



LETTER REPORT

Consultancy Services
for Structural Assessment on the Chancery
located at

231 Cobourg St.
Ottawa, Ontario

Submitted to:
Ten 2 Four Architecture Inc.
55 Eglinton Ave. East, Suite 606C
Toronto, Ontario M4P 1G8
Attention: Mr. Judah Mulalu
Principal

Submitted by:
Stephenson Engineering Limited
1730 St. Laurent Blvd, Suite 800
Ottawa, ON, K1G 5L1

January 24, 2017
Project No.: 20160391

Mr. Judah Mulalu, Principal
Ten 2 Four Architecture Inc.
55 Eglinton Ave. East, Suite 606C
Toronto, Ontario M4P 1G8

January 24, 2017

Via email: judah@ten24architecture.com

**Re: Consultancy Services
for Structural Assessment on the Chancery located at
231 Cobourg St., Ottawa, Ontario
Project No.: 20160391**

Dear Mr. Mulalu,

We are pleased to submit our letter report outlining our findings and recommendations pertaining to the Structural Assessment on the Chancery at 231 Cobourg St, Ottawa.

1. Introduction

The Republic of Uganda put out a Standard invitation to Consultants to bid on providing a structural assessment of The Uganda High Commission's Chancery Building, located at 231 Cobourg Street in Ottawa, on March 7th, 2016. Stephenson Engineering was awarded the job on November 17, 2016.

Prior to conducting the site review, we reviewed a set of AS-FOUND drawings provided by Ten 2 Four Architecture Inc. The drawings reviewed include a site plan, a basement, first and second floor plan view as well as four elevation views. Our site review was conducted on December 1, 2016.

2. Background

The two storey residential building was reported to have been constructed between 1935 and 1947 according to a City of Ottawa, Sandy Hill Heritage Study, undertaken in 2007. The building is constructed with a combination of wood joists supporting wood deck floors and wood joists, with a wood deck roof structure, supported on load bearing wood stud walls. All load bearing and non-load bearing exterior wood stud walls and wood columns bear on a combination of masonry and concrete walls, which are supported by continuous reinforced concrete footings. The basement floor is assumed to be a 4-in thick concrete slab on grade reinforced with wire mesh reinforcement.

Stephenson Engineering had previously provided a Demolition Report for this property on June 5, 2015. In that report a number of structural deficiencies were identified along with a description of the structural design characteristics and specific recommendations regarding the Demolition Procedure for the property.

3. Observations

Evidence of repairs in the basement, repairs to the masonry cladding and numerous deficiencies within the building's first and second floors indicate differential settlement has been an ongoing

issue for an extended period of time. The basement conditions show where cracks in the poured concrete and masonry walls were repaired, but further movement caused additional cracks as the fundamental cause of the building movement was not resolved. It is not clear if attempts to resolve the settlement issue were undertaken and had failed, or were simply not attempted.

The building was abandoned at the time of the investigation conducted by Stephenson Engineering in 2015 for the Demolition Report and is still abandoned. Site conditions suggest no maintenance has been undertaken over that period.

During the site visit conducted as part of this assessment, we noted the overall condition of the building interior to be poor. An overview of issues observed are as follows:

- Extensive cracking of foundation walls (see photographs 3-5 in Appendix A),
- Severe cracking of the basement slab on grade (see photographs 1-2 in Appendix A),
- Extensive damage to the interior from water infiltration (see photographs 9-10 in Appendix A),
- Widespread cracking of plaster on load bearing and non-load bearing stud walls (see photographs 6-8 and 11-17 in Appendix A),
- Deflection of first and second level floors along the east elevation,
- Cracking and repairs to exterior brick façade (see photographs 18-19 in Appendix A).

For locations and indications of the extent of cracks and deficiencies noted, the basement, first and second floor drawings provided by Ten 2 Four Architecture Inc. have been marked up and attached to the report in Appendix B.

Considering the noted conditions, likely failure of hidden building envelope components must also be taken into account as materials are designed to withstand some anticipated movement, but the level of movement associated with the severity of settlement for this building is likely beyond that anticipated. The noted damage due to water infiltration is likely the result of the associated building envelope failure.

The building exterior has some brick and mortar damage with visible step cracks and issues around windows associated with settlement along with evidence of previous repair. However, overall the exterior of the building is in fair condition.

