding of the terms and conditions of the Contract relating to site conditions evident or apparent during the bid period. The Owner, the Consultant and their employees will not be held responsible for the Bidders failure to obtain such information.

1.3.2 Conditions existing at time of briefing meeting will be maintained by Owner as far as practical.

1.3.3 Owner assumes no responsibility for condition of areas to be selectively demolished

1.4 OMISSIONS AND DISCREPANCIES

1.4.1 Bidders shall ensure that their copy of the documents contains all the pages listed in the Table of Contents. Should a Bidder find discrepancies in, errors, or omissions from the drawings or specifications, or be in doubt as to their meaning, the Bidder shall notify the Consultant. An addendum may then be issued to all Bidders.

1.5 INTERPRETATIONS

1.5.1 No oral interpretations made to a Bidder as to the meaning of any bid documents shall modify any bid document. Clarifications requested by Bidders shall be in writing directed to the Consultant not less than 48 hours or two Business Days, whichever is the longer period of time, before the tender closing date. Oral and Written clarifications and/or interpretations are only binding upon written addenda. Bidders may be advised verbally or electronically of all such written addenda as they are being prepared in order that they become aware of any changes as quickly as is possible. The written addenda will govern the contract.

1.6 INSTRUCTIONS AND ADDENDA

1.6.1 The Instructions to Bidders and all Addenda to the Bid Documents and Specifications which may be sent to the Bidders during the time of preparation of bids shall be considered as part of the Contract Documents.

1.6.2 Instructions, clarifications or amendments to the Bid Documents may be issued after the Closing Date by one or more post-tender addenda to those Bidders who submitted a bid before the Closing Date. A Bidder's receipt of a post-tender addendum shall not be construed or determinative of whether or not its bid is compliant. Post-tender addenda will form part of the Bidder's bid. A Bidder's failure to respond to a post-tender addendum may result in its bid being rejected.

1.6.3 The Owner or consultant may contact any one or more Bidders to request additional information, including clarification or any other information without any obligation to contact any other Bidder. Requests for additional information shall not be construed as acceptance of a bid, an award of the Contract, or the rejection of a bid.

1.7 ACCEPTANCE OR REJECTION OF BIDS

1.7.1 The Owner shall not be responsible for any liabilities, costs, expenses, loss or damage incurred, sustained or suffered by any Bidder prior or subsequent to or by reason of the acceptance or the non-acceptance by the Owner of any bid or by reason of any delay in the acceptance of a bid save as provided in the contract. The Owner reserves the right to reject any or all bids and the lowest or any bid will not necessarily be accepted.

1.8 CCDC DOCUMENT

1.8.1 The CCDC Standard Construction Document specified in Contract Conditions shall apply to this Project. The Form of Agreement, General Conditions and Definitions shall all apply.

1.9 PRICES AND METHOD OF QUOTATION

1.9.1 An Estimated Contract Price will be arrived at by summing prices quoted for the individual Items, and including selected optional Items, if provided. Prices shall include all labour, materials, costs for the co-ordination between the Items, clean-up, temporary removal and replacement of items which will affect the Work, making good finishes affected by the Work, overhead, profit and statutory charges. Breakdown of Work into sections is only for the purpose of assessing bids. In the case of an error in extending the unit prices, the unit price shall be deemed correct and used to determine the correct price.

1.10 BONDS

1.10.1 Submit with Tender an Agreement to Bond in the amount of 50% of the Estimated Contract Price plus Tax for Performance and for Labour and Materials. The Standard Agreement to Bond Form must be executed on behalf of the Surety Company by its authorized officers under the company's corporate seal. Surety bonds shall be provided by a company licensed to provide Bonds in the Place of Work.

1.10.2 Upon Award supply a Performance Bond (original document required). The Performance Bond shall remain in effect for a period of two years from the date of Substantial Performance as defined in the governing lien legislation (or, where no definition exists, the date when work is ready for use or is being used for the purpose intended).

1.10.3 Upon Award supply Labour and Materials Bond (Original document required). The Labour and Materials Bond shall remain in effect for a period of one year following the date upon which work under the contract ceases.

1.11 SUBMITTALS

1.11.1 Submit with Tender an Agreement to Bond in the amount of 50% of the Estimated Contract Price plus Tax for Performance and for Labour and Materials. The Standard Agreement to Bond Form must be executed on behalf of the Surety Company by its authorized officers under the company's corporate seal. Surety bonds shall be provided by a company licensed to provide Bonds in the Place of Work.

1.12 ELECTRONIC TENDERING

1.12.1 Bidders shall ensure that sealed, hard copies of their Bids are consistent with submitted electronic bids. Discrepancies between the documents will result in disqualification.

1.12.2 Each bidder must password protect their electronic bid so that it cannot be modified. Instructions are given on the electronic version of Section 00 41 00.

End of Section 00 21 13

Bid By: _____

Place of Business at: _____
_____
_____

Having Head Office at: _____
_____
_____

(hereinafter called the “Bidder”), herein offers to:

CITY OF PORT COLBORNE
TENNESSEE AVENUE & SUGARLOAF STREET
PORT COLBORNE, ONTARIO
L3K 2P2

hereinafter called the Owner, that:

We the undersigned, having carefully examined the site, investigated the conditions pertaining to the Work, the Information for Bidders, the Form of Agreement, the Definitions, the General Conditions, the Supplementary Conditions, the Bid Documents, the Specifications and the Drawings, including Addenda Nos.

_____ to _____ (herein collectively called the "Contract" or "Contract Documents") for:

Tennessee Avenue & Sugarloaf Street
Heritage Masonry Wall and Pillar Restoration

(herein called the "Work") will provide and pay for all materials, labour, tools, equipment and plant necessary for the execution of the Work as called for by the said Contract Documents in the manner prescribed therein and in accordance with the requirements of the Consultant (as defined in the Contract) in accordance with the following Statements.

STATEMENT A – BID AGREEMENT FOR TENNESSEE AVENUE & SUGARLOAF STREET

If this bid is accepted by the Owner:

1. The Bidder will perform the Work as specified in accordance with the terms of the Contract for the amounts given in Statement B and C, and using the subcontractors listed in Statement D.
2. The Bidder will carry out any additional or extra work (including the supply of any additional materials or equipment pertaining thereto) or will delete any Work as may be required by the Consultant in accordance with the Contract.
3. The carrying out of any Work referred to in Paragraph 1 above or the issuance by the Consultant of a Change Order relating to such Work or the acceptance by the Bidder of such Change Order shall not, except as expressly stated in such Change Order, waive or impair any of the terms of the Contract or of any Change Order previously issued by the Consultant or any of the rights of the Owner or the Consultant under the Contract.

By submitting this bid, the Bidder agrees that:

i) This bid is made without any connection, comparison of figures or arrangements with, or knowledge of, any other corporation, firm or person making a bid for the same Work except for prices submitted for subcontracts, and is in all respects fair and without collusion or fraud.

ii) This bid will be left open for acceptance for a period of 60 days from the date of closing.

iii) The drawings and specifications have been examined and there are no materials or methods indicated to which the Bidder objects or for which the Bidder would be unwilling or unable to accept responsibility. The Bidder agrees that after signing the Contract, full responsibility for the performance of the Work will rest with the Bidder and the Owner is in no way to be held liable.

Bidder: _____

STATEMENT B – BID FOR TENNESSEE AVENUE & SUGARLOAF STREET

Notes:

Unit Price Quantities : Accurate quantities for portions of the Contract cannot be pre-determined; they will be established as part of the Work. The estimated quantities below are approximate and serve to establish the Estimated Contract Price.

Taxes and Overhead : The prices are for the completed work, including all overhead, profit and other Contractor related expenses. All pricing is to ***exclude Value Added Taxes.***

All Other Items : Costs for items that are not specifically itemized and described below, but are required to complete the work in accordance with the Drawings and/or Specifications, and whose quantities can be pre-determined, are to be included under "All Other Items".

1. BASE BID

NO.	ITEM DESCRIPTION	ESTIMATED QUANTITY	UNIT PRICE	PRICE FOR ITEM
A	**General**			
A1	Mobilization and Demobilization	1 Lump Sum		$ -
B	**Heritage Masonry Wall Reconstruction**			
B1	Dissassemble and reconstruct east wall on new concrete foundation	1 Lump Sum		$ -
B2	Locally reconstruct sections of east curved wall to match existing	1 Lump Sum		$ -
B3	Locally reconstruct sections of west curved wall to match existing	1 Lump Sum		$ -
C	**Localized Masonry Repairs**			
C1	Repoint deteiortated mortar joints on the east and west curved walls	12 m^2	/m^2	$ -
C2	Locally replace deteriorated heritage masonry stones to match existing.	3 m^2	/m^2	$ -
D	**Cash and Contingency Allowances**			
D1	Cash Allowance for Testing	1 Allowance		$ 2,500.00
D2	Contingency Allowance for Miscellaneous Repairs	1 Allowance		$ 5,000.00
D3	Contingency Allowance for Electrical Repairs	1 Allowance		$ 3,000.00
G	**Bonding** (Optional - May be Deleted)	1 Lump Sum		$ -
H	**All Other Items**	1 Lump Sum		$ -
	ESTIMATED TOTAL BASE BID (Excluding Tax)			$ -
	ESTIMATED START DATE: _____ **(month/day/year)**			
	CONTRACT DURATION: _____ **(weeks)**			
	FULL TIME SITE WORK FORCE TO BE PROVIDED: _____ **persons**			

Bidder: _____

2. OPTIONAL ITEMS

Optional items shall be priced as stand-alone items, including allowances for increases in bonding, access, mobilization and demobilization, supervision and permits. Optional items may be included in the base contract or may be included after award, by Change Order, if required.

NO.	OPTIONAL ITEM DESCRIPTION	ESTIMATED QUANTITY	UNIT PRICE	PRICE FOR ITEM	CONTRACT SCHEDULE EXTENSION
X1	Prepare surfaces and repaint decorative wrought iron gates	1 Lump Sum		$ -	weeks

Bidder: _____

STATEMENT C – CHANGES IN WORK
FOR TENNESSEE AVENUE & SUGARLOAF STREET

The following hourly rates (which are to include overhead and profit) will be applicable for this contract:

NO.	DESCRIPTION	LABOUR/MATERIAL RATE	
1.	Site Supervisor	$	/hr
2.	Journeyman	$	/hr
3.	Labourer	$	/hr
4.	Welder	$	/hr
5.	Project Manager	$	/hr
6.	Other:	$	/hr

Bidder: _____

STATEMENT D
LIST OF PROPOSED SUBCONTRACTORS, MANUFACTURERS AND PRODUCTS FOR TENNESSEE AVENUE & SUGARLOAF STREET

The name of each proposed subcontractor or manufacturers must be given in the following list. If the Bidder proposes to sublet a part of the work, which is not listed below, the subtrade and the proposed subcontractor's name shall be added to the list. Failure by a Bidder to comply with the foregoing requirements may result in the bid being rejected as an informal bid.

Failure to supply name of proposed subcontractor and product at the time of the bid shall indicate that work will be performed by the bidding contractor's own forces. Subcontractors not proposed at the time of bid shall not be permitted to perform work in this contract without the Owner's/Consultant's approval.

SUBTRADE	PROPOSED SUBCONTRACTOR OR MANUFACTURER	PROPOSED SPECIFIED PRODUCT
Heritage Masonry Work		
Concrete Foundation		
Painting Metal		
Lighting/Electrical		
Others:		

Bidder: _____

Dated at _____ this _____ day of _____, 2023.

_____
NAME OF COMPANY

_____ _____
SIGNATURE OF WITNESS SIGNATURE OF BIDDER

_____ _____
NAME TITLE

(APPLY SEAL HERE)

Notes:

1. If the bid is submitted by or on behalf of a Corporation, it must be signed In the name of such Corporation by the duly authorized officers and the seal of the Corporation must be affixed. If the bid is submitted by or on behalf of an individual or a partnership, the signature of the individual or partnership must be witnessed.

2. Attach Agreement to Bond.

END OF SECTION 00 41 00

Bid By: _____

Place of Business at: _____
_____
_____

Having Head Office at: _____
_____
_____

(hereinafter called the "Bidder"), herein offers to:

CITY OF PORT COLBORNE
FIRELANE 2 & PINECREST ROAD
PORT COLBORNE, ONTARIO
L3K 5V3

hereinafter called the Owner, that:

We the undersigned, having carefully examined the site, investigated the conditions pertaining to the Work, the Information for Bidders, the Form of Agreement, the Definitions, the General Conditions, the Supplementary Conditions, the Bid Documents, the Specifications and the Drawings, including Addenda Nos.

_____ to _____ (herein collectively called the "Contract" or "Contract Documents") for:

Firelane 2 & Pinecrest Road

Heritage Masonry Wall and Pillar Restoration

(herein called the "Work") will provide and pay for all materials, labour, tools, equipment and plant necessary for the execution of the Work as called for by the said Contract Documents in the manner prescribed therein and in accordance with the requirements of the Consultant (as defined in the Contract) in accordance with the following Statements.

STATEMENT A – BID AGREEMENT FOR FIRELANE 2 & PINECREST ROAD

If this bid is accepted by the Owner:

1. The Bidder will perform the Work as specified in accordance with the terms of the Contract for the amounts given in Statement B and C, and using the subcontractors listed in Statement D.
2. The Bidder will carry out any additional or extra work (including the supply of any additional materials or equipment pertaining thereto) or will delete any Work as may be required by the Consultant in accordance with the Contract.
3. The carrying out of any Work referred to in Paragraph 1 above or the issuance by the Consultant of a Change Order relating to such Work or the acceptance by the Bidder of such Change Order shall not, except as expressly stated in such Change Order, waive or impair any of the terms of the Contract or of any Change Order previously issued by the Consultant or any of the rights of the Owner or the Consultant under the Contract.

By submitting this bid, the Bidder agrees that:

i) This bid is made without any connection, comparison of figures or arrangements with, or knowledge of, any other corporation, firm or person making a bid for the same Work except for prices submitted for subcontracts, and is in all respects fair and without collusion or fraud.

ii) This bid will be left open for acceptance for a period of 60 days from the date of closing.

iii) The drawings and specifications have been examined and there are no materials or methods indicated to which the Bidder objects or for which the Bidder would be unwilling or unable to accept responsibility. The Bidder agrees that after signing the Contract, full responsibility for the performance of the Work will rest with the Bidder and the Owner is in no way to be held liable.

Bidder: _____

STATEMENT B – BID FOR FIRELANE 2 & PINECREST ROAD

Notes:

Unit Price Quantities : Accurate quantities for portions of the Contract cannot be pre-determined; they will be established as part of the Work. The estimated quantities below are approximate and serve to establish the Estimated Contract Price.

Taxes and Overhead : The prices are for the completed work, including all overhead, profit and other Contractor related expenses. All pricing is to ***exclude Value Added Taxes.***

All Other Items : Costs for items that are not specifically itemized and described below, but are required to complete the work in accordance with the Drawings and/or Specifications, and whose quantities can be pre-determined, are to be included under "All Other Items".

NO.	ITEM DESCRIPTION	ESTIMATED QUANTITY	UNIT PRICE	PRICE FOR ITEM
A	**General**			
A1	Mobilization and Demobilization	1 Lump Sum		$ -
B	**Heritage Masonry Pillar Reconstruction**			
B1	Dissassemble, relocate, and reconstruct south pillar on new concrete foundation to maintain a minimum drive lane width of 6 meters	1 Lump Sum		$ -
B2	Dissassemble and reconstruct north pillar to match existing	1 Lump Sum		$ -
C	**Localized Masonry Repairs**			
C1	Locally replace deteriorated heritage masonry stones to match existing.	3 m^2	/m^2	$ -
D	**Cash and Contingency Allowances**			
D1	Cash Allowance for Testing	1 Allowance		$ 2,000.00
D2	Contingency Allowance for Miscellaneous Repairs	1 Allowance		$ 5,000.00
G	**Bonding** (Optional - May be Deleted)	1 Lump Sum		$ -
H	**All Other Items**	1 Lump Sum		$ -
	ESTIMATED TOTAL BASE BID (Excluding Tax)			$ -
	ESTIMATED START DATE: _____ **(month/day/year)**			
	CONTRACT DURATION: _____ **(weeks)**			
	FULL TIME SITE WORK FORCE TO BE PROVIDED: _____ **persons**			

Bidder: _____

STATEMENT C – CHANGES IN WORK FOR FIRELANE 2 & PINECREST ROAD

The following hourly rates (which are to include overhead and profit) will be applicable for this contract:

NO.	DESCRIPTION	LABOUR/MATERIAL RATE
1.	Site Supervisor	$ /hr
2.	Journeyman	$ /hr
3.	Labourer	$ /hr
4.	Welder	$ /hr
5.	Project Manager	$ /hr
6.	Other:	$ /hr

Bidder: _____

STATEMENT D
LIST OF PROPOSED SUBCONTRACTORS, MANUFACTURERS AND PRODUCTS FOR FIRELANE 2 & PINECREST ROAD

The name of each proposed subcontractor or manufacturers must be given in the following list. If the Bidder proposes to sublet a part of the work, which is not listed below, the subtrade and the proposed subcontractor's name shall be added to the list. Failure by a Bidder to comply with the foregoing requirements may result in the bid being rejected as an informal bid.

Failure to supply name of proposed subcontractor and product at the time of the bid shall indicate that work will be performed by the bidding contractor's own forces. Subcontractors not proposed at the time of bid shall not be permitted to perform work in this contract without the Owner's/Consultant's approval.

SUBTRADE	PROPOSED SUBCONTRACTOR OR MANUFACTURER	PROPOSED SPECIFIED PRODUCT
Heritage Masonry Work		
Concrete Foundation		
Others:		

Bidder: _____

Dated at _____ this _____ day of _____, 2023.

_____
NAME OF COMPANY

_____ _____
SIGNATURE OF WITNESS SIGNATURE OF BIDDER

_____ _____
NAME TITLE

(APPLY SEAL HERE)

Notes:

1. If the bid is submitted by or on behalf of a Corporation, it must be signed In the name of such Corporation by the duly authorized officers and the seal of the Corporation must be affixed. If the bid is submitted by or on behalf of an individual or a partnership, the signature of the individual or partnership must be witnessed.

2. Attach Agreement to Bond.

END OF SECTION 00 41 00

Bidder: _____

1 GENERAL

1.1 GENERAL CONDITIONS

1.1.1 The Contract shall be governed by the General Conditions, CCDC Standard Construction Document No. 2 – Stipulated Price Contract (Current Version), except as such conditions are amended by the following:

1. **Client Supplementary Conditions**
2. Section 00 73 02 – Supplementary Conditions

1.1.2 **If there is direct conflict between the intent of any of these sections, priority will be given to each section in the order shown above. In the case of any numbering conflicts, the Contract shall be interpreted to include the intent of each clause.**

2 SUPPLEMENTARY CONDITIONS

2.1 SUPPLEMENTS TO GENERAL CONDITIONS

2.1.1 All articles contained within these Conditions of the Contract shall be read in conjunction with, and apply to, the General Conditions of the Construction Contract.

2.2 ARTICLE A-3 CONTRACT DOCUMENTS

2.2.1 The Conditions of the Contract shall be a part of the Contract Documents.

2.3 ARTICLE A-4 CONTRACT PRICE

2.3.1 Add new 4.4: “The Contract Price is the sum of the products of each Unit Price stated in the Schedule of Prices multiplied by the appropriate actual quantity of each Unit Price item that is incorporated in or made necessary by the Work, plus lump sums and allowance, if any, stated in the Schedule of Prices”

2.4 DEFINITIONS

2.4.1 In Contract Time, at the end of the definition add: "All time limits stated in the Contract documents are of the essence of the Contract."

2.4.2 Add the following new definition “Construction Schedule: The Construction Schedule means a schedule of the Work prepared by the Contractor indicating the Work to be completed within the period specified in the Contract Documents, including such other critical dates as set out in the Contract Documents, in sufficient detail to indicate the intended start and completion dates of the major elements of the Work.”

2.4.3 Add the following new definition “Schedule of Prices: The Schedule of Prices is the Bid Form appended to the Contract Documents and subject to adjustments as provided in the Contract Documents, identifies:

1. The items of work;
2. The units of measure, estimated quantity, and Unit Price for each Unit Price item;

3. The price of each lump sum item; and
4. Allowances, if any"

2.4.4 Add the following new definition "Unit Price: A Unit Price is the amount payable for a single Unit Price item as stated in the Schedule of Prices"

2.4.5 Add the following new definition "Addenda: Addenda (addendum, singular) is a document used to supplement the original Contract Documents, which can be issued during or after the tender process. Addenda shall form part of the Contract.

2.4.6 When used in the context of a Product, read the word "provide" to mean "supply and install to result in a complete installation ready for its intended use".

2.5 GC 1.1 CONTRACT DOCUMENTS

2.5.1 Insert " Addenda" between the "the General Conditions" and "Division 1 of the Specifications" under 1.1.5.

2.5.2 Add 1.1.12: "The Contract Documents are to be interpreted as a whole, although they are arranged in divisions for convenience and clarity. The Contractor is responsible for all the Work, regardless of the division of the Work in the Contract Documents, and such division does not impose any obligation on the Consultant, Project Manager, or upon the Owner as arbiter to establish limits, or responsibility between the Contract and the Sub-Contractors"

2.6 GC 2.3 REVIEW AND INSPECTION OF THE WORK

2.6.1 In 2.3.2, insert "measurement for payment" after "If the work is designated for…" and insert "measurements" after "…reasonable notification of when the work will be ready for…"

2.6.2 In 2.3.4, insert "measurement for payment" after …work that has been designated for…" and insert "measurements" after "…the Contractor shall, if so directed, uncover such work, have the…"

2.6.3 Add new 2.3.8: "The Owner will deduct from monies owing to the Contractor, the cost for added inspection costs incurred by the Owner as determined by the Consultant due to improper or poor workmanship of the Contractor or failure by the Contractor to follow instructions of the Consultant."

2.6.4 Add new 2.3.9: "For Unit Price Items involving repair, measurements and pay quantities shall be determined and agreed to after removal/preparation is complete, but prior to placement of repair materials"

2.7 GC 3.4 CONSTRUCTION SCHEDULE

2.7.1 In 3.4.1.1, replace: "prior to the first application for payment" with "a minimum 10 Working Days before Work commences."

2.7.2 Add new 3.4.2: "The Owner may, at any time, give written direction to the Contractor for the Contractor to accelerate the Work in which event the Contractor shall use its reasonable best efforts which may include hiring additional labour and equipment or working additional hours or shifts to proceed with Work more quickly. If at the time of such direction by the Owner, the Contractor is not behind the Construction Schedule, or is not behind due to a cause within the Contractor's control, then the cost of such acceleration shall be for the account of the Owner."

2.8 GC 3.5 SUPERVISION

2.8.1 Add new 3.5.3: Project management and supervision shall be deemed not satisfactory and changes or additions to superintendence may be demanded when:

1. control, general safety, organization and coordination of the Work is not satisfactory; or,
2. the quality of the Work does not meet the requirements of the Contract Documents; or,
3. the directions given by the Consultant in accordance with the Contract Documents are not followed.

2.9 GC 3.6 SUBCONTRACTORS AND SUPPLIERS

2.9.1 Delete 3.6.2 in its entirety and replace with the following: “Subject to paragraph 3.6.3, the Contractor agrees to employ only those Subcontractors proposed in writing, including the Contractor’s own forces, if any, and accepted by the Owner with the acceptance of the tender or on entering into this Contract. The Contractor shall not change any Subcontractor without cause and without the written consent of the Owner, which consent will not be unreasonably withheld.”

