

Dear Members,
City of Regina Planning Commission,
RE: 3160 Albert Street

February 18, 2021

As the current homeowner of 3160 Albert Street (the “Property”), we are requesting the Regina Planning Commission recommends that City Council:

1. Approve the application to amend Bylaw 2019-7;
2. Approve the application to rezone the Property, on proposed Lot 21, Block 631 (as shown on the plan of proposed subdivision, from R1 – Residential Detached Zone (RID – Residential Infill Overlay Zone) to C – Contract Zone to allow for the carrying out of a specific proposal which would include the development of a “Building, Stacked” land use consisting of 16 Dwelling Unit;
3. Approve the application to close a portion of Hill Avenue (that is not used for vehicle traffic), as shown on the proposed subdivision plan; and
4. Approve these recommendations at its special meeting on February 25, 2021.

We commenced this project in early September 2018 and are committed to working with the City to see this project come to fruition in a way that respects the Property and also benefits the City and its residents. The Property is a balance of heritage conservation and financial feasibility. The goal of this project is to strike the proper balance between aligning with the OCP, Standards & Guidelines for the Conservation of Historic Places in Canada and achieve an outcome that satisfies the interests of all parties.



Figure 1 - East elevation, Albert Street

The proposed development (Schedule A) will restore the Property, also known as the Cook Residence, and provide more residential options to an already high-density location. With the Legislative Building and three major office buildings right across street, the Property is in the centre of a major employment area, close to public transit, rapid transit and situated along one of the busiest traffic corridors seeing nearly 30,000 vehicles per day. These are just a few of the planning amenities which make this a great site for high density. We would also suggest that the proposed development will make the Lakeview area a more complete neighbourhood overall with residents that will further support local businesses and schools.

The approval of this rezoning would create additional substantial benefits to the City of Regina that were not addressed in the Administration's report and must be considered by Council in making its decision regarding this proposed development.

1. Property taxes – the current property taxes for the Property are \$9,400.00 per year. The proposed development would generate approximately \$65,000.00 per year in property taxes for the City, an additional \$55,000.00 in property tax revenue (a nearly 700% increase).
2. Fees and Proceeds – The City would receive nearly \$150,000.00 in fees and proceeds from the sale of the surplus road right-of-way.
3. Local Economy Investment – The proposed development would be an \$8,000,000.00 investment to the local economy, a significant benefit to our local trades and other businesses, a factor that cannot be overlooked as we continue to navigate the effects of the COVID-19 pandemic.
4. Accessibility – Ten (10) of the 16 units will be 100% fully accessible. With an aging population of older homes in Lakeview that were not built with today's accessibility standards, this proposed development will provide families with fully accessible housing options within Lakeview, a truly unique opportunity.
5. Sustainability – the Property will be 100% sustainable. The design and construction of the development will follow the guidelines pursuant to LEED certification, Energy Star and Passive House principles. The proposed development will also incorporate the latest technology, with the intention that common areas will be Net-zero.

As stated numerous times in the Administration's report, the proposed development aligns with general policies of the OCP. The proposed development was designed to adhere to the requirements of the OCP and as such the proposed development does not contravene any section or policy of the OCP. The only matter of contention with respect to the OCP is that the Property is not located on a site that has been pre-determined to occupy density. With that said, it is important to remember that the Urban Corridor on south Albert Street in which the Property sits has been pre-determined to be an Urban Corridor, is less than 500m away from the Property and contains all the necessary infrastructure and services to support the proposed development.

Since September 2018, the parties involved have engaged various firms to provide structural engineering reports and inspections for the property (Appendix 1). Each report depicts a structure that requires extensive remedial work to the foundation and other portions of the home to ensure that the structure is on solid footing to allow for the home to continue to remain standing the next 100 years. Included herein are copies of the reports that identify significant issues with the Property, with the following being the most critical:

1. The home slopes from back to front due to settlement and sinking in the footings at the front of the structure (approx. 5 1/4"-7"). Non-adjustable support columns installed under main beams and solid concrete structural walls that are not adjustable are noted in basement. Significant cracking in walls on the main and 2nd floors, doors not fitting in their pockets and significant deflection in front of the basement steps due to non-adjustable columns. There is noted as well as settlement at front of building.
2. Knob and tube wiring still in service seen in attic and all plugs tested in the home are not grounded.
3. The attic has a base of vermiculite insulation that may contain asbestos. There is also evidence of rodents inhabiting the attic.
4. The home is heated by a boiler system and the following issues are noted:
 - a) The boiler is past its expected life expectancy;
 - b) The boiler pipes are wrapped in asbestos;
 - c) The boiler was previously oil burning and oil has leaked from the old line coming out of basement slab (no evidence of oil tank seen on site);
 - d) There are forced air ducts servicing the garage and as a result gas proofing into the main structure has been compromised;
 - e) There is a missing circulation pump;
 - f) The one operating circulation pump appears undersized; and
 - g) The basement boiler heat radiators appear inoperative.
5. Extensive Water damage on the Main Floor of the structure.
6. The roof is at the end-of-life span and will required to be replaced in the near future.

To remedy these major issues and rehabilitate the exterior of the structure will cost approximately \$2,000,000.00, making the restoration of the existing Property, as is, not financially feasible. The total cost of the renovation would be nearly \$3,000,000.00 to bring the entire property livable state.

We also wanted to address some of the development standards concerns the Administration identified in their report. First, the administration's analysis was based on a R1- Residential Detached Zone (Residential Intensification Overlay), where requirements are more restrictive than the current R1 Zone that is applicable to the Property. Second, it is important to note that the R1- Residential Detached Zone (Residential Intensification Overlay) is applicable to projects that include four (4) residential units or less. The proposed development has 16 units. Third, there are no known properties within a 100m radius of the Property that has used Residential Intensification Overlay.

Also in their report, the Administration identified three specific items for review which we would respectfully submit support the proposed development:

1. Height – The Administration has no concern as indicated in the report as the addition's parapet as it is equal to the height of the existing structure. We also want to point out that average height of a property on Albert Street from Regina Ave. to 23rd Ave is 8.53m, this restriction will require the no new construction will ever be built the above the average height and over time homes will

only become single level properties. We also disagree to with the administration's conclusion that as a built form we do not fit in. (Schedule B)

2. Front Setback – The current R1 setback is 6m, the legal setback to the neighbours is also 6m. As noted in the Standards & Guidelines for the Conservation of Historic Places in Canada, the front setback is intended to

“Conserve the heritage value and character-defining elements when creating any new additions to an historic place or any related new construction. Make the new work physically and visually compatible with, subordinate to and distinguishable from the historic place.”

Our architect believed it was important that existing structure (11m) and addition (7.65m) had different setbacks to draw great attention to the distinguishable characteristics of the Cook Residence from of the new structure. This was done with the guidance of the Planning Department to match the existing structure setback to our neighbours to the north. This setback also facilitates the most efficient ramp length for the underground parking and providing the safest work environment as we rehabilitate the Cooke Residence. (Schedule C)

3. FAR – the Far is the only real compromise that is required to be made. To rehabilitate the Cook Residence, we need to overcome the \$2M restoration cost. The only way to do so is the increase the square footage of the building. This practice is commonplace is the restoration of heritage places throughout Canada and is one of the core principles of Rehabilitating A Historical Place in the Standards & Guidelines for the Conservation of Historic Places in Canada.

| Zoning Analysis | R1 Zone (Current) | Proposed | R1 Zone RID (Comparable) | RL Zone (Comparable) |
|---|--------------------|---------------------|--------------------------|----------------------|
| Minimum Number of Parking Stalls Required | 1/dwelling unit | 34 Stall(s) | 1/dwelling unit | 1/dwelling unit |
| Minimum Lot Area (m ²) | 325 m ² | 1811 m ² | 325 m ² | 400 m ² |
| Minimum Lot Frontage (m) | 10.5 | 39.6 m | 10.5 | 14.6 m |
| Maximum Height (m) | 11 m | 9.6 m | 8.5 m | 20 m |
| Maximum Building Area (FAR) | 0.75 | 1.3 | 0.75 | 3.0 |
| Maximum Site Coverage | 50% | 49% | 50% | 60% |
| Minimum Setback, Front (m) | 6.0 | 7.65 | 11.6 | 3.0 |
| Minimum Setback, Rear (m) | 3.5 | 6.85 | 3.5 | 3.5 |
| Minimum Setback, Side (north) (m) | 1.2 | 1.2 | 1.2 | 1.2 |
| Minimum Setback, Side (south) (m) | .45 | 0.45 | .45 | .45 |

Our team of heritage consultants, architects and contractors have developed a concept that is a financially feasible and goes to great lengths to maintain the original structure and thereby preserving nearly all of the historical value of the structure and Property overall. Admittedly, there are some concerns identified by the administration in the report before Planning Commission that we are unable to address. However, our team is we committed to the process and are willing to make the following concessions and amendments to our proposal:

1. We would rehabilitate the west elevation including the large section of the south gable roof including the small gable dormer on the front facade. Doing so we will be able to restore an even greater percentage of the exterior facades and incorporate 100% of the entire structure into the new development.
2. We will salvage and restore the “beer bottles” that Mr. Cook incorporated into his design.
3. We will erect a historical plaque describing the life of the Cook Family and the historical heritage significance of the Cook Residence.
4. We will also relocate the sunroom and incorporate that structure as detach sun-room instead of an attached sunroom (further increasing the percentage of the original structure that will be preserved).

These amendments (Schedule A) will be designed and constructed to the highest level of heritage rehabilitation and in accordance with Standards & Guidelines for the Conservation of Historic Places in Canada. Additionally, we will reduce the residential units from sixteen (16) to thirteen (13) units. In doing so we will reduce our exterior parking requirements from ten (10) to six (6) parking stalls. The parking stalls will also comply with the City of Regina parking requirements of 7.5m length as indicated in the report. This will eliminate the transportation concerns that were identified in the report. With the reduction of exterior parking, a larger portion of the west side of the property can be developed with landscaping to provide the neighbours with greater privacy.

Upon review of all the materials, reports and proposed development plan, it is our sincerest hope that the Planning Commission, City Council and local residents concerned about the future of the Cook Residence understand and appreciate our deep-rooted commitment to preserving the historical heritage value of the Property with this development. We believe we have engaged the proper experts, conducted the necessary due diligence and listened to the concerns of the residents of Regina in designing this development to ensure that once completed Mr. Cook himself would approve! With that, I would encourage the Planning Commission to endorse this project and recommend City Council approve same.

Respectfully,

A handwritten signature in dark ink, appearing to read 'Carmen Lien', written in a cursive style.

Carmen Lien

Schedule A

Amended Development Plan



East elevation, Albert Street



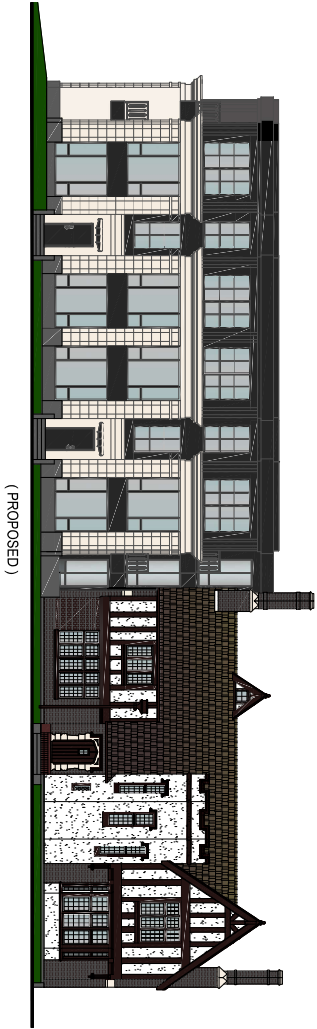
South elevation, Hill Ave. - Day



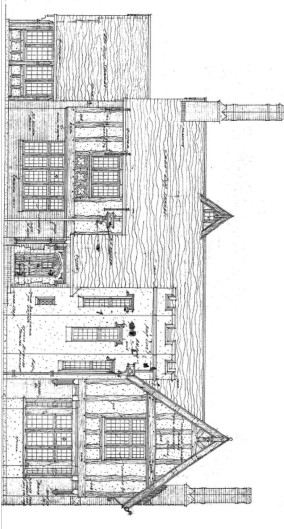
South elevation, Hill Ave. - Night



Southeast Corner, Albert Street & Hill Ave.

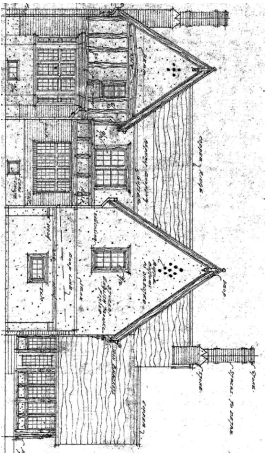


(PROPOSED)



(EXISTING)

① EAST ELEVATION (ALBERT ST.)
1:100

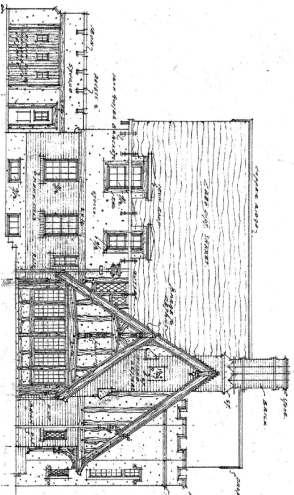


(EXISTING)

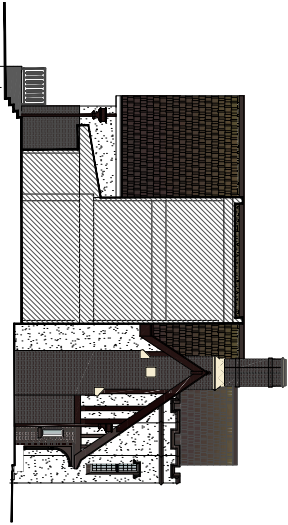


(PROPOSED)

② WEST ELEVATION
1:100



(EXISTING)



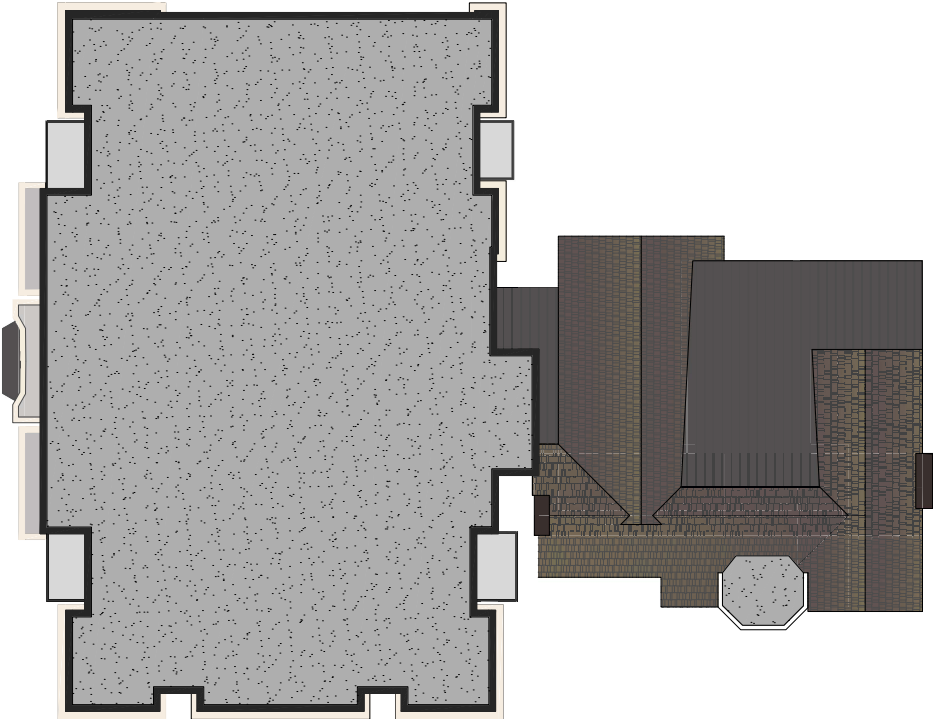
(PROPOSED)

③ SOUTH ELEVATION @ EXISTING RESIDENCE
1:100

Project Name
3160 ALBERT STREET
REVITALIZATION

City
REXMA, SAMAYUCHIEMAN
Zone 34
REXMA, SAMAYUCHIEMAN

| | | |
|----------|-------------|-------------|
| Drawn By | Checked By | Designed By |
| 1:1:100 | Project No. | 21.02.18 |
| Revision | Drawn Date | |
| 0 | | |