4. Discussions and Recommendations

As outlined, there are numerous deficiencies throughout the building primarily related to ongoing differential settlement. The damage, primarily at the north, east and south elevations, is severe. Restoration of the building to bring it to a serviceable condition would require a significant investment. Considerations for restoration of the property requires additional information regarding a number of interrelated areas of concern.

Given the age of the building, the existence of Designated Substances is likely. Information provided by Ten 2 Four Architecture Inc. indicates a Designated Substance Review has been undertaken and hazardous substances are known to be present. A high level cost estimate for remediation of the hazardous substances was provided by the Environmental Engineer who provided the DSR which has been provided in our table of Budgetary Cost Estimates. The remediation work would impact other aspects of the prospective restoration project adding to costs for Plaster repairs/replacement, aspects of the structural repairs and window replacement and interior fit up. Additionally, given the evidence of water infiltration, the likelihood of the existence of mold within the building is also high. The extent and cost of mold remediation could vary significantly, but we have provided an order of magnitude cost estimate as guidance for the cost of mold remediation.

Considerations for stabilization of the building foundation are a major aspect of a restoration project for this building. There are a number of methods available for remediation of settlement issues, but they can be broken down into two main categories. The first, known as Slabjacking, is where a grout mixture is injected beneath a sunken section of a concrete slab and “floated” back to level. The second is known as Piling or Piering, where either Piles or Piers are used, based on soil conditions, to provide a suitable bearing capacity for the building foundation. These piles or piers are then structurally anchored to the foundation. Hydraulic jacks are then used to raise the foundation back to its original level. The extent of damage to the foundation can only be assumed. Information provided by Ten-2-Four Architecture Inc. from a Geotechnical Investigation undertaken by AA Tech Scientific Inc. shows the existence of plastic clay or “Leda” clay, a known issue in the Ottawa area, down to the bedrock at a depth of approximately 19.5 m. This information suggests stabilization methods will be extensive. Working with foundation restoration contractors to provide cost estimates for repairs suggested the costs for repair can be anticipated to be at the high end of the range provided. For planning purposes, an estimate has been provided in Table 1.

After the building is stabilized, investigation and correction of structural issues caused by the long term settlement could be undertaken. Based on the age of the building and noted conditions, it is reasonable to assume the work to restore the structural integrity of the building, in conjunction with work around Designated Substance and mold remediation would be extensive. An estimate for the structural repairs has been included in table 1.

Evidence of water infiltration suggest the settlement issues have damaged the building envelope. Work done to rectify the foundation settlement, remove designated substance and mold, and repair structural issues would further damage building envelope components, brick masonry cladding, windows and roofing (along with plumbing, electrical and HVAC equipment where are not discussed in this report). Cost estimates for repair or replacement of these building components should be accounted for as part of the restoration project. Budgetary cost estimates for each of these items have been in include in table 1 for review.

Subsequent to the fundamental structural concerns, issues with hazardous materials and mold and the building envelope has been made whole, the interior fit up can then be estimated. With the help of Ten 2 Four Architecture Inc., high level associated costs for basic fit up elements such as kitchens, bathrooms and floor have been added to the table below for review.

Table 1: Budgetary Cost Estimates	
Foundation Restoration	\$ 200,000
Structural Renovations	\$ 100,000
Plaster Repair/Replacement	\$ 200,000
Window Replacement	\$ 250,000
Kitchen/Bathroom Retrofit	\$ 150,000
Concrete/Masonry Repairs Basement	\$ 25,000
Exterior Masonry Repairs	\$ 50,000
Roof Replacement	\$ 50,000
Repainting Interior	\$ 45,000
Designated Substances Abatement	\$ 300,000
Mold Remediation	\$ 150,000
New Flooring	\$ 100,000
Total	\$ 1,620,000

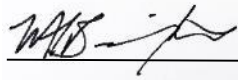
As noted above, the estimates provided in the table above do not include items for electrical, networking infrastructure, plumbing or HVAC. Based on the level of the renovations discussed, it should be anticipated that the majority of the existing infrastructure for these items will need to be replaced or upgraded as part of the restored building.

5. Closing

The Uganda High Commission Chancery Building is currently abandoned and in poor condition. As outlined in this report, a combination of severe damage from settlement and age require a substantial restoration effort to bring the building to a serviceable condition. The cost estimates provided will vary, but they do represent the scale of the undertaking, given the existing conditions. Unless the existing building is of significant heritage value, consideration should be given to demolition and replacement with a building designed for the existing soil conditions, which could then be designed to meet the specific ownership requirements using sustainable methods and materials along with current energy efficiency requirements.