2.10 GC 3.7 LABOR AND PRODUCTS

2.10.1 Add new 3.7.4: “Only specified materials or articles, or substitutes accepted in writing, will be permitted in the Work. Unspecified materials or rejected alternatives if built into the Work without prior approval shall be replaced with the specified or accepted material at the sole cost of the Contractor including any resulting costs..”

2.11 GC 3.8 SHOP DRAWINGS

2.11.1 Add new 3.8.8: “Unless otherwise agreed to, the schedule for the Consultant to review and return Shop Drawings shall not be less than 10 Working Days.”

2.12 GC 4.2 CONTINGENCY ALLOWANCE

2.12.1 Delete 4.2.3 in its entirety and replace with the following: “Expenditures made under the contingency allowance shall be authorized by the Consultant. Work shall be valued in accordance with GC 6.2.1 Change Order or GC 6.3 Change Directive, and shall not exceed the contingency allowance”.

2.13 GC 5.2 APPLICATIONS FOR PROGRESS PAYMENT

2.13.1 Replace 5.2.2 with the following: “On or before the 20th day of each month, the Contractor shall submit to the Owner in the care of the Consultant, in a form required by the Owner, a written application for payment showing the proportionate value of the work performed and products incorporated into the Work to date.”

2.13.2 In 5.2.3, change: "Work Performed and Products delivered to the Place of the Work" to “Work Performed and Products incorporated into the Work"

2.13.3 Add the following to 5.2.3 “As of the last day of the payment period, the amount claimed shall be:

1. The value of Unit Price work performed, being the sum of the products of each Unit Price stated in the Schedule of Prices multiplied by the appropriate actual quantity of each Unit Price Item that is incorporated in or made necessary by the Work; plus
2. The value of lump sum work performed, proportionate to the amount of the lump sum items, plus
3. The value of Products delivered and incorporated into the place of Work.

2.13.4 In 5.2.4, delete the words “at least 15 calendar days before the first application for payment” and replace with the words “within 10 Working Days of receiving a Notice of Award from the Owner”.

2.13.5 Add the following sentence to 5.2.6 “Include accurate quantity measurements and other evidence as requested by the Consultant for each Unit Price item”

2.13.6 Delete 5.2.8 in its entirety and replace with the following: "The Contractor shall submit, with each application for payment after the first, including application for release of holdback:

1. a statutory declaration by the Contractor on a copyright sealed form CCDC Document 9A-2018, to the effect that all payments for wages and salaries, all payments due to sub-contractors, all payments for materials furnished, and all other accounts have been paid in full as required by the contract up to and including the latest progress payment received;
2. an updated schedule, and;
3. BC: Worksafe BC Clearance Certificate
4. AB, SK, and MB: Workers’ Compensation Board Clearance Certificate
5. ON: Workplace Safety and Insurance Board Clearance Certificate
6. QC: CSST Certificate (Confirmation d’inscription à la commission de la santé et de la sécurité du travail)

2.13.7 Add new 5.2.9: “Before final inspection is completed and before applying for release of holdback, the Contractor shall submit to the Owner/Consultant:

1. all specified written guarantees, bonds, records, certificates and maintenance and operation manuals (including instructions to the Owner's staff in the operation of any plant or equipment);
2. the name, address, telephone number, and contact person of the general contractor, sub-contractors, material manufacturers and material suppliers.

2.14 GC 5.3 PAYMENT

2.14.1 Add new 5.3.2 “No certificate for payment will be issued until the Contractor has executed the Contract Documents, provided the Construction Schedule called for in GC 3.4 and the schedule of values called for in GC 5.2.4, evidence of insurance as called for in GC 11.1. It is a condition precedent to any such payment that the Owner, at its sole and absolute discretion, may retain out of such payment the amount of any outstanding liens or claims or any other indebtedness, including claims for Products provided, which may have been incurred by the Contractor in performing the Work and for which the Owner may in any way be held responsible.”

2.15 GC 5.4 SUBSTANTIAL PERFORMANCE OF THE WORK AND PAYMENT OF HOLDBACK

2.15.1 Add new 5.4.7: The Contractor shall submit the following documents with their request for Substantial Performance to be reviewed by the Consultant. These requirements do not limit the Contractor's Substantial Performance obligations noted elsewhere in the Contract. A deficiency holdback will be retained for the estimated value of the following items until they are submitted by the Contractor, and reviewed and accepted by the Consultant:

1. the list of all deficient and incomplete items of work including the estimated value of each item;
2. all maintenance manuals, operating instructions, maintenance and operating tools, replacement parts or materials and warranties as specified in the Contract Documents;
3. a complete set of marked up construction drawings and other data in the form specified in the Contract Documents, or as required by the Consultant, for the production of as built drawings to show all significant Changes to the Work made during construction;
4. current certification by the Workers' Compensation Board that the Contractor and all Subcontractors are in good standing;
5. a statement that all claims and demands for extra work or otherwise, under or in connection with the Contract, have been presented to the Consultant and that the Contractor expressly releases the Owner from all claims and demands except those made in writing prior to that date and still unsettled

2.15.2 Add 5.4.8: "No later than 30 Working Days following issuance of the certificate of Substantial Performance of the Work for the Work, the Contractor shall provide to the Owner all service contracts, manufacturers' inspections, certifications, guarantees and warranties and assignments of all guarantees and warranties as specified in the Contract Documents."

2.16 GC 6.2 CHANGE ORDER

2.16.1 Add new 6.2.3: "The method of adjustment or the amount of adjustment to the Contract Price presented by the Contractor may be one of or a combination of the following:

1. Change to the estimated quantities for Unit Price items listed in the Schedule of Prices applicable to the change in the Work;
2. Lump Sum quotation for the changes in the Work;
3. Unit Price quotation for the changes in the Work;
4. Cost of the Contractor's actual expenditures attributable to the change plus 15 percent for Contractor's overhead and profit and
5. Amount of the Contractor's actual savings attributable to the change.

2.17 GC 6.3 CHANGE DIRECTIVE

2.17.1 Add new 6.3.6.4: "The Contractor's fee shall be 15 percent."

2.18 GC 6.5 DELAYS

2.18.1 Add new 6.5.6: "If the Contractor is delayed in the execution of the Work for any reason other than for which an extension is permitted under GC 6.5 Delays, or if the Contractor fails to provide Notice in Writing of a claim for extension under GC 6.5 Delays or if the Contractor does not perform the Work substantially in accordance with the Construction Schedule, the Contractor shall take whatever measures are necessary at his own expense, including but not limited to the provision of additional labour, the provision of additional hours of work and the furnishing of additional plant and equipment, to ensure the completion of the Work by the date stated in Article A-1 of the Agreement - THE WORK.

2.19 GC 6.7 QUANTITY VARIATIONS

2.19.1 Add new GC 6.7 QUANTITY VARIATIONS in its entirety to include the following:

1. Paragraph 6.7.1: The provisions of GC 6.7 QUANTITY VARIATIONS apply to the estimated quantities identified in the Schedule of Prices, or where the estimated quantities have been amended by Change Order, the provisions apply to the amended estimated quantities
2. Paragraph 6.7.2: The Owner or the Contractor may request an adjustment to a Unit Price contained in the Schedule of Prices provided the actual quantity of the Unit Price item in the Schedule of Prices exceeds or falls short of the estimated quantities by more than 30%;
3. Paragraph 6.7.3: Where the actual quantity exceeds the estimated quantity by more than 30%, a Unit Price adjusted pursuant to paragraph 6.7.2 shall apply only to the quantity that exceeds 130% of the estimated quantity.
4. Paragraph 6.7.4: Where the actual quantity falls short of the estimated quantity by more than 30%, a Unit Price adjusted pursuant to paragraph 6.7.2 shall apply to the actual quantity of the Unit Price Item. The adjusted Unit Price shall not exceed a Unit Price that would cause the payment to exceed 70% of that derived from the original Unit Price and estimate quantity.
5. Paragraph 6.7.5: The party that intends to request for an adjustment to a Unit Price shall give timely Notice in Writing to the other party and to the Consultant.
6. Paragraph 6.7.6: The Consultant's findings, with respect to that claim made by either party, will be given by Notice in Writing to both parties within 30 Working Days after receipt of the claim by the Consultant, or within such other time period as may be agreed by the parties.
7. Paragraph 6.7.7: If such finding is not acceptable to either party, the claim shall be settled in accordance with Part 8 of the General Conditions – DISPUTE RESOLUTION.

2.20 GC 7.1 OWNER'S RIGHT TO PERFORM THE WORK, TERMINATE THE CONTRACTOR'S RIGHT TO CONTINUE WITH THE WORK, OR TERMINATE THE CONTRACT

2.20.1 In 7.1.1, line 1, after the word "bankrupt" insert "commits an act of bankruptcy or threatens to commit an act of bankruptcy,"

2.21 GC 8.3 NEGOTIATION, MEDIATION AND ARBITRATION

2.21.1 Add 8.3.9: "Unless both parties agree, the Contractor shall not stop the Work, or any part of the Work, pending the resolution of any dispute under the Contract between the parties."

2.22 GC 9.2 TOXIC AND HAZARDOUS SUBSTANCES

2.22.1 In 9.2.1, add the following: “and the Contractor shall be deemed to have control and management of the Place of the Work with respect to any toxic or hazardous substances or materials which may be brought on to the Place of the Work by the Contractor or its Subcontractors.”

2.22.2 In 9.2.5.4, add the following: “and take all necessary steps in accordance with the instructions of the Consultant and all applicable legislation to treat, store, or otherwise dispose of the substances or materials.”

2.22.3 Add 9.2.10: “The Contractor shall indemnify and hold harmless the Owner, the Consultant, their agents and employees, from and against claims, demands, losses, costs, damages, actions, suits, or proceedings arising out of or resulting from exposure to, or the presence of, toxic or hazardous substances or materials which are brought on to the Place of Work by the Contractor or its Subcontractors. This obligation shall not be construed to negate, abridge or reduce other rights or obligations of indemnity set out in GC 12.1 INDEMNIFICATION or which otherwise exist respecting a person or party described in this paragraph.”

2.23 GC 9.4 CONSTRUCTION SAFETY

2.23.1 Add new 9.4.6: "No comments, suggestions or instructions from the Owner or Consultant are to be relied upon or assumed to reduce or replace the Contractor's responsibility for construction safety.”

2.23.2 Add new 9.4.7: “The Contractor shall indemnify and hold harmless the Owner and the Consultant, their agents and employees from and against claims, demands, losses, costs, damages, actions, suits or proceedings by third parties that arise out of, or are attributed to, the Contractor's safety performance."

2.24 GC 12.3 WARRANTY

2.24.1 In 12.3.1, replace "one year" with: "two years."

2.24.2 Delete 12.3.3 in its entirety and replace with the following: “The Owner, through the Consultant, shall promptly give the Contractor Notice in Writing of observed defects and deficiencies which occur during the warranty period. Within 10 Working Days of being requested to do so by the Owner, the Contractor, at its cost, shall commence the correction of defects and deficiencies so noted. In effecting the corrections, the Contractor shall bear all reasonable costs involved in removing or replacing adjacent affected materials that may be disturbed and which shall be required in the complete restoration of the original finish.”

2.24.3 Delete 12.3.4 in its entirety, and replace with the following: “Except for the provisions of 12.3.6 and subject to Clause 12.3.2, the Contractor shall correct promptly, at the Contractor’s expense, defects or deficiencies in the Work, including corrections of defects previously made, which appear prior to and during the warranty periods specified in the Contract Documents”

2.24.4 Delete 12.3.6 in its entirety and replace with the following: “The Contractor shall be responsible for securing such warranties, extended warranties or guarantees as may be available from the Subcontractors, Product manufacturers and Suppliers and which may extend past the termination of the contractual warranty period. They shall be issued to the benefit of the Owner. The Contractor shall deliver the originals plus two copies of such warranties, extended warranties or guarantees to the Consultant upon completion of the Work and have the original warranties signed by an authorized representative, having signing authority on behalf of the Product manufacturer or Supplier as the case may be.”

2.24.5 Add new 12.3.7: "The Work on this Project is subject to the Homeowner Protection Act, S.B.C. 1998, and the Homeowner Protection Act Building Envelope Renovation Regulation, BC Reg. 240/2000 as amended from time to time. The Contractor must comply with the requirements of the Homeowner Protection Act and its Regulations"

2.24.6 Add new 12.3.8: "Be responsible for provision of a Homeowner Warranty from a licensed warranty provider."

2.24.7 Add new 12.3.9: "Pay all HPO fees, warranty costs and complete the HPO Renovation Schedule associated with providing Homeowners Warranty in compliance with the Homeowner Protection Act of B.C."

2.24.8 Add new 12.3.10: "The Contractor warrants that it is a licensed building envelope renovation contractor and is registered as such with the Homeowner Protection Office ("HPO"). The Contractor must retain the license with the HPO throughout the execution of the construction Work."

2.24.9 Add new 12.3.7:"Some or all of the construction Work on this project is subject to the Homeowner Protection Act, S.B.C. 1998, the Homeowner Protection Act Building Envelope Renovation Regulation, BC Reg. 240/2000, and the Insurance Act. RSBC 1996, each as amended now and from time to time. As a result, there is a requirement for mandatory third-party warranty insurance. The Owners have elected to purchase its warranty directly and will make the necessary arrangements for this policy. The Contractor must comply with the requirements of the Homeowner Protection Act and its Regulations."

2.24.10 Add new 12.3.8: "The Contractor warrants that it is a licensed building envelope renovation contractor and is registered as such with the Homeowner Protection Office ("HPO"). The Contractor must retain the license with the HPO throughout the execution of the construction Work."

2.25 GC 13.1 INDEMNIFICATION

2.25.1 In 13.1.2.2, replace "$2,000,000" with "$5,000,000"

END OF SECTION

1 OBJECTIVE

Work under this contract is to rehabilitate the historic masonry pillars and walls at Firelane 2 & Pinecrest Road and Tennessee Avenue & Sugarloaf Street. Refer to drawings for dimensions of existing masonry structures and repair areas. Road access is to be maintained throughout the duration of the work.

The assets have been identified as heritage per review completed by the City of Port Colborne Heritage Board. Therefore, all matching repairs (colour, texture, etc.) to the original material is a priority. Repairing existing materials is preferred to replacement wherever possible. All repair products and techniques shall be compatible with existing materials and "sympathetic" to the heritage nature of the assets. The site is availability is noted in Section 00 21 13.00 – Instructions to Bidders.

2 SCOPE OF WORK – FIRELANE 2 & PINECREST ROAD

2.1 MASONRY AND STONE REPAIRS

2.1.1 **Reconstruct & Relocate South Pillar:** Fully disassemble the south pillar, temporarily store stones for reuse, and reconstruct the pillar to match existing on a new concrete foundation. Relocate pillar to provide a minimum drive lane width of 6 meters as noted on drawings. Label and store stones for re-use off site to allow the Owner to remove the tree adjacent to the south pillar prior to reconstruction.

2.1.2 **Reconstruct North Pillar:** Fully disassemble the south pillar, temporarily store stones for reuse, and reconstruct the pillar to match existing.

2.1.3 **Locally Replace Stones:** As directed by the Consultant, locally replace damaged and/or missing stones with new stone to match existing. Colour and texture of new stones shall be approved by the Owner.

2.2 MISCELLANEOUS

2.2.1 Remove and dispose of tree stumps and vegetation as required to accommodate relocation of the south pillar.

2.2.2 Remove all vegetation on and adjacent to the north and south pillars.

2.2.3 Complete minor repairs to address unanticipated conditions as found to be necessary and as directed by Consultant in writing. Payment for this work shall be from a Contingency Allowance based on time and materials or quoted fixed price, as agreed to prior to work proceeding.

3 SCOPE OF WORK – TENNESSEE AVENUE & SUGARLOAF STREET

3.1 MASONRY AND STONE REPAIRS

3.1.1 **Reconstruct East Wall:** Fully disassemble the east wall, label and temporarily store stones for re-use, and reconstruct the wall to match existing on a new concrete foundation as noted on the drawings.

3.1.2 **Locally Reconstruct Curved Walls:** Locally disassemble and reconstruct deteriorated sections of the east and west curved walls to match existing as noted on the drawings.

3.1.3 **Repoint Deteriorated Mortar Joints:** Rout out deteriorated mortar joints on the east and west curved walls as noted on the drawings. Repoint with a colour matched mortar.

3.1.4 **Locally Replace Stones:** As directed by the Consultant, locally replace damaged and/or missing stones with new stone to match existing. Colour and texture of new stones shall be approved by the Owner.

3.2 MISCELLANEOUS

3.2.1 Remove all vegetation on and adjacent to the Walls and Pillars.

3.2.2 Complete minor repairs to address unanticipated conditions as found to be necessary and as directed by Consultant in writing. Payment for this work shall be from a Contingency Allowance based on time and materials or quoted fixed price, as agreed to prior to work proceeding.

3.3 OPTIONAL ITEMS

3.3.1 Prepare surfaces and repaint the decorative wrought iron gates on both sides of Tennessee Avenue to match existing colour.

END OF SECTION 01 11 00

1.1 GENERAL

1.1.1 Building to remain in use in areas not immediately affected by the work. Ensure that normal operations and maintenance may be carried out without disruption, except as otherwise noted herein or stated in Bid.

1.1.2 Work shall be allowed only from 8 a.m. to 5 p.m., Monday to Friday. Work shall be performed according to the start date and duration given in Bid Document.

1.1.3 Noise Restrictions: Noise generating work that disturbs interior activities not be permitted from 8:00 a.m. to 9:00 a.m., Monday to Friday to avoid tenant disruption. Noise generating work will be permitted outside of this time period only as allowed by local By-Laws.

1.1.4 Seventy-two (72) hours written notice to Consultant and Owner is required for work to be performed outside the designated times (if permitted).

1.1.5 Maintain existing processes in operation during the full construction period. Co-operate with Owner's representatives in the building in order to minimize disruptions to building operation and services. Advise Consultant and Owner well in advance of proposed shutdowns of any services, so that Owner may be consulted regarding the effects of the shutdown.

1.1.6 Ensure building envelope affected by the work is made water-tight prior to adverse weather, and at the end of each day, to prevent interior leakage.

1.2 BUILDING SMOKING ENVIRONMENT

1.2.1 Comply with smoking restrictions. Smoking is not permitted within the work area.

1.3 EXISTING UTILITIES

1.3.1 When breaking into or connecting to existing services or utilities, execute Work at times directed by local governing authorities, with minimum of disturbance to Work, and pedestrian and vehicular traffic and/or local residents.

1.3.2 Protect, relocate or maintain existing active services. When services are encountered, cap off in manner approved by authority having jurisdiction. Stake and record location of capped service.

1.4 EXECUTION

1.4.1 Do not load or permit to be loaded any part of the Work with a weight or force that will endanger the safety or integrity of the Work.

1.4.2 Perform cutting, fitting, patching, and remedial work including excavation and fill, to make the affected parts of the Work come together properly and complete the Work; coordinate and perform the Work to ensure that cutting and patching work is kept to a minimum

END OF SECTION 01 14 00

1.1 GENERAL

1.1.1 Submit in writing, using Request for Substitution form approved by Consultant, any requests for substitutions to materials and/or installations specified and/or stated in the bid documents, at least ten working days prior to the intended application.

1.1.2 Submit information regarding the proposed substitution, including the reason for the change, the benefit to the Owner, manufacturer's written instructions, independent test reports, performance differences compared with the specifications, and the amount of credit offered.

1.1.3 Should the number of Requests for Substitutions be unreasonable, Consultant may refuse to consider further requests unless the Contractor agrees to pay for the Consultant's evaluation. The agreed fee will be deducted by the Owner from the amounts owed to the Contractor and paid to the Consultant.

END OF SECTION 01 23 00

1.1 ADMINISTRATION

1.1.1 Attend regular site meetings throughout the progress of work with Consultant, Owner and /or Owner's representative at a mutually agreeable time for the discussion of progress of the work and to resolve any difficulties.

1.1.2 Representative of the Contractor, Subcontractor and suppliers attending the meetings will be qualified and authorized to act on behalf of party each represents

1.1.3 At least one week prior to start of work, attend a pre-construction meeting between the Consultant, the Owner and /or Owner's representative and the Contractor's Project Manager and site superintendent/foreman to discuss the work

END OF SECTION 01 31 19

1.1 GENERAL

1.1.1 The term "Engineered" refers to a submittal designed/reviewed by a Professional Engineer who is technically knowledgeable in the area of work and is registered to practice in the place of work. Drawings must be sealed and signed by the Professional Engineer.

1.1.2 Samples reviewed by Owner and Consultant will be the standard for those materials. Material substitutions without prior written acceptance are not permitted. Allow extra time in the submitted schedule for colour matching materials, approval of samples and mock-ups, and delivery of accepted products to site.

1.1.3 Allow minimum 10 working days for Consultant to review all submittals, unless otherwise agreed. Submittals must be delivered to the Consultant to allow sufficient time for material ordering and delivery. Requests for material substitutions due to unavailability of products or unacceptable lead times will not be accepted.

1.1.4 Do not proceed with ordering the materials or fabrication until approval is received in writing. In the case of shop drawings submitted for review, do not proceed with fabrication until the drawings have been returned as "reviewed as Noted" or "Reviewed". If Contractor proceeds with the work before approval is received, Contractor is responsible to correct any damage or defects at no cost to Owner.

1.1.5 Engineers preparing any design, including shop drawings required by these specifications are required to have Professional Liability Insurance in the amount of at least $1 Million Dollars. Submit proof of Engineer's insurance and a copy of their Certificate of Authorization with project start-up documents.

1.2 SUBMITTAL SCHEDULE

1.2.1 Format and Content:

.1 Prepare schedule identifying all required Shop Drawing, Product data, and sample submissions. For each required submittal, show planned earliest date for initial submittal, earliest date for return of reviewed submittal by Consultant, and latest date for return of reviewed submittal without causing delay.

.2 Consultant will review format and content of initial schedule and request necessary changes, if any, within 10 Working Days after receipt. If changes are required, resubmit finalized schedule.

.3 Submit updated submittals schedule monthly to Owner and Consultant.

1.3 SUBMITTALS

1.3.1 Workplace Safety and Insurance Board Certificate

1.3.2 Notice of Project filed with the Ministry of Labour as required by the Occupational Health and Safety Act

1.3.3 Workers' Compensation Board Clearance Certificate

1.3.4 Outline of Construction Safety Manual

1.3.5 Names of trained site safety personnel

1.3.6 Proof of WHMIS training for site personnel

1.3.7 Names of project superintendent and site foreman

1.3.8 Emergency telephone number

1.3.9 List of proposed Hazardous Materials

1.3.10 Schedule of Values

1.3.11 Automobile Liability Certificate of Insurance

1.3.12 Agreement to Bond in the amount of 50% of the Estimated Contract Price plus tax for Performance and for Labour and Materials. Such bonds shall be issued by a duly licensed surety company authorized to transact the business of suretyship in the province or territory of the Place of the Work and shall be maintained in good standing until the fulfillment of the Contract. The form of such bonds shall be in accordance with the latest edition of the CCDC approved bond forms.

1.3.13 Performance Bond (Original document required) The Performance Bond shall remain in effect for a period of 2 years from the date of Substantial Performance as defined in the governing lien legislation (or, where no definition exists, the date when work is ready for use or is being used for the purpose intended).

1.3.14 Labour and Materials Bond (original document required) The Labour and Materials Bond shall remain in effect for a period of 1 year following the date upon which work under the contract ceases.