1 ROOF PLAN
1:100

Project Name
3160 ALBERT STREET
RENTALIZATION

City
RECHINA, KAMALACHIVAN

Site ID
3160

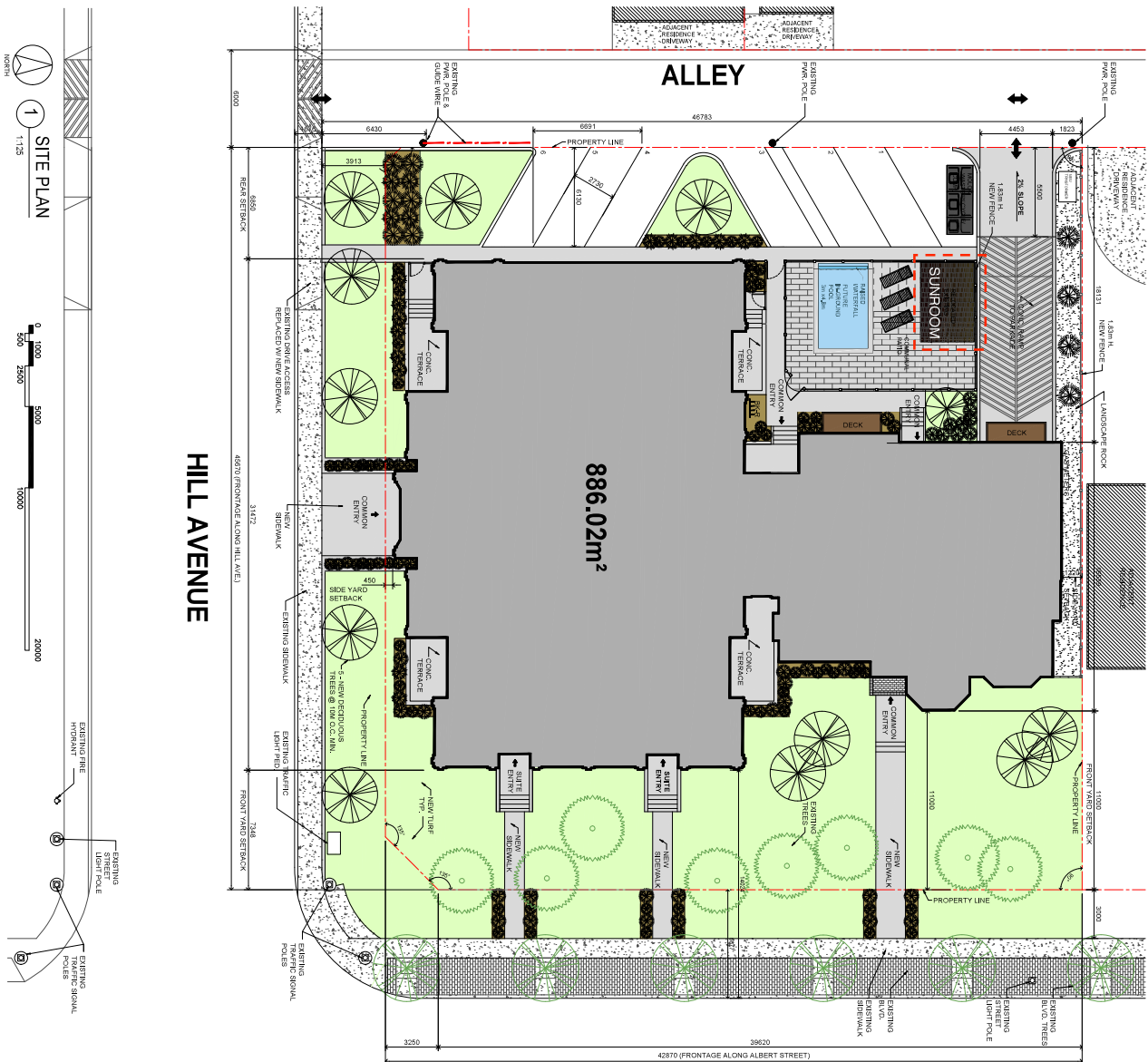
Roof Plan

Drawn By
S.A.
1:100

Checked By
Project N/A
21.02.18

Revision
0

2.3



| SITE DATA | | |
|--------------------------------|---|--|
| OVERALL SITE: 1888'x1 | | |
| BUILDING AREA: 2291'x1 | | |
| CURRENT ZONING: (R1) | PROPOSED CONTRACT ZONING: | |
| RESIDENTIAL DETACHED ZONE | | |
| MAX LOT COVERAGE: 50% | PROPOSED LOT COVERAGE: 84.26% (1,194' x 46.2%) | |
| MAX BUILDING HEIGHT: 11m | (MAX 19.50m BEYOND 871.00' (11m) 69.41m = 219.66m) | |
| | PROPOSED BUILDING HEIGHT: 11m | |
| LANDSCAPING AREA | PROPOSED LANDSCAPING PROVIDED: 24% THE SPACE BETWEEN THE PROPERTY LINE AND BACK OF SIDEWALK | |
| LANDSCAPING: 10% | PROPOSED PARKING PROVIDED: 34 STALLS (24 STALLS UNDERGROUND, 10 SURFACE STALLS OFF ALLEY) | |
| PARKING RATIO: 1 STALL/RESID | RECALC PARKING REQUIRED: 4 SHORT-TERM, 1 LONG-TERM | |
| BI-CYCLE PARKING: 2 SHORT-TERM | UNDERGROUND BEFORE. | |
| 1 LONG-TERM | | |

PARKING REQUIREMENTS
CALCULATED IN ACCORDANCE WITH TABLE 3C.16, RESIDENTIAL LOW-RISE PARKING REQUIREMENTS (2016 ZONING BYLAW)

- 1 PER HOUR, 24 HOURS A DAY, 3600MM, UP TO 30% COMPACT STALLS PERMITTED.
- COMPACT STALL: 2440mm x 4900mm.
- ACCESSIBLE STALL: 3900mm x 5500mm. MINIMUM 2% OF ALL STALLS REQUIRED TO BE ACCESSIBLE. 1 REQUIRED & PROVIDED UNDERGROUND ADJACENT TO ELEVATOR LOBBY.

| PARKING STALLS PROVIDED | | | RATIO PERMITTED/ ACTUAL |
|-------------------------|---------|-------------|--|
| TYPE | SURFACE | UNDERGROUND | |
| TYPICAL | 6 | 16 | 30/20% = 9 > 8 ACTUAL 30/2% = 0.6 = 1 |
| COMPACT | | 7 | |
| ACCESSIBLE | | 1 | |

BICYCLE PARKING

4 SHORT-TERM AND 1 LONG-TERM PARKING STALL REQUIRED PER 10 VEHICLE STALLS REQUIRED
4 SHORT-TERM SECURE STALLS ARE PROVIDED WITHIN BACKYARD FENCE, WITH ACCESS TO REAR
COMMON ENTRY.
4 LONG-TERM SECURE STALLS ARE PROVIDED WITHIN UNDERGROUND PARKING AREA.

LANDSCAPING/SCREENING REQUIREMENTS:

CALCULATED IN ACCORDANCE WITH TABLE 3C.17, RESIDENTIAL LOW-RISE ZONE TOTAL SITE LANDSCAPING REQUIREMENTS (2019 ZONING BYLAW)

BUILDING STACKED: MINIMUM 15% TOTAL SITE TO BE LANDSCAPED. 1952.13m² x 0.15 = 292.81m² REQUIRED. 540.5m² PROVIDED. (DOES NOT INCLUDE AREAS BETWEEN PROPERTY LINE AND INSIDE OF DRIVEWAY)

1 TREE PER 40m² OF REQUIRED LANDSCAPING: 8 TREES.

1 DECIDUOUS TREE PER 10m ALONG A ROAD
HILL AVE 45.7m : 5 TREES

5 NEW DECIDUOUS TREES PROVIDED ALONG HILL AVE.

19 TREES TOTAL.
50 SHRUBS TOTAL.

| Rev. | Description | Date Y.M.D. |
|------|--------------------------------|-------------|
| 2 | ISSUED FOR PLANNING COMMISSION | 2012-02-18 |
| 1 | ISSUED FOR DEV. PERMIT REVIEWS | 2010-07-21 |
| 0 | ISSUED FOR DEVELOPMENT PERMIT | 2010-06-03 |

REVISION SCHEDULE

**3160 ALBERT STREET
REVITALIZATION**

REGINA, SASKATCHEWAN

SITE PLAN & SITE DATA / ZONING REQUIREMENTS

| | | |
|-----------------|-------------------|--------------------|
| Drawn By | Checked By | Designed By |
|-----------------|-------------------|--------------------|

| | |
|-------|----------|
| 1:125 | 21.02.18 |
|-------|----------|

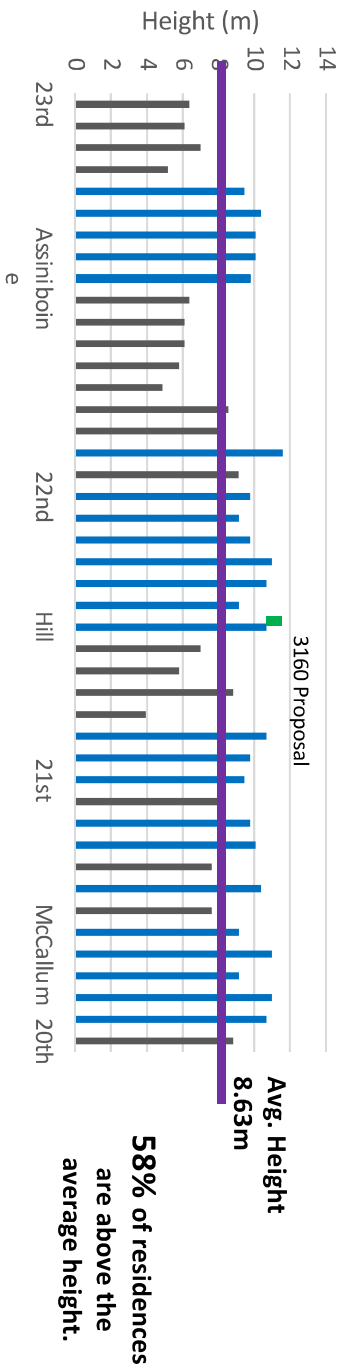
1.0

Schedule B

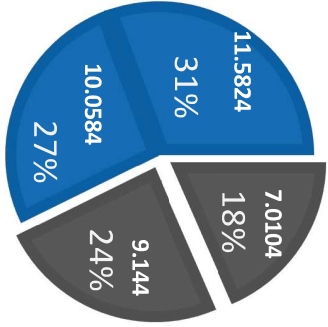
Built Form – Height

3160 Albert Street | Building Form - Height

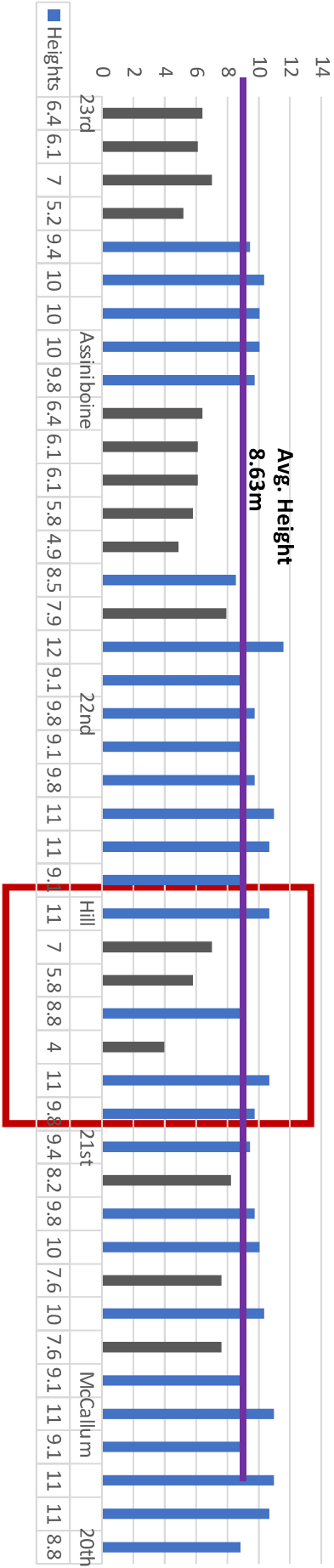
Existing Albert Street Residences Heights



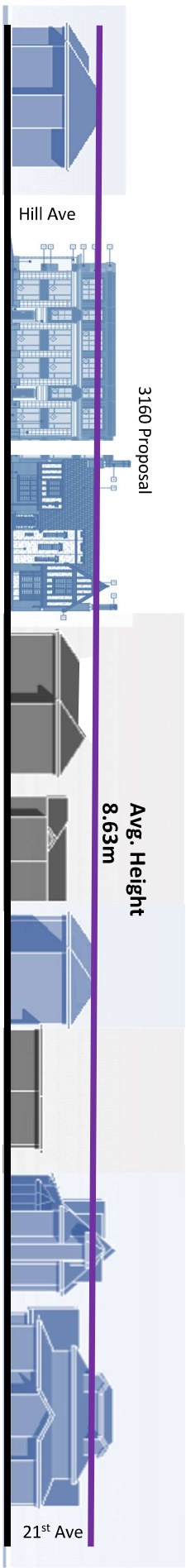
PROPERTY HEIGHTS



Existing Albert Street Residences Heights



Existing 3100 Block Albert Street Residences Heights



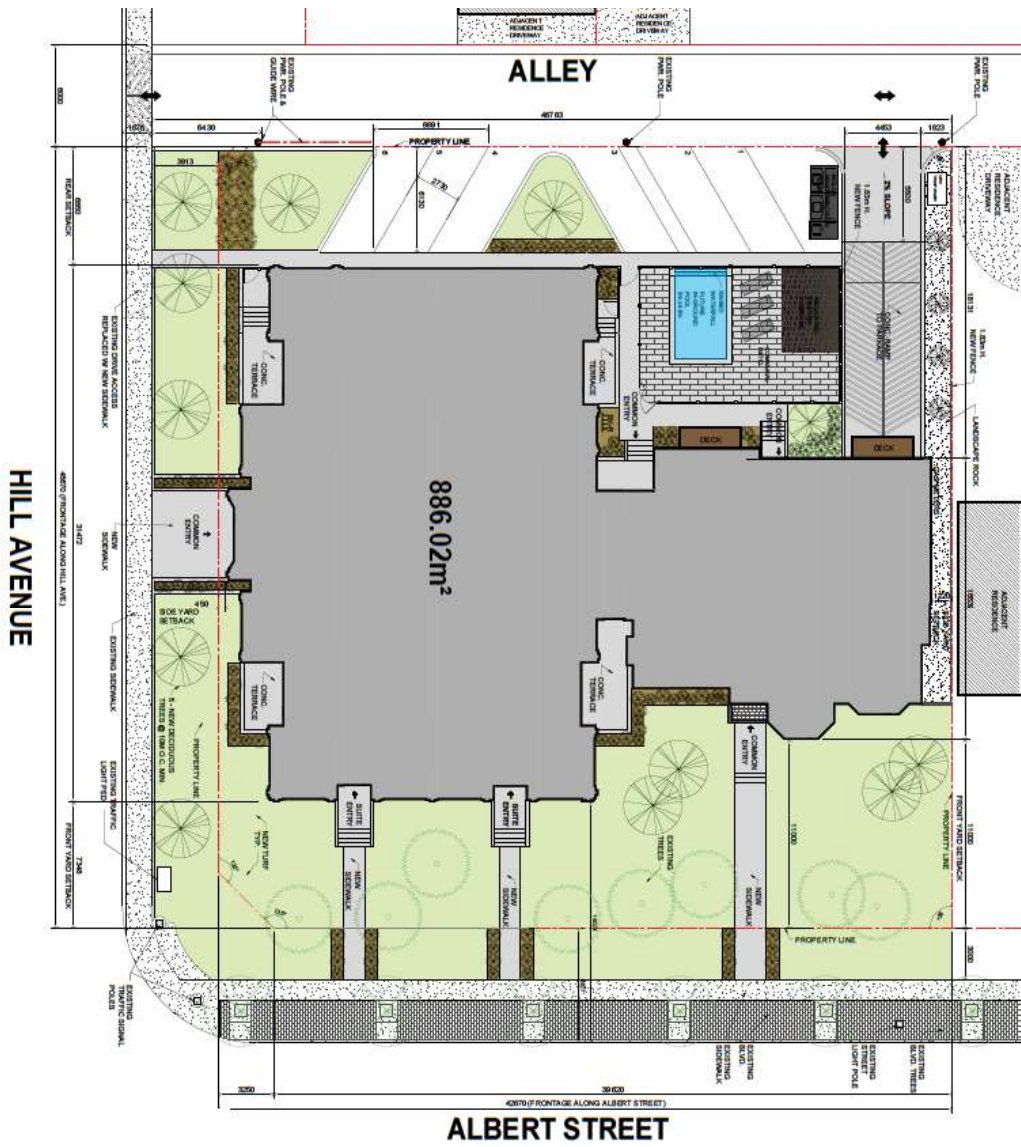
Schedule C

Built Form – Setback

3160 Albert Street | Building Form - Setback



- LEGEND**
- Average Setback ————
 - Legal Setback ————
 - Property Line - - - -



Appendix 1

Inspection Reports and Structural Reports



JC KENYON ENGINEERING INC.
STRUCTURAL ENGINEERING CONSULTANTS

March 14, 2019

Carmen Lien
62 Lowry Place
Regina, SK S4S 6C7

Re: Structural Engineering Inspection
3160 Albert Street, Regina, Saskatchewan

Dear Carmen:

As requested JC Kenyon Engineering has completed a structural engineering inspection of the house located at 3160 Albert Street in Regina, Saskatchewan. Our inspection was specifically focused on the issue of foundation shifting in the house.