We trust that this is the information you require at this time. If you have any questions or concerns, please do not hesitate to contact our office.

Yours very truly,
STEPHENSON ENGINEERING LTD.



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Appendix A

Basement Level



Photo 1: Crack in slab on grade noted basement utility room at southeast portion of the building.



Photo 2: Extensive slab on grade cracking in former garage along northwest area of basement.



Photo 3: Cracking of poured in place concrete basement wall in the southeast corner of the building.



Photo 4: Block masonry walls in basement show multiple repairs and ongoing step cracking in numerous locations (typical).



Photo 5: This location shows one of numerous repairs with ongoing step cracking (typical).

First Floor



Photo 6: Extensive crack on interior wall along south elevation (Living Room - 113).



Photo 7: Cracking shown in photograph 6 continues along south wall.

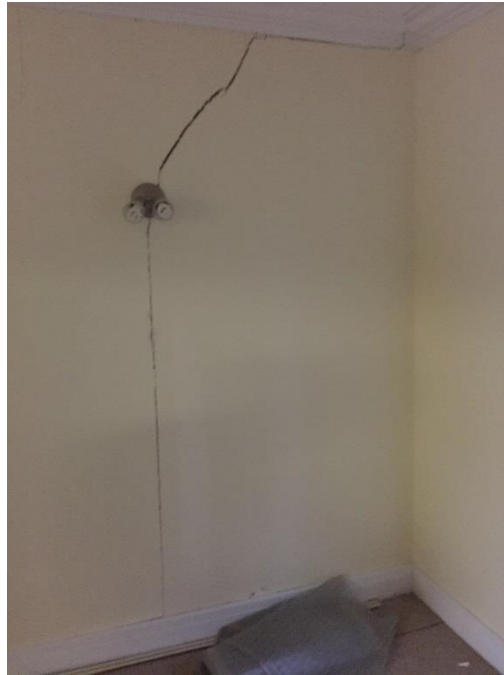


Photo 8: Crack complete height of wall northeast corner of dining room-111.



Photo 9: Severity of plaster and paint issues in kitchen effectively hide structural cracks. However, a number of cracks were noted including the doorframe visible in this photo.



Photo 10: Failure of ceiling likely the result of ongoing water damage.

Second Floor



Photo 11: Similar to noted issue on level 1, some of the most severe wall cracking noted along south elevation (office - 209).

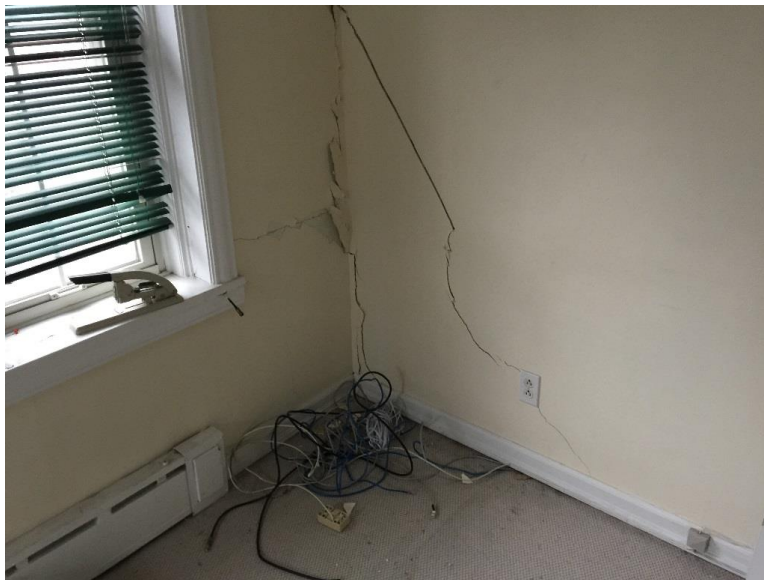


Photo 12: Continuation of cracking noted in photograph 16 above.



Photo 13: Step crack in stairway along east elevation.



Photo 14: Significant movement indicated by pattern of cracks noted along north elevation at end of corridor.



Photo 15: Continuation of cracking noted in photograph 25 above.