1.3.15 General Liability Certificate of Insurance in CSIO or equivalent format with named as additional insured

1.3.16 Schedule with details of each aspect of the work

1.3.17 Professional Liability Insurance and Certificate of Authorization for Engineer's engaged by the Contractor (if applicable)

1.3.18 The Contractor shall, prior to commencement of the Work or within the specified time, provide to the Owner any Contract Security specified in the Contact Documents.

1.4 SHOP DRAWINGS

1.4.1 Review of drawings by Consultant does not relieve responsibility for the design adequacy and safety.

1.4.2 Shop Drawing submittals shall include The Contractor shall provide Shop Drawings in the form specified, or if not specified, as directed by the Consultant.

1.4.3 Shop Drawing submittals shall include:

.1 Contractor's stamp, date, and signature of Contractor's authorized representative responsible for Shop Drawing review, indicating that each Shop Drawing has been reviewed for compliance with Contract Documents and, where applicable, that field measurements have been verified.

1.4.4 Where required by authorities having jurisdiction, provide submittals to such authorities for review and approval.

1.4.5 Consultant's notations on submittals are intended to ensure compliance with Contract Documents and are not intended to constitute a change in the Work requiring change to the Contract Price or Contract Time. If Contractor considers any Consultant's notation to be a change in the Work, promptly notify the Consultant in writing before proceeding with the Work.

1.4.6 Resubmit corrected submittals through same procedure indicated above, before any fabrication or installation of the Work proceeds. When resubmitting, notify Consultant in writing of any revisions other than those requested by Consultant.

1.4.7 Drawings to be clearly legible and are to illustrate all components that are a part of the system, such as the overall size and openings of the assembly. Where necessary, provide plans, vertical and horizontal sections and enlarged details to clearly illustrate components and other associated information. Information in shop drawings to include material, thickness of all components, anchorages, construction method and finishes. Present shop drawings, product data, samples and mock-ups in SI Metric units.

1.4.8 When required by Consultant, attend a meeting at Consultant's office to discuss the shop drawings and to review their content. The shop drawings shall be submitted a minimum of one week prior to the meeting. The intent of the meeting will be to discuss/confirm the shop drawing and project requirements.

1.4.9 If required, revise the shop drawings as noted/discussed. Proceed with the mock-up once revised drawings are approved by Consultant.

1.4.10 After the meeting and completion of the mock-up, revise shop drawings as required and submit three copies of shop drawings.

1.5 SAMPLES

1.5.1 Submit for review samples in triplicate as requested in respective specification Sections. Label samples with origin and intended use.

1.5.2 Where colour, pattern or texture is criterion, submit full range of samples.

1.5.3 Adjustments made on samples by Consultant are not intended to change Contract Price. If adjustments affect value of Work, state such in writing to the Owner and Consultant prior to proceeding with Work.

1.5.4 Reviewed and accepted samples will become standard of workmanship and material against which installed Work will be verified.

1.6 PRE-CONSTRUCTION DEFICIENCIES

1.6.1 Prior to construction, provide digital photos documenting the state of existing site elements. If pre-existing damage is not documented, the Contractor will be responsible for addressing the deficiency upon project close out

END OF SECTION 01 33 00

1.1 GENERAL

1.1.1 Perform all work in accordance with current Code requirements and local and municipal by-laws and property standards.

1.1.2 All Standards referred to shall be the current editions as amended at the date of issue of Contract Documents.

1.1.3 Obtain and pay for all building permits, street permits, power line protection, damage deposits, etc., as required. Cost of the permit fee only will be reimbursed.

1.1.4 Notifying the proper municipal inspector in advance (as specified by the inspector) to complete review of any project component the local municipal authority requires. Ensuring that correct municipal reviews are completed shall be solely the Contractor's responsibility. Additional work to expose or re-do uninspected work shall be completed by the Contractor at their expense.

1.2 HAZARDOUS MATERIAL DISCOVERY

1.2.1 Asbestos: Demolition of spray or trowel-applied asbestos is hazardous to health. Stop work immediately when material resembling spray or trowel-applied asbestos is encountered during demolition work. Notify Consultant.

1.2.2 Mould: Stop work immediately when material resembling mould is encountered during demolition work. Notify Consultant.

END OF SECTION 01 41 00

1.1 GENERAL

1.1.1 Provide qualified site superintendent/foreman who will oversee all work carried out at the site. Site superintendent/Foreman to be capable of communicating effectively in English, familiar with the requirements of the specifications, and present at all times that work is being carried out, including Subcontractor activities.

1.1.2 Use only thoroughly trained and experienced operators and workers.

1.1.3 Monitor compliance with the contract schedule on an ongoing basis.

1.1.4 At no time shall the size of the work crew be decreased from the size indicated on the project schedule.

1.1.5 If unit price items increase by more than 30%, or should unusual weather or other unforeseen conditions affect the project schedule, submit a revised schedule to reflect approved changes to the project schedule.

1.2 SUBCONTRACTORS

1.2.1 Be responsible that all subcontractors examine the Drawings and Specifications covering their work and the work of all other Subcontractors, which may affect their work.

1.2.2 Ensure that all work is carried out in compliance with the Contract Documents and to accept responsibility for delays or costs arising from the failure to inspect or adequately co-ordinate a subcontractor’s work.

1.2.3 Commencement of the Work implies acceptance of surfaces and conditions. No claim for damages or resulting extra work will be accepted except where such conditions cannot be determined prior to construction and brought to the Consultant's attention prior to disturbances of conditions

1.3 INSPECTION

1.3.1 Allow Consultant access to Work. If part of Work is in preparation at locations other than Place of Work, allow access to such Work whenever it is in progress. Provide reasonably facilities for such access. Ladder access over 10 ft (1 storey) will not be an acceptable means of Consultant access between work areas or roof levels

1.3.2 Notify the Consultant, inspection and testing agents not less than 48 hours prior to each part of work being ready for review or testing. Work which requires review or testing shall not be performed on weekends or holidays unless previously agreed to.

1.3.3 If Contractor covers or permits to be covered Work that has been designated for special tests, inspections or approvals before such is made, uncover such Work, have inspections or tests satisfactorily completed and make good such Work

1.3.4 Be responsible for payment of costs if the work is not ready when stated and if the Consultant and inspection and testing agency are not given sufficient notice of such delay.

1.3.5 Owner reserves the right to deduct from the Contractor amounts for extra inspection and testing by the Consultant as required for certification of payment of work done to repair a deficiency.

1.3.6 If defects are revealed during inspection and/or testing, appointed agency will request additional inspection and/or testing to ascertain full degree of defect. Correct defect and irregularities as advised by Consultant at no cost to the Owner. Pay costs for retesting and reinspection.

1.4 PROCEDURES

1.4.1 Submit samples and/or materials required for testing, as specifically requested in specifications. Submit with reasonable promptness and in orderly sequence to not cause delays in Work.

1.4.2 Provide labour and facilities to obtain and handle samples and materials on site. Provide sufficient space to store and cure test samples.

1.5 REJECTED WORK

1.5.1 Remove defective Work, whether result of poor workmanship, use of defective products or damage and whether incorporated in Work or not, which has been rejected by Consultant as failing to conform to Contract Documents. Replace or re-execute in accordance with Contract Documents.

1.5.2 Make good other Contractor's work damaged by such removals or replacements promptly.

1.5.3 If in opinion of Consultant it is not expedient to correct defective Work or Work not performed in accordance with Contract Documents, Owner will deduct from Contract Price difference in value between Work performed and that called for by Contract Documents, amount of which will be determined by Consultant.

1.6 REPORTS

1.6.1 Submit copies of inspection and test reports to Consultant.

1.7 TESTS AND MIX DESIGNS

1.7.1 Furnish test results and mix designs as requested.

1.7.2 Cost of tests and mix designs beyond those called for in Contract Documents or beyond those required by law of Place of Work will be appraised by Consultant and may be authorized as recoverable.

1.8 MOCK-UPS

1.8.1 Prepare mock-ups for Work specifically requested in specifications and in accordance with Quality Control Sections above.

1.8.2 Prepare mock-ups for Consultant's review with reasonable promptness and in orderly sequence, to not cause delays in Work. Consultant may require manufacturer’s representative to review the preparation/installation and provide written confirmation.

1.8.3 Failure to prepare mock-ups in ample time is not considered sufficient reason for extension of Contract Time and no claim for extension by reason of such default will be allowed.

1.8.4 Complete mock-ups on site unless otherwise stated by Consultant.

1.8.5 Match properties of the intended finish product install by the same installers who will perform the general installation using the materials and methods specified.

1.8.6 Do not proceed with full scale application until receipt of written approval by Consultant.

1.8.7 Remove mock-up at conclusion of Work or when acceptable to Consultant or mock-ups may remain as part of Work. Specification section identifies whether mock-up may remain as part of Work or if it is to be removed and when.

END OF SECTION 01 45 00

1.1 STORAGE, HANDLING AND PROTECTION

1.1.1 Leave work areas in a tidy, safe and secure condition at the end of each workday.

1.1.2 Store, materials to be reused, recycled and salvaged in locations as directed by Consultant

1.1.3 Supply a disposal bin for temporary storage of debris at locations authorized by Owner. Do not locate bins on a structural slab or provide temporary support as required. Remove disposal bins promptly when full and upon completion of the work.

1.1.4 As work proceeds and at the completion of the work each day collect all debris and garbage and store in the disposal bin.

1.1.5 Unless otherwise specified, salvaged material resulting from Work shall become the property of the Contractor who must dispose of it away from the site in a timely manner. Storage locations shall be approved in advance by the Owner.

1.1.6 Protect surface drainage, mechanical and electrical from damage and blockage.

1.2 DISPOSAL OF WASTES

1.2.1 Do not bury rubbish or waste materials.

1.2.2 Do not dispose of oil, volatile materials, mineral spirits, paint thinner, waste into waterways, storm, or sanitary sewers.

END OF SECTION 01 47 21

1.1 INSTALLATION AND REMOVAL

1.1.1 Provide temporary utilities controls to execute work expeditiously.

1.1.2 Remove from site all such work after use.

1.2 DEWATERING

1.2.1 Provide temporary drainage and pumping facilities to keep excavations and site free from standing water.

1.3 TEMPORARY POWER AND LIGHT

1.3.1 Provide and pay for temporary power during construction for temporary lighting and operating of power tools.

1.4 WATER SUPPLY

1.4.1 Contractor must supply their own water.

1.5 FIRE PROTECTION

1.5.1 Provide and maintain temporary fire protection equipment during performance of Work required by insurance companies having jurisdiction governing codes, regulations and bylaws.

1.5.2 Burning rubbish and construction waste materials is not permitted on site.

END OF SECTION 01 51 00

1.1 INSTALLATION AND REMOVAL

1.1.1 Prepare site plan indicating proposed location and dimensions of area to be fenced and used by Contractor, staging and storage areas, avenues of ingress/egress to fenced area and details of fence installation.

1.1.2 Provide construction facilities in order to execute work expeditiously.

1.1.3 Remove from site all such work after use.

1.2 SITE STORAGE/LOADING

1.2.1 Confine work and operations of employees by Contract Documents. Do not unreasonably encumber premises with products.

1.2.2 Do not load or permit to load any part of Work with weight or force that will endanger Work.

1.3 DOCUMENTS AT THE SITE

1.3.1 Maintain at the job site one copy, including all amendments, of each of the following: Keep the following documents at Place of the Work, stored securely and in good order and available to Owner and Consultant in hard copy and/or electronic form:

.1 Current Contract Documents, including Drawings, Specifications and addenda.

.2 Change Orders, Change Directives, and Supplementary Instructions.

.3 Reviewed Shop Drawings, Product data and samples.

.4 Field test reports and records.

.5 Construction progress schedule.

.6 Meeting minutes.

.7 Manufacturer's certifications, and written instructions for all products to be used.

.8 Permits, inspection certificates, and other documents required by authorities having jurisdiction.

.9 Current as-built drawings.

.10 Material Safety Data Sheets (MSDS) for all controlled Products.

1.4 CONTRACTOR'S USE OF PREMISES

1.4.1 Confine Construction Equipment, Temporary Work, storage of Products, waste products and debris, and all other construction operations to limits required by laws, ordinances, permits, and Contract Documents, whichever is most restrictive. Do not unreasonably encumber Place of the Work.

1.5 CONSTRUCTION PARKING

1.5.1 Parking will be permitted on site provided it does not disrupt performance of Work.

1.6 SANITARY FACILITIES

1.6.1 Provide temporary sanitary facilities and maintain in a sanitary condition in accordance with governing regulations and ordinances. Site facilities shall not be used by the Contractor's forces, unless approved by the Owner or the Owner's Representative.

1.7 CONSTRUCTION SIGNAGE

1.7.1 With the exception of safety/instruction signs and notices, no signs or advertising shall be permitted on the site or equipment except as authorized by the Owner. Safety/instruction signs and notices shall be posted in accordance with current Code requirements and local and municipal by-laws. Maintain approved signs and notices in good condition for duration of work.

1.8 PROTECTION AND MAINTENANCE OF TRAFFIC

1.8.1 Provide access and temporary relocated roads as necessary to maintain traffic.

1.8.2 Provide measures for protection and diversion of traffic, including provision of watch-persons and flag-persons, erection of barricades, placing of lights around and in front of equipment and work, and erection and maintenance of adequate warning, danger, and direction signs

1.8.3 Maintain all emergency and service access routes clear at all times. Provide barricades and signs necessary to direct vehicular and pedestrian traffic around construction areas at all times. If emergency routes may be impeded by construction, coordinate with local emergency services and receive approval prior to proceeding with work.

END OF SECTION 01 52 00

1.1 INSTALLATION AND REMOVAL

1.1.1 Provide temporary barriers and enclosures in order to execute Work expeditiously.

1.1.2 Remove from site all such work after use.

1.2 HOARDING

1.2.1 Take all measures to reduce the impact of the hoarding on the Owner and resident/tenants and to minimize the duration of the erection of the hoarding in any one location any longer than necessary to complete the Work. Provide proper protection for public safety at pedestrian levels where scaffolding and/or vertical drop staging work. Secure all staging, scaffold and site access points to prevent unauthorized access.

1.2.2 Supply, install and maintain a construction barrier around work area as outlined below:

.1 Exterior: 2.4m high portable chain link fence;

.2 Trees: Supply and erect temporary hoardings, fences, protection around trees and plants, as required.

1.3 GUARD RAILS AND BARRICADES

1.3.1 Provide secure, rigid guard rails and barricades around deep excavations, open shafts, open stair wells, and open edges of floors and roofs.

1.4 PUBLIC TRAFFIC FLOW

1.4.1 Provide and maintain competent signal flag operators, traffic signals, barricades and flares, lights, or lanterns as required to perform Work and protect public.

1.5 FIRE ROUTES

1.5.1 Maintain access to property including overhead clearances for use by emergency response vehicles.

1.6 PROTECTION OF BUILDING FINISHES

1.6.1 Provide protection for finished and partially finished building finishes and equipment during performance of Work.

1.6.2 Provide necessary screens, covers, and hoardings.

1.6.3 Be responsible for damage incurred due to lack of or improper protection.

END OF SECTION 01 56 00

1.1 QUALITY OF PRODUCT

1.1.1 Non-specified and defective materials shall not be brought to site. Remove any non-specified materials from site within 24 hours upon request by the Consultant. Defective products, whenever identified prior to completion of Work, will be rejected, regardless of previous inspections. Inspection does not relieve responsibility, but is precaution against oversight or error. Remove and replace defective products at own expense and be responsible for delays and expenses caused by rejection.

1.1.2 Unless otherwise indicated in specifications, maintain uniformity of manufacture for any particular or like item throughout construction.

1.2 AVAILABILITY

1.2.1 Upon award of the Contract, determine the availability and delivery time necessary for all products, equipment and plant required for the Work to be completed by the agreed date of Substantial Performance of the Work. Order items to ensure that delivery to the Work is such that the agreed progress schedule will be maintained. If delays in supply of products are foreseeable, notify the Consultant and the Owner of such, in order that substitutions or other remedial action may be authorized in ample time to prevent delay in performance of Work.

1.2.2 Within ten Working Days confirm in writing that all specified materials are available for incorporation into the Work. Identify items/materials with long delivery dates. Submit a schedule of planned ordering dates, and submit confirmation of placement of each order.

1.3 STORAGE AND HANDLING

1.3.1 Deliver all materials to the site in their original unopened containers, with labels intact. Where applicable, check material expiry dates. Immediately dispose of all materials older than their expiration date away from the site.

1.3.2 Store all materials and equipment in accordance with manufacturer’s written instructions, and in a dry, secure and protected manner which will not overload the structure and shall prevent vandalism or unauthorized use. Storage locations shall be approved in advance by the Owner.

1.3.3 Be responsible for the security of all materials and equipment. Make no claims for theft or damage to the Owner.

1.4 MANUFACTURER’S WRITTEN INSTRUCTIONS

1.4.1 Unless otherwise indicated in specifications, install products in accordance with manufacturer's written instructions.

1.4.2 Notify the Consultant in writing, of conflicts, such as material incompatibility, between specifications and manufacturer's written instructions, so that Consultant can establish the required course of action.

1.4.3 All work shall meet or exceed the more stringent of the manufacturer's written instructions or the requirements of this Specification.

1.4.4 Improper installation of products, due to failure in complying with these requirements, authorizes the Consultant to require removal and re-installation at no increase in Contract Price or Contract Time.

1.5 QUALITY OF WORK

1.5.1 Ensure Quality of Work is of highest standard, executed by workers experienced and skilled in respective duties for which they are employed. Immediately notify the Consultant if required Work is such as to make it impractical to produce required results.

END OF SECTION 01 61 00

1.1 GENERAL

1.1.1 Arrange for utility locate services prior to any excavation or digging.

1.1.2 Locate, identify, disconnect, and seal or cap off indicated utilities serving areas to be selectively demolished.

.1 Arrange to shut off affected utilities with utility companies.

.2 If utility services are required to be removed, relocated, or abandoned, before proceeding with selective demolition provide temporary utilities that bypass area of selective demolition and that maintain continuity of service to other parts of building.

.3 Cut off pipe or conduit in walls or partitions to be removed. Cap, valve, or plug and seal remaining portion of pipe or conduit after bypassing.

a) Coordinate with Mechanical and Electrical Divisions for shutting off, disconnecting, removing, and sealing or capping utilities. Do not start selective demolition work until utility disconnecting and sealing have been completed and verified in writing.

1.1.3 Verify existing conditions on the site and dimensions shown on the drawings and report any errors or inconsistencies to the Consultant before commencing the Work. Note all irregularities affecting the Work.

1.1.4 When site conditions require reasonable changes to the drawings, obtain the Consultant's approval prior to making such changes.

1.1.5 The existing construction as shown on the drawings has been determined from available records and may not represent the actual site conditions in all locations. The Contractor may encounter site conditions which may vary slightly from those shown on the drawings and unless such conditions are found to be significantly different by the Consultant, the Contractor will not be entitled to any change in Contract Price or Contract Time.

1.1.6 Before commencing work, identify all paths for dust, fumes or odours generated by the work to penetrate interior spaces. These shall include make-up air intakes, ventilation/exhaust openings for service rooms such as generator or hydro vault rooms, doors, windows, and pipe or cable penetrations. Take measures such as enclosing, sealing and/or providing sustained negative pressure to prevent dust, fume or odour ingress. If required, coordinate temporary shut-down of mechanical equipment by Owner.

1.1.7 Take reasonable measures to control noise, dust, smoke, and odours during construction. Control execution of all work to minimize interference of occupants' use of the building. Be responsible for workers' activities while on the site.

1.1.8 Do not use water to control dust when it may damage existing construction or create hazardous or objectionable conditions, such as ice, flooding or pollution

1.1.9 Be responsible for damage caused or clean-up required by dispersion of dust generated by the work.

1.1.10 Before commencing work, inspect all building components, including drains, lights, windows, screens, doors, etc. within the area of the work. Submit a written list, photo inventory or video if there is existing damage, or items not functioning.

1.2 PRE-CONSTRUCTION SURVEY REQUIREMENTS

1.2.1 Establish two permanent bench marks on site, referenced to established bench marks by survey control points. Record locations, with horizontal and vertical data

1.2.2 Establish lines, levels, and location of existing elements, by instrumentation.

1.2.3 Provide a drawing for the Consultant and Owner for record purposes. The drawing will be used to replace existing elements to match existing

1.3 CONCEALED CONDITIONS

1.3.1 Promptly notify Consultant in writing if concealed conditions at Place of Work differ from those indicated in Contract Documents, or a reasonable assumption of probable conditions based thereon.

1.3.2 After prompt investigation, should Consultant determine that conditions do differ, instructions will be issued for changes in Work as provided in Changes and Change Orders.

END OF SECTION 01 71 00

1.1 PROJECT CLEANLINESS

1.1.1 Maintain the Work in a tidy and safe condition, free from accumulation of waste materials and construction debris.

1.1.2 Use only cleaning materials per the manufacturer's written instructions of surface to be cleaned, and as recommended by cleaning material manufacturer's written instructions.

1.1.3 Schedule cleaning operations so that resulting dust, debris and other contaminants will not fall on wet, newly painted surfaces nor contaminate building systems.

1.1.4 Notify the Consultant of the need for cleaning caused by the Owner or other contractors.

1.2 FINAL CLEANING

1.2.1 Upon completion of the work, leave areas affected in a condition as close to, or better than the original.

1.2.2 Flush clear all drains affected by the work. Assume all responsibility for any damage resulting from the use of the building's drainage system to dispose of construction water irrespective of the drain system condition.

1.2.3 Clean site of all materials and debris created by the Construction. Power wash all ceilings, walls and floors adjacent to the work of dust and materials generated during the work. Remove all caulking, paints, cementitious material or the like from windows. Damaged or scratched windows must be replaced at Contractor's cost.

END OF SECTION 01 74 00

1.1 GENERAL

1.1.1 Attend a final walk-through with Owner and Consultant. Consultant will record identified, defects and incomplete work on a punch list.

1.1.2 Make good all known deficiencies, as identified during the final walk-through or as otherwise noted, to conform with Contract Documents.

1.1.3 Notify Consultant of readiness for final inspection only after completion of these items.

1.1.4 The Consultant will review completion of punch list items during one review. Additional reviews required to check un-rectified deficiencies or work that remains incomplete will be charged back to Contractor. These charges will be deducted by Owner from Contractor's progress payments and paid from those funds to Consultant.

1.1.5 Receive, be responsible for, and promptly arrange all details of compensation for all damage existing after the work which was not recorded prior to the work. Unless dealt with promptly by the Contractor, the Contractor will be responsible for costs for time of Owner's or Consultant's personnel and other costs incurred for claims not handled by the Contractor. This includes costs for correction of deficiencies paid for by the Owner.

1.2 PREREQUISITES TO FINAL PAYMENT

1.2.1 Remove from the Place of the Work all remaining surplus Products, Construction Equipment, and Temporary Work.

1.2.2 Perform final cleaning and waste removal necessitated by the Contractor's work performed after Ready-For-Takeover.

END OF SECTION 01 77 00

1.1 SUBMITTALS

1.1.1 Provide Consultant with copies of "as-built" drawings illustrating all repair locations.

1.1.2 Provide operating and maintenance manuals in English.

1.2 WARRANTIES

1.2.1 Unless otherwise stated, the warranty shall include, at no cost to Owner, all labour and materials to correct the defects and deficiencies, including removal and reinstating components where required to gain access to the defect and/or deficiency. The warranty includes all performance and aesthetic related issues as determined by Consultant, such as leakage, debonding, corrosion, fading, discoloration, etc. The warranty excludes reasonable wear and tear.