Building Description

The 4,329 square foot two storey house was constructed in 1929. Based on the original construction drawings the building is constructed with conventional wood framing and is clad with stucco and masonry. The foundation consists of concrete foundation walls that range between 8" and 12" thick. The foundation walls are constructed on concrete strip footings. Several of the basement partition walls are load bearing concrete, also supported on concrete strip footings. The basement floor slab is a concrete slab on grade.

Observations

We visited the site on March 4, 2019 to visually inspect the building and again on March 13, 2019 to conduct a level survey of the main floor.

During our initial site visit we observed large cracks in several of the main and second floor plaster walls. The floors were uneven in many areas and water leaks had occurred on the south west corner of the dining room. We were unable to directly view the foundation walls in the basement because they were covered with finishes.

A level survey indicated that the ground floor on the west side of the building was approximately 187 mm (7.3") higher than it was on the east side of the of the building. In the living room space there was a difference of 105 mm (4.1") between the north-west and north-east corners. Figure 1 on the following page shows the points that were measured on the main floor.

Discussion

Differential movement of building foundations is common in Regina due to the expansive nature of the native clay soil. The clay soil will swell or shrink with changes in the moisture content. Footing foundations, which bear on the clay, are particularly susceptible to movement caused by swelling and shrinking of the clay. With the recent dry conditions in Regina, footings have undergone significant settlement, and at other times with more rain, heaving has been the problem.

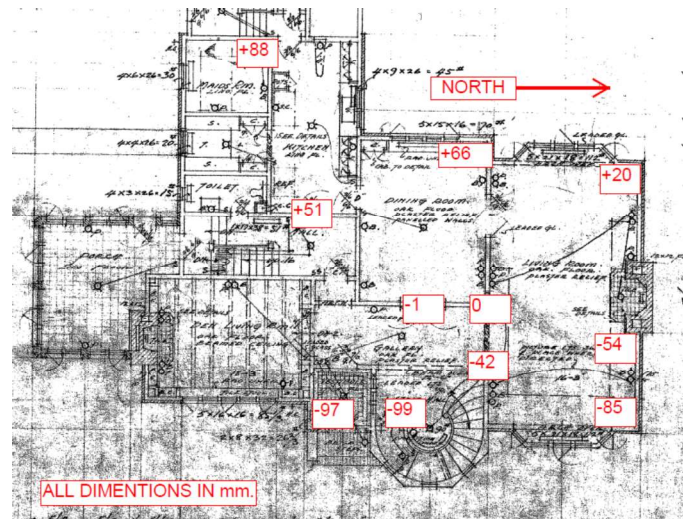


Figure 1: Main Floor Elevations

The survey of the main floor indicated that the centre of the building is high compared to the perimeter foundation walls and that the foundation walls have not moved uniformly. The highest point in the floor is over a load bearing concrete wall. The survey indicates that there has been significant differential movement of the foundations over many years.

To properly stabilize the foundation of this building, the footing foundations must be replaced with piles that extend deep into the soil. The existing footings must be isolated from the clay and all building loads must be transferred to the new piles. This system of underpinning allows re-leveling of the building structure and also protects the foundation from vertical movement. This system has been used on residential, institutional and government buildings in Regina including the Saskatchewan Legislative Building and the University of Regina's College Avenue Campus and Darke Hall. Underpinning a building is a significant undertaking and includes the following steps:

1. Removal of the basement floor slab
2. Excavation around the perimeter of the building and below the footings
3. Installation of piles and releveling of the building
4. Installation of piles to support the new basement floor slab
5. Installation of a new basement floor slab
6. Installation of waterproofing, drainage and backfill around the exterior of the foundation wall

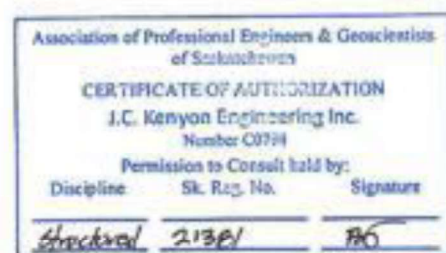
An estimate to underpin the building has been provided by W & R Foundation Specialists. They have underpinned multiple buildings in Regina and are experts in foundation stabilization. They estimate that underpinning of this building would cost between \$950,000 and \$1,050,000, and would take approximately 7 months to complete. The estimated cost of construction does not include costs for engineering, mechanical and electrical work associated with the underpinning, or re-landscaping costs associated with the work. In our opinion these items would add 10% to 20% to the estimate provided by W & R Foundation Specialists.

We trust that this report meets your needs at this time.

Yours truly,

JC KENYON ENGINEERING INC.

Brad Taylor, P.Eng.
Principal | Director of Engineering



PROPOSAL

Page No. of Pages



B L & SONS CONSTRUCTION LTD.

CONCRETE, FRAMING & GENERAL CONTRACTING

REGINA & AREA

GST #867665689

3 Vernon Crescent, Regina, Sask. S4R 7S7

Tel: (306) 721-6811 Cell: (306) 536-5854

Fax: (306) 721-6911

| | | | |
|----------------------------|---------------|-------------|-------------------------------------|
| SUBMITTED TO Ledcor | | TELEPHONE | DATE |
| STREET | | JOB NAME | |
| CITY | PROVINCE | POSTAL CODE | JOB LOCATION 3160 Albert St. |
| CONTACT Mark | DATE OF PLANS | | JOB TELEPHONE |

We hereby submit specifications and estimate for:

- as per plan
- cast in place piles
- site to allow access for equipment by client
- remove basement floor slab
- excavate around the building and below footing
- install new piles for basement wall and floor
- releveling of building
- basement floor
- waterproofing, drainage
- backfilling

We Propose hereby to furnish material and labour - complete in accordance with above specifications, for the sum of:

Payment to be made as follows: dollars (\$ **780,000.00**)

All material is guaranteed to be as specified. All work to be completed in a workmanlike manner according to standard practices. Any alteration or deviation from above specifications involving extra costs will be executed only upon written orders, and will become an extra charge over and above the estimate. All agreements contingent upon strikes, accidents or delays beyond our control. Owner to carry fire, windstorm and other necessary insurance. Our workers are fully covered by the applicable workplace safety and insurance programs.

Authorized
Signature

[Signature]

Note: This proposal may be withdrawn by us if not accepted within _____ days

Acceptance of Proposal

The above prices, specifications and conditions are satisfactory and are hereby accepted. You are authorized to do the work as specified. Payment will be made as outlined above.

Signature _____

Date of Acceptance: _____

Signature _____



Billing Address:

8134 Fairways West Dr.
Regina SK. S4Y 1A9

Office Address:

15 Innovation Dr
Emerald Park SK S7L 1B6
PH# 306-525-5764 Fax# 306-525-5715

Proposal

Date: September 19 /2019

Client Name: ledcore

Attention: mark

Email:

Project:

GRI Construction Group is pleased to submit this proposal for the foundation piling scope of work on the project above. This proposal is based off the noted documents and assumptions. Please advise if the scope of work changes or additional addenda's are assigned.

\$640,000.00 plus applicable taxes

Reference Documents:

- a) Structural and Architectural tender drawings and specifications
- b) Geotechnical reports and recommendations if available

Proposal Assumptions

- a) Cast in place Piles
- b) Client will provide an accessible, unrestricted access for conventional drill rigs, equipment and concrete trucks, to and from the drilling site
- c) all taxes GST & PST are extra, PST, (6%) will be charged unless a valid PST Vendor number is issued

Inclusions / Included in Scope of work

- a) removal of basement floor slab
- b) excavation around the perimeter of the building and below footings
- c) installation of piles and releveling of the building
- d) installation piles to support the new basement floor slab
- e) installation of a new basement floor slab
- f) installation of waterproofing ,drainage and backfill around the exterior of foundation wall
- g) this also includes a new basement if required rather than repairing the old one

Additional Unit Rates

Temporary casing and on-site pile length adjustments are not included in our pricing above, if required, unit rates would apply depending on soil conditions.

If you have any questions or concerns, please contact Tyler Dutka at 306-550-9083. This Bid is good for 30 days from the above date. Terms are net 30 days; handling fees do apply to all late payments.



Tyler Dutka, Piling Specialist/Site Supervisor

W. & R. FOUNDATION SPECIALISTS LTD.

HEAD OFFICE
9320 - 49 Street
Edmonton, Alberta
T6B 2L7
Phone: (780) 466-7709
Fax: (780) 469-8407

BRANCH OFFICE
1560 - 2002 Victoria Ave.
Regina, Saskatchewan
Phone: (306) 990-8487
Fax: (306) 585-6660

March 22, 2019

JC Kenyon Engineering Inc.
2424 College Avenue
Regina, Saskatchewan
S4P 1C8

Attention: Mr. Brad Taylor, P.Eng., MBA

Dear Sir:

RE: Budget estimate for complete foundation restoration at the
former Cook Residence located at 3160 Albert Street in Regina

We have reviewed the plans of the original structure built in 1929 and the renovation plans of 1956 regarding this residence and have prepared a budget proposal to completely underpin the existing structure.

Assuming leveling and the installation of a structural slab throughout, a budget estimate to completely underpin the structure using a hydraulically jacked steel pipe pile system is in the range of Nine Hundred and Fifty Thousand dollars to One Million and Fifty Thousand dollars (\$950,000.00 to \$1,050,000.00) with a duration of approximately 6 ½ to 7 months.

It is assumed that the majority of the work would be completed from the interior of the structure. The price includes all design and installation costs for the foundation and basement slab restoration required but does not include allowance for associated architectural, mechanical or electrical restoration that may be required.

It is also assumed that the underpinning would be completed with no other trades active within the residence at that time.

The proposal does not make allowance for any relandscaping costs, the costs for utilities such as power and water during the work nor the 5% goods and services tax. It is assumed that the work would be completed under spring, summer or fall conditions.

We trust that this information is helpful. If you have

Page 2

any questions, please call.

Yours very truly,

W. & R. FOUNDATION
SPECIALISTS LIMITED

A handwritten signature in blue ink, appearing to read "R.J. Renneberg". The signature is fluid and cursive, with a large initial "R" and a long, sweeping underline.

R.J. Renneberg, P.Eng., FCSCE
FEC, FGC(Hon.), President & CEO

rjr

49NORTH

BUILDING SOLUTIONS

CONSULTING ENGINEERS & BUILDING OFFICIALS

Date: January 24, 2019

To: Heritage Regina
c/o Ms. Jackie Schmidt
Mailing: P.O. Box 581, Regina, Saskatchewan, S4P 3A3
Physical: 276 Angus Crescent, Regina, SK S4T 6N4
Email: info@heritageregina.ca
Phone: 1 (306) 536-4247

Regarding: File #: 2019 - 1822
Report Type: Engineer's Report
Structural Assessment & Building Envelope Assessment
Municipality: City of Regina, SK.
Civic Address: 3160 Albert St.



1.0 General Project Introduction

49North Engineering Corp. (49North) was commissioned, by a party that wishes to remain anonymous, to complete an engineering assessment of certain aspects of the above noted property; and, to compile this report.

The anonymous party introduced 49North to the current Tenant(s) of the Property in May of 2018; and helped to make arrangements for access to the property with the current Tenant(s) after that introduction.

On January 23, 2019, 49North, while accompanied by the Tenant(s), conducted a non-exhaustive, non-invasive, and non-destructive visual assessment on the following specific aspect(s) of the building structure:

1. The existing structural aspects of the One-Unit Dwelling's substructure and superstructure for the house portion of the structure (attached garage not included);
2. The existing building envelope aspects of the One-Unit Dwelling's substructure and superstructure for the house portion of the structure (attached garage not included); and,
3. The existing condition of the interior finishes for the house portion of the structure (attached garage not included), only.

The visual assessment was carried out with copies of the original construction plans and specifications from 1929; and, with a copy of the 1956 renovation plans and specifications as well.

2.0 Purpose of this Report

It is the understanding of 49North, resulting from conversations with the anonymous party, that this report would be used to provide Heritage Regina with information that may help make a more compelling and informed argument to the City of Regina to place this building on the "Designated Heritage Property" list.

The purpose of this report is therefore to:

1. Briefly document structural condition of the above specific aspects of the building from the visual assessment;
2. Briefly document building envelope condition of the above specific aspects of the building from the visual assessment;
3. Briefly discuss the common / typical reasons that the building structure may be experiencing / undergoing structural changes / failures due to supporting soils;
4. Conduct a brief structural analysis of the above specific aspects of the building structure; based on the findings of the visual assessment;
5. Provide recommendations, in the form of a written report and/or engineered plans, containing the general details of any recommended remedies and/or repairs, if required; and,
6. Provide recommendations on precautionary measures that could be carried out / implemented to help mitigated and/or reduce the probability of additional adverse structural changes / failures from occurring in the building structure in the future.

3.0 Site Observations

Based on the January 23, 2019 site inspection, the building structure, exterior façade and interior finishes can be classified as being in good to excellent shape. Supporting documentation for the observations, assessment and recommendations can be found in the appendices to this report; and, may be downloaded

in PDF format by using the attached link(s).

3.1 General Observations

1. Based on plans and specifications provided to 49North for review, the original house appeared to be designed/constructed in 1929.
2. Based on plans and specifications also provided for review, it appeared that renovations to the original structure were completed in 1956.
3. The house portion of the building structure was two (2) storeys in building height above grade and consisted of both structural loadbearing exterior perimeter walls, structural loadbearing interior walls, and structural post and column support systems.
4. The house portion of the building structure is one (1) storey in building height below grade and consists of full depth foundation walls and footings (based on both site observations and the original plans and specifications from 1929).
5. The building's above-grade superstructure was of wood frame construction.
6. The above-grade superstructure was clad on the exterior with either brick, stucco, and wood-based claddings and trims around the entire perimeter of the house.
7. The roof of the house portion of the building structure was clad with cedar shake shingles.
8. The above-grade superstructure was clad on the interior with lathe and plaster wall and ceiling finishes, original hardwood flooring, and wood trim throughout the entire first and second levels of the house.
9. Hand crafted wood stair cases were also present throughout all levels of the house.

3.2 Substructure Specific Observations

1. The substructure generally appeared to match the original 1929 and 1956 plans and specifications provided to 49North for review.

3.3 Superstructure Specific Observations

1. The substructure generally appeared to match the original 1929 and 1956 plans and specifications provided to 49North for review.
2. The kitchen area of the house had some alterations that did not appear to be documented in the plans and specifications provided.

3.3 Differential Movement Observations in the Superstructure and Substructure

1. Vertical differential movement was not readily apparent on the exterior of the building structure around the perimeter. Typically, in brittle assemblies such as brick and mortar cladding, and/or stucco cladding, vertical differential movement is easily observed by stress induced cracking in these assemblies.
2. Some hairline cracking was observed in some areas of the exterior stucco cladding but appeared to be the result of expansion and contraction of the cement-based materials over the lifetime of the building to date.
3. There did not appear to be step cracking evident in the brick and mortar cladding around the perimeter of the building.
4. Differential movement was also however noted on the interior of the building structure in

approximately seven (7) locations where the lathe and plaster wall and/or ceiling finish(es) showed signs of stress induced cracking. This cracking was typically located in portions of the house where exterior walls changed directions (i.e. corners).