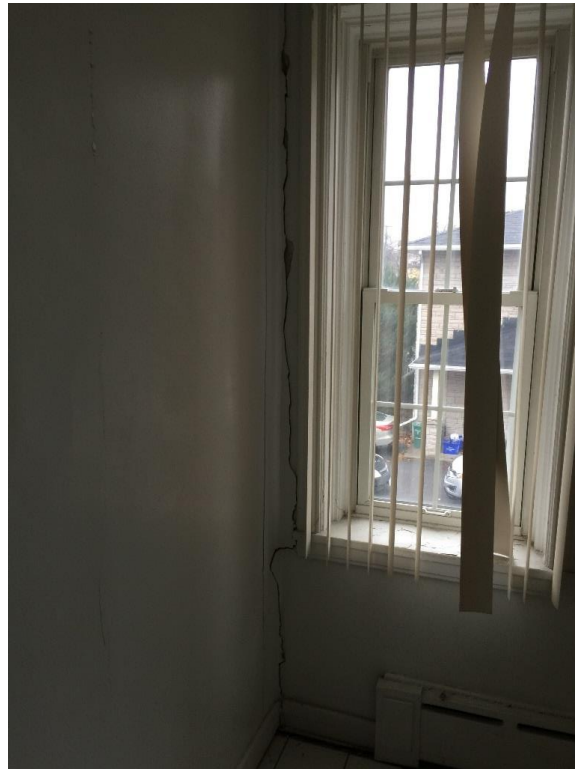


Photo 16: Continuation of elongated crack noted in photograph 26 above.



Photo 17: Extended crack at interior wall along west elevation in High Commissioners Office - 210. Although not clear in photograph, multiple separate horizontal cracks exist at roughly 3 ft. intervals down the wall.

Exterior



Photo 18: The exterior brick cladding shows multiple repairs.