1.2.2 The warranty period is two years unless otherwise noted.

END OF SECTION 01 78 00

1 GENERAL

1.1 RELATED SECTIONS

1.1.1 Section 04 05 13 – Masonry Cleaning, Mortar, Grouting, and Repointing

1.1.2 Section 04 43 00 – Stone Removal and Replacement

1.2 SUBMITTALS

1.2.1 Compile a complete and detailed photographic file of the structure to be dismantled and rebuilt.

1.2.2 Shop drawings:

1. Provide Consultant, 10 days before the start of the work, with detailed plans showing the details and stages of the dismantling and reconstruction work. These plans must also describe the method of replacing dimension stones.
2. These plans must be prepared and sealed by a qualified engineer with experience in the realization of historic works in solid stone masonry and authorized to practice in the province of Ontario.
3. These plans must identify the supports and shoring required to preserve the portions of works in place; They must take into account the forces, thrusts and stresses applied to the entire structure.
4. Where portions of structures must be preserved and kept in place above the areas to be dismantled, the stages of construction must be planned taking into account maximum intervention widths of 5 m separated from each other by a portion of wall whose length must be at least 10 m.
5. Before undertaking subsequent dismantling steps, allow sufficient time to ensure adequate treatment of the mortar and a strength of at least 70% of its maximum strength.
6. Please note that no technology document in DWG format will be sent to the contractor and/or subcontractor.

1.2.3 Make a sample panel of a 1000 mm x 1000 mm masonry wall showing the equipment of the masonry, the details of the reinforcements, connectors and mortar joints, as well as the finishing of the joints, the method of cleaning the masonry and the quality of execution of the work.

1.2.4 Sample the work at the location indicated by the Consultant.

1.2.5 Notify the Consultant at least 24 hours before starting to construct the sample of the work.

1.2.6 Allow the Consultant 24 hours to inspect the sample. Once accepted, the sample will be the quality standard for this work.

1.3 QUALITY ASSURANCE

1.3.1 Qualification :

1. Masonry contractor:
    1. The work covered by this section must be carried out by a contractor specializing in the conservation of historic stone works, using appropriate techniques for dismantling such works.

2. The Masonry Contractor must be able to demonstrate its skills and present three masonry restoration achievements of historic stone works, acquired as part of work of similar scope and complexity to that subject to this contract over the past 10 years.

2. Supervisor: The supervisor must have at least 5 years of experience in successfully dismantling historic masonry works. The supervisor must be present at the work site at all times.

3. Specialized workers in the dismantling of stone structures: workers must have at least 5 years of experience in the successful completion of stone dismantling works.

1.4 TRANSPORTATION, STORAGE AND HANDLING

1.4.1 Transport, store and handle dismantled masonry elements in a manner that does not alter its finish or dirty it.

1.4.2 Keep materials dry. Protect them from bad weather, frost, any source of contamination and potential mechanical damage.

1.4.3 Place stones on wooden pallets and prevent contact with metal.

1.4.4 Take all necessary measures to facilitate the repositioning of stones.

1.4.5 Submit the storage and identification system to the Consultant for approval.

1.5 CONDITIONS OF IMPLEMENTATION

1.5.1 Unseal wet masonry elements when the masonry temperature is equal to or greater than 5 °C.

1.5.2 When the temperature of the masonry is below 5 °C:

1. Keep stones dry;
2. Protect wet stones from frost.

1.5.3 Proceed with reconstruction when the air temperature is equal to or greater than 10 °C.

1.5.4 For ambient temperatures below 10°C 24 hours a day, store and use mortar components and masonry elements for immediate use in heated enclosures in accordance with the following requirements:

1. Maintain the mortar at a temperature between 10 and 40 °C until the waste is used or stabilized.
2. Keep masonry and its constituent materials between 10 and 40°C and protect the premises from wind chill.
3. Maintain existing masonry (massive masonry wall) and masonry elements intended to be incorporated into this project at a temperature above 5°C for at least 30 days after the mortar is used.
4. Provide a weatherproof enclosure to store materials and mix mortars; maintain the ambient temperature above 10°C at all times.
5. Keep thermometers at maximum/minimum and hygrometers on site and in enclosures.

3. Keep a daily record of recorded temperatures and humidity levels.

4. Install relative humidity and temperature measuring devices, record temperature and relative humidity, and submit a report to the Consultant.

1.5.5 Implementation in hot weather:

1. Cover freshly made masonry works with a waterproof tarpaulin, which does not stain, so that they do not dry too quickly.
2. Until masonry structures are finished or protected by flashing or other permanent construction, keep them dry with impermeable tarps that do not stain, extending beyond the top and sides of the structures for a sufficient distance to protect them from wind-blown rain.
3. Spray mortar surfaces at regular intervals to keep them moist for at least 7 days after use.

1.5.6 Provide temporary enclosures and heating systems necessary to maintain the prescribed temperature. Continuous temperature measuring devices must be installed in several places within the heated enclosures, which must be accessible and kept operational throughout the duration of the work. Supervision, at the expense of the Contractor, must be continuous in periods when there is no worker.

1.5.7 Take care not to overheat the masonry.

1.6 ON-SITE MEASUREMENT

1.6.1 The first step is to survey all visible parts above ground (walls, parapets and surrounding structures).

1.6.2 The second stage will be carried out following excavation work at the front of the walls and behind the wall on the right side. The purpose of this step is to accurately record the geometry of the jumps and buttresses, as well as that of the excavated remains.

1.6.3 The third stage will be completed once all portions of masonry have been dismantled and the healthy surfaces to be preserved, against which the new masonry elements will be rebuilt, have been approved by the Consultant. To achieve this data acquisition, masonry surfaces must be cleaned of any demolition residue and be free of obstacles, such as scaffolding and materials.

1.6.4 The final step is to survey all reconstructed surfaces before backfilling work has been undertaken.

1.6.5 Allow for 2-hour downtime for each portion of wall cleared to allow action to be taken before dismantling begins. The 2-hour periods may be scheduled within the normal site schedule and between 5:30 a.m. and 7:30 a.m. or between 3:30 p.m. and 5:30 p.m. from Monday to Friday. In all cases, the presence at the site of the Contractor's manager is mandatory during the taking of measurements.

1.6.6 Notify the Consultant at least 24 hours in advance to conduct laser scans.

2 PROCEDURE

2.1 STONES

2.1.1 Stones: in accordance with section 04 43 00.01 Stone Removals and 04 43 00.02 Stone Replacement.

2.2 MORTAR

2.2.1 Mortar: according to the requirements of section04 05 13 (Masonry Cleaning, Mortar, Grouting and Repointing)

2.3 ANCHORS

2.3.1 Stainless steel threaded rods conform to ASTM F593 (AISI 316).

2.4 COLD GALVANIZING PRODUCT FOR EXISTING STEEL REINFORCEMENTS

2.4.1 Zinc-rich coating applied with a brush (minimum 95% zinc in the dry finish).

3 EXECUTION

3.1 EXAMINATION

3.1.1 Examine masonry surfaces and staging and storage areas, and inform the Consultant in writing of any conditions that would prevent the work from being completed as prescribed and completed in a timely manner.

3.2 PROTECTION

3.2.1 Protect nearby amenities and facilities that need to remain in place from damage. If necessary, repair the damage.

3.2.2 Protect surrounding surfaces and structures from any damage that may result from the work.

3.2.3 Protect the masonry core exposed by the work from water infiltration if it remains exposed for a significant period, i.e. if the reconstruction work is interrupted.

3.2.4 If necessary, repair any damage to the historic fabric of the structure.

3.3 REGISTER OF STONES

3.3.1 For each of the front facing stones, the following information must be recorded by the Contractor in an Excel file provided to the Consultant: the numbering of the stone as shown on the plans, the original location of the stone and the precise dimensions of the stone.

3.3.2 For each of the front facing stones replaced by a salvaged stone, the following information must be recorded by the Contractor in the register: the location of the stone in the new set laying pattern (area and rank), the numbering of the stone as identified on the numbering plans provided, the precise dimensions of the original stone as well as the dimensions of the reintegrated stone (if cutting required).

3.3.3 For each of the existing stones, the minimum information that must be recorded in the register by the Contractor is as follows:

1. Stone identification number (such as on the plans);
2. Actual height (mm);
3. Actual width (mm);
4. Approximate depth (mm);
5. Nominal height (mm) to establish the insertion rank;
6. Condition of the stone (to be recovered, cut, reclaimed in the structure, reject, etc.);
7. Area and rank of reintegration.

3.3.4 For each of the new stones, the minimum information that must be recorded in the register by the contractor is as follows:

1. New stone identification number;
2. Actual height (mm)
3. Actual width (mm)
4. Depth (mm)
5. Nominal height (mm) to establish the insertion rank;
6. Area and rank of reintegration.

3.3.5 The register of stones must be sent to the Consultant when requested for follow-up and at each of the monthly payment requests.

3.4 MARKING OF STONES

3.4.1 Before removal, mark the stones on their facing face with a marking product that can be completely erased, if necessary, without damaging the masonry element; To do this, use the following:

1. a ballpoint pen and mark it on a diachylon that will be affixed to the stone;
2. A chalk without wax and make the marking directly on the stone.

3.4.2 Ensure that the provisional marks will withstand weathering, handling and cleaning, and will last until the stones are finally marked.

3.4.3 When existing stones are considered healthy and can be reintegrated into the new equipment, they must be permanently marked with an aluminum medallion, attached to the stone with a stainless steel anchor.

3.4.4 Ensure that temporary marks and adhesives can be removed with a vegetable fiber brush, used dry or with water, without damaging the masonry elements. Do not use solvents, acids or other chemicals.

3.4.5 Record the dimensions of each stone removed and record them in the register.

3.5 TEMPORARY SUPPORT

3.5.1 Construct the props, cradles and other temporary elements necessary to support the work, or parts thereof, during dismantling and pending replacement, according to approved drawings bearing the seal and signature of a qualified engineer, having experience in historic masonry works and authorized to practice in the Province of Ontario.

3.6 SEAL STRIPPING

3.6.1 Carry out the stripping of the joints around the stones to be removed in accordance with the requirements of section 04 05 13 Masonry Mortar and Grouting 04 05 13.01 Masonry Repointing.

3.7 UNSEALING OF STONES

3.7.1 To unseal stones, use approved methods that do not cause damage to stones to be replaced, reused or masonry retained. To this end, take into account the presence of poured concrete directly in contact with the facing stones to be preserved. The concrete must be completely removed from the facing stones to be preserved, without damaging the stones.

3.7.2 Use hand tools only.

3.7.3 If applicable (e.g. large surface area of stones to be replaced), have the use of mechanical tools approved by the Consultant before starting the unsealing work. The use of a hydraulic hammer mounted on equipment, such as a mechanical shovel, is not permitted for the sealing of stones.

3.7.4 No unsealing work should be done on wet masonry if the temperature is below freezing.

3.8 SPECIAL TECHNIQUES

3.8.1 Avoid damage to the edge of the stones when stripping joints and unsealing masonry elements.

3.8.2 Use wooden corners as needed to remove or dislodge stones. Use flat lever bars covered with a material intended to absorb shocks (canvas, cardboard).

3.8.3 Use nylon lifting belts, at least two per stone.

3.8.4 Use wooden dividers or wedges to prevent lifting belts from damaging the edges of the stones while the stones are lifted from their position or handled along the stones are damaged, replace them in accordance with the requirements of section 04 43 00.02 Stone Replacement at the expense of the Contractor.

3.9 STORAGE

3.9.1 Before storage, place the stones in the designated area of the site for cleaning, detailed examination and final marking. During this step, validate with the Consultant the additional stones to be replaced and identify them as such.

3.9.2 Ensure that stones are accessible and easily removable, and that they are arranged in such a way that they can be easily located if necessary.

3.10 HANDLING

3.10.1 Place removed stones on wooden surfaces during handling, preventing contact with metal.

3.10.2 When the stones have descended to ground level, place them directly on the wooden platforms that will be used for transport or storage.

3.10.3 Transport and store stones on wooden platforms.

3.10.4 Make sure that the sharp edges of the stones do not touch any hard objects.

3.10.5 Have stones that have been impacted or fallen inspected and approved by the Consultant.

3.11 RECONSTRUCTION OF MASONRY STRUCTURES

3.11.1 The masonry against which the structure will be rebuilt must be sound and free of loose particles.

3.11.2 Before setting up the reconstruction elements, clean with a water jet and moisten the surfaces before installing the seat mortar.

3.11.3 Apply the mortar and lay the facing stones (new or reclaimed) on softwood corners soaked in water, according to the alignment of adjacent or level, plumb and square stones, on a generous layer of mortar.

1. The dimension stones to be dismantled must be reintegrated into the new equipment adjusted according to the indications given in the plans.
2. The ashlars of the right shoulder, capital and left shoulder will have to be repositioned in exactly the same place.
3. The new facing stones must be installed according to the alignment of the adjacent stones and according to the new equipment set as shown in the plans.
4. Coat the vertical joint faces of the masonry elements and then fill the vertical joints of the facing surface as well as those made between the walls. Completely fill the holes drilled for anchors, studs and lifting devices as well as voids left by the straightening of edges that are too prominent.
5. Lay the stones and fill the mortar joints in a single operation. Dig with a round joint iron to make smooth, tightly packed and evenly concave joints so that the thickness of the joints conforms to the front joints and joints in adjacent areas.
6. Leave the wood wedges in place until the mortar has hardened and the wood has dried, then remove them without breaking. Carry out repairs to fill the gaps left by the removed corners.

3.11.4 Anchor the stones using A-316 stainless steel threaded rods. Drill the holes according to the adhesive manufacturer's recommendations and inject them with adhesive mortar. Use plastic tubular strainers where required to contain the adhesive.

3.11.5 Lay heavy stones and protruding stones once the mortar in the underlying rows has hardened enough to support the weight.

3.11.6 Prop and anchor the protruding stones until the upper rows have hardened sufficiently.

3.11.7 Build the masonry core with new materials or healthy stones recovered as indicated.

3.11.8 Clean the finished structure as the work progresses.

1. Remove mortar burrs from exposed surfaces of masonry.
2. Remove traces of mortar from the facing face of the stones.
3. Remove dirt from the mortar before it has hardened.
4. To clean the masonry, use only clean water and a soft bristle brush.

3.12 REINFORCING STEEL

3.12.1 Rebar, threaded rods, connectors and anchors must not be bent or bent in place unless specifically specified or specifically authorized by the Consultant.

3.12.2 Where bending in place is permitted, proceed without heat input, slowly applying uniform pressure.

3.12.3 Replace cracked or cracked rebar, threaded rods, connectors and anchors.

3.13 NEW WALL AESTHETIC TO MATCH EXISTING

3.13.1 The reassembly of the front facings of the left and right faces will be done respecting a new pattern of installation completely modified so as to obtain an apparatus adjusted horizontally, level, while maximizing the recovery of existing stones still in good condition.

3.13.2 The height and arrangement of the rows will be partly dictated by the height and current location of the corner stones of the right shoulder, capital and left shoulder.

3.13.3 Areas are illustrated on the plans to facilitate planning for the reconstruction of the facing and to track the stones through the stone register.

3.13.4 In order to assist in the establishment of stone heights for each row according to the different zones, approximate nominal heights for each of the rows were identified for all zones. These dimensions include mortar joint widths, which are arbitrarily set at 13-25 mm.

3.13.5 To allow the use of existing stones, whose dimensions may vary slightly in the same row, or for stones installed in a so-called "combined" arrangement, the width tolerances of mortar joints are +9 mm and -3 mm.

3.13.6 The dimensional tolerances for recovered existing stones in relation to the nominal height of the rows are +6 mm and -20 mm.

3.13.7 All stones must be centered in height in the same row in order to obtain similar joint thicknesses on both sides of the stone.

3.13.8 New stones will have to be distributed proportionally in the same row and area according to the established rate of stone replacement for an entire wall. Avoid creating areas where high concentrations of new stones are found.

3.13.9 The existing stones deemed recoverable, but of small dimensions, will have to be reintegrated into the laying rows according to a "combined" type arrangement which consists of the placement of two stones of the same length, one perfectly above the other and whose arrangement makes it possible to reach the nominal height of the row.

3.13.10 "Combined" arrangements should be proportionally distributed throughout the reconstructed siding. No more than two arrangements side by side can be made. A maximum of 25% "combined" layout is accepted for the entire surface of the wall cladding.

3.14 MORTAR CURING

3.14.1 Ensure wet curing of the mortar of the reconstructed structure by means of single-use wet curing covers.

1. The cure must begin immediately after the placement of the mortar.
2. Install the covers according to the manufacturer's recommendations on repointed masonry works and keep them in place throughout the curing period. Secure these curing covers tightly so that they remain resting on the wall and the wind does not move them.
3. The cure period must be at least 7 days in summer and 21 days in winter. Provide for rewetting as needed.
4. Protect surfaces from drying winds by paying particular attention to corners.

3.14.2 Use impermeable tarpaulins to cover structures to prevent weathering of newly used reconstruction materials.

1. Make sure air can circulate under the tarps.
2. Secure the tarps in place.

3.15 WASTE DISPOSAL

3.15.1 Dispose of and dispose of waste in accordance with the requirements of section 01 74 19 (Waste management and disposal).

3.16 FINAL CLEANING

3.16.1 Before commencing the cleaning of the finished structure, confirm the Consultant's acceptance of the previously demonstrated cleaning method.

3.16.2 Clean masonry surfaces once repair work is complete and the mortar has hardened.

3.16.3 Perform cleaning when the temperature is above freezing. After cleaning, protect wet stones from freezing until dry.

3.16.4 Remove burrs and mortar residues from work to masonry surfaces without damaging stones or joints.

END OF SECTION

1 GENERAL

1.1 DESCRIPTION

1.1.1 This Section describes the materials and methods for masonry and stone mortar works, stone repointing, and masonry cleaning.

1.2 MEASUREMENT AND PAYMENT PROCEDURES

1.2.1 This section is intended to define how quantities are to be measured and when we will certify payment.

1. Quantities for localized re-pointing repairs will include the actual length of re-pointed masonry joints.
2. Quantities for all other localized repairs will include actual length of repair.
3. Payment for the work will be certified once new mortar is installed and the Consultant is satisfied that acceptable procedures have been followed.

1.3 WORK COVERED

1.3.1 All exposed surfaces of stone siding must be cleaned prior to dismantling to remove any traces of calcite deposits on the stones and to remove altered surface layers of stone (peeling).

1.3.2 All exposed stone masonry wall surfaces must be thoroughly cleaned once the work is completed.

1.4 ALTERNATIVES

1.4.1 Throughout the duration of the work, any change of trademark, source of material supply or method of mixing mortar, as compared to the requirements of this estimate, must be approved in advance by the Consultant.

1.5 REFERENCE STANDARDS

1.5.1 Refer to the latest editions in force of the following standards:

1. ASTM
    1. ASTM C207, Standard specifications for hydrated lime for masonry purposes.
    2. ASTM C270, Standard specifications for mortar for unit masonry.
    3. ASTM C1713, Standard Specification for Mortars for the Repair of Historic Mortar
2. CSA
    4. CSA A23.1/A23.2, Concrete - Components and Workmanship/Standard Testing and Practices for Concrete.
    5. CSA A179, Mortar and grout for masonry of elements.
    6. CSA A3000, Compendium of Binders (contains A3001, A3002, A3003, A3004 and A3005).
    7. CSA A371, Masonry Construction for Buildings
3. Institute for Research in Construction (NRC-NRC):
    8. Construction Technology Update No. 68.

1.6 DEFINITIONS

1.6.1 Raking: the removal of loose/deteriorated mortar until sound mortar is reached (minimum 25mm removals).

1.6.2 Repointing: filling and finishing masonry joints where mortar is missing, mortar has been removed or no mortar has been applied.

1.6.3 Tooling: finishing of masonry joints using tool to provide final contour.

1.6.4 Repair: using adhesives to rebond sections of fractured masonry.

1.6.5 Consolidation: strengthening masonry units to prevent deterioration or spalling.

1.6.6 Stripping: removal of loose or deteriorated mortar to a depth of 100 mm for stone facing.

1.6.7 Joint shaping: finishing masonry joints with appropriate tools to give them their final shape.

1.6.8 Low pressure water cleaning: wetting masonry with water applied at a pressure of less than 350 kPa (50 psi) measured at the nozzle end.

1.7 ENVIRONMENTAL REQUIREMENTS

1.7.1 Cleaning Requirements:

1. Do not use a wet cleaning method when there is a risk of freezing.
2. Do not use cleaning chemicals when the temperature is below 10 ºC.
3. Follow the manufacturer's written instructions for the use of cleaning chemicals, depending on the range of application temperatures of the cleaning chemicals.
4. Take the necessary measures to protect the walls to be cleaned from direct sunlight.
5. Do not clean up if there is a risk that the chemicals being sprayed will be blown to the surrounding historic fabric, in areas to which the public has access, or on plants.

1.7.2 Cold Weather Requirements – Supplement Clause 6.7.2.1 of CSA-A371 with following requirements:

1. Temperature of the mortar at the time of laying shall not be less than +20°C (+70°F) and not greater than +49°C (+120°F).
2. When ambient temperatures fall below 4°C, store all materials in a heated enclosure in which the temperature is maintained above 10°C.
3. Provide the following measures:

Air Temperature	Requirements During Construction	Protection of Work (48 hours minimum)
0° to 4°C	Mix mortar with hot water; mortar to be min. 20°C	Protect masonry from being wetted from rain/snow

0° to -4°C	Mix mortar with hot water; mortar to be min. 20°C	Immediately cover with weather-resisting membrane and seal the membrane's perimeter
-4° to -7°C and wind velocity less than 25km/h	Mix mortar with hot water; mortar to be min. 20°C Provide a heat source to all exposed sides of the wall to maintain the wall's temperature above 0°C.	Immediately cover masonry with insulating blankets and seal around the blanket's perimeter
below -7°C or wind velocity greater than 25km/h	Mix mortar with hot water; mortar to be min. 20°C Masonry unit temperature to be 7°C Provide a weather tight, heated enclosure. Maintain the enclosure's temperature above 0°C.	Maintain masonry temperature above 0ºC by an enclosure and supplemental heat

4. Maintain maximum/minimum thermometers on site and maintain a daily log, with readings taken at the commencement and completions of daily operations and at midday.
    1. Keep a daily record of recorded temperatures and humidity levels.
    2. Install relative humidity and temperature measuring devices, record temperature and relative humidity, and submit a report to the Consultant.

1.7.3 Hot Weather Requirements:

1. When wall surfaces or ambient temperatures reach 25°C, protect new work from rapid drying by providing burlap protection kept misted as necessary to control drying and shrinkage, or by protecting freshly laid masonry by means of waterproof, non-staining coverings, as approved by the Consultant.
2. Temperature of the masonry at the time of installation and within 12 hours after shall not exceed +49°C (+120°F). During warm, sunny weather, avoid repointing areas that will be exposed to direct sunlight unless precautions are taken to avoid exceeding the specified maximum temperature.

1.7.4 Keep masonry dry using waterproof, non-staining coverings that extend over walls and down sides sufficient to protect walls from wind driven rain, until masonry work is completed and protected by flashings or other permanent construction.

1.7.5 Keep surfaces moist for at least 3 days after implementation.

1.7.6 Take care not to overheat the masonry.

1.7.7 Obtain approval from Consultant for methods of enclosure and protection.

1.8 SUBMITTALS

1.8.1 Submit in accordance with Section 01 33 00 – Submittal Procedures and Section 01 78 00 – Close Out Submittals

1.8.2 Data Sheets: Submit the required data sheets and manufacturer's instructions and documentation for mortars at least 15 days prior to the start of work. Data sheets should indicate product characteristics, performance criteria, dimensions, limits and finish.