5. Elevations of the topside of the main floor, as well as second floor, were taken throughout the entire house area with a Bosch GLL-80P Professional Laser Level with an accuracy of $\pm 0.2\text{mm}/1.0\text{m}$ of horizontal distance.

6. Based on measurements taken while at site the following observations were noted:
 - a. The maximum vertical differential variance in elevations throughout the entire house area was approximately 5" to 5-1/4" on the 2nd floor.
 - b. The maximum vertical differential variance in elevations throughout the entire house area was approximately 5" to 5-1/4" on the 1st floor also.
 - c. Variance(s) in vertical elevations appeared to be due to both: settlement of the perimeter foundation system(s) – generally along the east and south sides of the house; and/or, heaving/settlement of the interior loadbearing walls and columns has caused vertical differential movements throughout the entire building structure.

3.4 Horizontal Movement Observations in the Substructure

1. No sill plate movement observed at the connection between the basement walls and the superstructure.
2. No inward horizontal basement wall movement was observed to be transmitted through any interior finishes.

4.0 Background and Discussion of Potential Active Highly Expansive Clay (PAHEC) Soils

This section of the report is intended to provide our clients with some education on the basics of soils commonly found in the Regina and Moose Jaw areas. It is also intended to provide a brief explanation of the problems that these soils often cause to building structures; and, to give insight to our clients as to why adverse structural effects / failures typically occur.

The Regina and Moose Jaw areas are home to Potentially Active Highly Expansive Clay (PAHEC) soils. These soils are often considered problematic soils by structural engineers, since they annually inflict millions of dollars in damages to houses and light building structures when these building structures are constructed on conventional shallow foundations (i.e. concrete spread footings, grade supported concrete slabs, and thickened edge concrete slabs). We estimate, based on published literature and observations of hundreds of building structures in the Regina and Moose Jaw areas, that over 65% of building structures with shallow foundations built on PAHEC soils will experience some minor damage during their useful lifespan; an additional 10% will experience significant damage; and, about 1-2% will experience damage that is economically beyond repair.

Knowledge of the problems and damage associated with PAHEC soils is extensive and can be found in publications throughout Canada and the United States. The influences such as: natural climate, local vegetation, site landscaping, sprinkler systems and watering practices, building construction and maintenance activities, on the behavior of deep deposits of highly expansive clay soils in Western Canada; have been investigated by the National Research Council of Canada, as well as others. Measurements of ground movements, soil moisture content and temperature changes have all been investigated, and

findings have demonstrated the extreme complexities of responses in natural and disturbed environments associated with building structure development.

PAHEC soils are associated with uneven vertical and/or horizontal movements, due to swelling and contraction that occurs with changes in moisture content within the clay. Typically, shallow foundations supported directly on PAHEC soils commonly experience cracked interior and/or exterior wall finishes, heaved and/or cracked concrete basement & garage slabs, disjointed utility lines, jammed doors, and similar types of issues that are at the least annoying to building owners. Typically, these damages are referred by structural engineers as "failures", since the "performance" of the overall building structure falls outside the scope of generally acceptable building performance levels imposed by building code(s).

PAHEC soil swelling is generally caused by expansion due to wetting of certain clay minerals from their dry or partially moist state; while PAHEC soil contraction is generally caused by drying of the clay minerals from their saturate or partially moist state. Arid or semiarid areas such as Saskatchewan, with seasonal changes in soil moisture content, experience a much higher frequency of swelling/contracting problems than areas that have higher rainfall and similar PAHEC soils.

No soil is completely solid. All soils consist of solid particles and voids. Although some soils, such as clays, may appear hard and solid when dry; when carefully examined they are found to consist of tiny particles, about 0.0025mm in diameter (or smaller) – typically invisible to the naked eye. Clay soils are composed of numerous and various elements such as: silicon, aluminum, iron, potassium, sodium, calcium and magnesium – with the amounts and kinds of minerals determining the nature and the inherent properties of the clay (such as the potential for swelling / contracting due to moisture changes). Clays are referred to as "cohesive" soils that can be readily molded when moist and will retain their molded shape even after pressure is removed. Clay particles bind together and may creep, compress and/or distort under load, thus making them "plastic" in nature.

Plastic soils are generally less desirable for providing foundation support to shallow foundations; and, are also less desirable as backfill materials around any type of foundation. The ideal shallow foundation supporting soils are "non-plastic" soils like sand and gravels.

Clay soils, whose volume expands significantly upon absorbing water, are generally described as "expansive" soils. Any expansion of clay soils can exert additional pressures / forces on foundations; and, any grade supported assemblies (such as concrete floor slabs and footings supported on the material) are often stressed to the point that noticeable movement and/or cracking is evident. The more dangerous "highly expansive" clay soils, such as those found in the Regina and Moose Jaw areas, can swell up to many, many times their original dry volume – exerting pressures of "many thousands of pounds per square foot" on any structure in which they are in contact.

Because there are more particles per unit volume in a clay soil, as compared to a sand or gravel soil, more swelling potential is possible. Drier clays have a greater swelling potential than wetter clays, because more layers of water molecules can be absorbed between the clay platelets in the dry state. Remolded clays (i.e. clays disturbed during construction activities) tend to swell more than undisturbed clays under similar moisture-density conditions, due to preferred orientation of clay platelets. The bonding of the clay particles in cemented clay prevents soil pressures as high as those in non-cemented clay. Preconsolidated clays may swell more than normal clays because of the addition of strain relief to the actual clay swelling. High plasticity clays have lower permeability, and often become self-sealing when wetted, requiring weeks

to years to become saturated and/or unsaturated. Lower plasticity clays that have higher permeability may, therefore, swell more rapidly and cause more damage than do some high plasticity clays.

Each building structure site is unique, and the soil(s) contained at that site are also unique. This is why some buildings that may be located on adjacent lots may move very differently from one another and/or experience varying degrees of failures when compared to each other. The swelling pressures generated by some clay soils can be significantly higher than the pressures for which the shallow foundations, walls, footings and slabs were originally designed / constructed to handle – if they were designed to handle any at all. PAHEC soil volume expansion can cause varying degrees of movement and/or distress to lightly loaded shallow footings, floor slabs, and foundation walls. This movement can be on the order of 50mm (2”) to 200mm (8”), in both the vertical and horizontal directions, and is by no means considered to be a one-time only occurrence. PAHEC soils constantly change in volume – shrinking and swelling continuously as the moisture content within the soil changes. Consequently, structural engineers and geotechnical engineers do not typically recommend that newly constructed building structures containing lightly loaded footings and/or grade supported elements be constructed directly on, within, or immediately above, PAHEC soils.

Where undisturbed PAHEC clays are covered with natural vegetation, soil moisture conditions are governed mainly by climate and the covering vegetation itself. Plants and trees act as efficient water pumps in removing moisture from the soils through the process of evapotranspiration. Many heavy clays, which have been seasonably frozen or cycled through wetting and drying, have a well-developed secondary structure in the form of fissures and cracks, which assist infiltration of surface water to deeper soil layers. The extremely lower permeability of the more massive, unstructured clay subsoils at greater depths inhibits soil moisture drainage or recharge from below.

Soil moisture contents in PAHEC soils typically become significantly more stable with depth. At a depth of around approximately 4.250m (14’-0”), in the Regina and Moose Jaw areas, the moisture content of PAHEC soils in the prairie region generally approach 25%-30%, and the activity level of these soils is typically reduced. Consequently, the swelling/contracting potentials of PAHEC soils at these depths typically approach zero.

Generally, if the weight per unit area of a structure, built on a swelling clay soil, is equal to the internal swelling pressure of the soil; the volume change can be held closer to zero. This guiding principle can often help to govern the design of a “shallow foundation” for a building structure when it is built directly on, within, or above PAHEC soils. However; structural engineers concerned with mitigating building structure movement(s) will often completely avoid building directly on, within or above such PAHEC soils; and, include in their designs: a “deep foundation system” (i.e. piles) instead. They will also provide an allowance for soil volume changes, (i.e. the designs include void spaces below foundation walls, grade beams, and slabs) in order to substantially reduce, or eliminate, swell pressures on building structures and components.

In order to provide a visual example for our clients to understand the differences between “deep” and “shallow” foundation systems, and the typical ways structural engineer’s “isolate” building structures from PAHEC soils, we have included illustrations in this report. Below are two figures, obtained from the 4th Edition of the Canadian Foundation Engineering Manual (CFEM), that show typical cross-sections of building structures; as well as, typical cross-sections of the surrounding ground and common site features. Figure 1 below shows a typical building structure on “shallow foundation” (i.e. spread footing foundation), along with a grade supported basement slab. Figure 2 below shows a typical building structure on a “deep foundation” (i.e. pile supported foundation), along with a suspended basement slab.

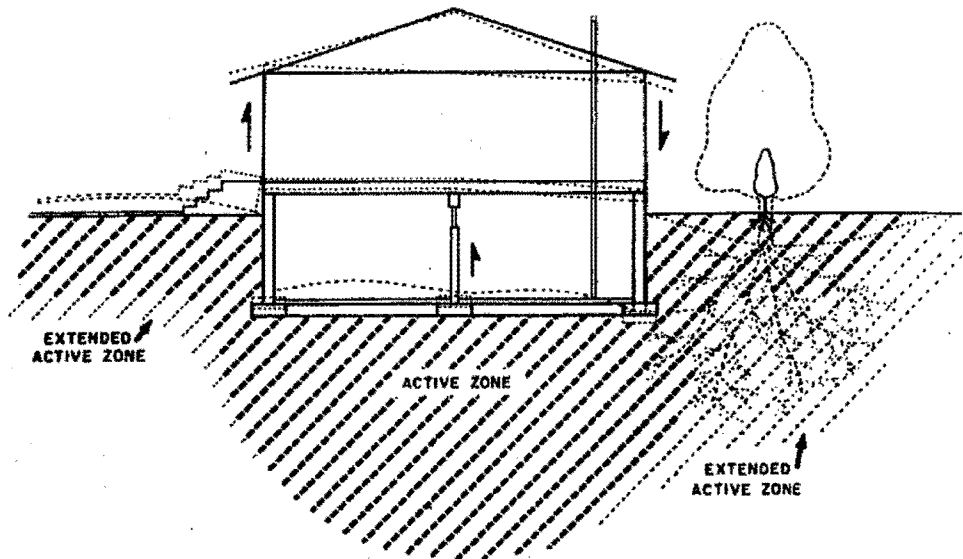


Figure 1 – Shallow Foundation System and Grade Supported Basement Floor Slab

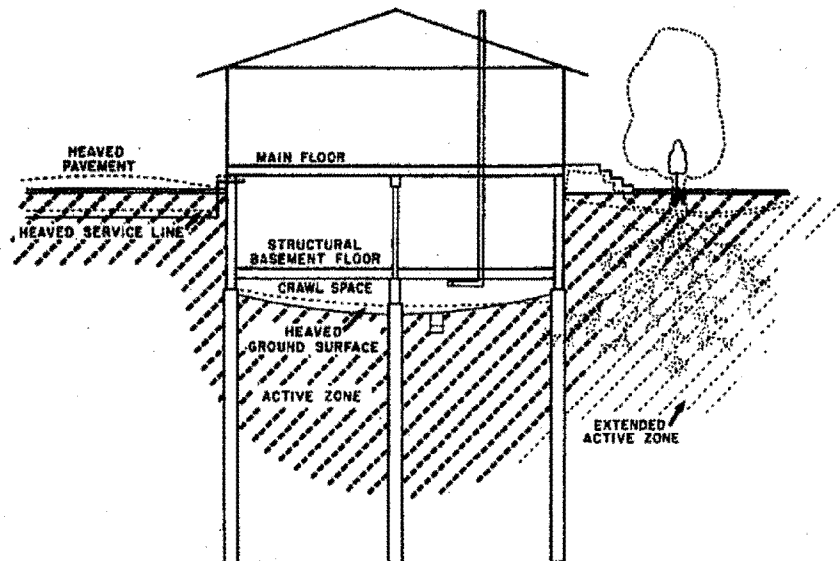


Figure 2 – Deep Foundation System and Suspended Basement Floor Slab

5.0 Structural Analysis of the Existing Superstructure and Substructure Systems of the House

Structural Engineers typically design and analyze all structural elements of a building structure for a certain acceptable limit of deflection and settlement; in addition to checking these elements for other items such as tension, compression, shear and moment resistance, etc. under specific loading conditions. Structural engineers also analyze building structures overall for a certain overall life expectancy.

The analysis is completed in accordance with the design standards referenced under the 2015 National Building Code of Canada (NBC) – such as CAN/CSA A23.3-14, "Design of Concrete Structures"; CAN/CSA S16-14, "Design of Steel Structures; and, CAN/CSA O86-14, "Engineering Design in Wood" – depending upon the composition of the structural element under analysis. The analysis considers "Limit States", which are separated into two broad categories, to determine whether "failures" are likely to occur.

LIMIT
STATES

The first limit state analysis category is "Ultimate Limit States" (ULS); which includes items that deal with the "Ultimate Strength" of components, assemblies and/or materials (i.e. load carrying capacity, overturning, sliding, uplift, fracture and resistances to lateral earth pressures, etc.), and whether anything will "break" or "fail" in respect to this area of structural analysis.

The second category is "Serviceability Limit States" (SLS); which includes items that deal with the "Perceived Performance" of components, assemblies and materials (i.e. deflections, vibrations, permanent deformations, drywall cracking, foundation settlement, etc.), and whether anything will more-or-less "aesthetically fail" in respect to this area of structural analysis.

✓ Based on our visual observations, and subsequent structural assessment; 49North is of the opinion that this particular building structure is not at risk of any ULS failures. The basic structural system(s) throughout the superstructure and substructure are in excellent ULS condition.

Based on our visual observations, and subsequent structural assessment; 49North is of the opinion that this particular building structure shows a continued small risk of SLS failures. The differential vertical movements noted in the superstructure and substructure are easily correctable with foundation underpinning. Generally, the lathe and plaster interior finishes and foundation differential movements encountered are minimal and easily repairable. The basic system(s) throughout the superstructure and substructure are in excellent ULS condition.

✓ We have made recommendations in the following section of this report to mitigate vertical differential movements in the foundations. These recommendations are valid based on the building structure's condition at the time that this report was completed; and, provided that no significant changes occur with soil moisture content at the site, valid for at least another twelve (12) months.

6.0 Recommendations

This section of the report has been broken out into three sections. The first addresses vertical differential movement mitigation through the installation of underpinning piles. The second addresses exterior building envelope life expectancy extensions. While the last addresses additional precautionary measures that will help mitigate future adverse SLS effects from occurring.

6.1 Recommendation for the Installation of Underpinning Piles

Typically, when vertical elevations vary by less than two (2) inches, and there are no apparent ULS structural concerns related to failure of any building assemblies and/or components, we recommend that the teleposts be adjusted throughout the building area, and that underpinning piles do not need to be installed – unless requested explicitly by the Vested Party(ies). Construction tolerances at the time in which the building was built, as well as seasonal soil moisture content changes, typically cause vertical differential movements within this tolerance range. We make this suggestion in order to:

1. Negate the Vested Party(ies) from spending money unnecessarily; and,
2. Put the house on a constant slope that is nearly impossible to perceive to building occupants.

When, such as in the case of this structure, the elevations vary by more than two (2) inches and there are no ULS structural concerns we recommend that the teleposts be adjusted throughout the building area, and that underpinning piles be installed.

However; it is ultimately up to the property Vested Party(ies) as to whether the recommendations are completed – since the recommendation(s) have varying degrees of financial implications / costs associated with each of them. 49North does not want to force the Vested Party(ies) into a difficult financial position by saying, "the Vested Party(ies) must" complete the recommendations outlined below, especially when there are no ULS failure risks, such as in this case.

Our recommendation(s) are being provided as options that will allow the Vested Party(ies) to improve the SLS performance of the building structure for both the short term and long term.

Please note that we would advise the Vested Party(ies) to hire experienced Contractor(s) to complete the recommended work outline below. This will help the Vested Party(ies) to ensure that all work is completed in accordance with the remedial plans developed, and recommendations outlined in the balance of this report.

Please also note that it would be necessary to relocate some of the electrical and/or HVAC/plumbing services in the repair areas, remove and replace sections of the basement floor slab, and remove and replace exterior foundation backfill to complete the recommended work; and, have site locates completed as needed in order to carry out the work.

Connections to building service lines, such as natural gas lines, water lines, sanitary sewer, storm sewer and power lines, etc. would need to be monitored during underpinning activities – to ensure that no adverse effects occur – prior to beginning any work.