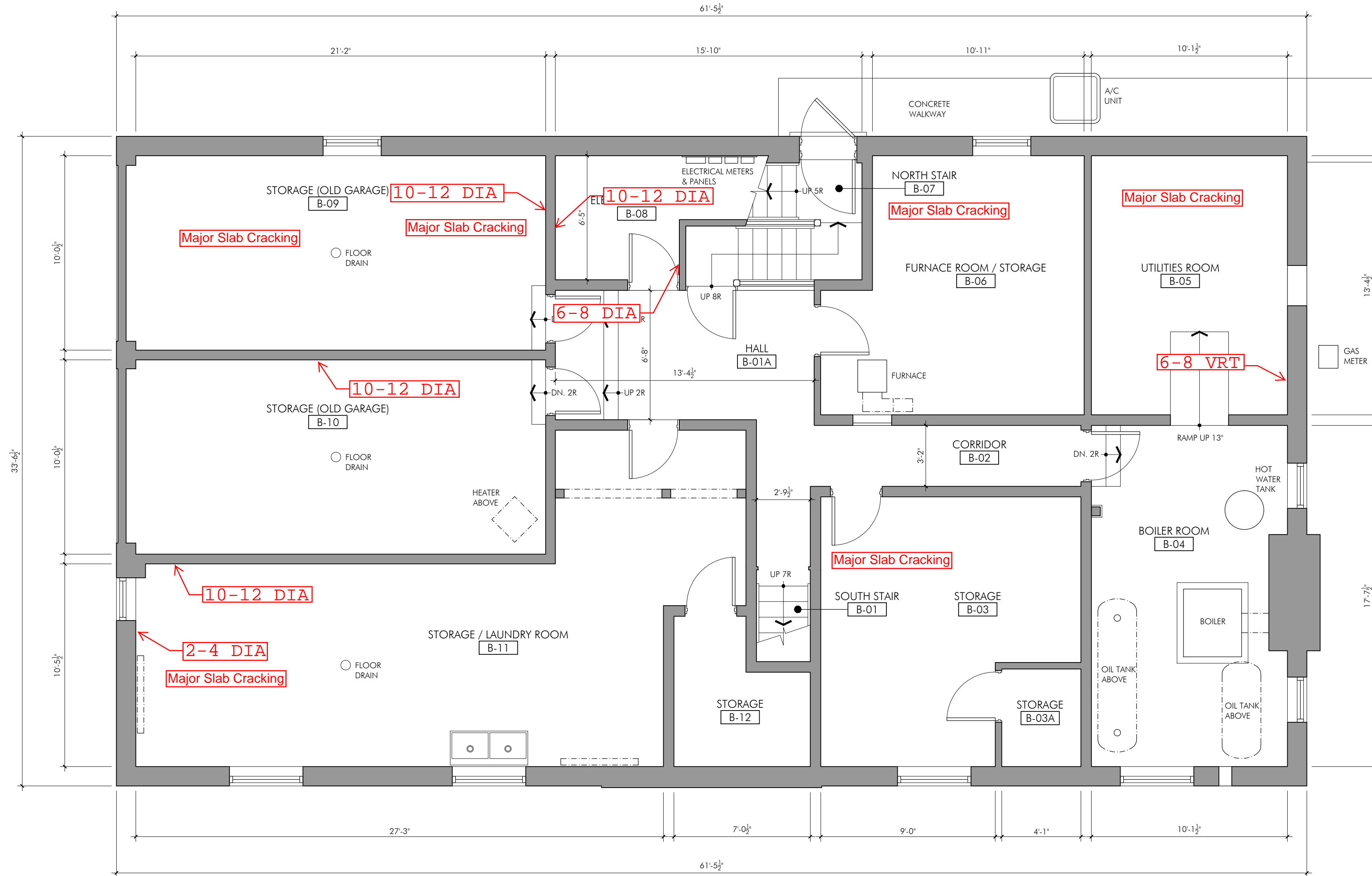


Photo 19: This large crack and step cracking beneath window sill on south elevation indicative of conditions throughout the building.

Appendix B - Mark Up As-Found Plan View Drawings

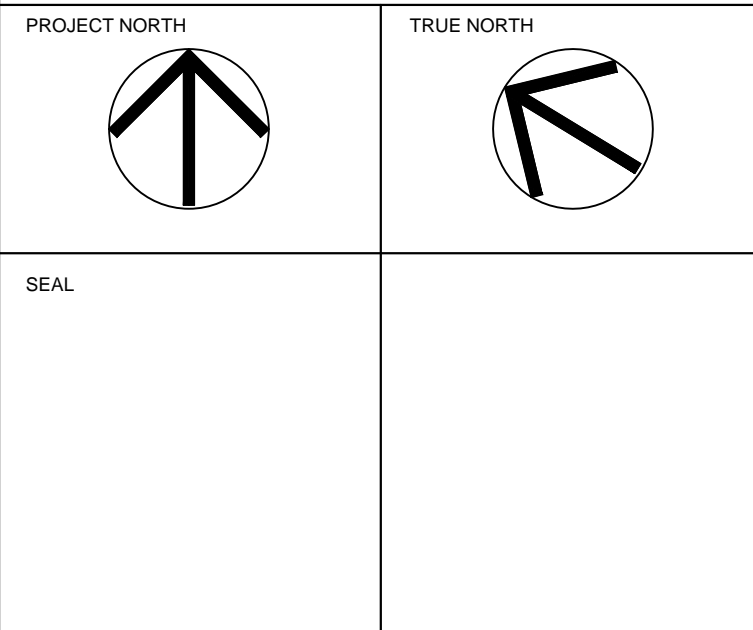
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Vertical Crack
Horizontal Crack
Diagonal Crack



NOTE:
ESTIMATES SHOWN ARE APPROXIMATE WALL CRACK LENGTHS MEASURED IN LINEAR FEET (LFT)
LEGEND:
VERTICAL CRACKING (VRT)
HORIZONTAL CRACKING (HRZ)
DIAGONAL CRACKING (DIA)
SOFFIT CRACKING (SFT)
TOPSIDE CRACKING (TPS)

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ISSUE:

NO.	DATE	DESCRIPTION
1	08 May, 2015	UHC Records, Consultants Coordination

CONSULTANTS:

CLIENT:

Uganda High Commission Ottawa
350 Sparks Street, Suite 1210
Ottawa, Ontario. K1R 7S8

PROJECT:
Chancery Building
231 Cobourg Street, Ottawa Ontario. K1N 8J2

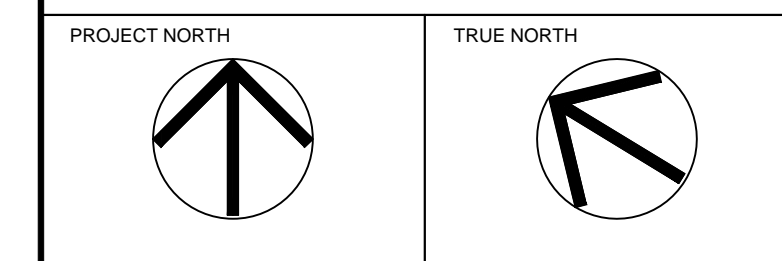
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Basement Floor Plan