1.8.3 Product Samples: Submit samples of all types of restoration and reconstruction mortar in accordance with Section 01 33 00 (Document and Samples to Be Submitted).

1.8.4 Test Reports: The manufacturer of dry mixtures (Portland cement, lime, sand and dye) prepared and packaged in the factory will be required to provide a certificate covering the lots or part of a lot from which the materials packaged in accordance with the requirements according to the requirements listed in section 7.2 of CSA A179 and according to section 9 "Prequalification Testing and Acceptance Criteria" of that standard for mortars listed later in this section.

1.9 QUALIFICATIONS

1.9.1 Carry out work by skilled and experienced tradesmen who specialize in the type of work specified.

1.9.2 Continuously supervise the work with a competent mason with 10 years experience in stone masonry.

1.9.3 Ensure mason has good level of understanding of structural behavior of masonry walls.

1.9.4 Provide a thoroughly experienced and competent workman to be responsible for mortar mixing throughout the project.

1.10 DELIVERY, STORAGE AND HANDLING

1.10.1 Deliver materials to the job site in dry condition and their original packaging, which must bear a label indicating the name and address of the manufacturer.

1.10.2 Keep materials dry. Protect them against bad weather, frost/freezing and any source of contamination.

1.10.3 Store under waterproof cover on pallets or plank platforms held off ground by means of plank or timber skids.

1.10.4 Ensure that manufacturer's labels and seals are intact upon delivery.

1.10.5 Immediately remove rejected or contaminated material from site.

1.11 MOCK-UPS

1.11.1 Match mortar as close as possible to existing with respect to colour and texture, as approved by Owner. Coordinate with manufacturer to batch trial mixes for comparison with original mortar. Once accepted by Consultant and Owner, ensure production batches match approved mix design for aggregate mix to maintain uniform colour.

1.11.2 Masonry Repointing: One mock-up each of cutting-out and repointing of joints, both in regular mortar joints and in previously caulked joints (where applicable) (500mm).

1.11.3 One mock-up for each typical location/detail/repair. Each mock-up must be 500mm, minimum. This includes but is not limited to:

1. Re-pointing, including cutting out and repointing the joint. Complete this work using a batch trial mix of proposed mortar for the project. Three mock-ups must be completed, each using a separate batch trial mix.

2. Retrofit vertical control joint, including cutting out and installing anchorage and sealant as required by project details.
3. Retrofit horizontal control joint, including cutting out and installing sealant as required by project details.

1.11.4 Samples of the work:

1. Construct two 1.5 m x 1.5 m samples of the structure illustrating the stripping and repointing techniques used for each type of repointed siding and joint required at the locations indicated by the Consultant.
2. Notify the Consultant at least 24 hours before starting to construct the samples of the structure.
3. Conduct samples of the work under the supervision of the Consultant in order to demonstrate, before the start of the work, that the specified processes, techniques and dosages are well understood.
4. Allow the Consultant 24 hours to review the samples before starting the work.
5. Once accepted, the samples will be the quality standard for this work. They may be incorporated into the finished work.

1.12 INSPECTIONS AND TESTING

1.12.1 Compressive strength testing:

1. The Consultant may require testing of mortar by an independent agency in accordance with CSA Standard A179M, including:
2. Compressive strength testing before construction begins, at time of preparation of mock-ups; and
3. Random testing of job-mixed mortars.
4. If testing is requested by the Consultant, three cubes shall be tested at 7 days. The remaining 3 shall be tested at 28 days.

1.12.2 Notify Consultant for review of the following:

1. Identification of joints to be repointed;
2. Review of raked joints, prior to repointing;
3. Identification of horizontal control joints requiring saw-cutting;
4. Installation of vertical control joints; and
5. Repointing.

1.13 QUALITY CONTROL

1.13.1 In accordance with Section 01 45 00 Quality Control, the laboratory responsible for monitoring the quality of the mortar to be coordinated by the Contractor and the Consultant.

1.13.2 Masonry contractor:

1. Use a single masonry contractor to perform masonry work.
2. The Masonry Contractor must be able to demonstrate its skills and present three masonry restoration achievements of historic stone works, acquired as part of work of similar scope and complexity to that subject to this contract over the past 10 years.

1.13.3 Masons:

1. Masons must hold a certificate of competency and have at least 5 years of experience in masonry restoration of historic stone or brick works.

1.13.4 Samples of the work (cleaning):

1. Regulatory requirements: ensure that all work is carried out in accordance with all relevant provincial regulations.
2. Notify the Consultant 48 hours before starting cleaning test surfaces. Obtain approval from the Consultant prior to testing.
3. Perform tests to determine the effectiveness of the following parameters associated with masonry cleaning: water pressures, water temperatures, nozzle types and spray distances. Only water pressure cleaning is to be performed. Pressure is to begin with 500psi of pressure, and increase pressure in 500psi increments, with a maximum of 2000psi of pressure. The use of soft soap is to be discussed with Consultant prior to use. Consultant to determine if soft soap can be used.
4. Start with the least aggressive trials; Interrupt the test when the cleanliness level is reached and immediately cease intervention in case of damage.
5. Conduct tests and mock-ups to see if brushing and spraying cleaning methods could be alternatives to pressure washing. Have the test results reviewed by the Consultant. Use the methodology approved by the Consultant.
6. Masons must be able to prove that they hold a license for the use of certain trademarked restoration mortars.

1.14 MOCK-UPS

1. Carry out mortar mock-ups in accordance with section 01 45 00 Quality control.
2. Submit methods to reproduce the colours, textures and grouting style of the existing mortar, as well as samples for this purpose.
3. Mortar samples must be taken at least 40 days before the start of reassembly work.
4. Arrange tests on mortar samples in order to know and master the technical characteristics. In the event that the mortar samples do not meet the intended performance, the Contractor shall adjust the dosages and repeat the samples and tests until the targeted performance is achieved.
5. No reassembly work will be permitted until the mortar samples are approved.
6. The samples will be used for the following purposes:
    3. Evaluate the quality of execution of the work, the preparation of the support/subjectile and the implementation of the materials.
    4. Verify compliance with prescribed performance requirements.
    5. Determine the right dosage (lime, cement, sand, water).
    6. Validate the quality of the product delivered by the supplier.
7. For samples of repointing mortar, take samples of the structure at the locations designated by the Consultant
8. Notify the Consultant 24 hours before starting to construct the samples of the structure. Obtain approval from the Consultant before commencing the construction of the work samples.
9. Once accepted, the samples will be the quality standard for this work. Approved samples may be incorporated into the finished work.

1.14.2 Mortar tests carried out before the start of reassembly and repointing work:

1. Submit test reports in accordance with Section 01 45 00 (Quality Control).
2. The test results shall demonstrate that the properties are appropriate for a particular mixture of mortar.
3. Test reports, for each sample, should include:
    1. The name of the manufacturer of the mortar, the name of the product and the theoretical performance targeted.
    2. Proposed particle size analysis of sand.
    3. Proposed sand dilation analysis.
    4. Air content of the mortar mixture in the plastic state.
    5. Penetration of the mortar mixture to the Vicat cone.
    6. Compressive strength of mortar at 7 days and 28 days, at least 40 days before the start of masonry work, or as directed by the Consultant. No delay in the schedule will be justifiable and accepted for delays caused by the Contractor who does not meet this requirement.
    7. The results of the 7- and 28-day laboratory tests must be submitted to the Consultant within a maximum of 2 working days.

1.14.3 Mortar tests under construction:

1. Analysis of sand expansion (water container) at the time of delivery to the site and after any change in environmental conditions, or at the request of the Consultant.
2. Air content of mortar, according to ASTM C185 standards, on a bi-weekly basis.
3. Measurement of the penetration of the mortar mixture with the Vicat cone to be carried out 4 times a day, respecting a minimum delay of one hour between each measurement. Of the four measurements to be carried out per day, the Contractor will be responsible for doing two, while the Consultant will also be responsible for carrying out two. These two measurements carried out by the Consultant will be made with the device provided by the Contractor. The Contractor shall submit Vicat's test results on a weekly basis to the Consultant. The results will be transmitted in Excel format and highlighting all results below or above what is prescribed in terms of millimeters.
4. Compressive strength of mortar at 7 days and 28 days, once a week on all types of mortar specified or used. If the mortar does not meet the 7-day compressive strength requirements, but meets the 28-day compressive strength requirements, it will be accepted. If the mortar does not meet the 7-day compressive strength requirements, according to the limit values set out in this quotation section, the Contractor will have the option of continuing the work at its own risk pending the results of the tests at 28 days, or dismantling the work in question.

1.14.4 Testing Standards:

1. Compressive strength (cubic specimens): According to CSA A179.
2. Resistance to sagging: according to CSA A179.
3. The Contractor shall provide all required data sheets for the mortars used. These data sheets must be submitted according to a recognized CSA standard.

1.14.5 Provide the Consultant with a 5-year warranty (material and labour) on the quality of the repointing mortar.

1.15 WARRANTY

1.15.1 General warranty requirements per Section 01 78 00 – Close Out Submittals

2 PRODUCTS

2.1 MATERIALS (CLEANING)

2.1.1 Use clean, contaminant-free drinking water.

2.1.2 Treat water with a high metal particle content before starting cleaning work.

2.1.3 Clean using air free of oil particles or other contaminants.

2.1.4 Hot water

1. Use water at 20 ºC.
2. Water must be heated to the desired temperature in instantaneous spray boilers or other suitable appliances.

2.1.5 Tools

1. Use only soft bristle brushes made of natural fibers or plastic.
2. Use only wooden or plastic scrapers.
3. Perform work using water pumps equipped with precise pressure regulators and pressure gauges, which can be preset and locked to the prescribed maximum pressures. Water pumps shall operate at a nominal pressure of 150 kPa.
4. Use air compressors with built-in oil filters to prevent oil from being sprayed onto the masonry.
5. Use nozzle spray nozzles equipped with a pressure gauge.
6. Use non-ferrous plastic or metal pipes and fittings.

2.2 MATERIALS (MASONRY MORTAR AND GROUTING)

2.2.1 Materials of the same brand and aggregates from the same source of supply must be used for all work.

2.2.2 Water: potable, clean and free of ice, oils, acids, sediment organics or any other contaminants.

2.2.3 Sand: Fine-grained sand of uniform particle size in the table below, according to CSA A179 and ASTM C144.

Sieve designation	Percentage by weight passing through each sieve	Percentage by weight retained on each sieve
Number 4 (4.75 mm)	100	0
Number 8	90	10
Number 16 (1.18 mm)	70	20
Number 30 (600 micrometers)	50	20
Number 50 (300 micrometers)	30	20
Number 100 (150 micrometers)	15	15
Number 200 (75 micrometers)	0	15

1. Gravel pit sand consisting of angular particles, sieved and washed, free of organic matter, colour and particle size.

2. Special sand mixtures, if necessary, to obtain the appropriate colour and particle size.

2.2.4 Portland Cement: Compliant with CSA A3000. Cement, which does not stain, type GU for masonry above ground and below ground level.

2.2.5 Lime: hydrated lime type "S", conforms to ASTM C207-11.

2.2.6 Mortar:

1. Installation and grouting mortar (below ground level and above ground): prepared to dosing specifications, consisting of 1 part Portland cement, 2 parts lime, and 6 parts sand according to CSA A179. Target compressive strength of 2.0 MPa to 5.0 MPa at 7 days, and 4.0 MPa at 8.0 MPa at 28 days.
2. In the event that the test results were outside these limits, the Consultant would have the opportunity to have the affected masonry areas dismantled.
3. Color of mortar: grouting mortars should be natural in color, no dyes should be added. Repair mortars should be similar in color to the repaired stones.
4. Vicat cone penetration:
    8. Laying mortar: 25 to 40 mm.
    9. Grouting mortar: 18 to 25 mm.
5. Permissible air content for all mortars: 8 to 18%. The air content of plastic mixtures measured using a meter designed to record the air content of the mortar according to CSA A3004-C4.

2.2.7 Adjuvants: obtain approval from the Consultant prior to the use of adjuvants.

2.2.8 The use of pre-bagged mortar **is prohibited.**

2.3 PERMISSIBLE TOLERANCES

2.3.1 Installation and grouting mortar:

1. The exact moisture content and appropriate consistency for the grouting mortar must be determined using a Vicat penetrometer.
2. Mixtures should be regularly checked with a Vicat penetrometer throughout the work to ensure consistency remains constant.

2.4 STONES

2.4.1 Refer to section 04 43 00 Stone Removal and Replacement for specifications for stones to be replaced in repointing areas.

2.5 CURING

2.5.1 Tarp for curing: a single-use moisture curing cover with one side made of non-staining, natural colour cellulose fabrics, and another side coated, opaque and waterproof, producing a non-perforated reflective protective barrier against ultraviolet rays. The water holding capacity is 174 liters of water per 149m^2 of cover.

3

3 EXECUTION

3.1 GENERAL

3.1.1 Perform work in accordance with CSA3-A371.

3.1.2 Existing mortar may contain asbestos and lead; necessary protection are to be taken during replacement. A P100 mask is required, with abatement procedures as per the Ministry of Labour requirements if asbestos or lead is determined to be present.

3.2 VERIFICATION OF EXISTING CONDITIONS

3.2.1 Record existing conditions with photographs, before and after clean-up. Inform the Consultant of any complications they may cause.

3.2.2 Report to the Consultant any deterioration of the masonry or its joints, detected before and during cleaning and not indicated on the contract drawings.

3.2.3 Obtain the approval of the Consultant before undertaking the cleaning of masonry surfaces showing signs of deterioration.

3.3 SITE PREPARATION

3.3.1 Ensure the protection of workers and site personnel.

1. Ensure adequate ventilation in the work area.
2. Ensure workers wear goggles, helmets, masks, gloves and protective clothing, as well as boots and respirators that meet the requirements of the relevant MSHA/NIOSH standards.

3.3.2 Clean masonry in repointing areas. Following this cleaning, identify on site with the Consultant the stones to be replaced.

3.4 PROTECTION OF EXISTING STRUCTURES

3.4.1 Cover and protect surfaces and finishing coatings, other than masonry, that are not affected by cleaning work including neighbouring buildings.

3.4.2 Protect wood and metal surfaces adjacent to masonry surfaces that must be retained.

3.4.3 Plants and gardens adjacent to the wall are not required to be protected and will be removed in order to complete the required work. All plants, gardens and shrubs on neighbouring properties are to be protected from the application of water and the projection of chemicals. Apply lime to the soil or build trenches filled with lime to neutralize the effects of acidic products where required.

3.4.4 The Contractor is responsible for any damage resulting from cleaning operations, both inside and outside the construction site. Repair, at your expense, damage to the satisfaction of the Consultant.

3.5 SEAL STRIPPING

3.5.1 Use a manual stripping tool to remove deteriorated mortar and mortar adhering to masonry elements. The use of saws is strictly prohibited.

1. Remove deteriorated mortar and mortar adhering to masonry elements to a healthy mortar or to a depth of 100 mm for stone cladding, so as to create a right-angled gap with a flat bottom wall.
2. Clean the voids and cavities encountered.

3.5.2 Avoid scarring, altering or damaging stones and other masonry elements during joint stripping operations.

3.5.3 Clean the surfaces of the joints by means of a jet of compressed air or by washing with water applied at medium pressure, taking care not to alter the texture of the masonry elements.

3.5.4 Rinse voids and balding joints, hollow them out with a low-pressure water jet, and if the water is not flowing freely, use a jet of compressed air to clean them thoroughly.

3.5.5 Remove any water build-up.

3.5.6 Before repointing begins, it is the Contractor's responsibility to notify the Consultant if the Contractor detects unidentified voids on the plans and deemed abnormal in the structure.

3.6 REPOINTING

3.6.1 Raking Joints

1. Rake unsound joints free of deteriorated and loose mortar, dirt and other undesirable material. The Contractor shall replace all masonry damaged as a result of the mortar removal process at no additional cost to the Owner.
2. Clean joints to full depth of deteriorated mortar, but in no case to less than 25 mm. All loosened or disintegrated materials beyond this point shall also be removed. Clean out voids and cavities encountered.
3. Make precautions to avoid damage to masonry units when removing mortar for repointing.
4. Stones are to be reused. If using grinders or saws are used to remove mortar, a sample of the stone following the removal using a grinder or saw is to be provided and assessed by the Consultant prior to proceeding to ensure the stones are not damaged. Saw-cut at the centre of the joint so as not to damage the masonry units. Do not overcut into adjacent cladding or structural components. Stop sawcut short of removal limits and remove remaining mortar by hand using hammer and chisel.
5. Use hammer and chisels at ends and junctions of joints to cut the mortar removal square. Rounded or feather edged terminations shall not be permitted.
6. Joints shall be washed clean of dust or debris prior to repointing using a jet of air to clean the joint.
7. Leave no standing water.

3.6.2 Repointing

1. Dampen joints and completely fill with mortar. If surface of masonry units/ stone has worn rounded edges keep pointing back from surface to keep same width of joint. Avoid feathered edges and ponding water inside the joint. Pack mortar solidly into voids and joints.
2. Keep masonry damp but surface dry when new mortar is installed.
3. Build-up pointing in layers not exceeding 12 mm in depth. Allow bottom layers to set before applying subsequent layers. Maintain joint width.
4. New joints shall be packed tightly in thin layers and tooled to match existing.

5. Remove excess mortar from masonry face before it sets. Finish jointing neatly as specified.

3.7 DOSING AND STIRRING – LAYING AND GROUTING MORTAR

3.7.1 The mixing will be done using a clean mechanical mixer free of dried mortar, traces of rust and other contaminants. Do not thaw equipment with salt or antifreeze.

3.7.2 Prepare the mortar according to the specifications and the proportions indicated in the Specifications. The exact air content as well as the appropriate consistency for the grout and installation mortar shall be determined using a Vicat penetrometer in accordance with the preceding requirements.

3.7.3 The durations of all brewing sequences should be controlled based on the viscosity and moisture content by manual inspection.

3.7.4 The moisture content for the mortar shall be determined using Vicat penetration test.

3.7.5 Record the amounts of water and use the same amounts for subsequent mixtures to help ensure consistency of all mixtures.

3.7.6 Thoroughly clean all mixing blades and mechanical mixer parts between each waste. There should be no residual water left in the bottom of the mixer. Residual water must be removed after each brewing.

3.7.7 The mortar should be kneaded until the required viscosity and moisture content is met.

3.8 MORTAR INSTALLATION TIME

3.8.1 The mortar must be placed less than ±1.5 hours after the striker, if the ambient temperature is equal to or greater than 25ºC, and less than 2.5 hours after the waste if the temperature is below 25 ºC. Above these limits, the mortar must be discarded.

3.9 MORTAR CURING

3.9.1 Ensure wet curing of the mortar of the reconstructed structure by means of single-use covers.

1. The cure must begin immediately after the placement of the mortar.
2. Install the covers according to the manufacturer's recommendations on repointed masonry works and keep them in place throughout the curing period. The cure period must be at least 7 days in summer and 21 days in winter. Provide for rewetting as needed.
3. Protect surfaces from drying winds by paying particular attention to corners.

3.9.2 Use impermeable tarps to cover structures to prevent weathering of newly used reconstruction materials.

1. Make sure air can circulate under the tarps.
2. Secure the tarps in place.

3.10 COLOR UNIFORMITY

3.10.1 In order to ensure colour uniformity of the finished product, the Entrepreneur must:

1. Use the same supplier for all mortars and grouts.

2. Avoid adding water at work to modify the maneuverability of the mortar or to find it (retreating).
3. Make sure that the amount of water present in the mortar joints when smoothing the joints is always the same.
4. Always use a clean mixer.

3.11 CLEANING

3.11.1 Cleaning during work: carry out the cleaning work in accordance with section 01 74 11 (Cleaning). Leave the premises clean at the end of each working day.

3.11.2 Final cleaning: remove surplus materials/materials, waste, tools and equipment from the site in accordance with section 01 74 11 (Cleaning).

3.11.3 Remove burrs and mortar splashes with a clean sponge and water.

3.11.4 Continue cleaning with a rigid bristle brush made of natural fibers after the initial setting of the mortar, but before it has completely hardened.

3.11.5 Clean masonry elements with clean water and a rigid bristle brush made of natural fibers only when the mortar has completely hardened.

3.11.6 Clean masonry with a soft bristle brush made of natural fibres and clean water at a pressure of 15 to 45 psi.

3.11.7 Obtain approval from the Consultant before using other methods to clean persistent stains.

3.12 PROTECTION OF THE FINISHED STRUCTURE

3.12.1 At the end of each working day, cover completely or partially completed structures that are not sheltered or protected by an enclosure.

3.12.2 Protect and shelter structures with wet cloths.

3.12.3 Use waterproof tarps to cover structures to prevent weathering of newly implemented materials.

1. Keep tarps in place for at least 1 week after installation.
2. Make sure air can circulate under the tarps.

3.12.4 Secure the tarps in place.

3.12.5 Protect the finished work against any damage until the time of handover of the work.

3.13 COMPLETION OF DAY'S WORK

3.13.1 Ensure that all areas of brick/mortar removal are adequately protected from penetration of rainwater.

3.13.2 Protect adjacent finished work against damage, which may be caused by on-going work.

END OF SECTION

1 GENERAL

1.1 DESCRIPTION

1.1.1 This Section describes the materials and methods for removing and replacing stone from existing walls.

1.2 REFERENCE STANDARDS

1.2.1 CSA

1. Canadian Standards Association (CSA) A179-94, Mortar and Grout for Unit Masonry.

1.3 SUBMITTALS

1.3.1 Proposed Stone Removal Identification and Recording Method that would identify the following:

1. Each stone by size and finish
2. Its position on the building
3. Up to date location (i.e. at work site, at remote storage or masons shop) and its status (i.e. cleaned and ready for reuse, or to be cut and reused in subsequent phase)
4. Wood platforms or other equipment used to transport and store stones; and
5. Work and storage areas.

1.3.2 Replacement Stone Samples as follows:

1. Three samples of each stone type from a quarry having similar stone as the original quarry (minimum 150mm x 150mm x 25mm). Stone finish is to match existing.
2. Select samples from currently worked bed of quarry, accompanied by quarry certification.
3. All hardware and other materials to be incorporated in the work.

1.3.3 Stone Replacement Engineered Drawings for each typical repair area showing the design criteria and anchorage details (anchor type, embedment depth, edge distance, and epoxy/adhesive type where required).

1.4 MOCK-UPS

1.4.1 One mock-up including removal of existing connectors.

1.5 WARRANTY

1.5.1 General warranty requirements per Section 01 78 00 – Close Out Submittals

2 PRODUCTS

2.1 MATERIALS

2.1.1 Stone

1. Existing stone to be cut for re-use is to be removed from site and cut by a skilled stone supplier under controlled conditions to ensure a straight and true line.
2. Match existing stone as closely as possible in all respects. Sample of stone to be provided to Consultant for approval prior to installation.
3. Secure all stone from the same quarry and beds to maintain a uniform appearance.
4. Grade - select to match existing.
5. Colour - grey or buff to match existing.
6. Classification – select to match existing
7. Actual dimensions of replacement stones shall be field measured prior to ordering.

2.1.2 **Water:** Potable and free from contaminations.

2.1.3 **Shims:** Non-staining wood (pre-soaked in water to allow shim to expand) using the same thickness as the mortar joints only if required.

2.2 FABRICATION

2.2.1 Thickness and Tolerances

1. Replacement stones are to be fabricated from one piece of rock to match the thickness and shape of the existing stone.
2. Replacement stone will be naturally bedded so that the bedding planes are horizontal and lie parallel to the ground.