To help correct the present issues at this site, we would recommend that the foundation be underpinned, with piles, throughout the affected area(s). The underpinning piles may be installed either: from the exterior or interior of the foundation(s); or, from the interior of the foundation(s).

The underpinning method chosen by the Vested Party(ies) and Contractor(s) will be dictated by considering items such as: overall cost savings to the Vested Party(ies) for interior/exterior options, Vested Party(ies) budget limitations, time of year simplicity/complexity of each method; presence of exterior driveways and slabs, presence of interior finished spaces adjacent to the underpinning areas, etc.).

Where underpinning piles are selected to be installed from the exterior side of the building structure, the

IMPORTANT
? Procedure

Vested Party(ies) and Contractor(s) can greatly reduce the lateral earth pressures on the building structure's foundation(s), and help to mitigate the possibility of water ingress/seepage into the foundation(s) through cracks (not that any were observed), by installing a new exterior dampproofing membrane, weeping tile system and sump pit, and by backfilling against the foundation(s) with free draining granular materials. This method, if selected, should include the following items in the underpinned areas:

3. Remove any driveway, patio, sidewalk, deck and/or similar structures in the affected area(s);
4. Excavate the existing foundation backfill materials to the underside/bottom level of the foundation structure(s), in the affected areas;
5. Clean the exterior surface of the foundation wall(s) adequately;
6. Install a new waterproofing membrane (Henry Baker Blueskin WP-200 membrane) as per the manufacturer's recommended installation specifications. The membrane must extend from 6" above the final ground surface elevation down the foundation(s) and over the footing (if present), terminating approximately ½" above the PAHEC soil. The projection above grade should be terminated with a manufacture approved fixation/termination method;
7. Install new 100mm (4") min. diameter weeping tile (wrapped in filter fabric) surrounded by free drainage rock along the edge of the foundation(s). The weeping tile should be sloped towards a new sump pit, installed in the building structure, and be provided with a sump pump and discharge line that is discharged to the rear yard away from the foundation(s).
8. Backfill the excavated area(s) with compacted free drainage aggregates up to 600mm (2'-0") below finished grade; and,
9. Either:
 - a. Backfill the upper 600mm (2'-0") with native PAHEC soils and slope this soil layer away from the foundation at a minimum of 5% grade; or,
 - b. Install a new 4" min. thick concrete patio/sidewalk/driveway slab reinforced with 10M rebar @ 16" o.c. at mid-depth of the new slab, over at least 8" of compacted Highways Type 33 Granular Base Course aggregate compacted to 98% SPD.

Where underpinning piles are selected to be installed from the interior side of the building structure, the Vested Party(ies) and Contractor(s) can install an interior weeping tile and drainage plane system as well. This system, if selected, would not alleviate foundation pressures caused by PAHEC soils on the exterior of the building (as it does not remove the PAHEC soils); however, it would help to mitigate the possibility of water ingress/seepage into the foundation(s) through cracks, and may be more affordable and cause less issues when considering related exterior work associated with the exterior installation option. This method, if selected, should include the following items in the underpinned areas:

1. Remove approximately 2'-0" (600mm) of the existing concrete floor slab directly against the foundation wall(s) in the affected area(s), including the existing 6mil polyethylene sheet radon/moisture barrier (if one exists) directly under the existing concrete slab;
2. Excavate the existing material(s) below the existing concrete floor slab to the level of the underside of the existing concrete footing and/or grade beam;
3. Install new 100mm (4") min. diameter weeping tile (wrapped in filter fabric) surrounded by free drainage rock along the edge of the foundation(s). The weeping tile should be sloped towards a new sump pit, installed in the building structure, and be provided with a sump pump and discharge line that is discharged to the rear yard away from the foundation(s).
4. Install a new 4" thick concrete floor slab reinforced with 10M rebar @ 16" o.c. at mid-depth of the new slab. The floor slab must be cast on a new 6 mil polyethylene sheet radon/moisture barrier

(that is tied to the existing 6mil polyethylene moisture barrier under the balance of the slab (should one exist).

It is important for both Vested Party(ies) and Contractor(s) to note and understand that underpinning a portion of a building structure's foundation(s) will not completely rectify all issues related to SLS building movement (i.e. heaving and/or settling). Rather, underpinning a portion of the building structure's foundation(s) will help to mitigate further issues from occurring only in the underpinned locations – provided the foundation(s) is isolated from the PAHEC soils (i.e. the void form is installed between the new underpinning piles and PAHEC soils are not used as backfill against foundation(s)).

If underpinning piles are chosen to be installed from the exterior of the building, the Contractor(s) that the Vested Party(ies) engage to carry out the work, may adjust & re-level the building structure while installing the underpinning piles – provided that both the Vested Party(ies) and Contractor(s) understand, and accept, that there is a possibility that some adverse aesthetic effects (such as small cracking in brittle and/or rigid assemblies like brick, mortar, stucco, drywall and/or tile, etc.) may occur.

It is also highly recommended that during the underpinning activities that the existing concrete footings under the house foundation walls be isolated from the PAHEC soils below them with the use of 6" collapsible/compressible void forms and side boards to prevent soils from moving into the void(s) created by re-levelling the house.

Should the Vested Party(ies) and Contractor(s) accept the possibility of adverse effects; it is recommended that the Contractor(s) and the Vested Party(ies) jointly agree to an 'acceptable' tolerance related to the extent to which the building structure is re-levelled; since it is often impossible and/or impractical to completely re-level the house to the exact same elevation throughout – without excavating the entire building perimeter and installing underpinning piles around the entire foundation structure to relieve all effects related to soils under and against the foundation structure(s).

We suggest that the Vested Party(ies) and Contractor(s) agree to attempt to re-level the building structure to the extent that:

1. Adverse aesthetic effects such as cracking in brittle and/or rigid assemblies: such as cement board (i.e. Hardy Board ®) siding, stucco, drywall and/or brick, etc. are minimized;
2. The structure be re-levelled to a tolerance of within $\pm 1"$ of a mutually established and agreed to datum elevation; and,
3. Should the Contractor not be able to re-level the building structure to within the above suggested tolerance limit; that the Contractor(s) and Vested Party(ies) discuss the possibility / feasibility of installing additional underpinning piles around more of the foundation perimeter. Should this scenario occur, and the Vested Party(ies) and Contractor(s) agree to any additional costs; 49North should then be re-engaged for additional structural engineering services to provide revisions to the remedial plans.

The telepost(s) supporting the beam(s) should be adjusted during the underpinning process to help re-level the main floor system as the elevation of the exterior foundation walls are adjusted through the underpinning process. The teleposts should also continue to be re-levelled over a period of at least a few months after the underpinning process is completed. This recommendation is being included because the wood framed superstructure will take time to 'readjust' to the load redistribution attributed to the new underpinning piles.

Where foundation wall cracking could be encountered, it is recommended that the cracks in the concrete foundation(s) be filled concrete grout (where the crack widths are larger than $\frac{1}{8}$ " or be sealed with flexible sealant (such as Sonolastic NP1 Sealant, Sikaflex, or Vulkem caulking) where crack widths are smaller than $\frac{1}{8}$ ". This will help mitigate infiltration by radon gas and moisture from the exterior soils into the building.

6.2 Recommendation for Exterior Building Envelope Life Expectancy Extension

We recommend that the following measures be implemented to extend the life expectancy of the building envelope:

1. Mortar joints in the exterior brick façade should be repointed in areas showing mortar degradation.
2. The cedar shake roof cladding, flashing, and eaves troughs and downspouts should be monitored as time moves on and replaced as they near the end of their life.
3. Stucco hairline cracking should be addressed to help mitigate the infiltration of exterior moisture into the building envelope – this can be achieved with either surface coating(s) over the original materials.
4. Ensure that parging is maintained, and repaired, on the exterior of the foundation(s) above grade level, so that moisture is not permitted to gain access into tiny cracks that may be present in the in the foundation wall.

6.3 Recommendation for the Implementation of Additional Precautionary Measures to Reduce Future SLS Failures

We recommend that the following precautionary measures be implemented as well at the Vested Party(ies) discretion:

1. If the property has a sprinkler system, ensure that the sprinkler systems (i.e. fittings and lines) are free of leaks so that moisture is not constantly leaking into the soil.
2. Avoid excessive use of the sprinkler system, or lawn watering system, so that the soils are not constantly dosed with excessive moisture.
3. Ensure that eaves troughs and downspouts work properly and that downspout extensions (at least 6'-0" (approx. 1.8m) in length) are in place to direct rainwater runoff away from the foundations. The further that the runoff can initially be discharge and direct rainwater away from the foundation(s) the better.
4. Ensure that positive grading (of at least 5%) is provided around the perimeter of the foundation so that rainwater, that hits the side of the building structure and runs down the exterior walls, is directed away from the foundation.

7.0 Closure

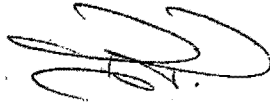
In order to provide a service to the anonymous party at a reasonable cost; 49North has completed a brief structural analysis, and compiled this report based on the information obtained from the brief, non-exhaustive, non-invasive, and non-destructive visual site inspection and plans/specifications provided only.

The observations, assessments, and recommendations contained within this report may therefore be based on assumed and/or extrapolated information where elements were concealed from view during the site inspection. Assemblies and/or individual structural components that were concealed from view during the visual site inspection cannot be commented on with explicit certainty. Therefore, the exact structural condition, adequacy, and/or life expectancy of all existing assemblies and/or all individual existing components within each assembly cannot be known.

The brief non-exhaustive structural analysis was made solely to provide a professional assessment of the structural condition of certain aspects of the existing structure; and, to provide a professional opinion on recommended repair/remedial measures that could be implemented to help correct observed issues with only those certain aspects of the structure. If the Vested Party(ies) and/or Contractor(s) would like us to carry out a more in-depth and/or detailed structural analysis (beyond the brief analysis referenced in this report) we can do so for an additional fee.

On-going maintenance and repairs may be required for the lifespan of this building; similar to all other building structures located in PAHEC soils employing the use of shallow foundation system(s).

Best Regards,



Ty Tweidt, B.Sc.E., P.Eng., Saskatchewan Class 3 Building Official
President / CEO / Senior Engineer / Senior Inspector
Cell: 1 (306) 541-3246



Appendix A – January 23, 2019 Site Inspection Photographs

January 23, 2019 Site Inspection Photographs may be downloaded from the following Sync.com File Folder:
<https://cp.sync.com/dl/0835bad00/9yhnygse-wk9kkgd8-kfknnwz2-y6cdxhwz>

Appendix B – As-Built Plans & Engineered Foundation Remedial Plans

Available upon request.

Appendix C – Structural Assessment Calculations

Available upon request.

Appendix D – Original 1929 Plans & Specifications

Original 1929 Plans & Specifications may be downloaded from the following Sync.com File Folder:
<https://cp.sync.com/dl/0835bad00/9yhnygse-wk9kkgd8-kfknnwz2-y6cdxhwz>

Appendix E – 1956 Renovation Plans & Specifications

1956 Renovation Plans & Specifications may be downloaded from the following Sync.com File Folder:
<https://cp.sync.com/dl/0835bad00/9yhnygse-wk9kkgd8-kfknnwz2-y6cdxhwz>

PROPERTY

**Prepared Exclusively For:
Carman Lien**



**Property Located At:
3160 Albert Street Regina, SK**

Inspection Date: 11/12/2018

Inspected By: Scott Mackay

Report #: 111218



CONTRACT / RECEIPT

File #: 111218

Inspection Address: **3160 Albert Street Regina, SK**

Date: 11/12/2018

Start Time: **12:30pm**

Finish time: 4:00pm

Weather conditions at time of inspection: 0 degrees

Type of house/residence; 2 storey

Approx. Age:

Client(s) Name(s): **Carman Lien**

Mailing Address:

Apt. #:

City:

Postal Code:

Phone # Home:

Business #:

Phone # Cell:

E-mail Address:

CONTRACT

I/we, the above named client(s) request an inspection of the inspection address noted above. The inspection is to be performed by the below noted inspection company (firm) in accordance with industry accepted Standards of Practice.

It is important for the client(s) to understand that the inspection is based on the limited visual inspection of the readily accessible aspects of the building. The report is representative of the inspector's opinion of the observable conditions on the day of the inspection. While this inspection may reduce your risks of home ownership, it is not an insurance policy, warranty or guarantee on the home. Neither the inspector nor the inspection firm will assume any risks related to this home's future performance, or lack thereof. This report is for the exclusive use of the contracted parties and may not be used by third parties without the prior written permission from the inspector/inspection firm.

I / we have read, understand and accept the terms & conditions as outlined here and on the page entitled "What You Should Expect from Your Inspection". Please initial here ____.

The Client(s), by signing below, agree to have read, understand and accept the terms of this contract.

Client(s)/Representative Signature(s) _____ Date: 11/12/2018

If Client(s) is (are) represented, please print name of representative.

RECEIPT

Base Fee \$400.00 **Inspection Firm** Admiral Home Inspections Ltd.

Other **Inspectors Name**

Tax \$20.00 **Inspector Number**
(if applicable)

Total Fee \$420.00 **Payment Form** _____

Received By _____

(Signature) _____



WHAT TO EXPECT FROM YOUR HOME INSPECTION

1. **Purpose:** The purpose of the inspection is to attempt to detect the presence of home defects by performing a visual inspection of the property and it is a snapshot of the condition of the home today at the time of inspection. This report will not address environmental concerns or provide cost estimates.
2. **Scope:** The scope of the inspection is limited to the readily accessible areas of the property and is based on the condition of the property at the precise time and date of the inspection. Things can and do change and a home inspection will not stop these changes from occurring. Furthermore, as such, the report is not a guarantee or warranty that hidden defects do or do not exist. As a courtesy the INSPECTION COMPANY may point out conditions that contribute to possible home problems/defects but such comments are not part of the final report.
3. **Report:** The CLIENT will be provided with a written report of the INSPECTION COMPANY'S visual observations. The INSPECTION COMPANY is not able to determine all deficiencies from visual observations alone. Some deficiencies may go unnoted in the report and the client accepts this. The report is not intended to comply with any legal obligations to disclosure. The Home Inspector is a Generalist, not a specialist in all disciplines.
4. **Exclusivity:** The report is intended for the sole, confidential and exclusive use and benefit of the CLIENT and the INSPECTION COMPANY has no obligation or duty to any other party. The INSPECTION COMPANY accepts no responsibility for use by third parties. There are no third party beneficiaries to this agreement. This Agreement is not transferable or assignable. Notwithstanding the foregoing, the CLIENT understands that the INSPECTION COMPANY may notify the homeowner, occupant, or appropriate public agency of any condition(s) discovered that may pose a safety or health concern. Inspection is not Building code or By-Law compliance.
5. **Limitation of Liability:** It is understood the INSPECTION COMPANY and its associates are not insurers and that the inspection report shall not be construed as a guarantee or warranty of any kind. The CLIENT agrees to hold the INSPECTION COMPANY and their respective officers, agents and employees harmless from and against any and all liabilities, demands, claims, and expenses incident thereto for injuries to persons and for loss of, damage to, destruction of property, cost of repairing or replacing, or consequential damage arising out of or in connection with this inspection.
6. **Major Problems:** The purpose of the Home Inspection is to find and identify visible existing major problems apparent on the visual inspection of the home. Home Inspectors can greatly reduce the risk of a home purchase but it is impossible to totally eliminate the risk.
7. **Litigation:** The parties agree that any litigation arising out of this Agreement shall be filed only in the Court having jurisdiction in the Province in which the INSPECTION COMPANY has its principal place of business. If the INSPECTION COMPANY is the substantially prevailing party in any such litigation, the CLIENT shall pay all legal costs, expenses and attorney's fees of the INSPECTION COMPANY in defending said claims.
8. **Environmental Concerns:** The inspection will NOT address environmental concerns including, but not limited to: air quality, water quality/quantity, sealed/underground fuel storage tanks, UFFI, asbestos, radon gas, molds, toxins, etc. The inspection report will also NOT address infestation by wood boring insects, rodents or other vermin. The CLIENT understands and acknowledges that it may be necessary to call on specialists in these areas to identify and evaluate these risks.
9. **Entire Agreement:** This Agreement represents the entire agreement between the PARTIES. No statement or promise made by the INSPECTION COMPANY or its respective officers, agents or employees shall be binding.
10. **Standards of Practice:** The inspection shall be completed in accordance within the CanNACHI Standards of Practice and Codes of Ethics.

The client is strongly advised to clarify anything that they don't understand.