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SEAL

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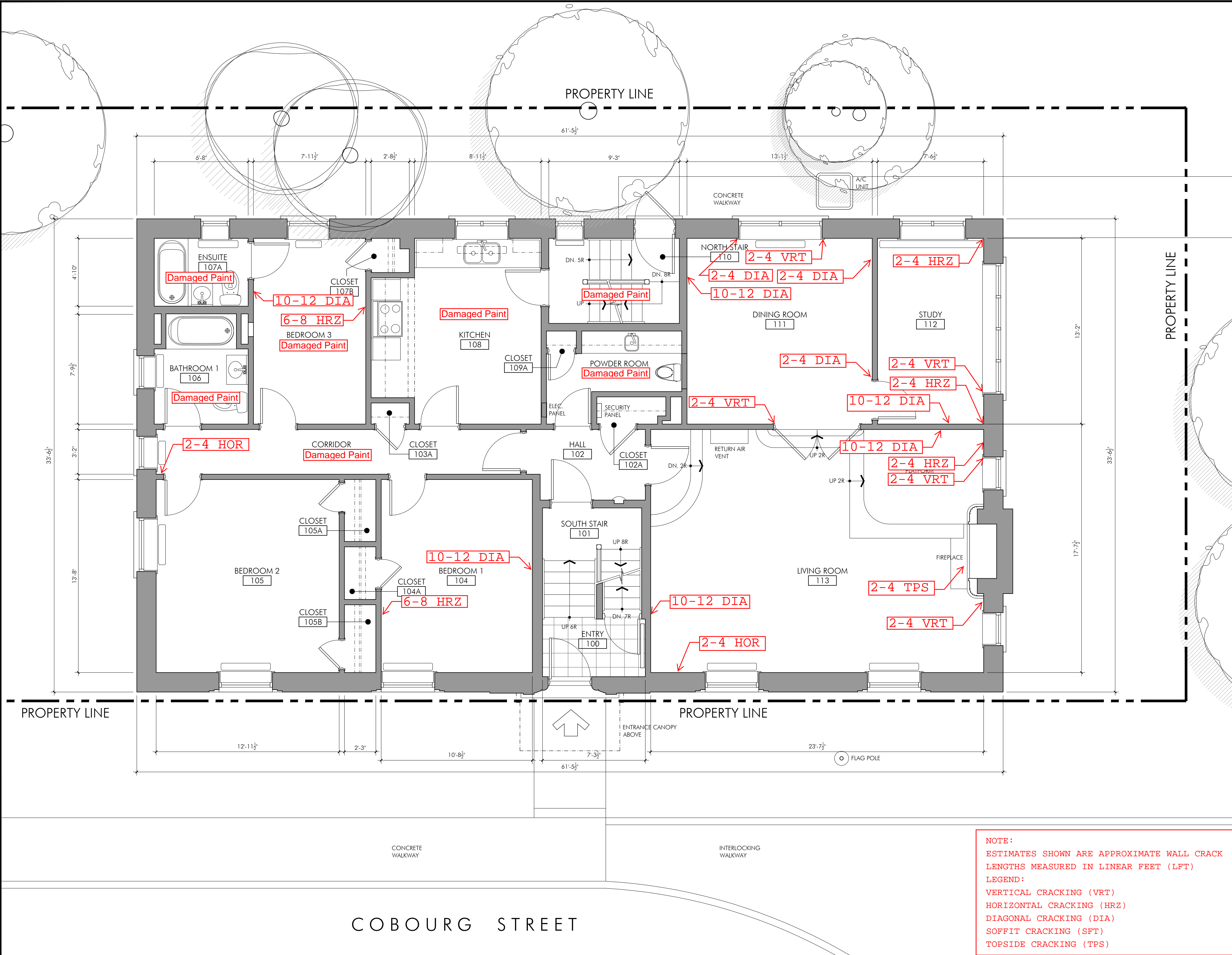