2.2.2 Shape beds of stone resting on structural work to fit supports.

2.2.3 Cut or core stones for anchors, dowels, shelf angles and other support systems. Do not cut or core exposed surfaces, unless directed by the Consultant.

2.2.4 Match existing joint thicknesses.

3 EXECUTION

3.1 EXAMINATION AND PREPARATION

3.1.1 Mark out stones to be replaced or reset in conjunction with the Consultant. Replacement entails removal and replacement with a new stone. Resetting entails removal and re-installation of the same, original stone.

3.1.2 Following stone removal, examine the backup structure. Mark out unsound areas.

3.1.3 Move and lift stone units using means to prevent damage. Do not make holes or indentations.

3.2 DELIVERY, STORAGE AND HANDLING

3.2.1 Packing and Shipping

1. Carefully pack all stone units in crates for shipment to prevent any chips, soiling or cracking of units.

2. Carefully unload stone units at the site to prevent damage and to permit full inspection. Soiled or chipped stones are not acceptable.

3.2.2 Place stones onto wood surfaces during handling. Use skids made of white pine, poplar or yellow pine that do not contain excessive resins and are non-staining. All skids are to be clear of the ground to provide protection from staining or soiling. Prevent contact with metal. Do not store removed stone on grade.

3.2.3 Handle stone by methods that will guard against soiling, chipping or breakage. Stones damaged shall be repaired or replaced at the Contractor's expense.

3.2.4 When stones are stacked, separate the faces by non-staining skids. Use only two skids per stone, placed at the quarter point of the stones.

3.2.5 Cover stones with a clean tarp or polyethylene plastic sheets. Secure cover during periods of extended storage or when necessary to prevent damage.

3.2.6 Protect areas where stone cladding has been removed to prevent snow or rain penetration.

3.2.7 Protect completed work at all times from damage, marking or mortar droppings with non-staining coverings.

3.2.8 Store stones in logical sequence for selection when rebuilding.

3.3 PROTECTION

3.3.1 Cover top of completed and partially completed wall, not enclosed or sheltered, with weatherproof coverings at end of each working day. Drape cover over wall and extend 0.5 m down both sides. Anchor securely in position. Prevent finished work from curing too quickly.

3.3.2 Protect adjacent work from marking or damage due to work.

3.3.3 Provide temporary bracing of masonry work during erection until permanent structure provides adequate bracing.

3.4 MARKING AND RECORDING

3.4.1 Ensure that as each stone scheduled for re-use is removed, it is properly identified and marked on an unexposed face usually the upper bed face, as per the accepted method.

3.5 STONE REMOVAL

3.5.1 Deteriorated stones that are to be replaced are to be kept on site for visual examination by the Consultant. Indicate bedding planes for each stone to be kept for re-use. No stones are to be removed from the site without the approval of the Consultant. The Consultant will designate which stones will be:

1. transported off site for cutting and re-use in current phase, or
2. disposed of away from site.

3.5.2 Construct shoring and cradling and other temporary framing work needed to support adjacent stones during removal and resetting operations in accordance with approved drawings, bearing seal and signature of a qualified Engineer licensed to practice in the Province of Ontario.

3.5.3 Loosen stones using approved methods, which will cause no damage to stones or to other architectural elements. Widening of joints will not be permitted. Approved equipment includes appropriate hand tools that do not exert concentrated pressure on the edge of stone.

3.5.4 Any stone damaged, including chips, nicks, or scratches caused by neglect or lack of proper care by the Contractor, in the opinion of the Consultant, must be replaced at the Contractor's expense. When temperature is below freezing, do not attempt to loosen wet stone masonry.

3.5.5 Move and lift stone units using means to prevent damage.

3.5.6 Remove all old mortar and sealants from bonding surfaces of stone. Avoid damaging the stone.

3.5.7 Remove all cramps, ties, anchors and other metal from stone. Clean out mortar from anchor pockets in the stone.

3.6 STONE SETTING

3.6.1 Begin stone setting only after repairs to the backup wall have been completed and reviewed by the Consultant.

3.6.2 Reset stone in the reverse order from which they were removed marking off each stone previously identified as it is reset and/or replaced.

3.6.3 Maintain all lines of the stone both plumb and level.

3.6.4 Grout abandoned dowel holes in existing stones and allow setting before setting into walls.

3.6.5 Thoroughly wet all stone joint surfaces just prior to contact with bedding mortar.

3.6.6 Parge back of stone prior to installation to ensure solid collar joint unless otherwise shown on the project details.

3.6.7 Anchor stone using existing original or new anchorage, as directed by the Consultant. Install new anchorage in accordance with approved shop drawing details provided by the Contractor's Engineer.

3.6.8 Set stone on full bed of mortar to match existing joint thicknesses, install shims in sufficient quantity to avoid squeezing mortar out. Heavy stones shall not be set until mortar in courses below have hardened sufficiently to support weight in conjunction with wedges.

3.6.9 Set stones plumb, true, level in full bed of mortar with vertical joints flushed full except where otherwise specified. Completely fill anchor, dowel and lifting holes and voids left by removed edges.

3.6.10 Rake out joints 20mm before initial set has occurred. Allow mortar to set hard.

3.6.11 Thoroughly wet all stone and mortar just prior to final pointing in order to control absorption.

3.6.12 Install pointing mortar to the full depth of joints. After initial set tool joints to required depth and finish to match existing. Tool head joints first. Do not overwork the tooling. At initial set compact joints with a bristle brush to produce a textured finish. Remove bits of mortar.

3.6.13 Remove all excess mortar from the face of the stone before it sets.

3.7 SUPPORT

3.7.1 Construct shoring and cradling, and other temporary framing work needed to support structure, or parts of it, during removal operations and in anticipation of resetting, according to approved drawings, bearing seal and signature of qualified Engineer familiar with historic masonry structures and licensed to practice in Ontario.

3.8 CLEAN-UP

3.8.1 All stains, dusting or marks on the stone and surrounding surfaces, which were generated by the work, shall be removed.

3.8.2 Do not use any cleaning agent other than water.

END OF SECTION

1 GENERAL

1.1 DESCRIPTION

1.1.1 This section specifies surface preparation and application of protective coatings to exterior steel elements.

1.2 REFERENCE STANDARDS

1.2.1 Where applicable and as required by the specification, the work shall be completed in adherence with the most current version of the following standards.

1.2.2 The Society for Protective Coatings (SSPC)

1. SSPC-SP 1-[Current)], Solvent Cleaning.
2. SSPC-SP 2-[Current], Hand Tool Cleaning.
3. SSPC-SP 3-[Current)], Power Tool Cleaning.
4. SSPC-Vis-1-[89], Visual Standard for Abrasive Blast Cleaned Steel (Standard Reference Photographs) Editorial Changes September 1, 2000 (Steel Structures Painting Manual, Chapter 2 – Surface Preparation Specs.).
5. SSPC-SP10/NACE 2-Near-White Commercial Blast Cleaning.
6. SSPC-SP11- Power Tool Cleaning to Bare Metal.
7. SSPC-SPA 2[04], Measurement of Dry Coat Thickness with Magnetic Gauges.
8. SSPC Good Painting Practices, Volume 1, 4th Edition.

1.3 ENVIRONMENTAL CONDITIONS

1.3.1 Ensure that substrate temperatures during application are a minimum of +10°C and a maximum of +35°C. Do not paint when air temperature is expected to reach 0°C before paint is dry.

1.3.2 Do not apply coatings while the wind speed is greater than 20km/h.

1.3.3 Do not apply coatings while the relative humidity is greater than 80%. The substrate temperature must be at least 5°C above the dew point while painting and curing.

1.3.4 Do not apply coatings in direct sunlight or during rain.

1.4 SUBMITTALS

1.4.1 Product Data:

1. Provide manufacturer's instructions, printed product literature and data sheets for painting exterior metal surfaces and include product characteristics, performance criteria, physical size, finish and limitations.
2. Submit copies of WHMIS SDS sheets for all paint and accessory products.

1.4.2 Samples:

1. Provide 3 colour samples for selection and approval by the Owner.
2. Provide draw down samples of each paint delivered to site.

1.4.3 Letter of general suitability: Letter certifying that the materials supplied and specified application methods are suitable for the planned application

1.4.4 Manufacturer reports: Provide written reports from the Manufacturer's Field Representative for all filed reviews required in section 1.6 – Inspection and Testing.

1.5 MOCK-UPS

1.5.1 Two locations for each coating to be used. Locations to be chosen in conjunction with the Consultant and be representative of typical locations expected for the specified work. Mock-up to include surface preparation and application of coating (1000mm long).

1.6 INSPECTION AND TESTING

1.6.1 Notify the Consultant for review of preparation of steel surfaces and application of coating.

1.6.2 Do not commence primer, or topcoat application until you receive written authorization from the Consultant.

1.6.3 All coating applications shall be inspected in accordance with SSPC-PA2, Measurement of Dry Film Thickness with Magnetic Gauges, as well as ASTM D 3359, Standard Test Methods for Measuring Adhesion by Tape Test.

1.6.4 Arrange to have coating manufacturer's representative visit the site prior to applying any material, in order to approve general surface preparation.

1. After the test mock-up to complete pre-application adhesion testing;
2. Prior to applying any material, in order to approve general surface preparation;
3. During the application in order to approve the general application process and complete required thickness and adhesion testing.

1.6.5 Deficiencies shall be repaired in accordance with manufacturer's written instructions.

1.6.6 Additional inspection and testing required to verify the correction of deficiencies will be completed as required at no additional cost to the Owner.

2 MATERIALS AND PRODUCTS

2.1 GENERAL

2.1.1 Paint materials to be products of a single manufacturer and designated by that manufacturer to be compatible with the existing conditions and to each other.

2.1.2 The paint used on this project shall be for exterior application.

2.1.3 All primers and base coats shall be tinted to a colour contrasting with the coats that follow.

2.1.4 All materials delivered to the site must be in the original containers with unbroken seals and intact labels clearly identifying the product.

2.1.5 Use materials in strict accordance with the manufacturer's specifications and requirements.

2.1.6 Paint colours will be selected by the Owner on site.

2.2 PAINT MATERIALS

2.2.1 Substrate preparation cleaners:

Manufacturer	Product
Chlor Rid	Chlor Rid Liquid Soluble Salt Remover
HoldTight	HoldTight 102 Salt Remover
Aero-Green	4110 Paint Prep Cleaner

2.2.2 Epoxy Primer / Polyurethane Finish Coat (for surfaces prepared in accordance with SSPC-SP 2/3):

Manufacturer	Primer	Finish Coat
Sherwin-Williams	Recoatable Epoxy Primer (6 mils)	Hi-Solids Polyurethane (4 mils)
PPG	Pitt-Guard® DTR Epoxy 95-245 (6 mils)	Pitthane® Acrylic-Aliphatic Urethane Enamel 97-8300 (2x2 mils)

3 EXECUTION

3.1 QUALITY CONTROL

3.1.1 All work shall meet or exceed the more stringent of the manufacturer's requirements or the requirements of this Specification, or the standards quoted.

3.2 STORAGE OF MATERIALS

3.2.1 Store materials in a single location designated by the Consultant. Maintain neat and clean. Remove soiled and/or used rags at end of each workday to avoid risk of fire.

3.3 SURFACE PREPARATION

3.3.1 Surface preparation and painting of metal surfaces shall be done in accordance with the relevant Structural Steel Painting Council (SSPC) Specification, and the requirements of this Specification.

3.3.2 Provide protections and controls as required to contain and collect all debris and by products of specified surface preparation methods.

3.3.3 Remove deleterious materials including:

1. all particles of dirt, rust, dust, chalk, mildew, grease, oil and any other deleterious materials which are detrimental to good bond by approved methods.
2. all loose, flaking, blistered, deteriorated or otherwise unsound paint by approved methods.

3.3.4 Clean all surfaces with a no-rinse paint preparation cleaner to be applied and removed with a lint free cloth and per manufacturer’s written instructions.

3.3.5 Prepare all metal surfaces by hand/power tool in accordance with SSPC-SP2 and SSPC-SP3.

3.3.6 Old paint may remain if it is solidly adhered. It shall be considered to have sufficient adhesion if it cannot be lifted as a layer by inserting a knife blade under it.

3.3.7 Scrape edges of old paint back to sound material where remaining paint is thick and sound, feather exposed edges.

3.4 SITE PREPARATION PRIOR TO PAINTING

3.4.1 Mask over adjacent surfaces as required to produce neat and true paint lines at discontinuous edges.

3.4.2 Protect adjacent surfaces and surfaces below from dripping, overspray etc.

3.4.3 Install "WET PAINT" signs.

3.4.4 Enclose areas below the work to prevent access to pedestrians. Be responsible for any paint spilled on vehicles or other objects below the work area.

3.5 MATERIAL PREPARATION

3.5.1 Mix well before using.

3.5.2 Withdraw from original container only as much material as can be used in one day. Do not return unused material to original container.

3.5.3 Maintain containers closed if not extracting paint.

3.5.4 For thinning, use only those materials permitted by the Consultant and approved by the manufacturer.

3.6 APPLICATION OF PRIMER COAT

3.6.1 Mix thoroughly to manufacturer's instructions.

3.6.2 Apply primer coat to all metal surfaces that were exposed by surface preparation.

3.6.3 Apply primer to exceed the minimum dry film thickness (DFT).

3.7 APPLICATION OF BASE/FINISH COATS

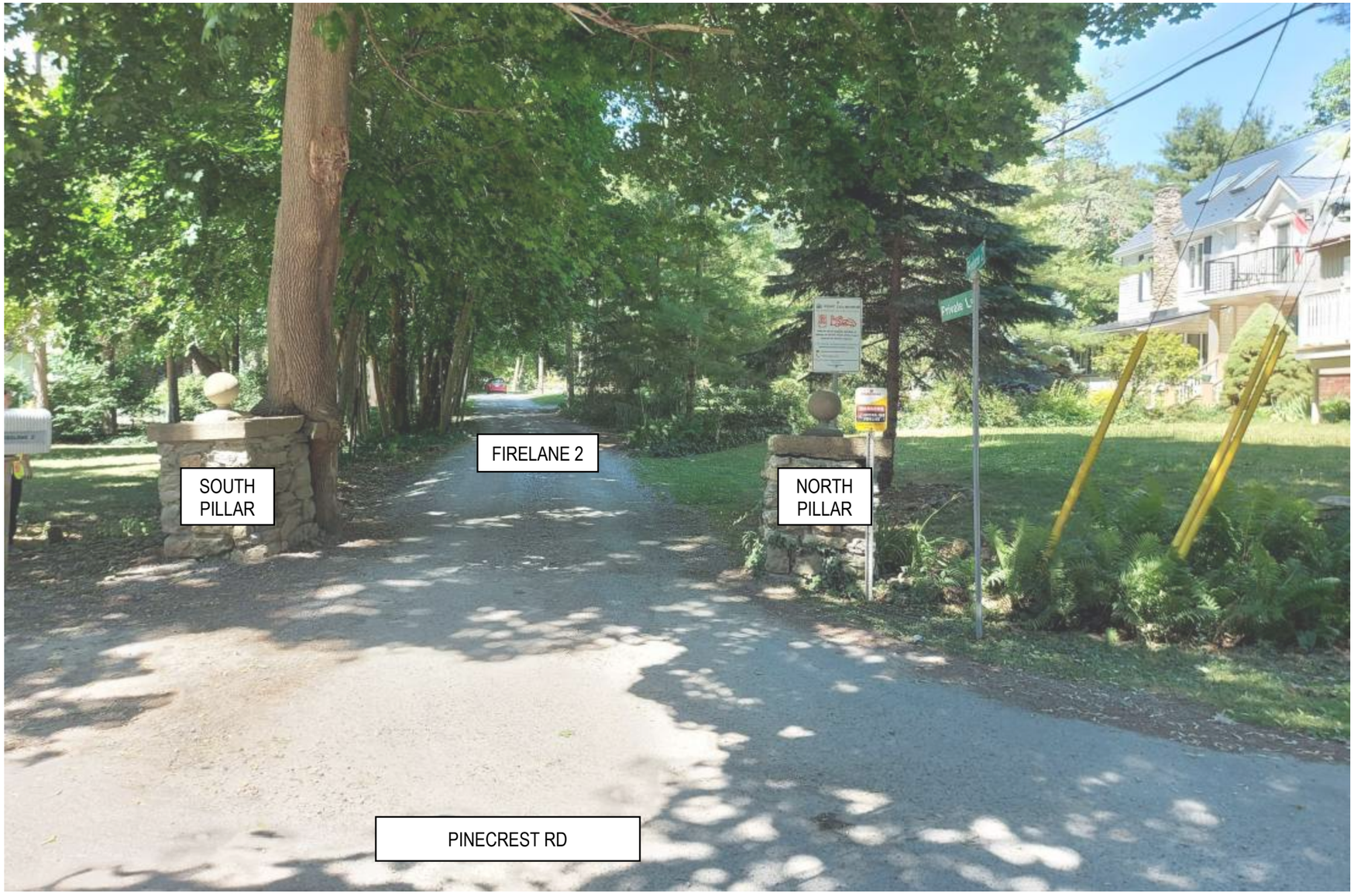
3.7.1 Apply in strict accordance with manufacturer's requirements. Do not use any other paint application methods unless prior written approval is obtained from the Consultant.

3.7.2 Apply base coat and finish coats to all surfaces to exceed the minimum DFT specified in Paragraph 2.2.

3.7.3 The dried finish coat shall be uniform in appearance, colour, and gloss. The "lap-in" areas shall exhibit uniformity with the adjacent painted areas. The finish shall be free of dirt, coarse particles, or any other foreign matter.

3.7.4 The final finish coat shall completely cover in one application. The Contractor shall touch-up areas which were not properly coated the first time.

End of Section 09 97 13.02



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TENNESSEE AVENUE & FIRELANE 2, PORT COLBORNE, ON
HERITAGE MASONRY RESTORATION

FIRELANE 2 & PINECREST ROAD - GENERAL OVERVIEW

Date:	Scale:
28-APR-23	NTS
Drawn by: BCV	Checked by: CPT
Project No. 221-06979-00	
Drawing No. BSC-101	

SOUTH PILLAR

NORTH PILLAR

NOTE:
1. CONTRACTOR IS RESPONSIBLE FOR CONFIRMING ACTUAL MEASUREMENTS ON SITE.

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TENNESSEE AVENUE & FIRELANE 2, PORT COLBORNE, ON
HERITAGE MASONRY RESTORATION

FIRELANE 2 & PINECREST RD - PILLAR DIMENSIONS

Date:	Scale:
28-APR-23	NTS
Drawn by: BCV	Checked by: CPT
Project No. 221-06979-00	
Drawing No. BSC-102	

SOUTH PILLAR

NORTH PILLAR

LEGEND

- DISASSEMBLE AND RECONSTRUCT ON NEW CONCRETE FOUNDATION
- DIASSEMBLE AND RECONSTRUCT TO MATCH EXISTING LOCATION
- LOCALLY REPLACE MISSING/DAMAGED STONES

NOTE:

1. TREE ADJACENT TO PILLAR WILL BE REMOVED BY THE CITY UPON COMPLETION OF DISSASSEMBLY

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FIRELANE 2 & PINECREST RD - PILLAR SCOPE OF REPAIRS

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Date:	Scale:
28-APR-23	NTS
Drawn by: BCV	Checked by: CPT
Project No. 221-06979-00	
Drawing No. BSC-103	

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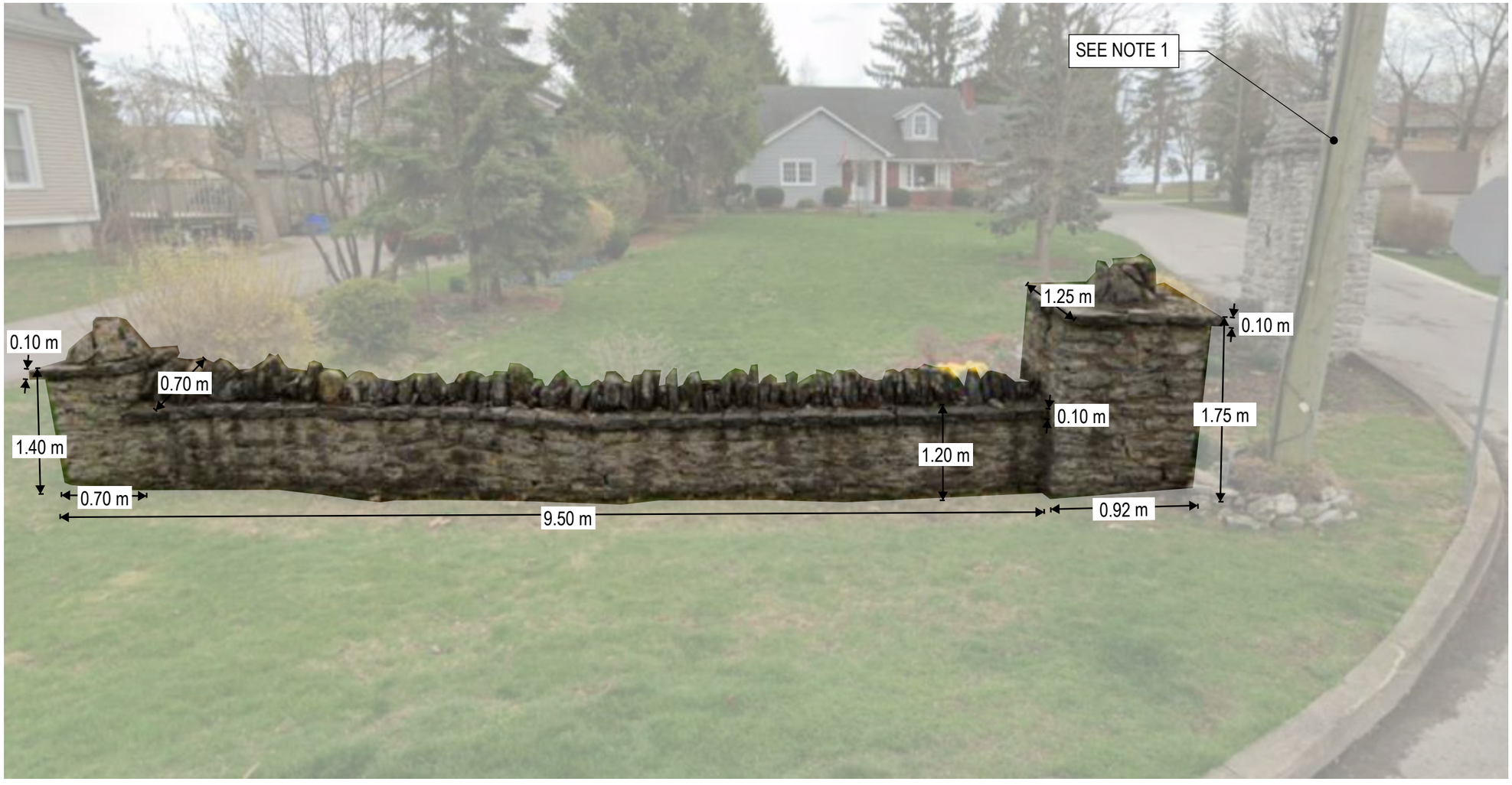
TENNESSEE AVENUE & FIRELANE 2, PORT COLBORNE, ON
HERITAGE MASONRY RESTORATION

TENNESSEE AVE & SUGARLOAF ST - SITE PLAN

Date:	Scale:
28-APR-23	NTS
Drawn by: BCV	Checked by: CPT
Project No. 221-06979-00	
Drawing No. BSC-201	



EAST WALL

NOTE:
1. CONTRACTOR IS RESPONSIBLE FOR CONFIRMING ACUAL MEASUREMENTS ON SITE.