1. ROOFING

| # | SOP | ✓ | COMPONENTS: DESCRIPTION & COMMENTS |
|-----|-----|---|--|
| 101 | ♦ | ✓ | Main Roof: ✓ shingles <input type="checkbox"/> asphalt ✓ wood <input type="checkbox"/> clay <input type="checkbox"/> slate <input type="checkbox"/> concrete <input type="checkbox"/> metal <input type="checkbox"/> rubber approx. age of roof covering ?? years - according to <input type="checkbox"/> roof tune-up recommended |
| 102 | ♦ | ✓ | Lower Roof: ✓ shingles ✓ asphalt ✓ wood <input type="checkbox"/> clay <input type="checkbox"/> slate <input type="checkbox"/> concrete <input type="checkbox"/> metal <input type="checkbox"/> rubber approx. age of roof covering ?? years - according to <input type="checkbox"/> roof tune-up recommended <i>peeling</i> |
| 103 | ♦ | — | Flat Roof: |
| 104 | ♦ | ✓ | Flashings: <i>rust-damage</i> |
| 105 | ♦ | ✓ | Roof Penetrations: |
| 106 | ♦ | — | Skylights: |
| 107 | ♦ | ✓ | Chimneys: Masonry <input type="checkbox"/> metal liners recommend <input type="checkbox"/> rain cap recommended |
| 108 | ♦ | ✓ | Gutters & Downspouts: discharge method: ✓ on ground <input type="checkbox"/> below ground ✓ recommend downspout extension 4 to 6 feet away from house <i>loose - damage - leaking -</i> |
| 109 | ♦ | ✓ | Evidence of water penetration ✓ none found today |

COMMENTS: ☐ See ADDITIONAL COMMENTS Sheet

#101- wood shingles are starting to show wear and aging in some areas, recommend monitor and roofer to address replacement of roof covering as necessary to prevent leaks and damage.

#102- peeling at seam in roll-on roofing over garage noted but most of roof not visible at time of inspection. Recommend roofer to address in spring to conform condition.

#104 & 108 rust/deterioration to cap flashings over garage edge and rust/deterioration, leaking and damage to metal gutters and downspouts in several areas. Recommend repair/replacement to adequately drain water away from building and to prevent moisture transfer at cap flashings on garage.

#104- evidence of past damming/moisture transfer at back lower roof and interior damage in dining room area. Recommend roofer to address repair to prevent further damage.

ROOFING PHOTOGRAPHS



Rusted/damaged/leaking flashings, gutters, downspouts



Suspected leaking flashing at back lower roof-interior damage



House shingles at back



House shingles at back

Roofing Conditions & Limitations: Roof inspected by: ☐ ladder at edge ☒ binoculars ☒ walking on ☒ visual

☐ Restricted/No access to:

☒ Inspection restricted due to ☒ Height ☒ Slope ☒ Snow / Ice ☐ Rain/Wet ☐ Trees

☐ Potential danger / damage

☒ This report is an opinion of the general quality and condition of the roofing. As such the inspector cannot and does not offer an opinion or warranty as to whether the roof has leaked in the past, leaks now or is subject to future leakage. ☒ Gutters, downspouts and subsurface drains are not water tested for leakage or blockage. These components require regular maintenance to avoid water problems at the roof and foundation.

| | | | | |
|------------|--|-------------------------------------|----------------|---------------------|
| SOP | Standards of Practice: CanNACHI | <input checked="" type="checkbox"/> | Inspected | Date: 11/12/2018 |
| ◆ | Observe and Report on Systems & Components | <input checked="" type="checkbox"/> | Not Inspected | Inspector Initials: |
| ■ | Perform Tasks noted in SOP | <input type="checkbox"/> | Not Applicable | Client Initials: |



2. EXTERIOR

| # | SOP | ✓ | COMPONENTS: DESCRIPTION & COMMENTS |
|-----|-----|---|---|
| 201 | ♦ | ✓ | Wall Surfaces: ✓ brick <input type="checkbox"/> vinyl <input type="checkbox"/> aluminum <input type="checkbox"/> wood <input type="checkbox"/> stone ✓ stucco <input type="checkbox"/> fibre board <i>cracks - damage</i> |
| 202 | ♦ | — | Exterior Foundation Wall: cracks: <input type="checkbox"/> minor <input type="checkbox"/> moderate <input type="checkbox"/> extensive ✓ not visible |
| 203 | ♦ | ✓ | Eaves, Soffits & Fascia: <i>deterioration</i> |
| 204 | ♦ | ✓ | Entryway Doors, Flashing & Trim: main door: ✓ metal ✓ wood other door(s): ✓ metal <input type="checkbox"/> wood <input type="checkbox"/> sliding glass |
| 205 | ♦ | ✓ | Windows, Flashing & Trim: frames: <input type="checkbox"/> metal <input type="checkbox"/> vinyl ✓ wood panes: <input type="checkbox"/> single ✓ double <i>operation</i> |
| 206 | ♦ | — | Window Wells: <input type="checkbox"/> recommend window well covers |
| 207 | ♦ ■ | ✓ | Garages: main door(s): <input type="checkbox"/> manual ✓ automatic ✓ not tested <i>storage</i> |
| 208 | ♦ | — | Carports: |
| 209 | ♦ | — | Porches: <input type="checkbox"/> concrete <input type="checkbox"/> wood <input type="checkbox"/> other |
| 210 | ♦ | — | Decks: <input type="checkbox"/> concrete <input type="checkbox"/> wood <input type="checkbox"/> other |
| 211 | ♦ | — | Balconies: |
| 212 | ♦ | ✓ | Stairs: <i>front</i> |
| 213 | ♦ ■ | — | Guard Rails & Hand Railings: |
| 214 | ♦ | ✓ | Grading: <i>flat - slopes towards: several areas</i> |
| 215 | ♦ | ✓ | Vegetation: <input type="checkbox"/> keep trimmed away from house <i>over grown - contact to building -</i> |
| 216 | ♦ | — | Retaining Walls: |
| 217 | ♦ | X | Patios / Walkways: <input type="checkbox"/> concrete <input type="checkbox"/> asphalt <input type="checkbox"/> paving/patio stones |
| 218 | ♦ | X | Driveways: <input type="checkbox"/> concrete <input type="checkbox"/> asphalt <input type="checkbox"/> paving/patio stones <input type="checkbox"/> other |

COMMENTS: ☐ See ADDITIONAL COMMENTS Sheet

#201- cracking in brick and mortar joints in some areas, cracking in stucco with evidence of past moisture transfer through roof/stucco connection at back lower roof. Recommend contractor to address brick and stucco repairs to prevent further damage and/or moisture transfer.

#205- most winnows are inoperative due to storm windows installed on exterior.

#207- west garage door not tested due to storage at time of inspection.

#212- deterioration of bottom of front steps, recommend repair/replacement for safety.

#214- poor drainage away from the foundation in several areas and back concrete patio, recommend all areas are always graded away from the foundation to protect the concrete and to prevent seepage issues.

#215- overgrown vines and vegetation causing damage to stucco and facia boards, recommend removal to prevent damage.

EXTERIOR PHOTOGRAPHS



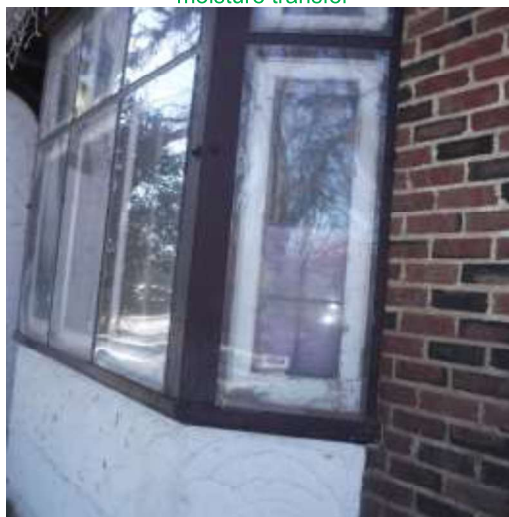
Cracking in brick and stucco



Water proofing installed over stucco at back due to suspected moisture transfer



Poor drainage away from the fountain in several areas



Covered windows

Exterior Conditions & Limitations: ☐ Restricted / No access to: ☒ Snow covering over: **most exterior surfaces**

☒ Restricted inspection due to trees / vines / shrubs. ☒ Grading not visible due to: **snow** ☒ This report does not include geological or soil conditions. For this information a Geotechnical Engineer should be consulted.

☒ Outbuildings such as storage sheds etc. not related to the house are not included in the inspection.

☒ This inspection does not verify or certify the safe operation on any automatic garage door opening mechanism.

| | | | | |
|------------|--|-------------------------------------|----------------|---|
| SOP | Standards of Practice: CanNACHI | <input checked="" type="checkbox"/> | Inspected | Date: 11/12/2018 |
| ◆ | Observe and Report on Systems & Components | <input checked="" type="checkbox"/> | Not Inspected | Inspector Initials: Client Initials: |
| ■ | Perform Tasks noted in SOP | <input type="checkbox"/> | Not Applicable | |

3. STRUCTURE

| # | SOP | ✓ | COMPONENTS: DESCRIPTION & COMMENTS |
|-----|-----|---|--|
| 301 | ♦ | ✓ | FOUNDATION: type: <input checked="" type="checkbox"/> formed concrete <input type="checkbox"/> concrete block <input type="checkbox"/> stone masonry <input type="checkbox"/> ICF <input type="checkbox"/> wood <input type="checkbox"/> other interior wall cracks: <input type="checkbox"/> minor <input type="checkbox"/> moderate <input type="checkbox"/> extensive <input checked="" type="checkbox"/> not visible |
| 302 | ♦ | ✓ | FLOORS: |
| 303 | ♦ | ✓ | -Beams: <input type="checkbox"/> masonry <input checked="" type="checkbox"/> metal <input type="checkbox"/> wood <input type="checkbox"/> not visible |
| 304 | ♦ | ✓ | -Columns: <input type="checkbox"/> masonry <input checked="" type="checkbox"/> metal <input type="checkbox"/> wood <input type="checkbox"/> not visible <i>not adjustable</i> |
| 305 | ♦ | ✓ | -Joists: <input checked="" type="checkbox"/> wood <input type="checkbox"/> engineered <input type="checkbox"/> not visible |
| 306 | ♦ | ✓ | WALLS: |
| 307 | ♦ | X | -Concrete: <input checked="" type="checkbox"/> formed <input type="checkbox"/> block |
| 308 | ♦ | — | -Wood Frame: |
| 309 | ♦ | — | -Brick: |
| 310 | ♦ | — | Arches / Lintels / Headers: |
| 311 | ♦ | ✓ | ROOF: <input type="checkbox"/> No attic access |
| 312 | ♦ | ✓ | -Sheathing: <input type="checkbox"/> OSB <input checked="" type="checkbox"/> planks <input type="checkbox"/> plywood |
| 313 | ♦ | ✓ | -Structure: <input checked="" type="checkbox"/> rafters <input type="checkbox"/> trusses |
| 314 | ♦ | ✓ | Chimney(s): as seen inside the house |
| 315 | ♦ | ✓ | Evidence of deterioration from insects / fire: <input checked="" type="checkbox"/> none found today |
| 316 | ♦ | ✓ | LOWEST LEVEL: <input checked="" type="checkbox"/> Basement <input type="checkbox"/> Crawl Space - Evidence of abnormal condensation: <input checked="" type="checkbox"/> none <input type="checkbox"/> slight <input type="checkbox"/> moderate <input type="checkbox"/> extensive - Evidence of prior moisture seepage: <input checked="" type="checkbox"/> none <input type="checkbox"/> slight <input type="checkbox"/> moderate <input type="checkbox"/> extensive - Anticipated moisture seepage: <input type="checkbox"/> low <input checked="" type="checkbox"/> typical <input checked="" type="checkbox"/> high |

COMMENTS: ☐ See ADDITIONAL COMMENTS Sheet

#303-304- home slopes from back to front due to settlement and sinking in the footings at front (approx. 51/4"-6) non-adjustable support columns installed under main beams and solid concrete structural walls that are not adjustable noted in basement. Significant cracking in walls on main and 2nd floor, doors nit fitting in their pockets and significant deflection in front basement steps structure due to non-adjustable columns, structural walls and settlement at front of building. Recommend contractor to address all areas to prevent further damage and for level structure.

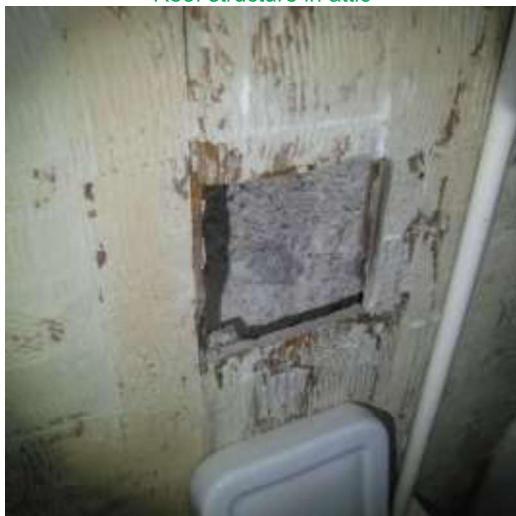
STRUCTURE PHOTOGRAPHS



Roof structure in attic



Main beam-non-adjustable columns



Concrete non-adjustable structural walls



Cracking in walls/ceilings from pressure and settlement

Structure Conditions & Limitations

Restricted/No access to:

☐ Attic Space inspected from access hatch

☐ Crawl Space inspected from access hatch.

☒ Concealed and or obstructed structural components not inspected.

☒ No engineering or structural analysis is performed during this inspection. A Structural Engineer should be consulted if necessary.

☒ This inspection does not verify the adequacy of any structural system or component.

✓ approx. 100 % of foundation wall not visible

| | | | | |
|------------|--|---|-----------------------|---------------------|
| SOP | Standards of Practice: CanNACHI | ✓ | Inspected | Date: 11/12/2018 |
| ◆ | Observe and Report on Systems & Components | ✗ | Not Inspected | Inspector Initials: |
| ■ | Perform Tasks noted in SOP | — | Not Applicable | Client Initials: |



4. INSULATION & VENTILATION

| # | SOP | ✓ | COMPONENTS: DESCRIPTION & COMMENTS |
|-----|-----|---|---|
| 401 | ♦ | ✓ | ATTIC: <input type="checkbox"/> no attic access |
| 402 | | ✓ | -Upper venting: <input checked="" type="checkbox"/> mushroom <input type="checkbox"/> turbine <input type="checkbox"/> gable <input type="checkbox"/> ridge <input type="checkbox"/> powered <input type="checkbox"/> none visible |
| 403 | ♦ | — | -Vapour barrier: <input type="checkbox"/> plastic <input type="checkbox"/> paper <input type="checkbox"/> spray foam <input type="checkbox"/> other <input type="checkbox"/> none found |
| 404 | ♦ | ✓ | -Insulation: <input checked="" type="checkbox"/> batt <input type="checkbox"/> blown/loose <input type="checkbox"/> spray foam <input type="checkbox"/> none found approx. thickness 4-6 inches. <input type="checkbox"/> recommend a top-up <i>vermiculite</i> |
| 405 | ♦ | — | -Lower Venting: <input type="checkbox"/> soffit <input type="checkbox"/> baffles <input type="checkbox"/> gable <input type="checkbox"/> not visible |
| 406 | ♦ | — | -Party Wall: <input type="checkbox"/> masonry <input type="checkbox"/> drywall |
| 407 | ♦ | ✓ | -Evidence of insects/rodents/pests: <input type="checkbox"/> none found today |
| 408 | ♦ | ✓ | LOWEST LEVEL: <input checked="" type="checkbox"/> Basement <input type="checkbox"/> Crawl Space |
| 409 | ♦ | — | -Vapour barrier: <input type="checkbox"/> none <input checked="" type="checkbox"/> not visible due to finished basement |
| 410 | ♦ | — | -Insulation: <input type="checkbox"/> none <input checked="" type="checkbox"/> not visible due to finished basement |
| 411 | ♦ | ✓ | -Ventilation: <input checked="" type="checkbox"/> basement windows <input type="checkbox"/> crawl space vents <input type="checkbox"/> none |
| 412 | ♦ | — | Wall insulation main & upper levels: <input checked="" type="checkbox"/> not visible |
| 413 | ♦ | — | Pipes in unheated areas: <input type="checkbox"/> Exterior Hose Bibs <input type="checkbox"/> garage <input type="checkbox"/> crawl space <input type="checkbox"/> attic <input type="checkbox"/> cold room |
| 414 | ♦ | — | Ducts in unheated areas: <input type="checkbox"/> garage <input type="checkbox"/> crawl space <input type="checkbox"/> attic <input type="checkbox"/> cold room |
| 415 | ♦ | ✓ | EXHAUST FAN VENTILATION: |
| 416 | ♦ ■ | ✓ | -Kitchen(s): <input type="checkbox"/> none <input type="checkbox"/> recirculating <input type="checkbox"/> exhausting <i>inoperative-discharge point</i> |
| 417 | ♦ ■ | ✓ | -Bathroom(s): <input type="checkbox"/> none <i>missing</i> |
| 418 | ♦ ■ | — | -Other(s): <input type="checkbox"/> HRV <input type="checkbox"/> laundry room |
| 419 | ♦ | ✓ | -Dryer Vent: <input type="checkbox"/> plastic <input type="checkbox"/> metal <input type="checkbox"/> recommend cleaning regularly |

COMMENTS: ☐ See ADDITIONAL COMMENTS Sheet

#404- attic has a base of vermiculite insulation that may contain asbestos, evidence of rodents in attic (droppings, damaged insulation and large trap set up) Recommend vermiculite remain undisturbed for safety and professional to address rodent issues as necessary.