PROJECT:
Chancery Building
231 Cobourg Street, Ottawa Ontario. K1N 8J2

PROJECT NO.:
A14014

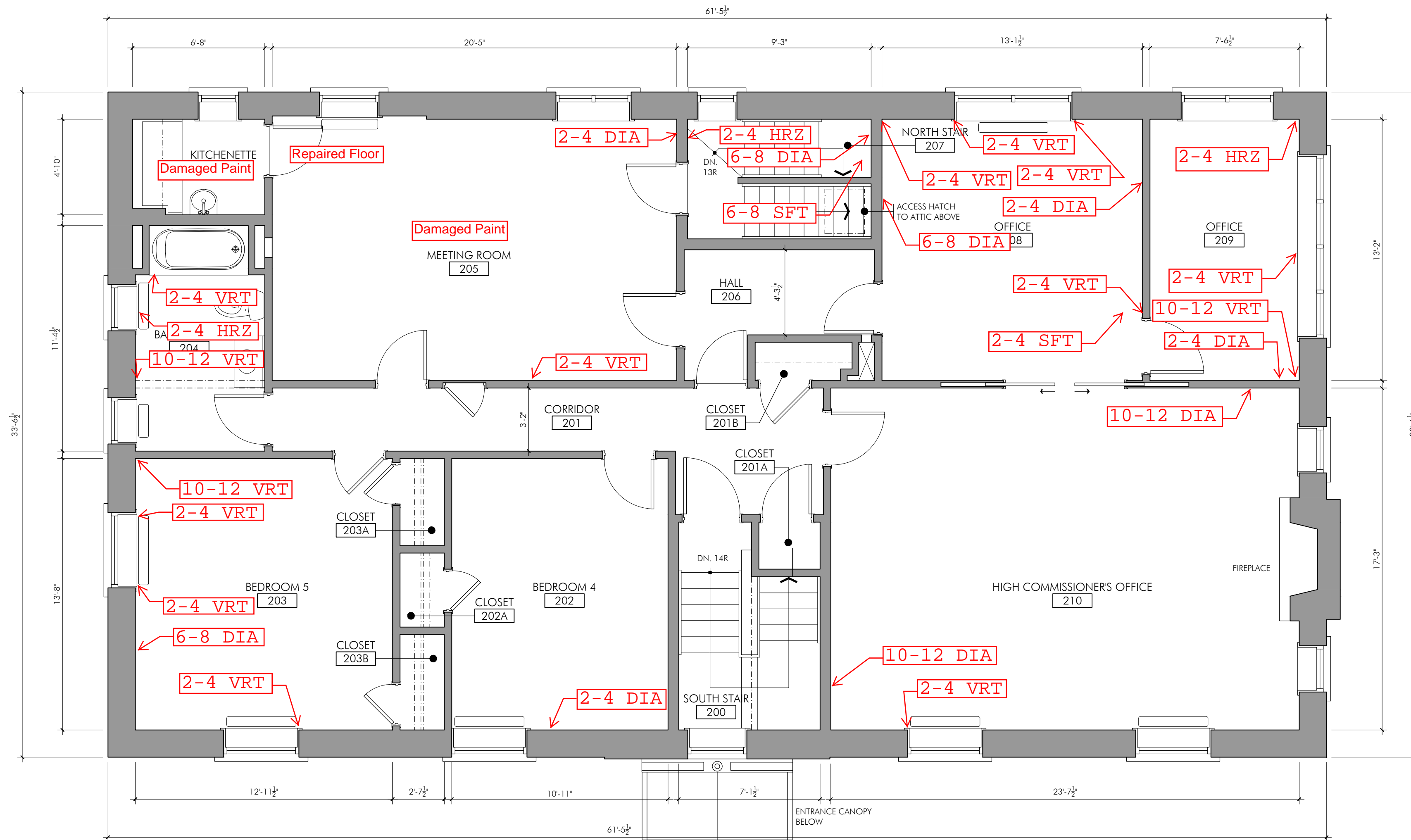
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First Floor Plan

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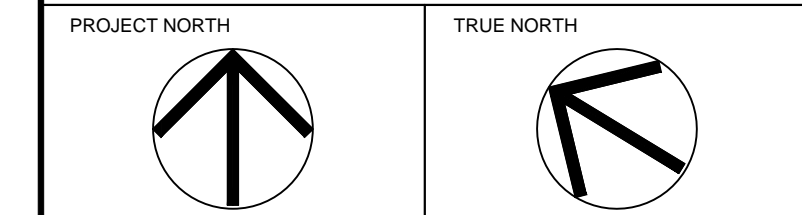
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PROJECT:
 Chancery Building
 231 Cobourg Street, Ottawa Ontario. K1N 8J2

PROJECT NO.:
 A14014

DRAWING TITLE:
As-Found
 Second Floor Plan

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