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HERITAGE MASONRY RESTORATION

TENNESSEE AVE & SUGARLOAF ST - EAST WALL

4 HUGHSON ST. S, SUITE 300, HAMILTON, ON L8N 3Z1
PHONE: 905-529-4414 www.wsp.com FAX: 905-521-2699

Date:	Scale:
28-APR-2023	NTS
Drawn by: BCV	Checked by: CPT
Project No. 221-06979-00	
Drawing No. BSC-202	

EAST CURVED WALL

NOTE:
1. CONTRACTOR IS RESPONSIBLE FOR CONFIRMING ACUAL MEASUREMENTS ON SITE.

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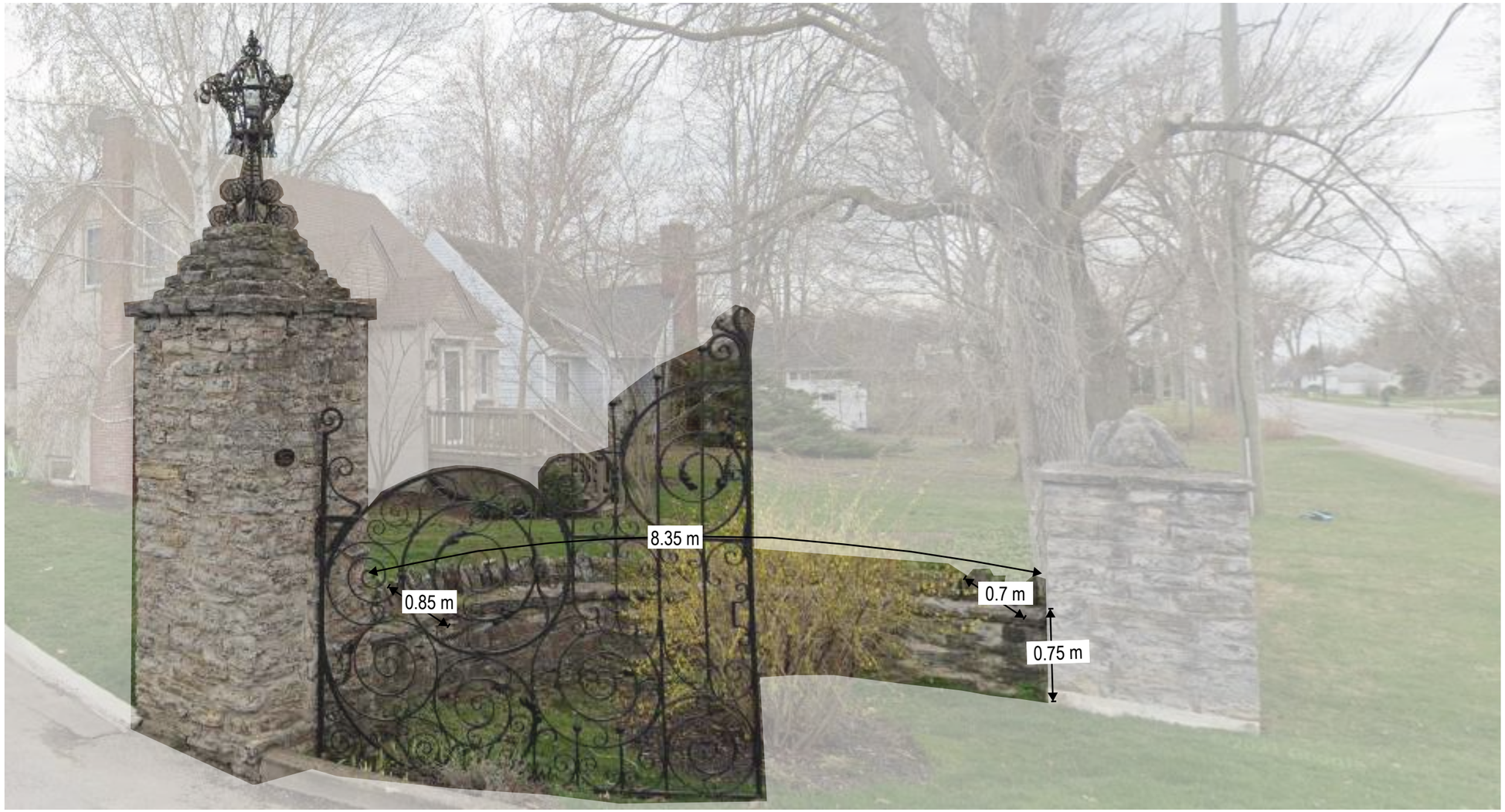
TENNESSEE AVENUE & FIRELANE 2, PORT COLBORNE, ON
HERITAGE MASONRY RESTORATION

TENNESSEE AVE & SUGARLOAF ST -
EAST CURVED WALL

4 HUGHSON ST. S, SUITE 300, HAMILTON, ON L8N 3Z1
PHONE: 905-529-4414 www.wsp.com FAX: 905-521-2699

Date:	Scale:
28-APR-23	NTS
Drawn by: BCV	Checked by: CPT
Project No. 221-06979-00	
Drawing No. BSC-203	



WEST CURVED WALL

NOTE:
1. CONTRACTOR IS RESPONSIBLE FOR CONFIRMING ACUAL MEASUREMENTS ON SITE.

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TENNESSEE AVENUE & FIRELANE 2, PORT COLBORNE, ON
HERITAGE MASONRY RESTORATION

TENNESEE AVE & SUGARLOAF STREET -
WEST CURVED WALL

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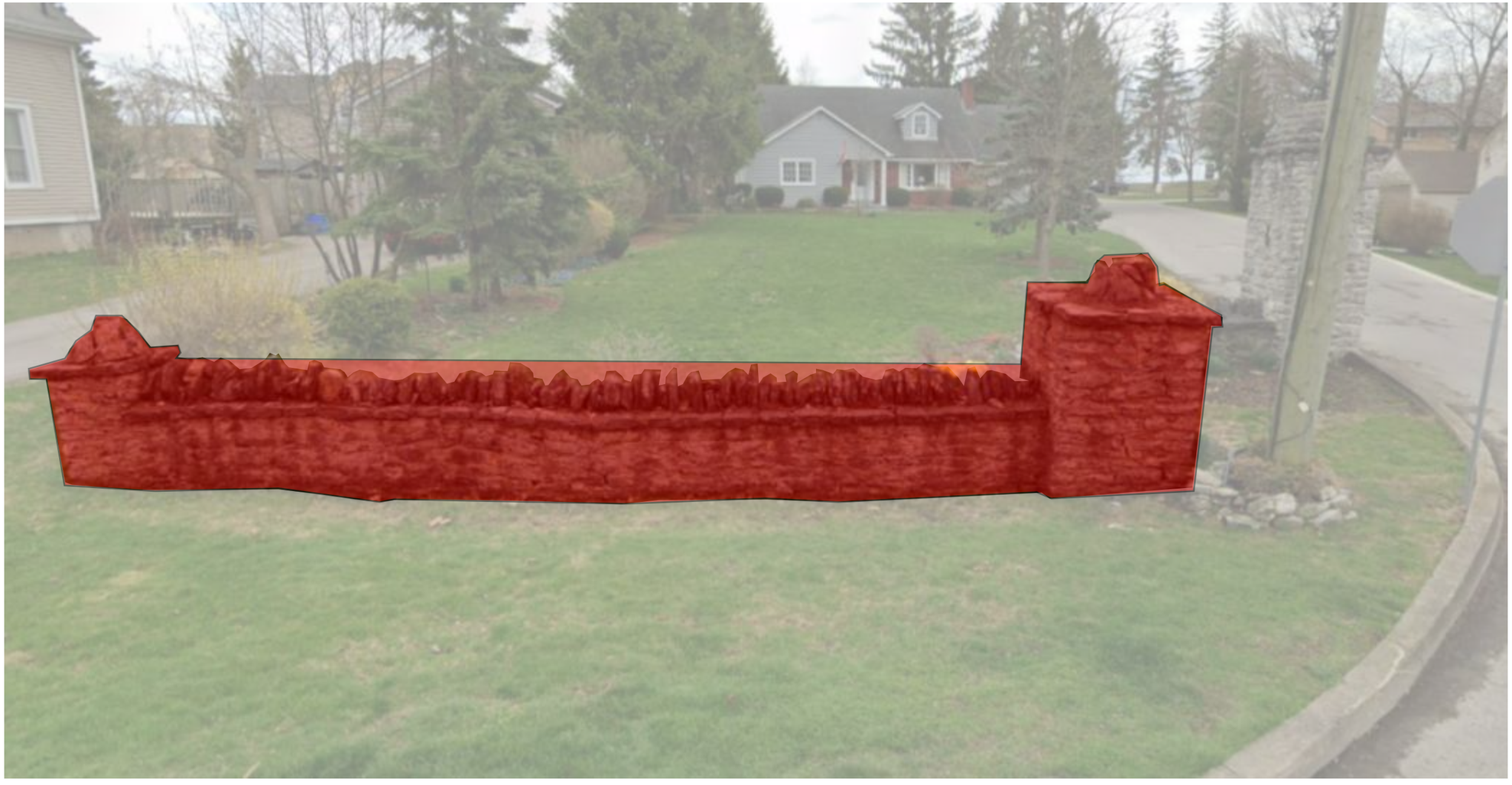
Date:	Scale:
28-APR-2023	NTS
Drawn by: BCV	Checked by: CPT
Project No. 221-06979-00	
Drawing No. BSC-204	



EAST WALL

LEGEND

DISASSEMBLE AND RECONSTRUCT ON NEW CONCRETE FOUNDATION

NOTE:

1. CONTRACTOR IS RESPONSIBLE FOR CONFIRMING ACUAL MEASUREMENTS ON SITE.

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TENNESSEE AVENUE & FIRELANE 2, PORT COLBORNE, ON
HERITAGE MASONRY RESTORATION

TENNESEE AVE & SUGARLOAF STREET -
EAST WALL SCOPE OF REPAIRS

Date:	Scale:
28-APR-2023	NTS
Drawn by: BCV	Checked by: CPT
Project No. 221-06979-00	
Drawing No. BSC-205	

EAST CURVED WALL

LEGEND

- DISASSEMBLE AND RECONSTRUCT ON NEW CONCRETE FOUNDATION
- DIASSEMBLE AND RECONSTRUCT TO MATCH EXISTING LOCATION
- LOCALLY REPOINT

NOTE:

1. APPROXIMATELY 40% OF WALL REQUIRES RECONSTRUCTION

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TENNESSEE AVENUE & FIRELANE 2, PORT COLBORNE, ON
HERITAGE MASONRY RESTORATION

TENNESSEE AVE AND SUGARLOAF STREET -
EAST CURVED WALL SCOPE OF REPAIRS

Date:	Scale:
28-APR-23	NTS
Drawn by: BCV	Checked by: CPT
Project No. 221-06979-00	
Drawing No. BSC-206	

WEST CURVED WALL

LEGEND

- DIASSEMBLE AND RECONSTRUCT TO MATCH EXISTING LOCATION
- LOCALLY REPOINT

NOTE:

1. APPROXIMATELY 50% OF WALL REQUIRES RECONSTRUCTION

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TENNESSEE AVENUE & FIRELANE 2, PORT COLBORNE, ON
HERITAGE MASONRY RESTORATION

TENNESEE AVE & SUGARLOAF STREET -
WEST CURVED WALL SCOPE OF REPAIRS

4 HUGHSON ST. S, SUITE 300, HAMILTON, ON L8N 3Z1
PHONE: 905-529-4414 www.wsp.com FAX: 905-521-2699

Date:	Scale:
28-APR-2023	NTS
Drawn by: BCV	Checked by: CPT
Project No. 221-06979-00	
Drawing No. BSC-207	

3. PROVIDE ALL MATERIAL AND LABOUR REQUIRED FOR COMPLETION OF THE WORK.

4. PRIOR TO CONSTRUCTION, REVIEW STRUCTURAL DRAWINGS IN CONJUNCTION WITH DRAWINGS PROVIDED BY ALL OTHER CONSULTANTS, AND WITH EXISTING CONDITIONS.

5. REPORT DISCREPANCIES TO THE CONSULTANT BEFORE PROCEEDING WITH THE WORK.

6. VERIFY EXISTING DIMENSIONS AND CONDITIONS ON SITE PRIOR TO CONSTRUCTION.

7. USE THESE DRAWINGS ONLY FOR THE PURPOSE IDENTIFIED IN THE REVISIONS COLUMN. DO NOT CONSTRUCT FROM THESE DRAWINGS UNLESS MARKED "ISSUED FOR CONSTRUCTION".

8. DO NOT USE INFORMATION ON THESE DRAWINGS FOR ANY OTHER PROJECT OR WORKS.

9. DO NOT SCALE THESE DRAWINGS.

10. ALL SECTIONS, DETAILS, AND STATEMENTS NOTED AS "TYPICAL" APPLY TO LIKE/SIMILAR CONDITIONS IN THE STRUCTURE.

11. DRAWINGS SHOW COMPLETED STRUCTURE ONLY. THEY DO NOT SHOW TEMPORARY WORKS FOR WHICH THE CONTRACTOR IS RESPONSIBLE AND WHICH MAY BE REQUIRED FOR EXECUTION OF THE PROJECT. THE CONTRACTOR TO ESTABLISH CONSTRUCTION PROCEDURE AND SEQUENCE TO ENSURE SAFETY OF THE WHOLE STRUCTURE AND ALL ITS COMPONENTS DURING ERECTION.

12. MAKE ADEQUATE PROVISIONS FOR ALL LOADS ACTING ON THE STRUCTURE DURING ERECTION. PROVIDE TEMPORARY SHORING AND BRACING TO KEEP THE STRUCTURE PLUMB AND IN TRUE ALIGNMENT DURING CONSTRUCTION.

13. DESIGN AND CONSTRUCTION REVIEW OF ALL TEMPORARY WORKS TO BE CARRIED OUT BY A PROFESSIONAL ENGINEER RETAINED BY THE CONTRACTOR, LICENSED IN THE PLACE WHERE THE PROJECT IS LOCATED.

DESIGN CRITERIA

1. STRUCTURAL DESIGN IS IN ACCORDANCE WITH THE 2012 ONTARIO BUILDING CODE (OBC) SUPPLEMENTED IN 2019 AND THE 2020 NATIONAL BUILDING CODE (NBC), SUPPLEMENTED BY THE USER'S GUIDE – NBC 2020 STRUCTURAL COMMENTARIES.

FIELD REVIEW

1. WSP-S WILL PROVIDE PERIODIC FIELD REVIEW OF A REPRESENTATIVE SAMPLE OF THE STRUCTURAL WORKS DETAILED ON THESE DRAWINGS FOR GENERAL CONFORMANCE WITH CONTRACT DOCUMENTS. THESE REVIEWS DO NOT REPLACE THE CONTRACTOR'S RESPONSIBILITY TO IMPLEMENT AND MAINTAIN A QUALITY CONTROL PROGRAM, AND DO NOT MAKE WSP-S A GUARANTOR OF THE CONTRACTOR'S WORK.

2. ASSIST WSP-S DURING FIELD REVIEW AND PROVIDE SAFE ACCESS TO WORK AREAS AS REQUIRED.

3. CHECK THE WORK PRIOR TO FIELD REVIEW TO CONFIRM IT IS COMPLETED AND IN ACCORDANCE WITH CONTRACT DOCUMENTS.

4. NOTIFY WSP-S 48 HOURS PRIOR TO CONCRETE POURS.

EXCAVATION & BACKFILL

1. PRIOR TO COMMENCING EXCAVATION, LOCATE AND IDENTIFY ALL EXISTING UNDERGROUND STRUCTURES AND SERVICES. DESIGN AND PROVIDE PROTECTION FOR EXISTING SERVICES TO REMAIN.

2. DO NOT PLACE CONCRETE IN WATER OR ON FROZEN SOIL.

TO MEET ALL CERTIFICATION, DOCUMENTATION, AND QUALITY CONTROL REQUIREMENTS.

3. THE CONCRETE SUPPLIER TO BE CERTIFIED BY THE ***[READY MIXED CONCRETE ASSOCIATION OF ONTARIO] [ALBERTA READY MIXED CONCRETE ASSOCIATION] [BC READY MIXED CONCRETE ASSOCIATION] [ATLANTIC CONCRETE ASSOCIATION] [ASSOCIATION BETON QUEBEC] [MANITOBA READY MIXED CONCRETE ASSOCIATION] [SASKATCHEWAN READY MIXED CONCRETE ASSOCIATION].***

4. CONCRETE TO BE NORMAL DENSITY (MIN. 2300 kg/m3) UNLESS NOTED OTHERWISE.

5. CEMENT TO BE PORTLAND CEMENT TYPE GU OR GUL, UNLESS NOTED OTHERWISE OR REQUIRED BY EXPOSURE CLASS. CEMENT TO CONFORM TO CSA A3000.

6. AGGREGATE TO CONFORM TO CSA A23.1 / A23.2. DO NOT USE RECYCLED CONCRETE AS AGGREGATE.

7. CONCRETE ADMIXTURES SHALL NOT CONTAIN CHLORIDES.

8. PERIMETER AND EXTERIOR FOUNDATION WALLS AND FOOTINGS:
-EXPOSURE CLASS: F1
-MINIMUM COMPRESSIVE STRENGTH AT 28 DAYS: 30 MPa
-NOMINAL SIZE OF COARSE AGGREGATE: 20 (3/4")

9. PROTECT CONCRETE FROM EXCESSIVE HEAT AND DRYING. USE HOT WEATHER CONCRETING METHODS IN ACCORDANCE WITH CAN/CSA-A23.1 WHENEVER THE OUTDOOR TEMPERATURE IS GREATER THAN 27°C.

10. PROTECT CONCRETE FROM FREEZING. USE COLD WEATHER CONCRETING METHODS IN ACCORDANCE WITH CAN/CSA-A23.1 WHENEVER OUTDOOR TEMPERATURE IS LESS THAN +5°C. ALL INSULATED COVERS, HEATERS, AND OTHER MATERIALS NEEDED TO PROTECT CONCRETE TO BE ON HAND PRIOR TO POUR. DELIVER CONCRETE AT A TEMPERATURE BETWEEN +15°C AND +27°C. ENSURE A MINIMUM CONCRETE TEMPERATURE OF 10° IS MAINTAINED THROUGHOUT THE CURING PERIOD (MINIMUM 3 DAYS).

11. FORMWORK DESIGN, MATERIAL, FABRICATION, AND ERECTION TO CONFORM TO CSA S269.1

12. FORMWORK MATERIAL TO BE NEW EXTERIOR PLYWOOD CONFORMING TO CSA O121, EXCEPT FOR ROUGH CONCRETE IN UNEXPOSED LOCATIONS (SUCH AS FOUNDATIONS) WHERE USED MATERIAL IS ACCEPTABLE.

13. USE REMOVABLE INTERNAL FORM TIES OR ADJUSTABLE METAL TIES DESIGNED TO ACT AS SPREADERS, WHICH WILL, WHEN REMOVED, LEAVE NO METAL CLOSER THAN 25 (1") TO CONCRETE SURFACE.

14. DO NOT SUPPORT FORMWORK SHORING ON FROZEN SOILS.

15. RIGID INSULATION TO BE EXTRUDED POLYSTYRENE BOARD CONFORMING TO ASTM C578, STRUCTURAL GRADE, WITH A COMPRESSIVE STRENGTH OF 275 kPa (40 psi).

CONCRETE REINFORCEMENT

1. CONFORM TO CSA A23.1 "CONCRETE MATERIALS AND METHODS OF CONCRETE CONSTRUCTION".

2. REINFORCEMENT – DEFORMED BAR REINFORCEMENT CONFORMING TO CSA G30.18 GRADE 400R OR 400W. USE 400W WHERE BARS ARE SHOWN TO BE WELDED.

3. ACCESSORIES, BAR SUPPORTS, AND TIES TO CONFORM TO REINFORCING STEEL INSTITUTE OF CANADA (RSIC) MANUAL OF STANDARD PRACTICE AND CSA A23.1 / A23.2.

4. ALL REINFORCING BAR SIZES ARE METRIC; "M" IS NOT NECESSARILY MARKED AFTER A BAR SIZE. FOR EXAMPLE, 10-15B NOTED ON PLAN INDICATES 10 BARS OF 15M DIAMETER, PLACED AT BOTTOM.

6. FIELD BENDING OF BARS IS NOT PERMITTED UNLESS INDICATED OR APPROVED BY WSP-S. APPROVED FIELD BENDING TO BE DONE WITHOUT THE USE OF HEAT, THROUGH APPLICATION OF SLOW AND STEADY PRESSURE. REPLACE BARS WITH CRACKS OR SPLITS.

7. ALL REINFORCING TO BE CLEAN, FREE OF LOOSE SCALE, OIL, DIRT, RUST, AND ANY OTHER FOREIGN COATING THAT AFFECT BONDING CAPACITY.

8. WHERE CONCRETE IS CAST AGAINST AND PERMANENTLY EXPOSED TO EARTH, MINIMUM CONCRETE COVER TO REINFORCING BARS CLOSEST TO THE CONCRETE SURFACE TO BE 75 (3").

9. FOR CLASS F-1 AND F-2 CONCRETE, MINIMUM COVER TO BE 40 (1 1/2").

10. ENSURE COVER TO REINFORCEMENT IS MAINTAINED DURING CONCRETE POUR.

CONCRETE FINISHING

1. WOOD FLOAT AND BROOM FINISH EXTERIOR SLABS.

REJECTED WORK

1. DO NOT DELIVER MATERIALS WHICH ARE KNOWN NOT TO MEET THE REQUIREMENTS OF THE SPECIFICATIONS. IF REJECTED AFTER DELIVERY, REMOVE IMMEDIATELY FROM SITE.