#416- inoperative kitchen exhaust fan, master bathroom fan is venting into attic, no fan installed in main bathroom. Recommend repair and all fans vent to the exterior.

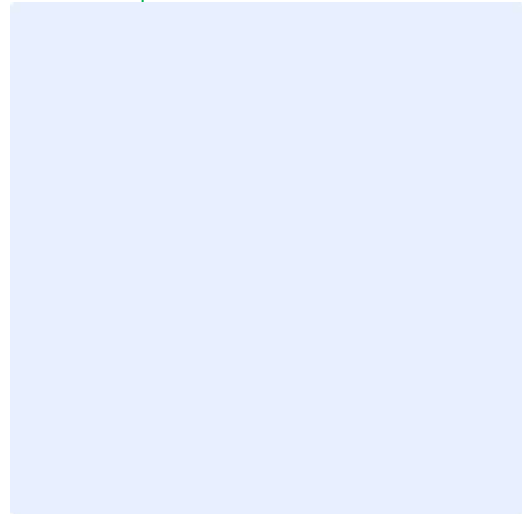
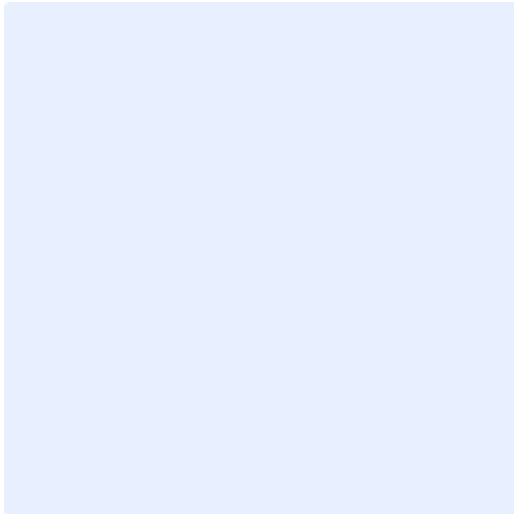
INSULATION & VENTILATION PHOTOGRAPHS



Attic insulation



Inoperative kitchen exhaust fan



Insulation & Ventilation Conditions & Limitations: ☒ Attic Space viewed from hatch ☐ Crawl Space viewed from hatch

☐ Restricted / No access to:

☒ Air / Vapour barrier continuity not inspected.

☒ Concealed insulation not inspected.

☒ Determining the presence of asbestos or other hazardous materials is beyond the scope of this inspection.

☒ Determining the adequacy of insulation and/or ventilation is beyond the scope of this inspection.

| | | | | |
|------------|--|-------------------------------------|----------------|-------------------------|
| SOP | Standards of Practice: CanNACHI | <input checked="" type="checkbox"/> | Inspected | Date: 11/12/2018 |
| ◆ | Observe and Report on Systems & Components | <input checked="" type="checkbox"/> | Not Inspected | Inspector Initials: |
| ■ | Perform Tasks noted in SOP | <input type="checkbox"/> | Not Applicable | Client Initials: |



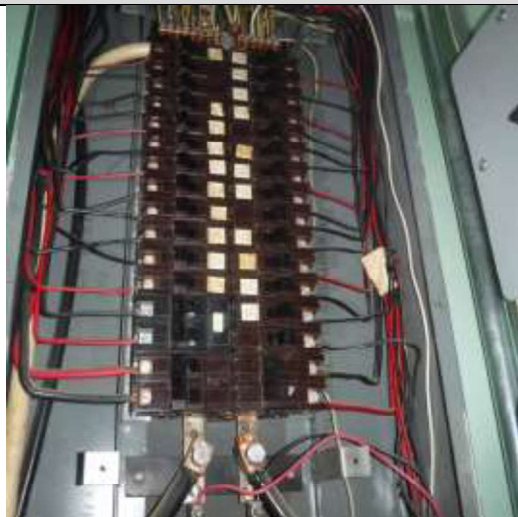
5. ELECTRICAL

| # | SOP | ✓ | COMPONENTS: DESCRIPTION & COMMENTS |
|-----|-----|---|--|
| 501 | ♦ | ✓ | Service Entrance: ✓ underground <input type="checkbox"/> overhead |
| 502 | ♦ | ✓ | Service (Meter) Box 200 Amps. Voltage: <input type="checkbox"/> 120 ✓ 240 <input type="checkbox"/> not accessible |
| 503 | ♦ ■ | ✓ | Service Panel 200 Amps. Location: ✓ breakers <input type="checkbox"/> fuses <input type="checkbox"/> not accessible |
| 504 | ♦ | ✓ | -Wires: |
| 505 | ♦ | ✓ | - <input type="checkbox"/> Fuses ✓ Breakers <input type="checkbox"/> GFCI breakers <input type="checkbox"/> AFCI breakers |
| 506 | ♦ | ✓ | -Dedicated Circuits: <i>labels missing -</i> |
| 507 | ♦ | ✓ | Grounding: <input type="checkbox"/> water pipe <input type="checkbox"/> grounding rods ✓ not visible ✓ wire continuity not determined |
| 508 | ♦ | ✓ | Branch Circuit Wiring: ✓ copper <input type="checkbox"/> aluminum ✓ knob & tube |
| 509 | ♦ | — | -Knob & Tube: <input type="checkbox"/> recommend qualified electrician to inspect and maintain |
| 510 | ♦ | — | -Aluminum: <input type="checkbox"/> recommend qualified electrician to inspect and maintain |
| 511 | ♦ | ✓ | Junction Boxes: |
| 512 | ♦ ■ | ✓ | Receptacles: <input type="checkbox"/> grounded ✓ ungrounded <input type="checkbox"/> upgraded grounded <input type="checkbox"/> upgraded ungrounded <input type="checkbox"/> TR |
| 513 | ♦ ■ | — | -Ground Fault Circuit Interrupter Receptacles: <input type="checkbox"/> interior <input type="checkbox"/> exterior |
| 514 | ♦ ■ | ✓ | Switches: |
| 515 | ♦ | ✓ | Lights: |
| 516 | ♦ | ✓ | Cover plates: |

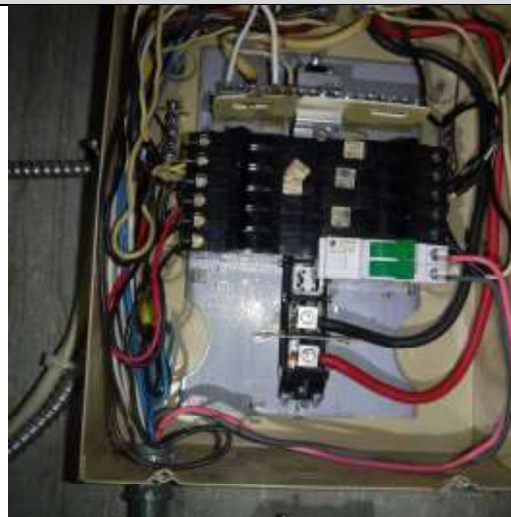
COMMENTS: ☐ See ADDITIONAL COMMENTS Sheet

#503- only 1-50amp breaker and 1-30 amp breaker noted in panel and several sub-panels being fed from main panel. Some Knob and tube wiring still in service seen in attic and all plugs tested in the home are not grounded. Recommend electrician to address all areas for adequate installation, operation and safety.

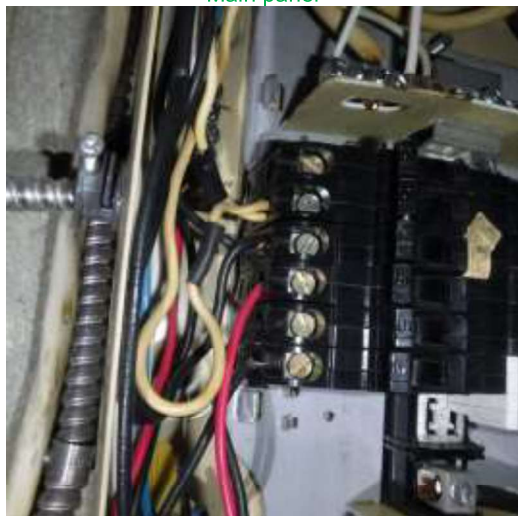
ELECTRICAL PHOTOGRAPHS



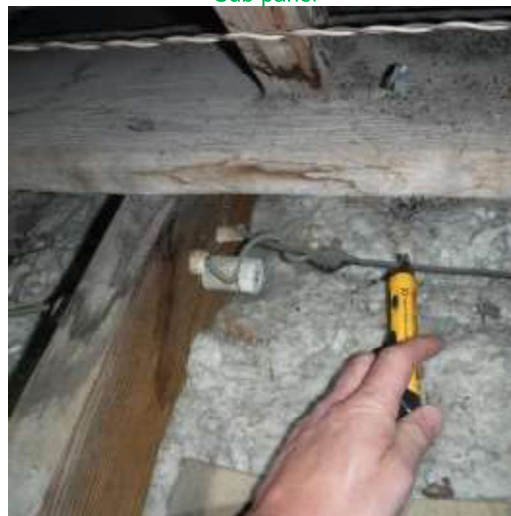
Main panel



Sub panel



Double tapped breakers in sub panel



Knob and tub wiring in service in attic

Electrical Conditions & Limitations:

- ☐ Restricted/No access to:
- ☐ Power disconnected / shut off.
- ☒ Concealed or obstructed electrical components not inspected.
- ☒ Aluminum wiring connections should be checked by a licensed electrician familiar with aluminum wire.
- ☒ Services less than 100 amps may need upgrading for operation of larger electrical appliances. ☒ Newer homes have "Ground fault circuit interrupter" (GFCI) protection for safety in wet areas, an upgrade is recommended for older homes not equipped with these devices.

| | | | | |
|------------|--|---|----------------|---|
| SOP | Standards of Practice: CanNACHI | ✓ | Inspected | Date: 11/12/2018 |
| ◆ | Observe and Report on Systems & Components | ✗ | Not Inspected | Inspector Initials: Client Initials: |
| ■ | Perform Tasks noted in SOP | — | Not Applicable | |

6. HEATING & COOLING

| # | SOP | ✓ | COMPONENTS: DESCRIPTION & COMMENTS |
|--|-----|---|--|
| 601 | ◆ | ✓ | Description: <input type="checkbox"/> Furnace <input checked="" type="checkbox"/> Boiler <input type="checkbox"/> Electric Heating Efficiency: <input checked="" type="checkbox"/> conv. <input type="checkbox"/> medium <input type="checkbox"/> high Fuel: gas Capacity: output Btu's. Approx. age: yrs. - according to: Failure Probability: <input type="checkbox"/> low <input type="checkbox"/> medium <input checked="" type="checkbox"/> high (based on typical life cycle) |
| 602 | ◆ ■ | — | FURNACE: <input type="checkbox"/> Forced Air <input type="checkbox"/> Gravity Manufacturer: <input type="checkbox"/> recommend servicing by a licensed technician <input type="checkbox"/> recommend maintenance program |
| 603 | ◆ ■ | ✓ | BOILER: <input checked="" type="checkbox"/> Hot Water Manufacturer: asbestos-operation |
| 604 | ◆ ■ | — | ELECTRIC HEATERS: <input type="checkbox"/> Convection <input type="checkbox"/> Radiant <input type="checkbox"/> Baseboard <input type="checkbox"/> Other |
| 605 | ◆ | ✓ | Burnt gases exhaust method: <input checked="" type="checkbox"/> Metal flue piping <input type="checkbox"/> Chimney <input type="checkbox"/> Plastic vent pipes <input type="checkbox"/> Shared with : |
| 606 | ◆ | — | Fuel Storage: <input type="checkbox"/> Oil <input type="checkbox"/> Liquid Propane <input checked="" type="checkbox"/> Storage tank not inspected |
| 607 | ◆ | — | Presence of emergency shut-off safety controls: |
| 608 | ◆ | ✓ | Presence of permanent heat source / return air in each room: |
| 609 | ◆ ■ | ✓ | Thermostat: <input type="checkbox"/> programmable |
| 610 | ◆ ■ | — | Heat / Energy Recovery Ventilator: |
| 611 | ◆ | — | Electronic Air Filter: |
| 612 | ◆ ■ | — | COOLING: <input type="checkbox"/> Air Conditioner <input type="checkbox"/> Heat Pump Manufacturer: Approx. age: yrs. - according to: Failure Probability: <input type="checkbox"/> low <input type="checkbox"/> medium <input type="checkbox"/> high (based on typical life cycle) |
| COMMENTS: <input type="checkbox"/> See ADDITIONAL COMMENTS Sheet | | | |
| #603- boiler is past its expected life expectancy, asbestos wrapped pipes for boiler, boiler was previously oil burning and oil leak at old line coming out of basement slab (no evidence of oil tank seen on site), forced air dust servicing garage (making gas proofing compromised) one missing circulation pump, circulation pump on one zone appears undersized and basement boiler heat radiators appear inoperative. Recommend additional mechanical inspection for operation and safety and asbestos removal to be addressed by professional. | | | |

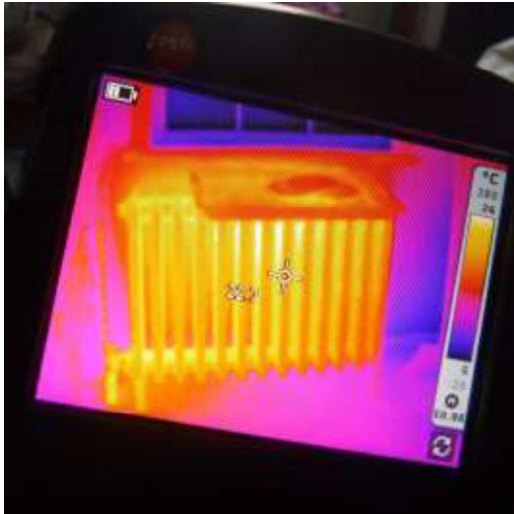
HEATING & COOLING PHOTOGRAPHS



Boiler



Air handler



Main/2nd floor radiators operational



Leaking oil line near boiler

Heating & Cooling Conditions & Limitations:

- ☐ Heating not tested. ☐ A/C not tested.

☐ Chimneys clean out not opened.

☒ Automatic safety controls not tested.

☒ Zone valves not tested or adjusted.

☐ Gas was shut off to house. ☐ Power disconnected / shut off.