2. ALL WORK NOT IN COMPLIANCE WITH THE CONTRACT DOCUMENTS SHALL BE CORRECTED AT THE CONTRACTOR'S EXPENSE.

DRAWING LIST

DRAWING No	DRAWING NAME
S-101	GENERAL NOTES
S-102	TYPICAL DETAILS
S-201	CONC. GRADE BEAM PLAN, ELEVATION, & SECTIONS

PORT COLBORNE P
TENNESSEE AVENUE &
HERITAGE MASONRY RE

LICENSED PROFESSIONAL ENGINEER
M. Brzakovic
100057494
2023-05-24
PROVINCE OF ONTARIO

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GENERAL NOTES

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Date: 24-MAY-23	Scale: NTS
Drawn by: GBH	Checked by: MMB
Project No. 221-06979-00	
Drawing No. S-101	

TENSION DEVELOPMENT LENGTHS AND LAP SPLICES FOR BARS GRADE 400 MPa

TC-REINF-01

TENSION DEVELOPMENT LENGTHS ℓd FOR GRADE 400 INDIVIDUAL BLACK BAR IN NORMAL DENSITY CONCRETE

BAR SIZE	f'c = 25		f'c = 30		f'c = 35		f'c = 40		f'c = 50		f'c = 60	
	BOTTOM	TOP	BOTTOM	TOP	BOTTOM	TOP	BOTTOM	TOP	BOTTOM	TOP	BOTTOM	TOP
10	300 (12")	380 (15")	300 (12")	350 (14")	300 (12")	320 (13")	300 (12")	300 (12")	300 (12")	300 (12")	300 (12")	300 (12")
15	440 (17 ")	570 (23")	400 (16")	520 (21")	370 (14")	480 (19")	350 (14")	450 (18")	310 (12")	400 (16")	300 (12")	370 (14")
20	580 (23")	750 (30")	530 (21")	690 (27")	490 (19")	640 (25")	460 (18")	600 (24")	410 (16")	530 (21")	380 (15")	490 (19")
25	900 (36")	1170 (46")	830 (32")	1070 (42")	770 (30")	990 (39")	720 (28")	930 (37")	640 (25")	830 (33")	590 (23")	760 (30")
30	1080 (43")	1410 (55")	990 (39")	1290 (51")	920 (36")	1190 (47")	860 (34")	1110 (44")	770 (30")	1000 (39")	700 (28")	910 (36")
35	1260 (50")	1640 (65")	1160 (46")	1500 (60")	1070 (42")	1390 (55")	1000 (40")	1300 (52")	900 (35")	1160 (46")	820 (32")	1060 (42")
45	1620 (64")	2110 (83")	1480 (59")	1930 (76")	1370 (54")	1780 (71")	1290 (51")	1670 (66")	1150 (46")	1490 (59")	1050 (42")	1360 (54")
55	1980 (78")	2580 (102")	1810 (72")	2350 (93")	1680 (66")	2180 (86")	1570 (62")	2040 (81")	1410 (56")	1820 (72")	1280 (51")	1670 (66")

CLASS B TENSION LAP SPLICE LENGTHS FOR GRADE 400 INDIVIDUAL BLACK BAR IN NORMAL DENSITY CONCRETE

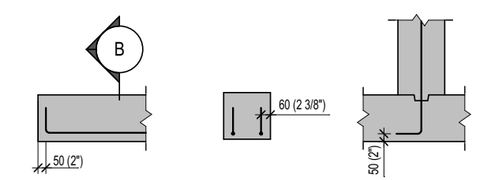
BAR SIZE	f'c = 25		f'c = 30		f'c = 35		f'c = 40		f'c = 50		f'c = 60	
	BOTTOM	TOP	BOTTOM	TOP	BOTTOM	TOP	BOTTOM	TOP	BOTTOM	TOP	BOTTOM	TOP
10	390 (16")	490 (19")	390 (16")	450 (18")	390 (16")	420 (17")	390 (16")	390 (16")	390 (16")	390 (16")	390 (16")	390 (16")
15	570 (23")	740 (29")	520 (21")	670 (27")	480 (19")	620 (25")	450 (18")	580 (23")	400 (16")	520 (20")	390 (16")	480 (19")
20	750 (29")	980 (39")	690 (27")	890 (35")	640 (25")	830 (33")	600 (24")	770 (30")	530 (21")	690 (27")	490 (19")	630 (25")
25	1170 (46")	1530 (61")	1070 (42")	1390 (55")	990 (39")	1290 (51")	930 (37")	1210 (48")	830 (33")	1080 (43")	760 (30")	990 (39")
30	1410 (56")	1830 (72")	1290 (51")	1670 (66")	1190 (47")	1550 (61")	1110 (44")	1450 (57")	1000 (39")	1300 (51")	910 (36")	1180 (46")
35	1640 (65")	2130 (84")	1500 (60")	1950 (77")	1390 (55")	1800 (72")	1300 (52")	1690 (67")	1160 (46")	1510 (59")	1060 (42")	1380 (54")

- FOR EPOXY BARS MULTIPLY VALUES IN TABLE BY 1.5 EXCEPT THAT A MULTIPLIER OF 1.2 CAN BE USED WHEN CLEAR COVER IS MORE THAN 3x BAR DIAMETER AND CLEAR SPACING BETWEEN BARS IS MORE THAN 6x BAR DIAMETER.
- FOR SEMI LOW DENSITY CONCRETE (1850< Yc ≤ 2150 kg/m³) MULTIPLY VALUES IN TABLE BY 1.2. FOR LOW DENSITY CONCRETE (Yc ≤ 1850 kg/m³) MULTIPLY VALUES IN TABLE BY 1.3.
- FOR BUNDLED BARS, MULTIPLY VALUES IN TABLE BY 1.1 FOR A TWO BAR BUNDLE, 1.2 FOR A THREE BAR BUNDLE AND 1.33 FOR A FOUR BAR BUNDLE
- "TOP" MEANS THAT THERE IS MORE THAN 300 (12") OF CONCRETE BELOW, AND LESS THAN 300 (12") OF CONCRETE ABOVE THE HORIZONTAL BAR WITHIN THE INDIVIDUAL CONCRETE POUR. ALL HORIZONTAL BARS IN WALLS TO BE CONSIDERED "TOP".
- ALL VERTICAL BARS ARE CONSIDERED "BOTTOM"

MINIMUM TENSION EMBEDMENT LENGTHS WITH STANDARD END HOOKS ℓdh, FOR GRADE 400 BAR IN NORMAL WEIGHT CONCRETE

BAR SIZE	f'c = 25	f'c = 30	f'c = 35	f'c = 40	f'c = 50	f'c = 60
10	150 (6")	150 (6")	150 (6")	150 (6")	150 (6")	150 (6")
15	210 (8")	200 (8")	180 (7")	170 (7")	150 (6")	150 (6")
20	280 (11")	260 (10")	240 (10")	230 (9")	190 (8")	190 (8")
25	350 (14")	320 (13")	300 (12")	280 (11")	240 (9")	230 (9")
30	420 (17")	390 (16")	360 (14")	340 (14")	290 (11")	280 (11")
35	490 (20")	450 (18")	420 (17")	390 (16")	340 (13")	320 (13")

- FOR EPOXY BARS MULTIPLY VALUES IN TABLE BY 1.2
- FOR LOW DENSITY CONCRETE (Yc ≤ 1850 kg/m³) MULTIPLY VALUES IN TABLE BY 1.3
- FOR HOOKS WITH COVER LESS THAN SHOWN IN DETAILS 'A', 'B' AND 'C' MULTIPLY VALUES IN TABLE BY 1.5



A FOR 90° HOOKS ONLY

B FOR 90° AND 180° HOOKS

C FOR 90° HOOKS ONLY

FOR VALUES NOT PROVIDED IN TABLES INTERPOLATE BETWEEN THE NEAREST VALUES PROVIDED.

JUNE 2017

COMPRESSION DEVELOPMENT LENGTHS AND LAP SPLICES FOR BARS GRADE 400 MPa

TC-REINF-02

COMPRESSION DEVELOPMENT LENGTH ℓdc FOR GRADE 400 INDIVIDUAL BARS

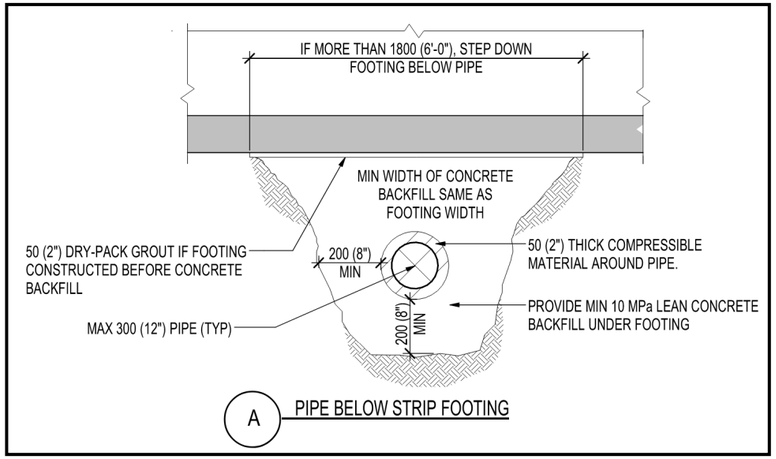
BAR SIZE	f'c = 25	f'c = 30 AND HIGHER
10	220 (9")	200 (8")
15	310 (12")	280 (11")
20	370 (15")	350 (14")
25	480 (19")	440 (17")
30	570 (23")	530 (21")
35	690 (27")	630 (25")
45	864 (34")	790 (31")
55	1070 (42")	970 (38")

COMPRESSION LAP SPLICE FOR GRADE 400 INDIVIDUAL BARS

BAR SIZE	STANDARD LAP
10	300 (12")
15	440 (17")
20	590 (23")
25	730 (29")
30	880 (35")
35	1030 (41")

-FOR BUNDLED BARS, MULTIPLY VALUES IN TABLE BY 1.1 FOR A TWO BAR BUNDLE, 1.2 FOR A THREE BAR BUNDLE AND 1.33 FOR A FOUR BAR BUNDLE

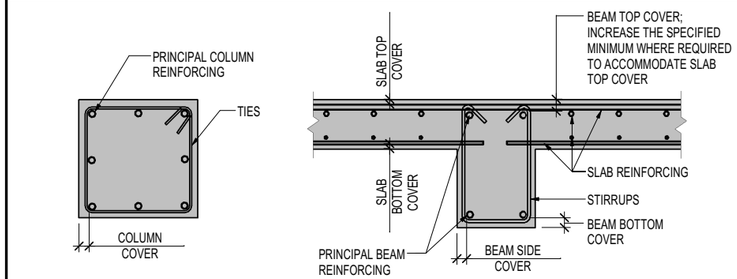
JUNE 2021



A PIPE BELOW STRIP FOOTING

CONCRETE COVER

TC-REINF-21



CONCRETE COLUMN, PIER AND CAP REINFORCED AS COLUMN

CONCRETE SLAB AND BEAM (INCLUDING GRADE BEAM)

NOTES:

1. SEE CONCRETE REINFORCEMENT NOTES FOR MINIMUM COVER REQUIREMENTS.
2. FOR WALLS AND SLABS, "PRINCIPAL" REINFORCING IS THE ONE CLOSEST TO THE CONCRETE SURFACE (AT EACH SIDE OF WALL / SLAB)

JUNE 2019

LICENSED PROFESSIONAL ENGINEER
M. Brzakovic
100057494
PROVINCE OF ONTARIO

PORT COLBORNE F
TENNESSEE AVENUE &
MASONRY RE

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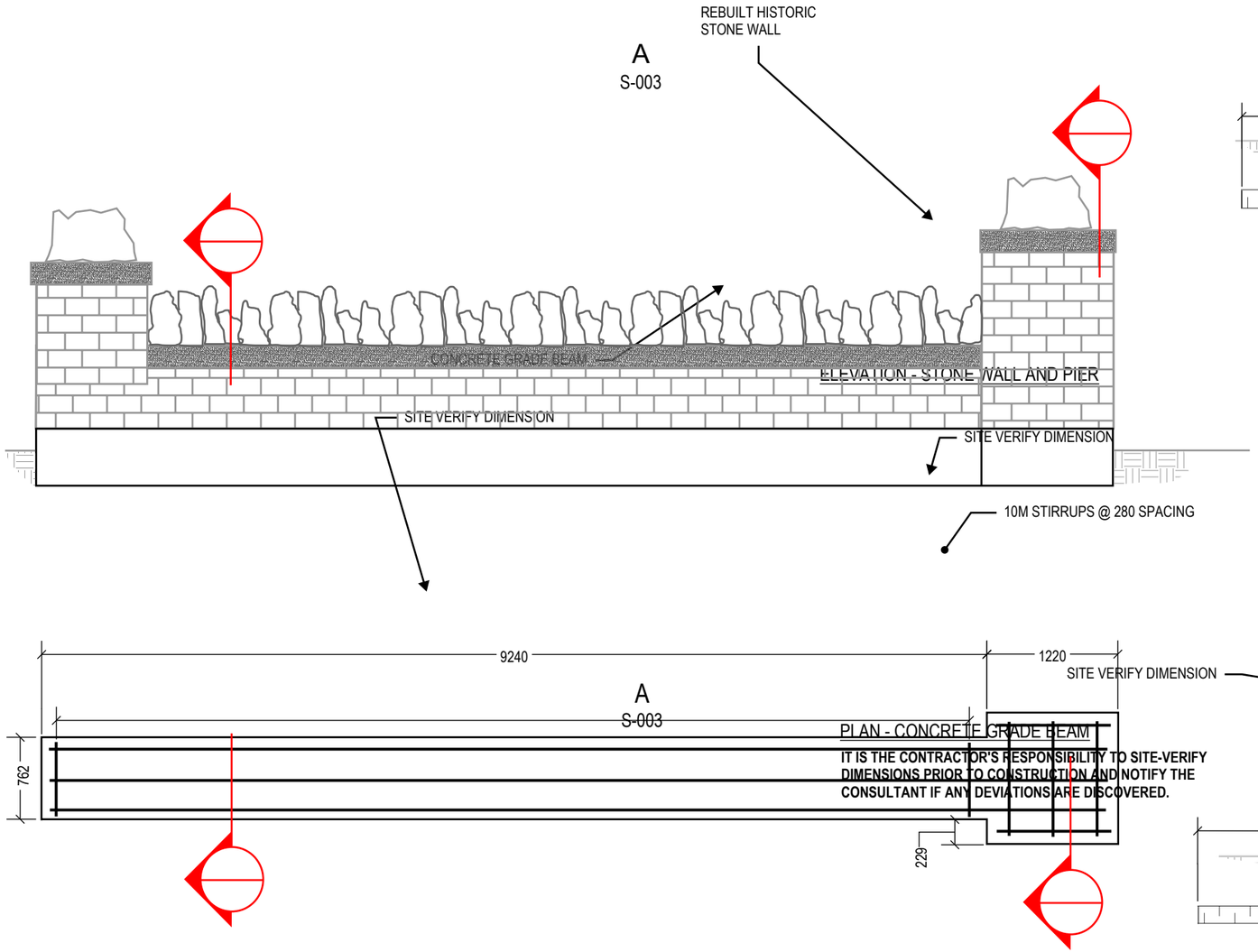
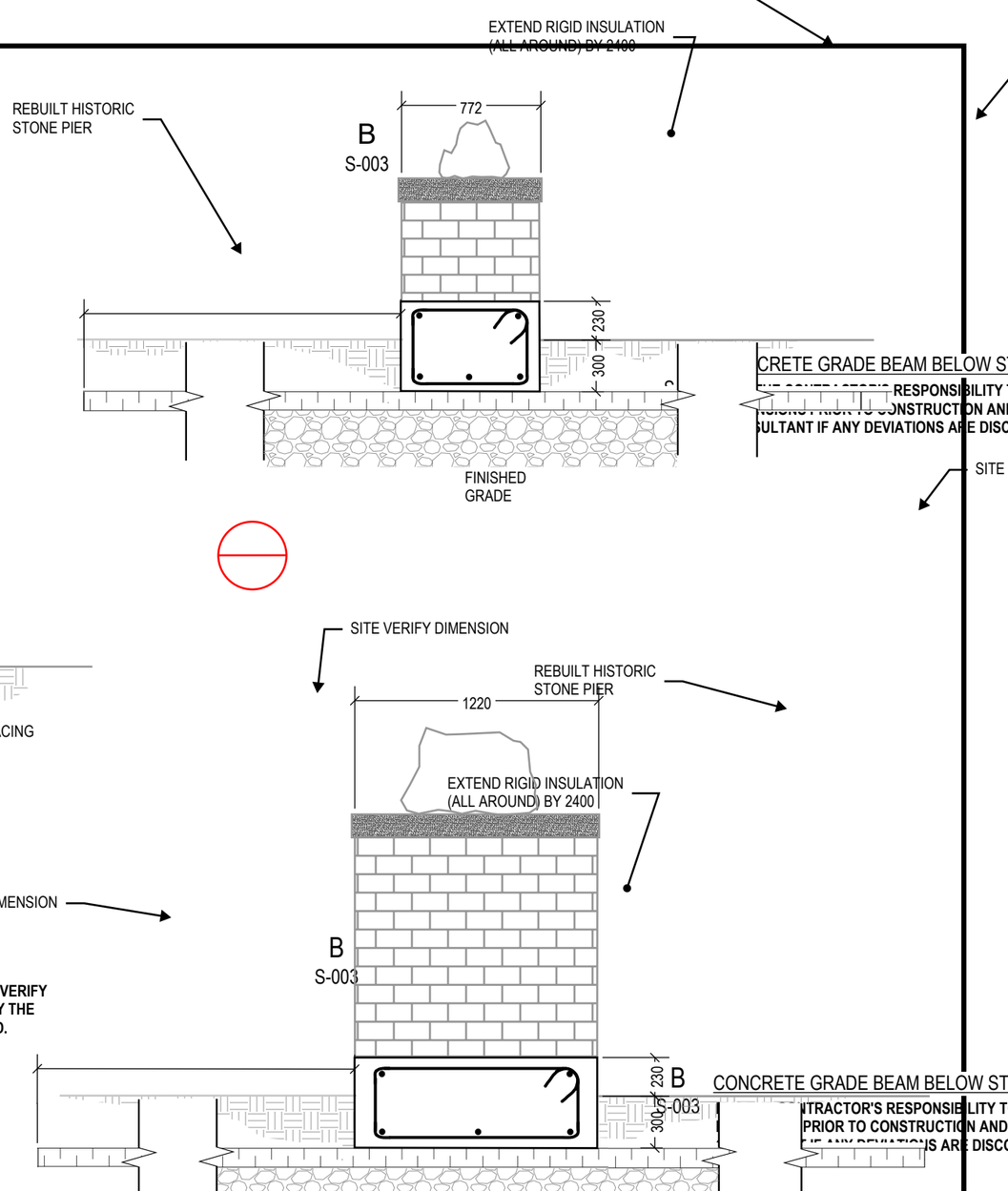
UNAUTHORIZED USE IS PROHIBITED

TYPICAL DETAILS

4 HUGHSON ST. S, SUITE 300, HAMILTON, ON L8N 3Z1
PHONE: 905-529-4414 www.wsp.com FAX: 905-521-2699

Date:	Scale:
24-MAY-23	NTS
Drawn by: GBH	Checked by: MMB
Project No. 221-06979-00	
Drawing No. S-102	





LICENSED PROFESSIONAL ENGINEER
2023-05-24
M. Brzakovic
100057494
PROVINCE OF ONTARIO

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CONC. GRADE BEAM PLAN, ELEVATION, & SECTIONS

4 HUGHSON ST. S, SUITE 300, HAMILTON, ON L8N 3Z1
PHONE: 905-529-4414 www.wsp.com FAX: 905-521-2699

Date:	Scale:
24-MAY-23	NTS
Drawn by: GBH	Checked by: MMB
Project No. 221-06979-00	
Drawing No. S-201	

PORT COLBORNE

Heritage Advisory Subcommittee
-Meeting Minutes-
Monday, January 22nd, 2024

Members Present: Luke Brazeau, Chair
Gary Hoyle, Committee Member
Cheryl MacMillan, Committee Member
Eric Beauregard, Committee Member

Staff Present: Chris Roome, Planner
Anna Carlsen, Archives Assistant

1. Call Meeting to Order

The Chair called the meeting to order at approximately 6:00 pm.

2. Adoption of Agenda

Moved by Cheryl MacMillan
Seconded by Gary Hoyle

3. Disclosures of Interest

Nil.

4. New Business

Carried

4.1 352 Chippawa Road

That a heritage designation for 352 Chippawa Road not be pursued as the property does not meet the designation criteria set out in the Ontario Heritage Act.

Moved by Luke Brazeau
Seconded by Cheryl MacMillan

Carried

4.2 48 and 50 Neff Street

That a heritage designation be pursued for 48 and 50 Neff Street based on the physical value of the existing front door and windows and the high degree of craftsmanship displayed. Additionally, the property has historical value as it is associated with multiple individuals who are significant to the community and the property is important in defining the character of the area.

Moved by Luke Brazeau
Seconded by Cheryl MacMillan

Carried

4.3 44 King Street

That a heritage designation be pursued for 44 King Street based on the design and physical value of the building as it displays a high degree of craftsmanship, and has contextual value as it is visually linked to its surroundings. Additionally, the property displays historical value as it yields or has the potential to yield information that contributes to an understanding of the community.

Moved by Luke Brazeau
Seconded by Cheryl MacMillan

Carried

4.4 599 King Street

That a heritage designation be pursued for 599 King Street as it displays a design value that is rare, unique, or representative of a style, type, expression and construction method. Secondly, the subject lands have historical value as it has a direct association with an organization/institution that is significant to the community.

Moved by Luke Brazeau
Seconded by Gary Hoyle

Carried

4.5 334 Sugarloaf Street

That a heritage designation not be pursued for these subject lands. The Tennessee gates are already a designated feature on this site, and the additional structures do not exhibit any historical features.

Moved by Luke Brazeau
Seconded by Cheryl MacMillan

5. Adjournment

There being no further business, the meeting was adjourned at approximately 7:00 pm.

Members Present: Luke Brazeau, Chair

Gary Hoyle, Committee Member

Bonnie Schneider, Committee Member

Eric Beauregard, Councillor

Staff Present: Michelle Vosburgh, Archivist

1. Call Meeting to Order

The Chair called the meeting to order at approximately 6:00 pm.

2. Adoption of Agenda

Motion: Gary Hoyle Seconded: Bonnie Schneider

3. Disclosures of Interest

Committee Member Gary Hoyle declared he has a nonpecuniary interest on item 4.1 as he is a member of St. James Church.

Committee Chair Luke Brazeau declared he has a nonpecuniary interest on item 4.2 as he is a member of St. Patricks' Church.

4. New Business

4.1. 55 Charlotte Street Report

The Committee discussed the property to determine if it was eligible for a heritage designation.

The Committee voted to recommend pursuing a heritage designation for 55 Charlotte Street for the church itself not including the western renovated addition to the building based on design, historical, and contextual value of the building as it is a rare, unique, representative or early example of a construction type, has artistic merit, demonstrates a high degree of technical and scientific achievement, direct associations with an event or institution within the community (the Welland Canal), yields or potential to yield understanding of a community or culture (the Welland Canal), designer is significant to the City of Port Colborne, linked to its surroundings, and is a landmark.

Motion: Luke Brazeau Seconded: Bonnie Schneider

Carried: 2-0

4.2. 123 King Street Report

The Committee discussed the property to determine if it was eligible for a heritage designation.

The Committee voted to recommend pursuing a heritage designation for 123 King Street for the church itself not including the parish hall the building based on design, historical, and contextual value of the building as it is a rare, unique, representative or early example of a style, type, expression, material or construction method, displays a high degree of craftsmanship or artistic merit, demonstrates or reflects the work or ideas of an architect, artist, builder, designer or theorist who is significant to a community, and is physically, functionally, visually or historically linked to its surroundings.

Motion: Bonnie Schneider Seconded: Gary Hoyle
Carried: 2-0

4.3. 19 Tennessee Ave Report

The Committee discussed the property to determine if it was eligible for a heritage designation.

The Committee voted to recommend pursuing a heritage designation for 19 Tennessee Avenue entire property based on design, historical, and contextual value of the building as it is a rare, unique, representative or early example of a style, type, expression, material or construction method, it has direct associations with a theme, event, belief, person, activity, organization or institution that is significant to a community, it is important in defining, maintaining or supporting the character of an area, it is physically, functionally, visually or historically linked to its surroundings, and it is a landmark.

Motion: Bonnie Schneider Seconded: Luke Brazeau
Carried: 3-0

5. Approval of Minutes

The minutes from the December 18th, 2023, meeting be received.

Motion: Gary Hoyle Seconded: Luke Brazeau
Carried: 3-0

6. Staff Updates

Nil.

7. Order of Business

The committee sent a request to staff to investigate the designation of 1533 Firelane 2 and to put it on the agenda for next month.

8. Adjournment

There being no further business, the meeting was adjourned at approximately 6:40 pm.

Motion: Gary Hoyle Seconded: Bonnie Schneider
Carried: 3-0