☐ Fuel storage is not visible. ☐ Circulating pump not tested.
- ☒ Inspection of the furnace heat exchanger for evidence of cracks or holes can only be done by dismantling the unit. This is beyond the scope of this inspection. ☒ Thermostats are not checked for calibration or timed functions. ☒ Underground fuel storage tanks are not part of this inspection. ☒ No pressure tests are performed on coolant systems and no representation is made regarding coolant charge or line integrity.

| | | | | |
|------------|--|---|----------------|---------------------|
| SOP | Standards of Practice: CanNACHI | ✓ | Inspected | Date: 11/12/2018 |
| ♦ | Observe and Report on Systems & Components | ✗ | Not Inspected | Inspector Initials: |
| ■ | Perform Tasks noted in SOP | — | Not Applicable | Client Initials: |



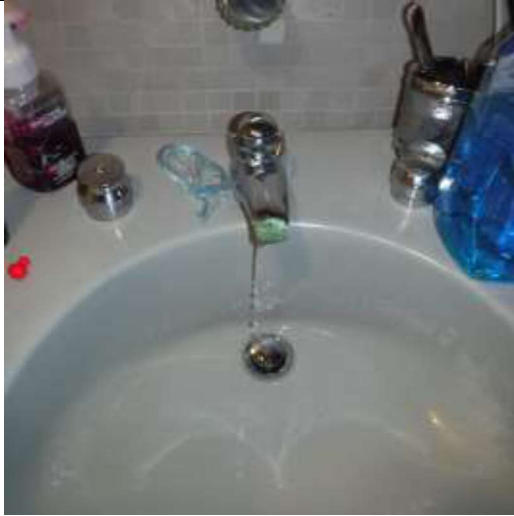
7. PLUMBING

| # | SOP | ✓ | COMPONENTS: DESCRIPTION & COMMENTS |
|-----|-----|---|---|
| 701 | ♦ | ✓ | SUPPLY PIPING: <input type="checkbox"/> Public <input type="checkbox"/> Private 1 inch access Location: (into house) ✓ Copper <input type="checkbox"/> Plastic <input type="checkbox"/> Galv. Steel <input type="checkbox"/> Lead |
| 702 | ♦ | — | Pump / Pressure tank / Expansion tank : |
| 703 | ♦ | ✓ | DISTRIBUTION PIPING: (in house) ✓ Copper <input type="checkbox"/> Plastic <input type="checkbox"/> Galv. Steel <input type="checkbox"/> Lead Piping |
| 704 | ♦ ■ | ✓ | Water flow / Pressure: <input type="checkbox"/> above average ✓ average <input type="checkbox"/> below average |
| 705 | ♦ ■ | ✓ | WASTE PIPING: (in house) <input type="checkbox"/> Galv. Steel ✓ Plastic <input type="checkbox"/> Copper ✓ Cast Iron <input type="checkbox"/> Lead |
| 706 | ♦ ■ | ✓ | -P traps: |
| 707 | ♦ | ✓ | -Plumbing cleanout(s) location: ✓ Basement <input type="checkbox"/> crawl space <input type="checkbox"/> Garage <input type="checkbox"/> other <input type="checkbox"/> none found |
| 708 | ♦ | — | - <input type="checkbox"/> Private (septic system) <input type="checkbox"/> recommend professional septic inspection |
| 709 | ♦ | ✓ | - Floor Drains: ✓ Basement <input type="checkbox"/> crawl space <input type="checkbox"/> Garage <input type="checkbox"/> other <input type="checkbox"/> none found |
| 710 | ♦ ■ | ✓ | Sump Pit / Sump Pumps: <input type="checkbox"/> pit dry ✓ not plugged in <input type="checkbox"/> not tested |
| 711 | ♦ ■ | ✓ | WATER HEATER: <input type="checkbox"/> Electric <input type="checkbox"/> Oil ✓ Gas Approx. age rented yrs. Capacity 50 gal. |
| 712 | ♦ | ✓ | -Automatic safety controls <input type="checkbox"/> mixing valve |
| 713 | ♦ | ✓ | -Burnt gases exhaust method: ✓ Metal flue piping ✓ Chimney <input type="checkbox"/> Plastic vent pipes <input type="checkbox"/> shared with: |
| 714 | ♦ | — | -Fuel storage: <input type="checkbox"/> Oil <input type="checkbox"/> LP ✓ Fuel tank not inspected |
| 715 | ♦ | — | Laundry Tub: <input type="checkbox"/> washing machine discharge |
| 716 | ♦ | ✓ | Valves: |
| 717 | ♦ ■ | ✓ | Faucets: operation |
| 718 | ♦ ■ | ✓ | -Exterior hose bibs: <input type="checkbox"/> frost free ✓ interior shut off <input type="checkbox"/> anti-syphon <input type="checkbox"/> not tested |
| 719 | ♦ ■ | ✓ | Sinks: |
| 720 | ♦ | ✓ | Bathtub(s) and Enclosure: |
| 721 | ♦ ■ | ✓ | Toilet(s): |
| 722 | ♦ | ✓ | Shower Stall(s): |
| 723 | ♦ | — | Bidet: |

COMMENTS : ☐ See ADDITIONAL COMMENTS Sheet

#717- faucet in main bathroom vanity runs full time, devices/faucets/tub surrounds and showers are very old and will require repair/replacement in the near future.

PLUMBING PHOTOGRAPHS



Leaking faucet in main bathroom



Main stack



Main water entry-meter



Sump put-pump inoperative

Plumbing Conditions & Limitations: ☐ Gas was shut off. ☐ Water was shut off. ☐ Fixtures not tested:

☐ Restricted / No access to:

☒ Concealed / Underground plumbing not inspected or judged for leaks or deterioration. ☒ Water treatment systems not inspected. ☒ Isolating / Relief and main valves not tested. ☒ Testing for water quality, lead and other hazardous materials is not part of this inspection. ☒ Integrity of septic tanks and leaching bed is of part of this inspection. A licensed installer should be consulted. ☒ Integrity and capacity of well water supply installations is not part of this inspection. A licensed well driller should be consulted. ☒ Solar heating systems are not part of this inspection.

| | | | | |
|------------|--|---|----------------|---------------------|
| SOP | Standards of Practice: CanNACHI | ✓ | Inspected | Date: 11/12/2018 |
| ♦ | Observe and Report on Systems & Components | ✗ | Not Inspected | Inspector Initials: |
| ■ | Perform Tasks noted in SOP | — | Not Applicable | Client Initials: |



8. INTERIOR

| # | SOP | ✓ | COMPONENTS: DESCRIPTION & COMMENTS |
|-----|-----|---|--|
| 801 | ♦ | ✓ | Floors: ✓ wood ✓ ceramics ✓ carpet ✓ vinyl <input type="checkbox"/> laminate <input type="checkbox"/> stone <i>asbestos</i> |
| 802 | ♦ | ✓ | Walls: ✓ drywall ✓ plaster ✓ wood <i>damage –cracking</i> |
| 803 | ♦ | ✓ | Ceilings: ✓ drywall ✓ plaster <input type="checkbox"/> wood <i>damage -cracking</i> |
| 804 | ♦ | ✓ | Trim: |
| 805 | ♦ | ✓ | Stairways: <i>twisting-deflection</i> |
| 806 | ♦ ■ | ✓ | Guards: |
| 807 | ♦ ■ | ✓ | Railings: |
| 808 | ♦ ■ | ✓ | Doors: <i>inoperative</i> |
| 809 | ♦ ■ | ✓ | Windows: <i>damage-inoperative</i> <input type="checkbox"/> not opened due to season |
| 810 | ♦ | ✓ | Counters: |
| 811 | ♦ | ✓ | Cabinets |
| 812 | ♦ | ✓ | Separation Wall between garage & dwelling: |
| 813 | ♦ | — | Party Walls: <input type="checkbox"/> concrete <input type="checkbox"/> block <input type="checkbox"/> brick <input type="checkbox"/> drywall <input type="checkbox"/> not visible |
| 814 | ♦ | | Smoke Detectors: <input type="checkbox"/> not installed on all levels ✓ not tested |
| 815 | ♦ | — | Gas Fireplace: <input type="checkbox"/> pilot not on <input type="checkbox"/> not tested <input type="checkbox"/> clean system before using |
| 816 | ♦ | X | ✓ Wood Burning Fireplace <input type="checkbox"/> Wood Stove ✓ recommend W.E.T.T. Inspection |
| 817 | ♦ | ✓ | Evidence of water penetration: ✓ none found today |
| 818 | ♦ | ✓ | Evidence of abnormal condensation: ✓ none found today |
| | | | COMMENTS: <input type="checkbox"/> See ADDITIONAL COMMENTS Sheet |
| | | | |
| | | | |
| | | | |
| | | | |

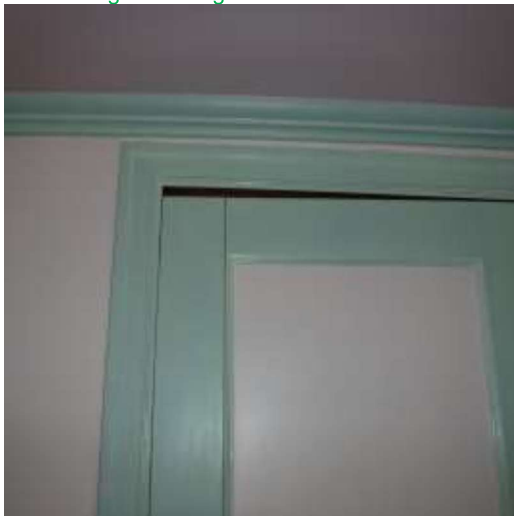
INTERIOR PHOTOGRAPHS



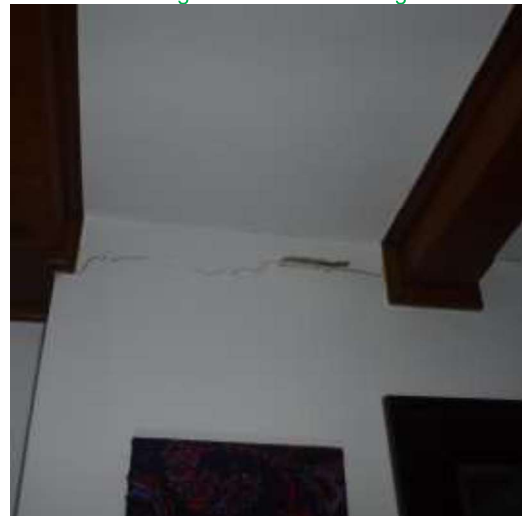
Large cracking in main floor stairwell



Damage to main floor ceilings



Doors no fitting due to pressure/settlement



Cracking in main floor walls

Interior Conditions & Limitations: ☐ Restricted/No access to:
furnishings. ☐ There is a lack of historical clues due to new finishes and/or recent construction.

☒ Restricted access due to storage /

☒ Suggest installing Carbon Monoxide Detector.

☒ Cosmetic finishes not commented on.

☒ Chimney efficiency is not commented on or judged.

☒ Condition of walls behind wall paper, paneling and furnishings cannot be judged. ☒ Determining odours or a stain is not included. ☒ Condition of flooring hidden by furniture, carpet or other covering is not inspected.

☒ Determining the rating of fire walls is beyond the scope of this inspection.

☒ The inspection does not address compliance of basement apartments and accessory units. Consult local Town/City regulatory requirements.

| | | | | |
|------------|--|-------------------------------------|----------------|---------------------|
| SOP | Standards of Practice: CanNACHI | <input checked="" type="checkbox"/> | Inspected | Date: 11/12/2018 |
| ◆ | Observe and Report on Systems & Components | <input checked="" type="checkbox"/> | Not Inspected | Inspector Initials: |
| ■ | Perform Tasks noted in SOP | <input type="checkbox"/> | Not Applicable | Client Initials: |

9. FORMS 1 TO 8 ADDITIONAL COMMENTS & PHOTOGRAPHS

COMMENTS

Roll-on roofing over garage, shingles at back/chimney

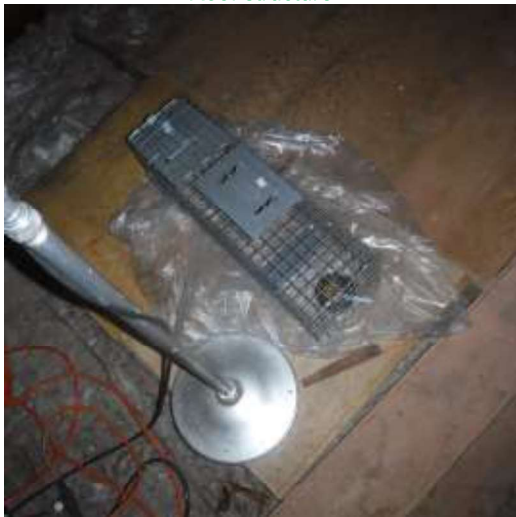




Roof structure



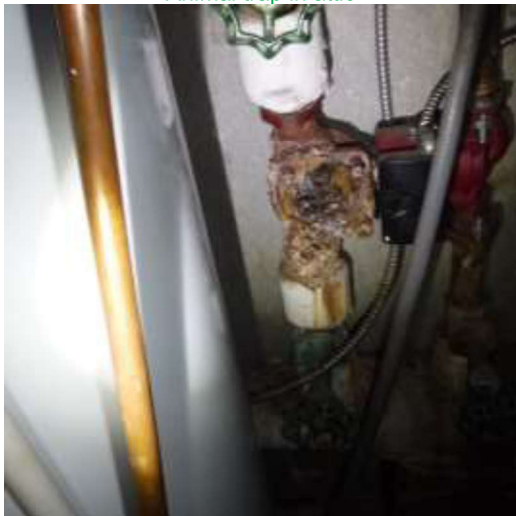
Roof structure



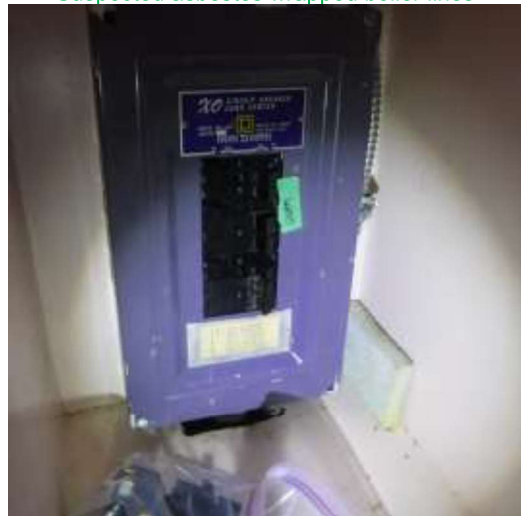
Animal trap in attic



Suspected asbestos wrapped boiler lines



Missing circulation pump-rust-deterioration



Kitchen panel



10. SUMMARY

Areas to focus on are:

#101- wood shingles are starting to show wear and aging in some areas, recommend monitor and roofer to address replacement of roof covering as necessary to prevent leaks and damage.

#102- peeing at seam in roll-on roofing over garage noted but most of roof not visible at time of inspection. Recommend roofer to address in spring to conform condition.

#104 & 108 rust/deterioration to cap flashings over garage edge and rust/deterioration, leaking and damage to metal gutters and downspouts in several areas. Recommend repair/replacement to adequately drain water away from building and to prevent moisture transfer at cap flashings on garage.

#104- evidence of past damming/moisture transfer at back lower roof and interior damage in dining room area. Recommend roofer to address repair to prevent further damage.

#201- cracking in brick and mortar joints in some areas, cracking in stucco with evidence of past moisture transfer through roof/stucco connection at back lower roof. Recommend contractor to address brick and stucco repairs to prevent further damage and/or moisture transfer.

#205- most winnows are inoperative due to storm windows installed on exterior.

#207- west garage door not tested due to storage at time of inspection.

#212- deterioration of bottom of front steps, recommend repair/replacement for safety.

#214- poor drainage away from the foundation in several areas and back concrete patio, recommend all areas are always graded away from the foundation to protect the concrete and to prevent seepage issues.

#215- overgrown vines and vegetation causing damage to stucco and fascia boards, recommend removal to prevent damage.

#303-304- home slopes from back to front due to settlement and sinking in the footings at front (approx. 5 1/4"-6) non-adjustable support columns installed under main beams and solid concrete structural walls that are not adjustable noted in basement. Significant cracking in walls on main and 2nd floor, doors not fitting in their pockets and significant deflection in front basement steps structure due to non-adjustable columns, structural walls and settlement at front of building. Recommend contractor to address all areas to prevent further damage and for level structure.

#404- attic has a base of vermiculite insulation that may contain asbestos, evidence of rodents in attic (droppings, damaged insulation and large trap set up) Recommend vermiculite remain undisturbed for safety and professional to address rodent issues as necessary.

#416- inoperative kitchen exhaust fan, master bathroom fan is venting into attic, no fan installed in main bathroom. Recommend repair and all fans vent to the exterior.

#503- only 1-50amp breaker and 1-30 amp breaker noted in panel and several sub-panels being fed from main panel. Some Knob and tube wiring still in service seen in attic and all plugs tested in the home are not grounded. Recommend electrician to address all areas for adequate installation, operation and safety.

#603- boiler is past its expected life expectancy, asbestos wrapped pipes for boiler, boiler was previously oil burning and oil leak at old line coming out of basement slab (no evidence of oil tank seen on site), forced air dust servicing garage (making gas proofing compromised) one missing circulation pump, circulation pump on one zone appears undersized and basement boiler heat radiators appear inoperative. Recommend additional mechanical inspection for operation and safety and asbestos removal to be addressed by professional.

#717- faucet in main bathroom vanity runs full time, devices/faucets/tub surrounds and showers are very old and will require repair/replacement in the near future.

Inspector's Initials:

Date: 11/12/2018

Clients Initials: