IN THE MATTER OF the
Conservation Authorities Act, R.S.O. 1990, c. C.27

AND IN THE MATTER OF an Application by **Mr. Brian Facey**

FOR THE PERMISSION OF THE CROWE VALLEY CONSERVATION AUTHORITY

Pursuant to Regulations made under Section 28,
Subsection 1 of the *Conservation Authorities Act*, R.S.O. 1990, c. C.27

HEARING BRIEF OF THE APPLICANT, BRIAN FACEY

O'FLYNN WEESE LLP
Barristers & Solicitors
65 Bridge Street East
Belleville, ON K8N 1L8

Mark Pedersen
LSO# 83990O
mpedersen@owtlaw.com
Tel: (613) 966-5222

Lawyers for the Applicant, Brian Facey

TABLE OF CONTENTS

The Development Proposed

1. The subject land ("the Property") is situated at 30 Mackenzie Road, on the north shore of Crowe Lake.

2. The Property is currently built out with small frame cottage, having a footprint of 900ft^2.

3. The Applicant, Brian Facey, proposes to remove the existing cottage, and construct a new cottage in its place.

4. The new cottage will be set back from the shoreline of Crowe Lake the same distance as the existing cottage.

The Concerns of CVCA Staff

5. CVCA Staff recommend denial of the instant Application, for reason that the proposed development will negatively impact the "control of flooding" in the Crowe Valley watershed.

6. CVCA Staff's concerns regarding "control of flooding" arise because the Applicant proposes to place a small amount of fill in the area immediately beneath and surrounding the new cottage, permitting its proper floodproofing.

The Applicant's Response

7. The Applicant has addressed CVCA Staff's concerns regarding the "control of flooding" by way of a Professional Engineer's Opinion Letter, which concludes that the amount of required fill is infinitesimally small in relation to the storage volume of Crowe Lake;

thus, placement of the said fill will have an immeasurable effect on the "control of flooding" in the Crowe Valley watershed.

The Details

8. The existing cottage is situated 4.8m from the shoreline of Crowe Lake. (**Tab A** hereto is a sketch depicting the location of the existing cottage).

9. The new cottage will be situated no nearer to the shoreline of Crowe Lake than the existing cottage. (**Tab B** hereto is a sketch depicting the location of the existing and new cottage).

10. **Tab B** hereto also depicts the location of the 1:100 Year Flood Elevation associated with Crowe Lake, which exists at an elevation of 183.88m above mean sea level.

The Applicable Legal Authorities

11. This Committee is tasked with the issuance and denial of Development Permit Applications sought from the CVCA.

12. In exercising its authority respecting Development Permits, this Committee acts pursuant to Ontario Regulation 159/06, being the CVCA's specific Regulation (the "Reg").

13. The Reg prohibits development upon hazardous lands (which includes the Floodplain associated with Crowe Lake) unless the CVCA is satisfied that there will be no negative impacts upon the following issues:

    i. Control of flooding;

    ii. Erosion;

    iii. Dynamic Beaches; and,

iv. Pollution or the Conservation of Land.

14. CVCA Staff, in the Notice of Hearing, specified that their basis for recommending denial of the instant Application is its potential to negatively impact the "control of flooding". CVCA Staff have raised no concern that the instant Application will have a negative impact upon erosion, dynamic beaches, or pollution/conservation of land.

15. Given the narrow focus of CVCA Staff's concerns, this Committee need only consider, in evaluating whether to approve or deny the instant Application, whether the Application will negatively impact the "control of flooding".

The Engineer's Opinion

16. In regard to "control of flooding", the Applicant tenders the Opinion Letter of Elliott Fledderus, Professional Engineer, for the Committee's consideration (**Tab C** hereto is a copy of Mr. Fledderus' Opinion Letter).

17. Mr. Fledderus expresses in his Opinion Letter that:

    i. The fill proposed to be placed by the Applicant totals 134 cubic meters;

    ii. The total storage volume of Crowe Lake 15.6 million cubic meters;

    iii. The fill proposed to be placed by the Applicant will result in a reduction in storage volume of Crowe Lake by 9 parts per million (0.0009%).

18. Ultimately, Mr. Fledderus concludes in his said letter that:

    "The proposed fill associated with the building improvements will have no impact on the conveyance or storage of the Crowe River system, and it will not increase water levels within Crowe Lake. Therefore, Jewell Engineering concludes the

proposed building improvements will present no negative impacts to the control of flooding."

The Focus of The Committee's Analysis

19. CVCA Staff have expressed, via a "Denial Letter" dated February 29, 2024, concerns respecting the alleged non-compliance of the instant Application with the CVCA Policy Manual.

20. The CVCA Policy Manual is not, itself, a legal authority. Rather, it is merely a guidance document which has been prepared by CVCA Staff to assist in their evaluation of Development Permit Applications.

21. To be most clear, even if the proposed development is inconsistent with the CVCA Policy Manual, this Committee is entitled to permit the proposed development provided it is satisfied that the "control of flooding" will not be negatively impacted.

22. Moreover, the Committee's evaluation of the proposed development must remain focused upon the CVCA's mandate (in this case, only the "control of flooding"). As is made clear in the CVCA's *Hearing Guidelines*,

> "the [Committee] Hearing does not address the merits of the activity or the appropriateness of such a use in terms of *planning* [*emphasis added*]."

23. As such, planning issues such as lot coverage, yard depths, setbacks from roads, ingress and egress, and the protection of natural heritage features are not to be considered by this Committee in evaluating the proposed development. Rather, the focus of this Committee is solely upon the impacts of the subject development upon the "control of flooding".

Attendance at the Committee Hearing

24. The following persons will attend the Committee's Hearing in respect of the instant Application:

    i. Brian Facey (Applicant)

    ii. Mark Pedersen (Legal Counsel for the Applicant)

    iii. Elliott Fledderus, P. Eng. (Professional Engineer)

    iv. Scott Stewart (Designer/Contractor for the Applicant)

Materials Submitted by the Applicant

25. The following materials are tendered for the Committee' consideration, some of which have been referenced above:

    Tab A – Property Sketch showing location of existing cottage.

    Tab B – Property Sketch showing location of existing cottage, new cottage, and Floodplain

    Tab C – Opinion Letter of Elliott Fledderus, P. Eng., dated August 4, 2023.

    Tab D – Drawing Set for proposed structure.

Peer Review

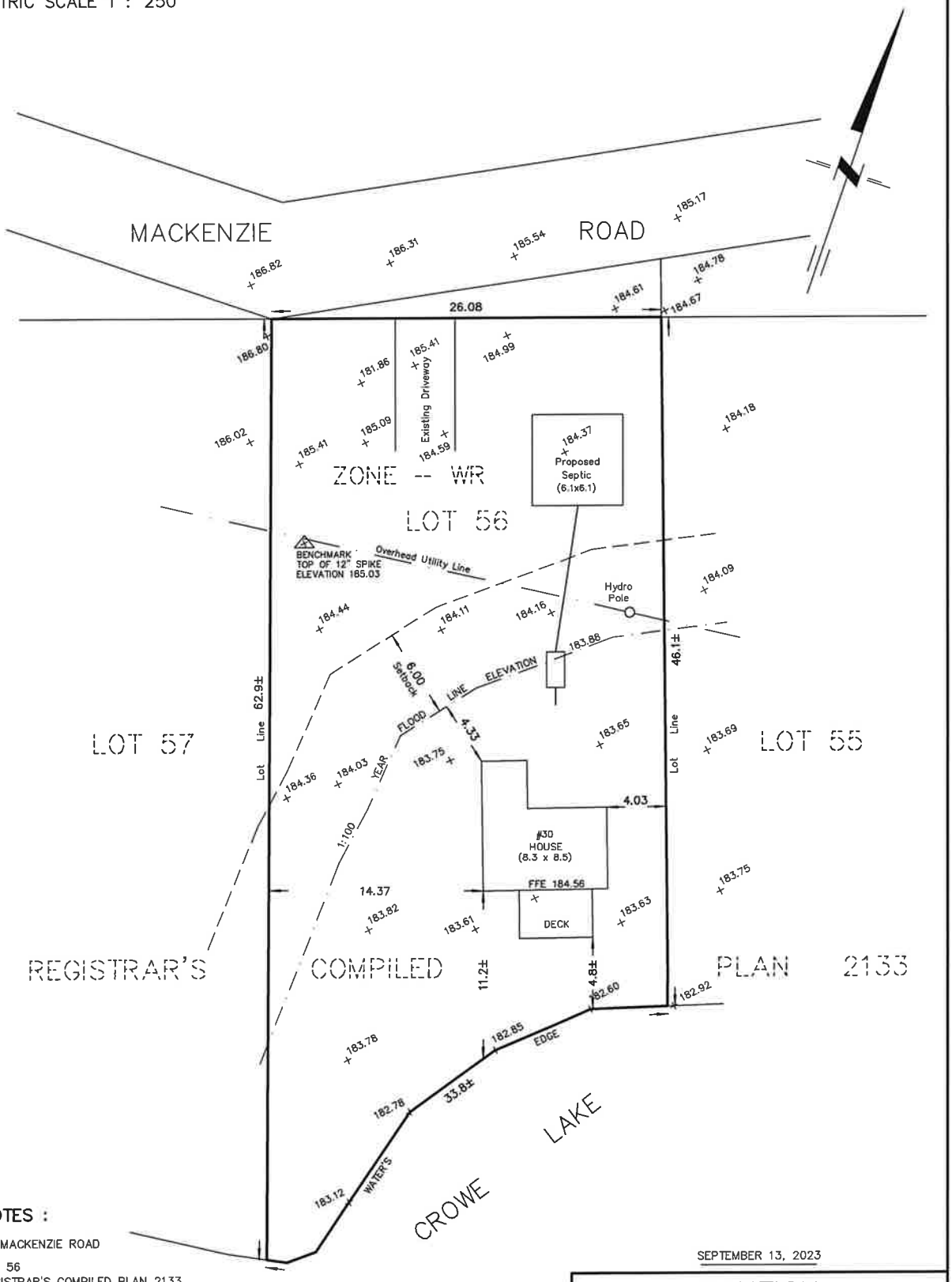
26. CVCA has requested that the Opinion Letter of Elliott Fledderus, P. Eng., be peer reviewed.

27. The Applicant will refer the Committee to the subject Peer Review Report during the Committee's Hearing. The said Peer Review Report is not appended hereto as it is not available as of the time of writing.

TAB A

SKETCH for BUILDING PERMIT APPLICATION

METRIC SCALE 1 : 250



NOTES :

30 MACKENZIE ROAD

LOT 56
REGISTRAR'S COMPILED PLAN 2133
TOWNSHIP OF MARMORA
NOW IN THE TOWNSHIP OF MARMORA AND LAKE
COUNTY OF HASTINGS

DIMENSIONS AND INFORMATION SHOWN ARE DERIVED FROM PLAN 21R-16920 AND FIELD WORK.
1:100 YEAR FLOOD LINE ELEVATION 183.88 (CGDV1928) AND 6m SETBACK PER CROWE VALLEY CONSERVATION.

DISTANCES SHOWN ON THIS PLAN ARE IN METRES AND CAN BE CONVERTED TO FEET BY DIVIDING BY 0.3048.

THIS SKETCH IS AN ORIGINAL IF EMBOSSED BY THE SURVEYOR'S SEAL.

SEPTEMBER 13, 2023

CAUTION

THIS IS NOT A PLAN OF SURVEY AND SHALL NOT BE USED EXCEPT FOR THE PURPOSE INDICATED IN THE TITLE BLOCK

218 CHURCH STREET
BELLEVILLE, ONTARIO

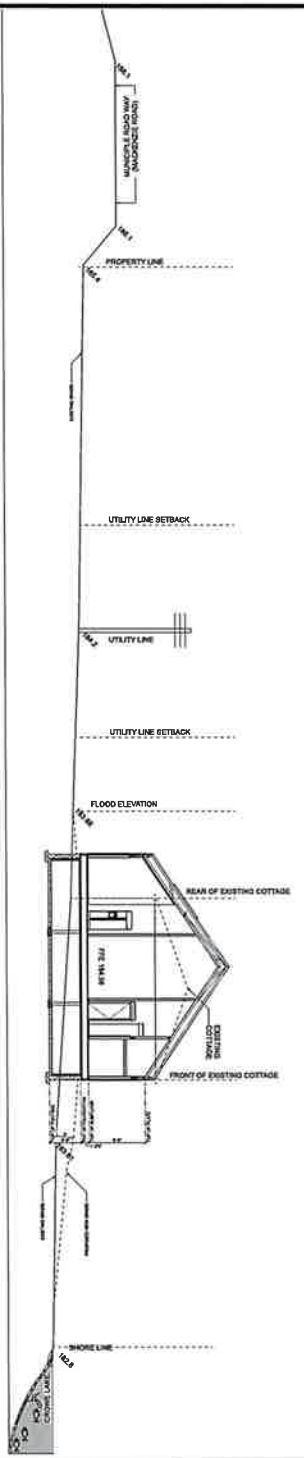
WATSON
LAND SURVEYORS Ltd.

K8N - 3C3
(613) 962 - 9521

PROJECT № 14299-G-22

TAB B

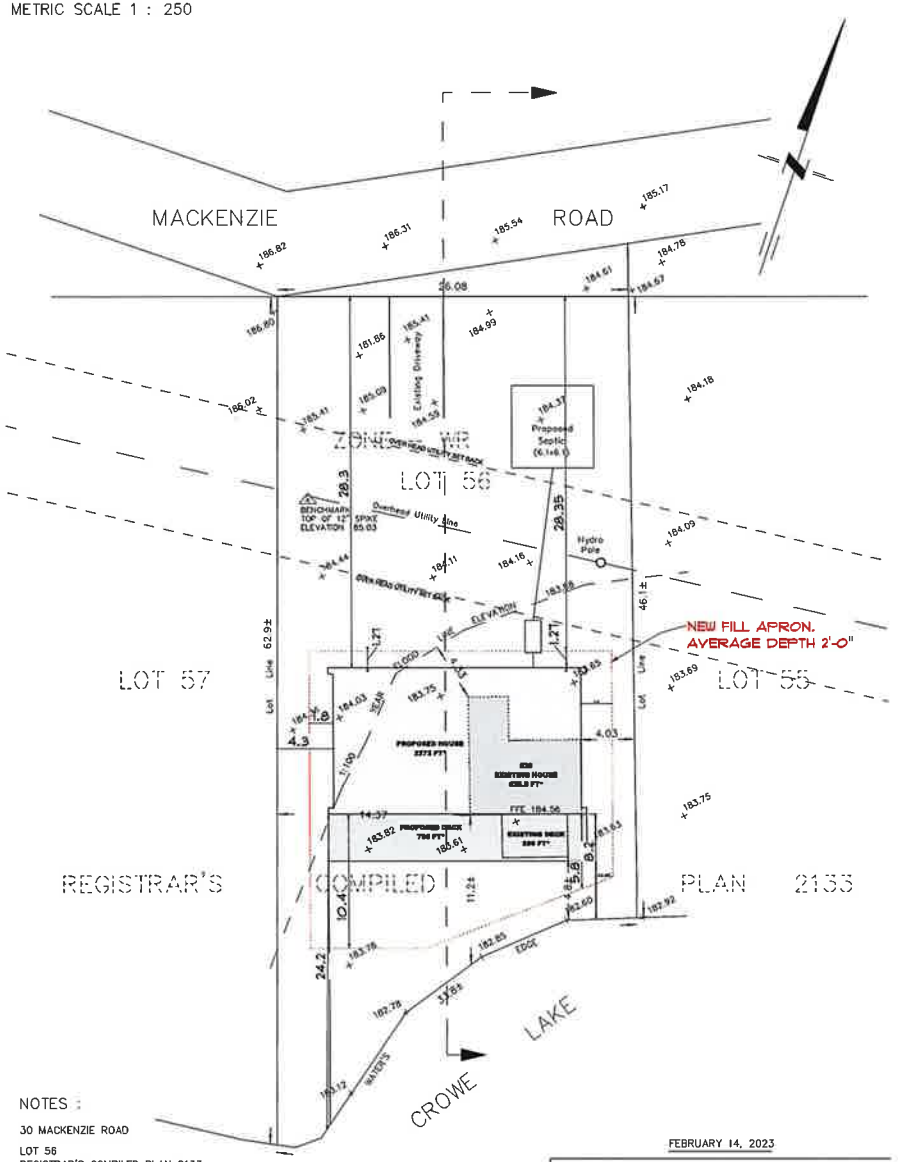
DRAWING SCHEDULE



SITE SECTION
SCALE: NOT TO SCALE

SKETCH for BUILDING PERMIT APPLICATION

METRIC SCALE 1 : 250



NOTES :

30 MACKENZIE ROAD

LOT 56
REGISTRAR'S COMPILED PLAN 2133
TOWNSHIP OF MARMORA
NOW IN THE TOWNSHIP OF MARMORA AND LAKE
COUNTY OF HASTINGS

DIMENSIONS AND INFORMATION SHOWN ARE DERIVED FROM PLAN 21R-16920 AND FIELD WORK.
1:100 YEAR FLOOD LINE ELEVATION 183.88 (CGDV1928)
PER CROWE VALLEY CONSERVATION.

DISTANCES SHOWN ON THIS PLAN ARE IN METRES AND CAN BE CONVERTED TO FEET BY DIVIDING BY 0.3048

THIS SKETCH IS AN ORIGINAL IF EMBOSSED BY THE SURVEYOR'S SEAL.

FEBRUARY 14, 2023

CAUTION

THIS IS NOT A PLAN OF SURVEY AND SHALL NOT BE USED EXCEPT FOR THE PURPOSE INDICATED IN THE TITLE BLOCK

218 CHURCH STREET
BELLEVILLE, ONTARIO

WATSON
LAND SURVEYORS Ltd.

K8N - 3C3
(613) 962 - 9521

PROJECT № 14299-G-22

PAGE: 1/8

SECTION LETTER: A | PAGE NUMBERS: 1 1

SCALE: As Noted

DRAWN BY:

DATE: Thursday, May 4, 2023

SES DRAFTING AND DESIGN
PO Box 248
Stirling
Ontario
K0K 3E0
PHONE:613 827 3957
EMAIL:
scottestewart@sympatico.ca

SES DRAFTING AND DESIGN

Brian Facey
30 MacKenzie Road
Marmora / Lake
Ontario
PHONE: 416-863-4262
FAX:
brianfacey@gmail.com

COVER PAGE - SITE PLAN

I HAVE REVIEWED AND TAKE RESPONSIBILITY FOR THESE DESIGNS UNDER THE REQUIREMENTS OF THE O.B.C.
QUALIFIED DESIGNER SCOTT E. STEWART BCIN #33398 FIRM #36714

TAB C

BELLEVILLE
(HEAD OFFICE)
1–71 Millenium Pkwy.
Belleville ON K8N 4Z5
Tel: 613-969-1111
info a jewelleng.ca

TOLL FREE
1-800-966-4338

KINGSTON
208–4 Cataraqui St.
Kingston ON K7K 1Z7
Tel: 613-389-7250
kingston a jewelleng.ca

MISSISSAUGA
200A–2155 Leanne Blvd.
Mississauga ON L5K 2K8
Tel: 905-855-1592
mississauga a jewelleng.ca

www.jewelleng.ca

JEWELL ENGINEERING

August 4, 2023

Attention: Scott Stewart

RE: 30 Mackenzie Road, Marmora ON
Opinion Letter - Floodline Assessment
Jewell File No. 230-5387

Mr. Stewart,

Jewell Engineering Inc. (Jewell) was retained to complete a floodline assessment at 30 Mackenzie Road in Marmora near the northeast corner of Crowe Lake (see Figure 1). Jewell completed the following tasks as part of this assessment.

- Review of topographic survey prepared by Watson Land Surveyors Ltd.
- Correspondence with Crowe Valley Conservation (CVC) staff to confirm the scope of work requested.
- A site visit on August 3, 2023 to observe individual characteristics of the subject property as it relates to floodplain.
- This engineering opinion letter regarding potential impacts on the Crowe Lake system in the regulatory flood event.

Figure 1: Site Location – 30 Mackenzie Road, Marmora

Existing Conditions

The client is proposing to construct a 2,272 ft^2 house with a 760 ft^2 deck to upgrade their existing house on the lot. The final floor elevation for the building upgrade is 184.56m (CGVD28) per the Waterson Land Surveyors plan of survey. The existing and proposed structures are surrounded by existing buildings on both sides. CVC provided a regulatory 100-yr floodplain elevation of 183.88m for the property as indicated on the survey plan.

In a comparison of the regulatory water level to the existing grades (both elevations in CGVD28), the regulatory water level is an average of 0.4m above the existing ground within the vicinity of the proposed fill to accommodate the building improvements. A schematic of the proposed plan is attached. Note that the average fill on the plan is 2 ft, or 0.6m. This is greater than the 0.4m referenced above since the 0.6m represents the average *total* fill (i.e. including above the 100-yr water level).

Assessment of Potential Impacts to Storage and Conveyance

Based on experience and an understanding of hydraulic principles, the proposed building addition would have no negative impacts to adjacent properties at Crowe Lake. The reasoning is described below.

When completing an assessment to determine whether a building addition will negatively impact the control of flooding, two parameters need to be investigated.

1) Conveyance
2) Storage

Conveyance:

River and drainage systems rely on effective flow areas to convey runoff from upstream to downstream. The *effective flow areas* are defined as areas that contribute to the river's ability to move the water in its desired flow path. *Ineffective flow areas* on other hand, represent areas that are within the floodplain, but do not contribute to the conveyance of flows. Examples of *ineffective flow areas* would be runoff that is blocked by a bridge approach, or an infill development where there are existing structures on either side of the proposed development location.

For the subject lot, it is obvious that it is within an ineffective flow area since there are existing houses on either side. It is also located on the shore of a lake, within the perimeter of the drainage system. In drainage systems, lakes function as a reservoir, and are not relied on for conveyance in the same manner as a river. The proposed addition is within an ineffective flow area and on the perimeter of Crowe Lake; therefore, the proposed fill to accommodate the

building improvements on the lot will not contribute to Crowe Lake's ability to convey runoff from upstream to downstream. Subsequently, there will be no increase in water levels and no negative impacts to adjacent properties.

Note: Even if the proposed addition *was* within an effective flow are (which it is not), the cross-sectional area of Crowe Lake perpendicular to the direction of flow is exceptionally larger than the cross-sectional area associated with the shallow fill proposed for the building addition. Cross-sectional area is the driving factor in calculating the conveyance and subsequent water level in a drainage system (more so for rivers since lakes have little conveyance and are primarily dead storage).

Based on the above discussion, Jewell Engineering acknowledges the proposed building improvements would present no negative impacts to the control of flooding as it relates to conveyance.

Storage:

The proposed building and deck improvements have a total footprint area of 335m^2 within the existing floodplain limits. With an average elevation difference of 0.4m between the regulatory 100-yr water level and the existing ground within the fill area of the existing floodplain, the proposed building improvements will occupy approximately 134 m^3 of storage within the existing floodplain as shown below.

Equation 1: Volume Below Floodline

$$335m^2 * (183.88m - 183.48m) = 134m^3$$

For lakes, majority of their volume is dead storage – meaning it does not flow downstream unless above the elevation of the outlet of the lake. Active storage is the depths near the top of the lake that vary based on the outlet elevation. When assessing storage implications, the active storage is of interest.

For Crowe Lake, it has a surface area of approximately 12.2 million square meters. For the purpose of our calculation, we will conservatively assume that the active storage depth for Crowe Lake is limited by the depth from the 100-yr water level (183.88m) to lowest elevation of the subject lot within the proposed fill area (182.60m).

From this information, Jewell calculated the active storage volume of Crowe Lake that would theoretically be adjusted with the proposed fill to accommodate the proposed building improvements.

Equation 2: Crowe Lake Active Storage Volume within Range of Proposed Fill

$$Volume = 12{,}200{,}000m2 * (183.88m - 182.60m) = 15{,}600{,}000m^3$$

With 134 m^3 of fill being occupied relative to the 15,600,000 m^3, we can determine the percentage of storage lost to the fill placement as shown below.

Equation 3: Occupied vs Total Volume

$$\frac{134m^3}{15{,}600{,}000m^3} = 0.0009\% \ (9 \ parts \ per \ million)$$

It is atypical to quantify storage volumes in hydrology calculations in parts per million (ppm). However, the loss in storage volume is so minimal that it becomes the unit of measurement for this investigation.

With negligible loss in storage volume, there will be no increase in water surface elevation in Crowe Lake with the proposed additions at the subject lot.

Conclusion:

In summary, the proposed fill associated with the building improvements will have no impact on the conveyance or storage of the Crowe River system, and it will not increase water levels within Crowe Lake. **Therefore, Jewell Engineering concludes the proposed building improvements will present no negative impacts to the control of flooding.**

We also note that the survey plan shows the final floor elevation is 184.56m. Since this is more than 0.6m above the 100-yr water level of 183.88m, we have no concerns regarding the proposed final floor elevation.

Please note that floodproofing measures for the subject lot were outside the scope of this investigation as CVC's requested information was to address potential impacts to water levels and adjacent properties at Crowe Lake.

For the Owner's information, we note that there are dry and/or wet floodproofing measures available that can be detailed by the Owner or hired professionals.

Examples of these types of floodproofing measures include:

- Dry floodproofing:
    - Construct structure with waterproof membrane
    - Use sealants
    - Reinforce walls to withstand water pressure

- Wet floodproofing
    - Keep all electrical outlets and wires a minimum of 1 foot above the floodline
    - Store valuables and potential contaminants (oils, solvents, etc.) at least 1 foot above the floodline
    - Construct drains to allow water to drain from structure after floodwaters recede.

If you have any questions or concerns, please feel free to contact the undersigned.

Sincerely,

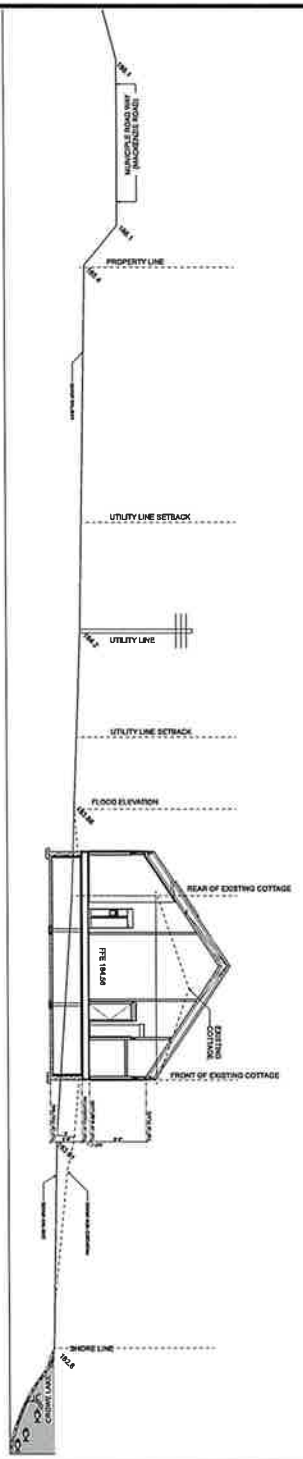
Elliott Fledderus, P. Eng.
Jewell Engineering Inc.

TAB D

DRAWING SCHEDULE

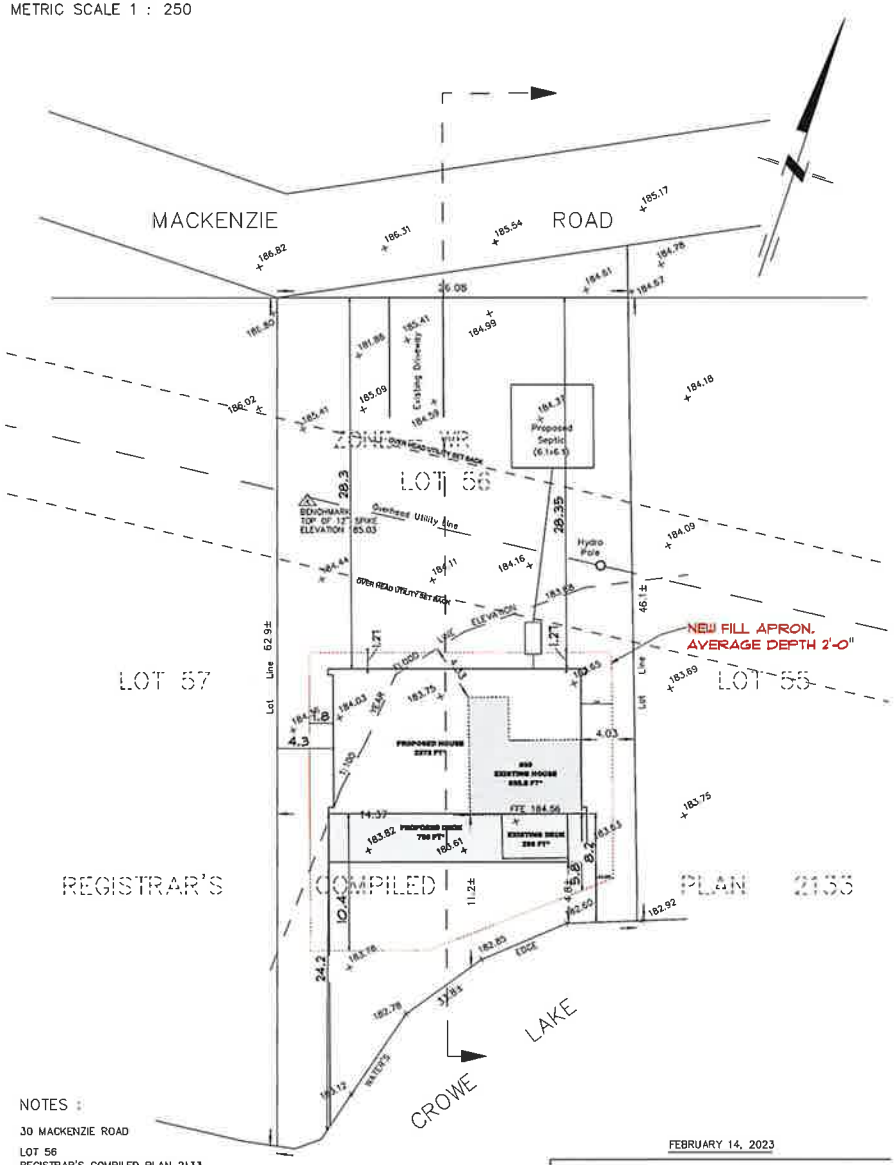
SITE SECTION

SCALE: NOT TO SCALE



SKETCH for BUILDING PERMIT APPLICATION

METRIC SCALE 1 : 250



NOTES :

30 MACKENZIE ROAD

LOT 56
REGISTRAR'S COMPILED PLAN 2133
TOWNSHIP OF MARMORA
NOW IN THE TOWNSHIP OF MARMORA AND LAKE
COUNTY OF HASTINGS

DIMENSIONS AND INFORMATION SHOWN ARE DERIVED FROM PLAN 21R-16920 AND FIELD WORK.
1:100 YEAR FLOOD LINE ELEVATION 183.88 (CGDV1928)
PER CROWE VALLEY CONSERVATION.

DISTANCES SHOWN ON THIS PLAN ARE IN METRES AND CAN BE CONVERTED TO FEET BY DIVIDING BY 0.3048.

THIS SKETCH IS AN ORIGINAL IF EMBOSSED BY THE SURVEYOR'S SEAL.

FEBRUARY 14, 2023

CAUTION

THIS IS NOT A PLAN OF SURVEY AND SHALL NOT BE USED EXCEPT FOR THE PURPOSE INDICATED IN THE TITLE BLOCK

218 CHURCH STREET
BELLEVILLE, ONTARIO

WATSON LAND SURVEYORS Ltd.

K8N - 3C3
(613) 962 - 9521

PROJECT № 14299-G-22

PAGE: 1/8

SECTION LETTER: A | PAGE NUMBERS: 1

SCALE: As Noted

DRAWN BY:

DATE: Thursday, May 4, 2023

SES DRAFTING AND DESIGN
PO Box 248
Stirling
Ontario
K0K 3E0
PHONE:613.827.3957
EMAIL: scottestewart@sympatico.ca

SES DRAFTING AND DESIGN

Brian Facey
30 MacKenzie Road
Marmora / Lake
Ontario
PHONE: 416-863-4262
FAX:
brianfacey@gmail.com

COVER PAGE - SITE PLAN

I HAVE REVIEWED AND TAKE RESPONSIBILITY FOR THESE DESIGNS UNDER THE REQUIREMENTS OF THE O.B.C.
QUALIFIED DESIGNER SCOTT E. STEWART BCIN #33398 FIRM #36714

CONSTRUCTION NOTES

ALL CONSTRUCTION PRACTICES TO COMPLY WITH (2012) ONTARIO BUILDING CODE REGULATIONS OR LATEST EDITION

THESE PLANS AND SPECIFICATIONS ARE TO BE USED IN THE CONSTRUCTION OF A NEW OBC PART 9 SINGLE FAMILY DWELLING

DESIGN LOADS: STRUCTURAL LOADS ARE AS PER SUPPLEMENTARY STANDARDS "SB-1" FOR THE 2012 ONTARIO BUILDING CODE (OBC)

DESIGN AREA : NORWOOD, ONTARIO.

1. GROUND SNOW LOADS 1/50: 2.1 kPa (44 psf)
2. RAIN LOADS 1/50: 0.4 kPa (8.4 psf)
3. WIND LOADS 1/50: .41 kPa (8.56 psf)

CONTRACTOR REQUIREMENTS

1. VERIFY ALL DIMENSIONS AND REPORT ANY INCONSISTENCIES BEFORE PROCEEDING WITH WORK
2. ENSURE ALL WORK ADHERES TO ALL OBC 2012 BUILDING CODES.

STANDARD DETAILS

NOT ALL DETAILS IN THIS DRAWING SET, MAY BE ILLUSTRATIVE OF THIS EXACT PROJECT. STANDARD DETAILS ARE PROVIDED FOR A GUIDE TO THE BUILDER TO RELATE THE DESIGNERS INTENTIONS AND TO SHOW CERTAIN ASSEMBLY REQUIREMENTS.

NOTIFICATIONS

THE BUILDER / CONTRACTOR IS ADVISED TO NOTIFY THE MUNICIPAL BUILDING AND PLANNING DEPARTMENT, AS WELL AS ANY OTHER INVOLVED AUTHORITY I e. FIRE INSPECTOR / CHIEF, ONTARIO MINISTRY OF HEALTH, ANY CONSERVATION AUTHORITY, ESSA, ECT. AT THE REQUIRED STAGES OF CONSTRUCTION AS SET OUT BY THE AUTHORITY HAVING JURISDICTION.

SHOP DRAWINGS

ANY AND ALL SHOP DRAWINGS INCLUDED IN PART OR AS A WHOLE, WITH THIS DRAWING SET ARE INCLUDED BY THE SHOP DRAWING DESIGNERS I e. TRUSS DESIGNS, HEAT AND COOLING DRAWINGS, SEPTIC DRAWINGS, ENGINEERED FLOOR SYSTEM LAYOUTS AND DESIGNS, ect.
SES DRAFTING AND DESIGN HOLDS NO LIABILITY FOR ANY SHOP DRAWINGS.
AND MUST BE SUBMITTED TO THE BUILDING DEPARTMENT AS WELL AS SES DRAFTING AND DESIGN FOR REVIEW PRIOR TO INSTALLATION OR COMMENCEMENT OF WORK.

EXCAVATION AND BACKFILL NOTES:

1. FOOTINGS SHALL BEAR ON UNDISTURBED SOILS OR SOLID ROCK AND SHALL BE MINIMUM 4'-0" BELOW FINISHED GROUND LEVEL. (ANY FILL UNDER FOOTINGS TO BE SPECIFIED BY QUALIFIED GEO-TECHNICAL ENGINEER).

2. DRAWINGS HAVE BEEN MADE FOR SOIL CONDITION OF NO LESS THAN 1555 PSF. SHOULD UNUSUALLY SOFT SOILS BE ENCOUNTERED AT THE TIME OF EXCAVATION SES DRAFTING AND DESIGN SHALL BE CONTACTED IMMEDIATLY.

3. FOOTING ARE TO BE KEPT FREE OF STANDING WATER AT TIME OF EXCAVATION.

4. BACKFILL IS TO FREE DRAINING CLEAN GRANULAR FILL. PROVIDE SLOPE AWAY FROM BUILDING.

5. SHOULD UNUSUALLY SOFT SOILS BE ENCOUNTERED DURING EXCAVATION, THE EXCAVATOR / BUILDER/ OWNER IS TO NOTIFY THE STAMPING ENGINEER AND SES DRAFTING AND DESIGN BEFORE PROCEEDING WITH CONSTRUCTION OF FOOTINGS. THE CONTRACTOR / OWNER MUST NOTIFY THE ENGINEER AND SES DRAFTING AND DESIGN OF ANY CONCERNS WITH REGARDS TO BUT NOT LIMITED TO BEARING CAPACITY OF SOILS, SLOPE, STABILITY, GROUND WATER AND DRAINAGE.

CONCRETE

1. MINIMUM CONCRETE STRENGTH:

LOCATION	STRENGTH	W/C RATIO	AIR ENTRAINMENT
FOOTINGS	20 MPa	0.55	5% TO 8%
FOUNDATION WALLS / PIERS	25 MPa	0.50	5% TO 8%
CONCRETE FLOORS	32 MPa	0.45	0%
EXTERIOR FLAT WORK	32 MPa	0.45	0%

2. CONCRETE CODES: CONFORM TO CSA 23.1 2.3 MANUAL OF STANDARD PRACTICE BY R.S.I O. REBAR 400 MPa
3. SLUMP : 4" SLUMP, +/- 1%
4. CONCRETE TESTING: BY CERTIFIED CONCRETE TESTING LAB.
5. SLABS: SAW-CUT TO 1/4 OF SLAB DEPTH
SPACING @ 30 TIMES SLAB DEPTH
CUT WITH IN 24 HRS OF SLAB PLACEMENT
6. AGGREGATE: 3/4" INCH MAX. SIZE
7. ADMIXTURES: TO CAN3-A266.1

CONSTRUCTION LUMBER

1. ALL CONSTRUCTION LUMBER IS TO BE SPRUCE/PINE/FIR(SPF) AND HAVE A MOISTURE CONTENT NOT GREATER THAN 19% AT THE TIME OF INSTALLATION. ALL LUMBER IS TO BE IDENTIFIED BY A GRADE STAMP OF AN AGENT CERTIFIED BY CLSAB.
2. FRAMING AND BOARD LUMBER IS TO BE IN ACCORDANCE WITH TABLE 9.3.2.1 OF THE OBC UNLESS OTHER WISE SPECIFIED ON THE DRAWINGS.

FRAMING

INSTALL ALL MEMBERS TRUE TO LINE, LEVELS AND ELEVATIONS.
CONSTRUCT CONTINUOUS MEMBERS FROM PIECES OF THE LONGEST PRACTICAL LENGTH.
INSTALL SPANNING MEMBERS WITH THE CROWN EDGE UP, STAGGER SPLICE JOINT LOCATIONS.
WHEN USING PRESSURE TREATED LUMBER (PT) ENSURE THAT FASTENERS ARE GALVANIZED OR APPROVED FOR CONNECTION OF AFORE MENTIONED LUMBER.

ALL STAIRS- EXTERIOR / INTERIOR

MAX RISE	= 200 (7 7/8")
MIN. RUN	= 210 (8 1/4")
MIN TREAD	= 235 (9 1/4")
MIN. NOSING	= 25 (1")
MIN. HEADROOM	= 1950 (6'-5")
MIN WIDTH	= 860 (2' 10")
FOR CURVED STAIRS	
MIN. RUN	= 150 (5 7/8")
MIN. AVERAGE RUN	= 200 (7 7/8")

GUARDRAIL/HANDRAIL

RAIL @ INT LANDING	= 900 (2' 11")
RAIL @ INT STAIR	= 800 (2' 7")
RAIL @ EXT LANDING (GREATER THAN 1800 ABOVE FIN GRADE)	= 1070 (3' 6")
RAIL @ EXT LANDING	= 900 (2' 11")
RAIL @ EXT STAIR	= 900 (2' 11")

WOOD PICKETS MAX 100mm (4") BETWEEN

ATTIC ACCESS

ATTIC ACCESS HATCH 546x 864mm(21 1/2 " x 23") min.
WITH WEATHER STRIPPING.
AS PER OBC 9.19.2.1.

SMOKE AND CO DETECTORS.

SMOKE AND CO DETECTORS ARE TO BE INTERCONNECTED AND EQUIPPED WITH A VISUAL SIGNALING COMPONENT IN COMPLIANCE WITH NFPA-72.

HAND AND GUARD RAILS.

ALL HAND AND GUARD RAILS FOR THIS PROJECT ARE SPECIFIED FROM THE ONTARIO BUILDING CODE SB-7 PRESCRIPTIVE.
IF A RAILING IS TO BE USED OTHER THAN WHAT HAS BEEN PRESCRIBED (I.e. ENGINEERED RAILING IN ALUMINUM OR VINYL CLAD),
THE BUILDER / OWNER WILL MAKE THE MANUFACTURES RAILING SPECIFICATIONS AND COMPLIANCE LETTER / DESIGNS FOR SUCH RAILING,
ALONG WITH ANY REQUIRED CONNECTION DETAILS, AVAILABLE TO THE MUNICIPALITY UPON THEIR REQUEST.

SQUASH BLOCKING

SQUASH BLOCKING MUST BE PROVIDED UNDER ALL WOOD POSTS AS FOLLOWS:

BUILT-UP POST	SQUASH BLOCK BETWEEN FLOOR 2/F &1/F
3-38X89 (2X4)	1- 38X89 (2X4)
4-38X89 (2X4)	1- 38X89 (2X4)
5-38X89 (2X4)	2- 38X89 (2X4)
6-38X89 (2X4)	2- 38X89 (2X4)
7-38X89 (2X4)	3- 38X89 (2X4)
2-38X140 (2X6)	1-38X89 (2X4)
3- 38X140 (2X6)	2-38X89 (2X6)

INTERIOR STUD PARTITIONS (AS REQUIRED).

38 x 89 (2 x 4) @ 400 (16") O.C. NONBEARING,
12.7mm (1/2") INT DRYWALL BOTH SIDES, 2 TOP PLATES & 1 BOTTOM PLATE TO MATCH STUD WIDTH.

INTERIOR LOAD BEARING PARTITIONS (AS REQUIRED).

38 x 140 (2 x 6) @ 400 (16") O.C.
12.7mm (1/2") INT DRYWALL BOTH SIDES, 2 TOP PLATES & 1 BOTTOM PLATE TO MATCH STUD WIDTH.

CLOSET RODS
PROVIDE HANGING ROD AND SHELF IN ALL BEDROOM CLOSETS

BEDROOM WINDOWS

ON FLOORS WITH NO DIRECT GRADE ACCESS BY DOOR, AT LEAST ONE WINDOW PER FLOOR SHALL HAVE AN UNOBSTRUCTED OPEN PORTION HAVING A MIN. AREA OF 0.35m (3.8 sq. ft.) WITH NO DIMENSION LESS THAN 380mm (15") AND A MAX SILL HEIGHT OF 1000mm (3'-3") ABOVE FLOOR.

HVAC

ALL HVAC DESIGNS TO BE DESIGNED BY A QUALIFIED HVAC DESIGNER.
SES DRAFTING AND DESIGN HAS NOT PROVIDED AN HVAC DESIGN WITH THIS PROJECT. CLIENT OR CONTRACTOR IS RESPONSIBLE TO PROVIDE HVAC DESIGNS. THESE GENERAL NOTES ARE A GUIDELINE ONLY, AND BY NO MEANS CONSTITUTE AN HVAC DESIGN.

1. PROVIDE DUCT WORK IN ACCORDANCE WITH S.M.A.C N.A., LATEST ADDITION.
TOTAL ALLOWABLE LEAKAGE TO NOT EXCEED 1.5% OF TOTAL SYSTEM DESIGN.

2. ALL DUCTWORK TO BE GALVANIZED.

3. ROUND DUCT WORK TO BE SPIRAL LOCK SEAM CONSTRUCTION.

4. FLEXIBLE DUCT WORK TO BE ALUMINUM SPIRAL WOUND WITH 1" INSULATION SLEEVE.

5. PROVIDE VOLUME DAMPERS AT ALL DUCT BRANCHES AND TAKE-OFFS.

6. NEW SYSTEM TO BE BALANCED BY CONTRACTOR.

PLUMBING

ALL PLUMBING AND ON SITE SEWAGE DESIGNS TO BE DESIGNED BY A QUALIFIED DESIGNER.
SES DRAFTING AND DESIGN HAS NOT PROVIDED A PLUMBING OR ON SITE SEWAGE DESIGN WITH THIS PROJECT. THE CLIENT OR CONTRACTOR IS RESPONSIBLE TO PROVIDE A PLUMBING AND ON SITE SEWAGE DESIGN FOR THIS PROJECT.

THESE GENERAL NOTES ARE A GUIDELINE ONLY, AND BY NO MEANS CONSTITUTE A PLUMBING DESIGN.

1. ALL FIXTURES, PIPING, EQUIPMENT, LABOR AND SERVICES TO BE SUPPLIED BY CONTRACTOR UNLESS OTHER WISE SPECIFIED BY OWNER TO COMPLETE A WORKING PLUMBING SYSTEM.

2. ALL PIPING TO TO BE INSTALLED IN ACCORDANCE WITH THE PLUMBING CODE, ONTARIO BUILDING CODE, AND AS REQUIRED BY THE LOCAL INSPECTION AUTHORITY.

3. DOMESTIC WATER SUPPLY PIPING & FITTINGS TO CONFORM AS FALLOW:
-COPPER TUBE TYPE "L"
-BRASS AND BRONZE TO ANSI B16.15
-SOLDER: TI, ANTIMONY; 95:5 TO ASTM B2
-SOLDER AND FLUXS AT POTABLE WATER LOCATIONS TO BE LEAD FREE.

4. ALL WATER CLOSETS TO BE MAXIMUM 4.8L PER FLUSH
PROVIDE TEMPERATURE CONTROL DEVICES TO LIMIT THE HOT WATER TEMPERATURE TO 49°C TO ALL FIXTURES EXCLUDING DISHWASHERS AND CLOTHES WASHERS IN ACCORDANCE WITH THE ONTARIO BUILDING CODE.

ELECTRICAL

ALL ELECTRICAL DESIGNS TO BE DESIGNED BY A QUALIFIED DESIGNER.
SES DRAFTING AND DESIGN HAS NOT PROVIDED AN ELECTRICAL DESIGN WITH THIS PROJECT. THE CLIENT OR CONTRACTOR IS RESPONSIBLE TO PROVIDE AN ELECTRICAL DESIGN FOR THIS PROJECT.

THESE GENERAL NOTES ARE A GUIDELINE ONLY, AND BY NO MEANS CONSTITUTE AN ELECTRICAL DESIGN.

1. PROVIDE ALL LABOR, EQUIPMENT, MATERIAL AND SERVICES, FOR COMPLETE AND OPERATING ELECTRICAL SYSTEM.

2. PROVIDE ELECTRICAL WORK IN ACCORDANCE OF ALL APPLICABLE GOVERNMENT CODES, LOCAL BYLAWS, UNDERWRITERS REGULATIONS, CSA STANDARDS AND ALL AUTHORITIES HAVING JURISDICTION.

GENERAL

1. DESIGN & CONSTRUCTION OF ALL WORK ON THIS PROJECT SHALL CONFORM TO THE LATEST EDITION OF THE FOLLOWING:
   - NATIONAL BUILDING CODE
   - ONTARIO BUILDING CODE
   - LOCAL REGULATIONS
   - OHSA REGULATIONS
2. THE PROJECT DRAWINGS ARE BY REVIEW BY SES DRAFTING AND DESIGN (SES) AND COMPLY WITH THE BUILDING CODE (OBC) PART 9 PROVISIONS.
3. THE SEALED DRAWINGS ARE ONLY FOR USE BY THE PARTY WITH WHOM SES HAS ENTERED INTO A CONTRACT (THE CLIENT), AND ARE NOT TO BE USED BY OTHERS.
4. SES'S REVIEW IS BASED ON THE INFORMATION PROVIDED BY THE CLIENT AT THE TIME OF OUR REVIEW. SES IS NOT RESPONSIBLE FOR ANY ERRORS OR OMISSIONS FROM THIS INFORMATION. IT IS THE CLIENT'S RESPONSIBILITY TO INFORM US OF ANY CHANGES, ADDITIONS OR CORRECTIONS REQUIRED ON OUR DRAWINGS.
5. THIS SPECIFICATION SHEET IS TO ACCOMPANY THE STAMPED DRAWINGS AND OBC PART 9 REQUIREMENTS. PLEASE CONTACT THE LOCAL BUILDING DEPARTMENT OR SES, IF FURTHER CLARIFICATION IS REQUIRED.
6. SES ASSUMES THAT ALL REQUIRED INSPECTIONS WILL BE DONE BY THE LOCAL BUILDING DEPARTMENT. IF SES IS REQUIRED TO PERFORM AN INSPECTION, CALL 613.8278.3957, ALLOW 24 HOURS NOTICE FOR ALL INSPECTIONS.
7. NO CHANGES SHALL BE MADE TO THE STAMPED DRAWINGS WITHOUT NOTIFYING SES PRIOR TO MAKING THOSE CHANGES.
8. THE CLIENT SHALL CHECK AND VERIFY ALL SITE CONDITIONS AND MEASUREMENTS, AND REPORT ANY DISCREPANCIES TO THE DESIGNER.

WOOD-FRAME CONSTRUCTION

1. ALL WOOD-FRAME CONSTRUCTION SHALL CONFORM TO OBC 9.23 U.N.O. ON THE STAMPED DRAWINGS.
2. ALL STRUCTURAL COMPOSITE LUMBER (SCL) SHALL BE 2.0E WITH Fb=2950 OR BETTER. FASTEN MULTI-PLY SCL BEAMS AS PER MANUFACTURES SPECIFICATIONS. PROVIDE 3" MIN. BEARING LENGTH AT ENDS, U.N.O..
3. ALL PRE-ENGINEERED SYSTEMS (I.E. ROOF TRUSSES, FLOOR JOISTS, ETC) ARE TO BE DESIGNED AND SEALED BY A PROFESSIONAL ENGINEER OF ONTARIO. PROVIDE LAYOUTS AND STAMPED DRAWINGS TO SES AND THE LOCAL BUILDING DIVISION.
4. ENSURE THE EXTERIOR WALLS ARE BRACED AS PER OBC 9.23.10.2 TO PROVIDE LATERAL SUPPORT FOR THE BUILDING.
5. PROVIDE SUFFICIENT LATERAL SUPPORT FOR THE TOP OF ALL DROPPED BEAMS AND LINTELS TO PREVENT LATERAL TORSIONAL BUCKLING.
   5.1. AN EXAMPLE OF SUFFICIENT LATERAL SUPPORT IS (2) 3 1/4" NAILS PER JOIST FOR LEDGER STRIP TO WOOD BEAM CONNECTION (AS PER OBC TABLE 9.23.3.4).
6. ALL WOOD COLUMNS SHALL CONFORM TO OBC 9.17, U.N.O. PROVIDE A BUILT-UP WOOD STUD COLUMN EQUAL TO THE WIDTH OF BEAM/GIRDER TRUSS UNDER ALL BEAM/GIRDER TRUSSES MIN. U.N.O. CONTINUE ALL COLUMNS DOWN TO FOUNDATION OR FULL BEARING ON BEAMS, BLOCK SOLID IN JOIST SPACES, TYPICAL (TYP.).
7. ALL LINTELS TO HAVE 1 JACK STUD, 1 KING STUD AT ENDS U.N.O.
8. ALL WOOD SHALL BE NO. 2 SPRUCE OR BETTER.
9. ALL GUARDS SHALL CONFORM TO OBC 9.8.8 AND SUPPLEMENTARY STANDARD SB-7 U.N.O.

ROOF AND CEILING FRAMING

1. ALL ROOF AND CEILING FRAMING SHALL CONFORM TO OBC 9.23.13 U.N.O. ON THE STAMPED DRAWINGS.
2. ALL ROOF RAFTERS/JOISTS AND CEILING JOISTS SHALL CONFORM TO THE SPANS SHOWN IN OBC PART 9 TABLES A-3 TO A-7.
3. WHERE REQUIRED, PROVIDE INTERMEDIATE SUPPORT FOR ROOF RAFTERS/JOISTS AS PER OBC 9.23.13.7.
   3.1. SES ASSUMES THAT COLLAR TIES WILL BE USED TO PROVIDE INTERMEDIATE SUPPORT INSTEAD OF STRUTS OR DWARF WALLS U.N.O. (I E. ALL ROOF RAFTERS/JOISTS BEAR ON EXTERIOR WALLS ONLY AND INTERIOR WALLS SUPPORT CEILING JOISTS ONLY U.N.O.).
4. WHERE THE RIDGE IS UNSUPPORTED, ROOF RAFTERS/JOISTS ARE TO BE TIED TO THE CEILING JOISTS (OR SOLID BLOCKING AT 3'-11" o.c. MAX.) AT THEIR BASE AND NAILED AS PER OBC TABLE 9.23.13.6 TO PREVENT OUTWARD MOVEMENT.
5. OVER-FRAMED AREAS ARE TO BE SUPPORTED ON LOWER ROOF RAFTERS/JOISTS BY 2x4 STRUTS @ 24" EACH WAY MIN., U.N.O..
6. WOOD ROOF TRUSSES SHALL BE DESIGNED IN ACCORDANCE WITH OBC 9.23.13.11, OR PART 4 IF THEIR SPAN EXCEEDS 40'-0" (AS PER OBC 9.23.1.1).
   6.1. IF THE TRUSSES ARE DESIGNED IN ACCORDANCE WITH OBC PART 4, THE DESIGN OF UPLIFT ANCHORS SHALL BE PROVIDED BY THE TRUSS SUPPLIER ALONG WITH LAYOUTS AND STAMPED DRAWINGS.

MATERIALS

1. MATERIALS SHALL CONFORM TO THE FOLLOWING REQUIREMENTS U.N.O. ON THE STAMPED DRAWINGS:

CONCRETE	- OBC 9.3.1
REINFORCING STEEL	- CSA G30
LUMBER & WOOD PRODUCTS	- OBC 9.23
STEEL BEAMS	- OBC 9.23.4.3
STEEL COLUMNS	- OBC 9.17
ANCHOR BOLTS, STEEL PLATES & ROLLED SECTIONS	- CAN/CSA-G40.21
STEEL HSS & W-BEAMS	- CAN/CSA-G40.21M-350W
ALL OTHER STEEL	- CAN/CSA-G40.21M-300W
STRUCTURAL BOLTS	- ASTM A325

FOOTINGS AND FOUNDATIONS

1. ALL FOOTINGS AND FOUNDATIONS SHALL CONFORM TO OBC 9.15 UNLESS NOTED OTHERWISE (U.N.O.) ON THE STAMPED DRAWINGS.
2. FOOTINGS TO BEAR ON SOUND SUB-GRADE SUITABLE FOR 75 kPa (1555 psf) ALLOWABLE SOIL BEARING CAPACITY. THE CLIENT IS TO INFORM SES IF THE REQUIRED BEARING CAPACITY CANNOT BE ACHIEVED.
3. FOUNDATION WALLS SUPPORTING DRAINED EARTH HAVE BEEN DESIGNED FOR THE LOADS PROVIDED IN 9.4.4.5.(1)(a). ENSURE PROVISIONS ARE MADE FOR APPROPRIATE DRAINAGE OF GROUNDWATER.
4. ENSURE ALL FOUNDATION WALLS ARE LATERALLY SUPPORTED PRIOR TO BACKFILLING.
5. ALL REINFORCING STEEL SHALL CONFORM TO THE REQUIREMENTS OF CAN/CSA-G30, REINFORCING BARS SHALL BE DEFORMED HI-BOND HARD GRADE WITH MINIMUM YIELD STRENGTH OF Fy = 400MPa.

STRUCTURAL STEEL

1. ALL WELDING SHALL BE PERFORMED BY A CANADIAN WELDING BUREAU CERTIFIED WELDER AND CONFORM TO CSA STANDARD W59.
2. PROVIDE SUFFICIENT LATERAL SUPPORT FOR STEEL BEAMS TO PREVENT LATERAL TORSIONAL BUCKLING. SUFFICIENT LATERAL SUPPORT EXAMPLES:
   2.1. DROPPED STEEL BEAM - AS PROVIDED IN OBC 9.23.4.3.(3), OR A 2x6 TOP PLATE w/ 3/8" THRU BOLTS c/w NUTS & WASHERS OR HILTI X-U FASTENERS @ 24" o.c., STAGGERED INTO THE TOP FLANGE & (2) 3 1/4" NAILS FROM EACH JOIST INTO THE TOP PLATE.
   2.2. FLUSH STEEL BEAM - SOLID BLOCKING (2x LUMBER AND PLYWOOD) BOLTED TO THE BEAM WEB WITH 1/2" DIA. THRU BOLTS AT 16" o.c., STAGGERED TOP AND BOTTOM AND APPROVED FACE MOUNT HANGERS FOR THE JOIST TO BLOCKING CONNECTION.
3. WHERE A STEEL PLATE SUPPORTING MASONRY VENEER IS SPECIFIED, WELD TO THE TOP OR BOTTOM FLANGE OF THE BEAM WITH (2) ROWS OF 2" LONG FILLET WELDS @ 12" o.c. MIN., STAGGERED.
4. ALL STEEL COLUMNS ARE TO BE LATERALLY SUPPORTED TOP & BOTTOM (I.E. BY CONCRETE SLAB ON GRADE, (2) 3/8"DIA. BOLTS OR 2" OF 1/4" FILLET WELD MIN). CONTINUE ALL COLUMNS DOWN TO FOUNDATION OR FULL BEARING ON BEAMS, BLOCK SOLID IN JOIST SPACES, TYPICAL (TYP.).
5. ALL STRUCTURAL STEEL TO BE FINISHED AS APPROVED BY GENERAL CONTRACTOR.

LOADING

1. ROOF LOADING:
   1.1. SNOW LOAD = Cb x Ss + 0.4 kPa; NOT LESS THAN 1 kPa (20.9 psf), AS PER OBC 9.4.2.2
      Cb = 0.55 kPa FOR ROOF WIDTH > 4.3m
      Cb = 0.45 kPa FOR ROOF WIDTH <= 4.3m
      Ss = 1-IN-50 GROUND SNOW LOAD in kPa
   1.2. DEAD LOAD = 0.28 kPa (6 psf) (ROOF RAFTERS/ JOISTS OR TRUSS TOP CHORDS)
2. CEILING LOADING:
   2.1. ATTIC OR ROOF SPACE WITH LIMITED ACCESSIBILITY (CEILING JOISTS/TRUSS BOTTOM CHORDS), AS PER OBC 9.4.2.4.(1)
      TOTAL SPECIFIED LOAD = 0.35 kPa (7.3 psf)
   2.2. ACCESSIBLE ATTIC = SEE FLOOR LOADING
3. FLOOR LOADING:
   3.1. LIVE LOAD = 1.92 kPa (40 psf), BEDROOMS = 1.44 kPa (30 psf)
   3.2. DEAD LOAD = 0.57 kPa (12 psf)
4. ACCESSIBLE EXTERIOR PLATFORMS, AS PER OBC 9.4.2.3:
   4.1. LIVE LOAD = GREATER OF 1.92 kPa (40 psf) OR SNOW LOA
5. GUARD LOADS: AS PER OBC 2012 4.1.5.14 (1)

Brian Facey
30 MacKenzie Road
Marmora / Lake
Ontario
PHONE: 416-863-4262
FAX:
brianfacey@gmail.com

SES DRAFTING AND DESIGN

SES DRAFTING AND DESIGN
PO Box 248
Stirling
Ontario
K0K 3E0
PHONE:613.827.3957
EMAIL:
scottestewart@sympatico.ca

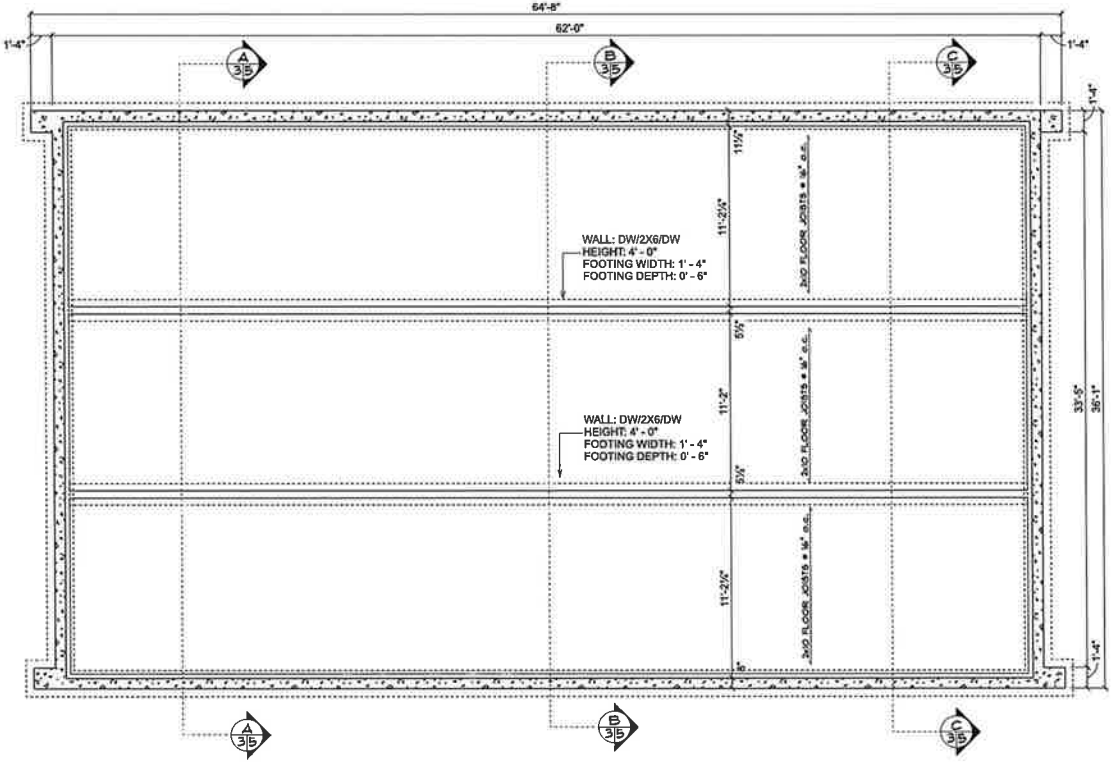
SECTION LETTER / PAGE NUMBERS

PAGE: 2/ 8

SCALE: 1/4" = 1'-0"
DRAWN BY:
DATE: Thursday, May 4, 2023

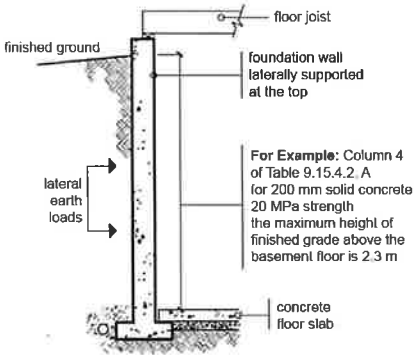
GENERAL NOTES

I HAVE REVIEWED AND TAKE RESPONSIBILITY FOR THESE DESIGNS UNDER THE REQUIREMENTS OF THE O.B.C.
QUALIFIED DESIGNER SCOTT E. STEWART BCIN #33398 FIRM #36714



CRAWLSPACE PLAN

SCALE: 3/16" = 1'-0"

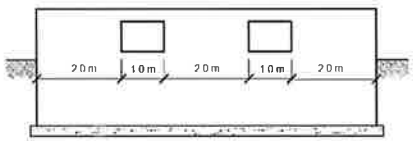


Section

9.15.4.2. Foundation Wall Thickness and Required Lateral Support

Foundation walls shall be sufficiently thick to support lateral earth loads.

The thickness of foundation walls made of reinforced concrete block or solid concrete and subject to lateral earth pressure should conform to Table 9.15.4.2.A. for walls not exceeding 3.0 m in unsupported height.



Elevation

Follow these steps to determine if a foundation wall is considered laterally supported at the top when the wall incorporates openings.

1) Check - single openings are not more than 1.2 m

2) Check - for combined width of openings not considered as a single opening

single opening = average width of openings > width of solid wall between openings

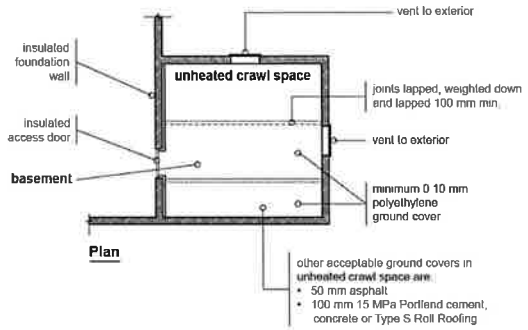
$$\text{average width} = \frac{1.0\text{ m} + 1.0\text{ m (width of openings)}}{2\text{ (openings)}} = 1.0\text{ m}$$

width of solid wall between openings = 2.0 m
the average width of openings is less than the width of solid wall between openings, therefore the combined openings are not considered a single opening more than 1.2 m.

3) Check - total width of openings shall be not more then 25% of the length of the wall
- total width of openings is 1.0 m + 1.0 m = 2.0 m
- total length of wall = 8.0 m x 25% = 2.0 m
- total width of openings is 2.0 m which is ≤ 2.0 m being 25% of the total length of the wall, therefore the total width of openings not more than 25% of the length of the wall

9.15.4.3. Foundation Walls Considered to be Laterally Supported at the Top

Foundation wall beneath an opening considered laterally supported.



Plan

9.18.6.1. Ground Cover in Unheated Crawl Spaces

Ground cover in unheated crawl space will limit the likelihood of ingress of moisture from the ground.

Brian Facey
30 MacKenzie Road
Marmora / Lake
Ontario
PHONE: 416-883-4262
FAX:
brianfacey@gmail.com

SES DRAFTING AND DESIGN

SES DRAFTING AND DESIGN
PO Box 248
Stirling
Ontario
K0K 3E0
PHONE:613 827 3957
EMAIL:
scottestewart@sympatico.ca

SCALE: 3/16" = 1'-0"
DRAWN BY:
DATE: Thursday, May 4, 2023

SECTION LETTER A
PAGE NUMBERS 1 1

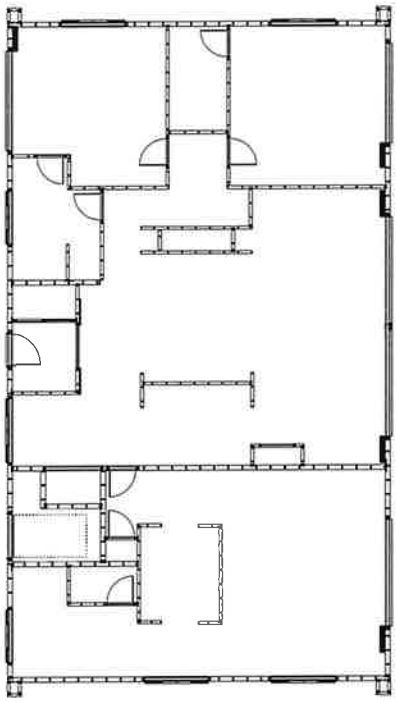
PAGE: 3/8

CRAWLSPACE PLAN

I HAVE REVIEWED AND TAKE RESPONSIBILITY FOR THESE DESIGNS UNDER THE REQUIREMENTS OF THE O.B.C.
QUALIFIED DESIGNER SCOTT E. STEWART BCIN #33398 FIRM #36714

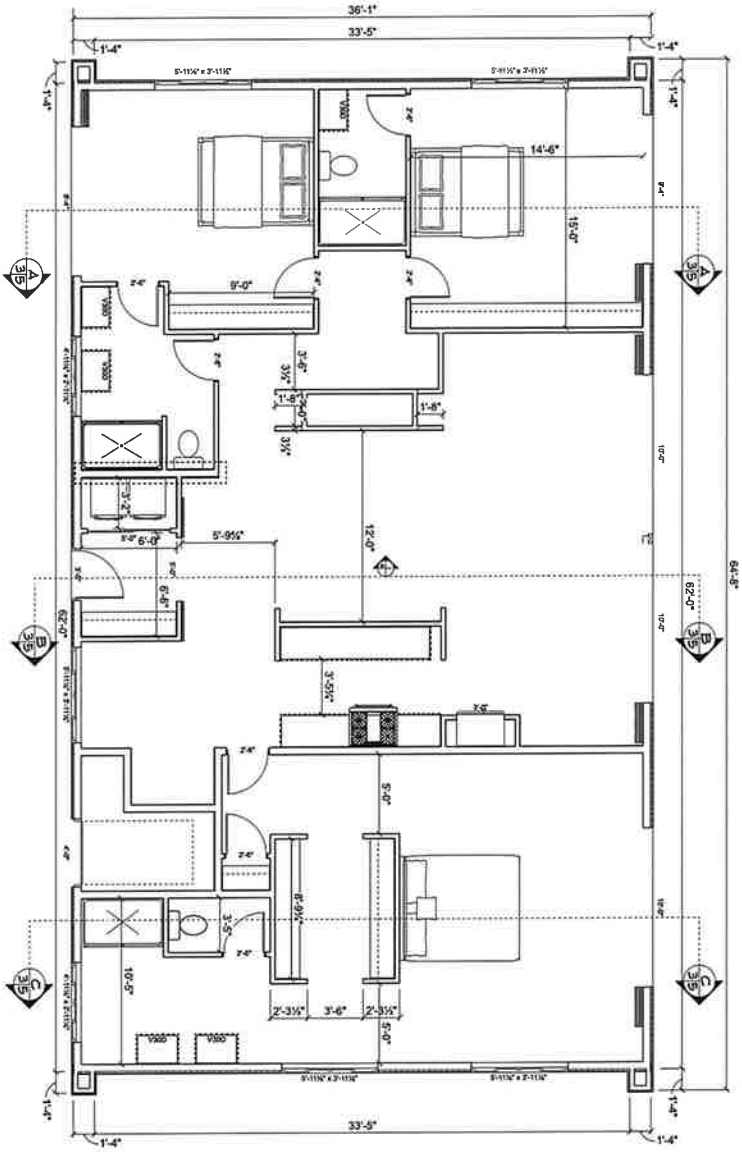
MAIN FLOOR - FRAMING

SCALE: 1/8" = 1'-0"



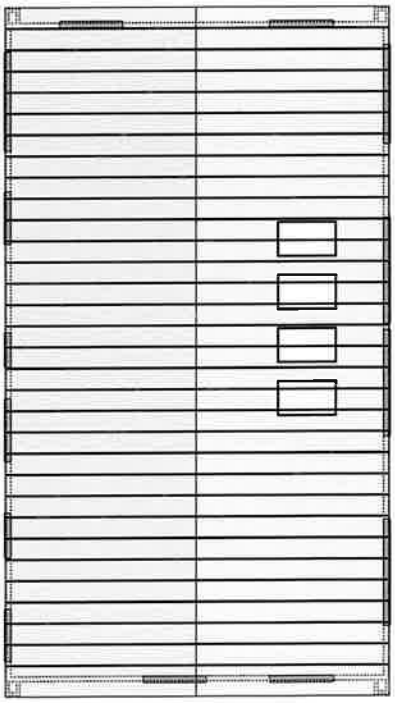
MAIN FLOOR

SCALE: 3/16" = 1'-0"



MAIN FLOOR - ROOF

SCALE: 1/8" = 1'-0"



Brian Facey
30 MacKenzie Road
Marmora / Lake
Ontario
PHONE: 416-863-4262
FAX:
brianfacey@gmail.com

SES DRAFTING AND DESIGN

SES DRAFTING AND DESIGN
PO Box 248
Stirling
Ontario
K0K 3E0
PHONE:613 827 3957
EMAIL:
scottestewart@sympatico.ca

SCALE: As Noted

DRAWN BY:

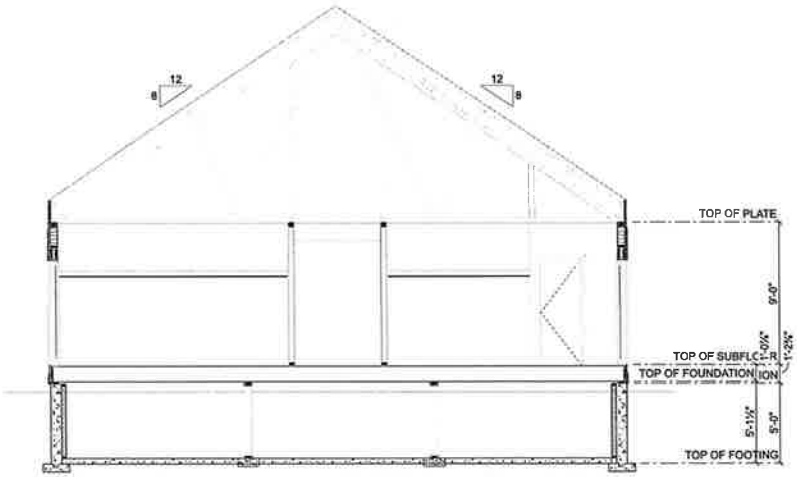
DATE: Thursday, May 4, 2023

SECTION LETTER: A
PAGE NUMBERS: 1 1

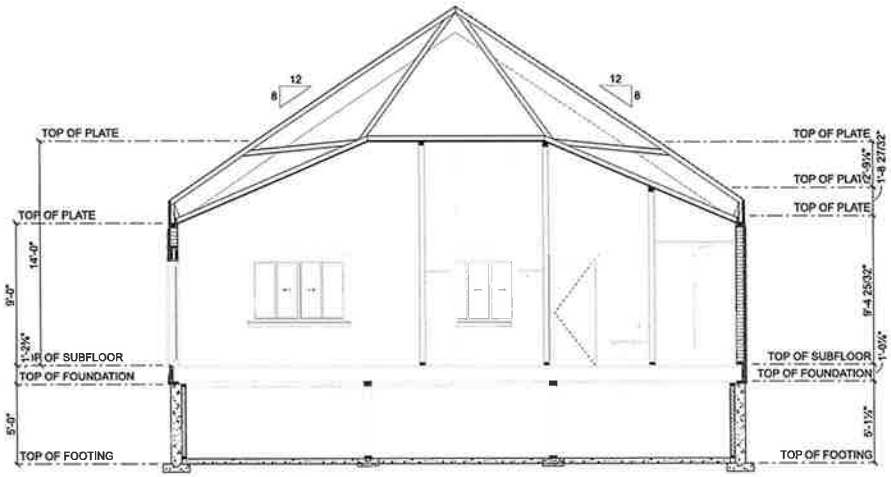
PAGE: 4/8

I HAVE REVIEWED AND TAKE RESPONSIBILITY FOR THESE DESIGNS UNDER THE REQUIREMENTS OF THE O.B.C.
QUALIFIED DESIGNER SCOTT E. STEWART BCIN #33398 FIRM #36714

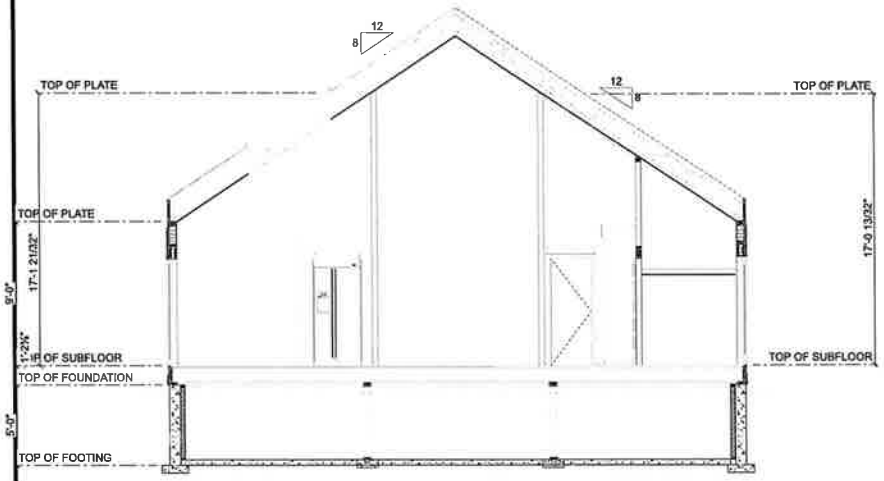
MAIN FLOOR PLAN



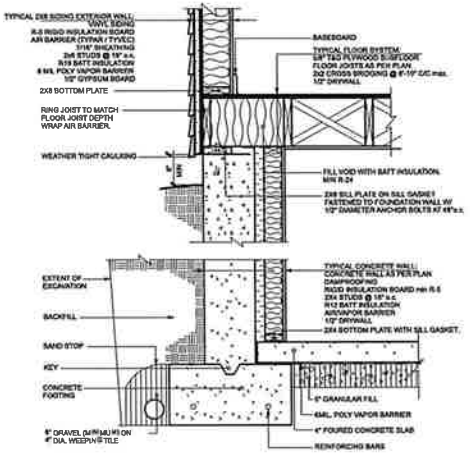
A/3|5 **CROSS SECTION A**
SCALE: 3/16" = 1'-0"

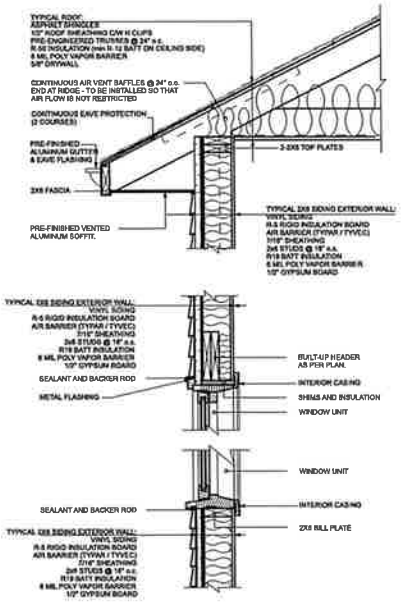


C/3|5 **CROSS SECTION C**
SCALE: 3/16" = 1'-0"



B/3|5 **CROSS SECTION B**
SCALE: 3/16" = 1'-0"





TYPICAL A5 WALL SECTION
SCALE: 0.7188" = 1'-0"

Brian Facey
30 MacKenzie Road
Marmora / Lake
Ontario
PHONE: 416-863-4262
FAX:
brianfacey@gmail.com

SES DRAFTING AND DESIGN

SES DRAFTING AND DESIGN
PO Box 248
Stirling
Ontario
K0K 3E0
PHONE:613 827 3957
EMAIL:
scottestewart@sympatico.ca

SCALE: As Noted
DRAWN BY:
DATE: Thursday, May 4, 2023

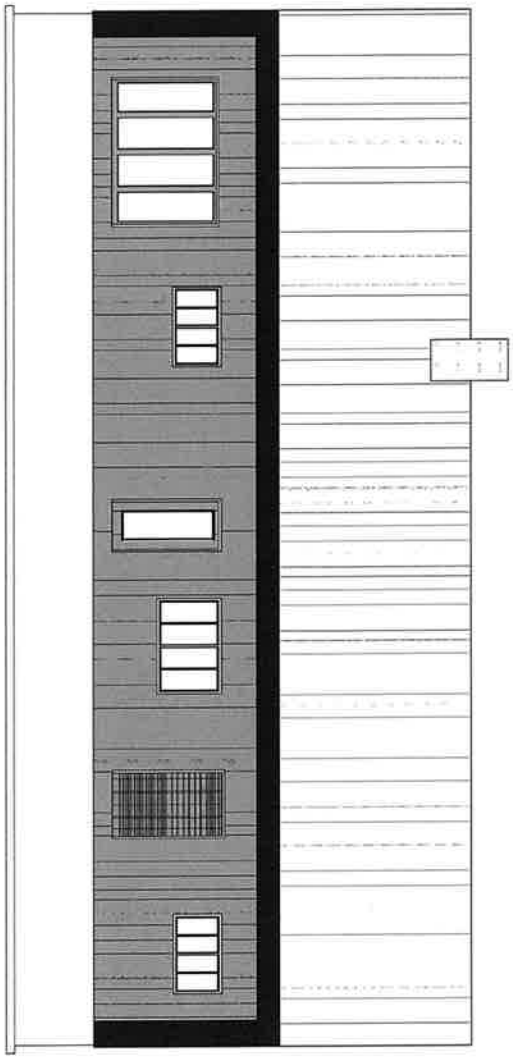
SECTION LETTER: A
PAGE NUMBERS: 1 1

PAGE: 5/8

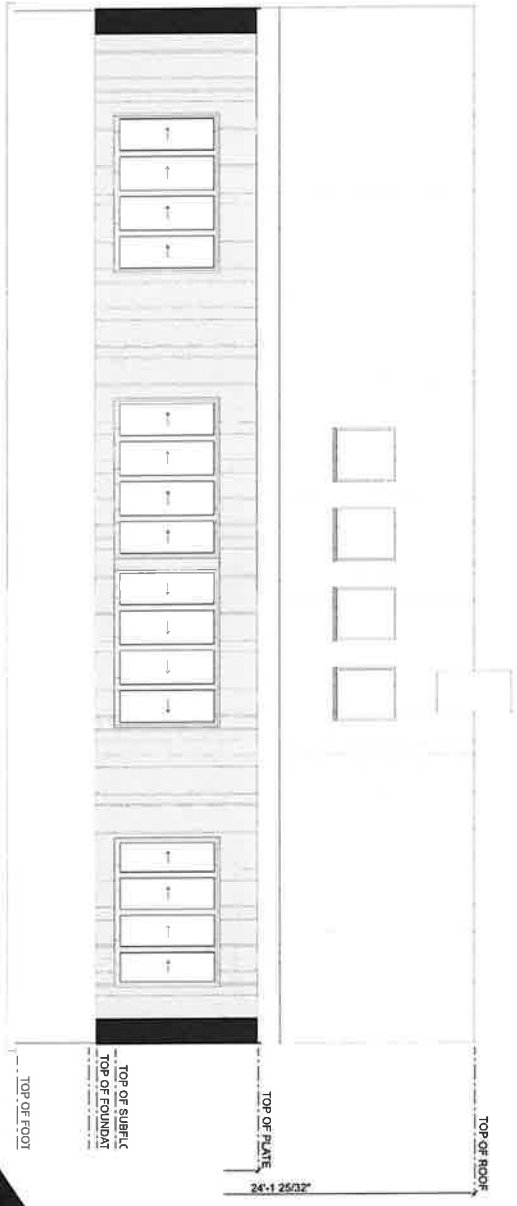
BUILDING SECTION

I HAVE REVIEWED AND TAKE RESPONSIBILITY FOR THESE DESIGNS UNDER THE REQUIREMENTS OF THE O.B.C.
QUALIFIED DESIGNER SCOTT E. STEWART BCIN #33398 FIRM #36714

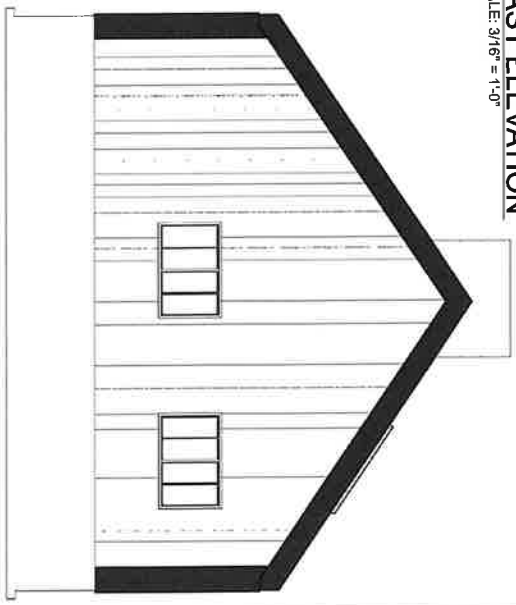
NORTH ELEVATION
SCALE: 3/16" = 1'-0"



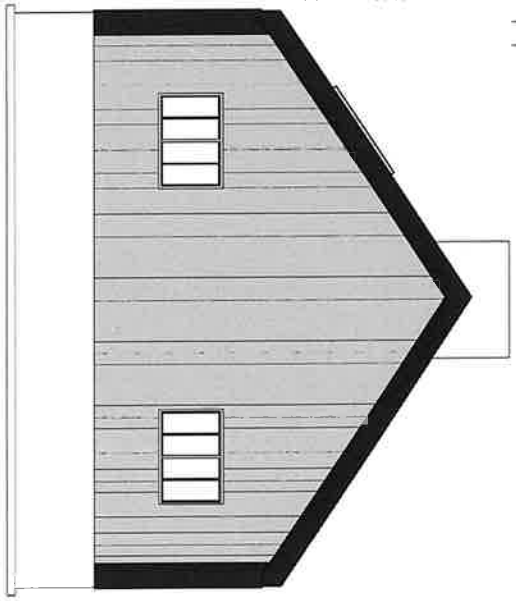
SOUTH ELEVATION
SCALE: 3/16" = 1'-0"



WEST ELEVATION
SCALE: 3/16" = 1'-0"



EAST ELEVATION
SCALE: 3/16" = 1'-0"



Brian Facey
30 MacKenzie Road
Marmora / Lake
Ontario
PHONE: 416-863-4262
FAX:
brianfacey@gmail.com

SES DRAFTING AND DESIGN

SES DRAFTING AND DESIGN
PO Box 248
Stirling
Ontario
K0K 3E0
PHONE:613 827 3957
EMAIL:
scottestewart@sympatico.ca

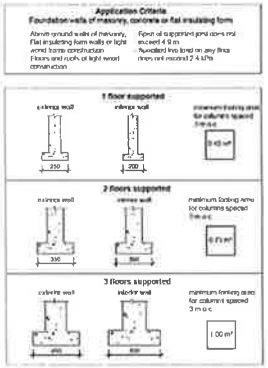
SCALE: 3/16" = 1'-0"
DRAWN BY:
DATE: Thursday, May 4, 2023

A-1-1 (SECTION LETTER / PAGE NUMBERS)

PAGE: 6/8

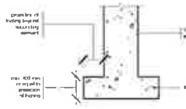
I HAVE REVIEWED AND TAKE RESPONSIBILITY FOR THESE DESIGNS UNDER THE REQUIREMENTS OF THE O.B.C.
QUALIFIED DESIGNER SCOTT E. STEWART BCIN #33398 FIRM #36714

ELEVATIONS

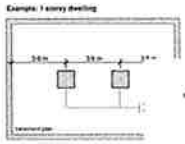

Application Criteria
Foundation walls of masonry, concrete or flat insulating form
1 floor supported
exterior wall
interior wall
0.40 m²
2 floors supported
exterior wall
interior wall
minimum footing area for columns spaced 3 m o.c.
0.75 m²
3 floors supported
exterior wall
interior wall
minimum footing area for columns spaced 3 m o.c.
1.00 m²

9.15.3.4. **Basic Footing Widths and Areas**

There must be sufficient bearing area for a strip footing and footing area for a column to support the anticipated loads.

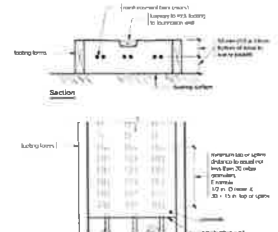


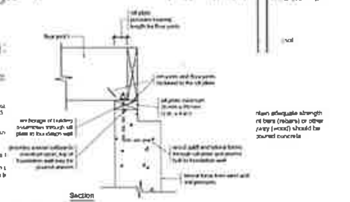
9.15.3.8. Footing Thickness



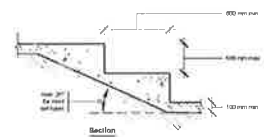
9.15.3.7. Adjustments to Footing Area

The footing area for column spacings other than in Table 9.15.3.4. should be adjusted in proportion to distance between columns.



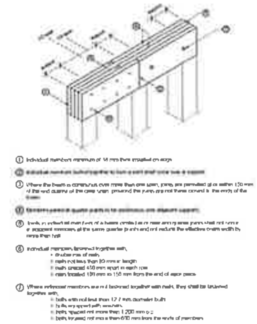


9.23.7.1 Size of Sill Plates



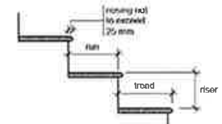
9.15.3.8. Footing Thickness
9.15.3.9. Step Footings

Stepped footings shall be designed so that there is a max. 600 mm vertical rise between horizontal portions and a min. 600 mm horizontal distance between vertical risers.



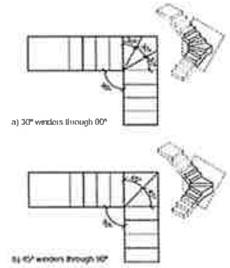
9.23.8.3. Built-up Wood Beams

Proper construction of a built-up wood beam should resist the expected gravity loads through adequate joint support, bending strength at butt joints and load distribution and shear strength between members.



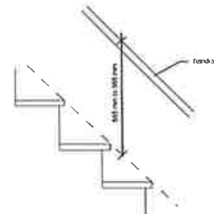
9.8.4.6. **Leading Edges of Treads**

Riser, run, tread, and nosing. Nosing on stairs cannot exceed 25 mm in length.



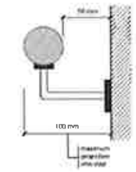
9.8.4.5. **Winders**

Winders are permitted to consist of treads that turn through angles of either 30° or 45° upon a centre point.



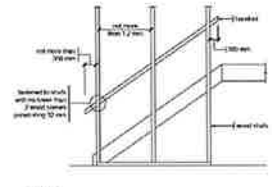
9.8.7.4. **Height of Handrails**

The height of a handrail serving a stair should be not less than 865 mm and not more than 965 mm above a straight line drawn tangent to the tread nosings of the stair served by the handrail to the top of the handrail.



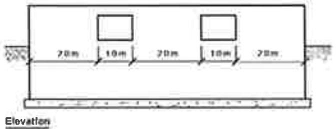
9.8.7.5. Ergonomic Design
9.8.7.6. Projections into Stairs and Ramps

Handrails should have a clearance of 50 mm between the handrail and any surface behind it. The handrail should not project more than 100 mm into the required width of the stair.



9.8.7.7. Design and Attachment of Handrails

Handrails should be attached to wood studs or blocking spaced not more than 1.2 m apart with the attachments at top and bottom not more than 300 mm from the ends of the handrail. Handrails should be attached to wood studs or blocking with no fewer than 2 wood screws penetrating 32 mm into the solid wood.



Elevation

Follow these steps to determine if a foundation wall is considered laterally supported at the top when the wall incorporates openings.

1) Check: single openings are not more than 1.2 m

2) Check: for combined width of openings not considered as a single opening

single opening = average width of openings > width of solid wall between openings

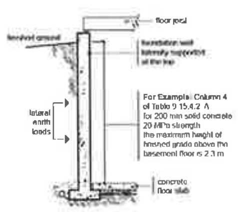
average width = 1.0 m + 1.0 m (width of openings) / 2 (openings) = 1.0 m

width of solid wall between openings = 2.0 m
the average width of openings is less than the width of solid wall between openings, therefore the combined openings are not considered a single opening more than 1.2 m.

3) Check: total width of openings shall be not more than 25% of the length of the wall
- total width of openings is 1.0 m + 1.0 m = 2.0 m
total length of wall × 8.0 m × 25% = 2.0 m
total width of openings is 2.0 m which is ≤ 2.0 m being 25% of the total length of the wall, therefore the total width of openings not more than 25% of the length of the wall

9.15.4.3. **Foundation Walls Considered to be Laterally Supported at the Top**

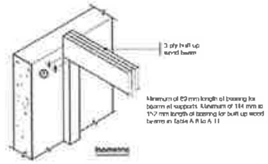
Foundation wall beneath an opening considered laterally supported.


floor joist
finished ground
foundation wall laterally supported at the top
lateral earth loads
For Example: Column 4 of Table 9.15.4.2. A for 200 mm solid concrete 20 MPa strength the maximum height of finished grade above the basement floor is 2.3 m
concrete floor slab
Section

9.15.4.2. **Foundation Wall Thickness and Required Lateral Support**

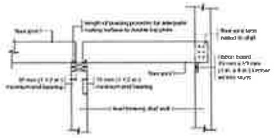
Foundation walls shall be sufficiently thick to support lateral earth loads.

The thickness of foundation walls made of reinforced concrete block or solid concrete and subject to lateral earth pressure should conform to Table 9.15.4.2.A. for walls not exceeding 3.0 m in unsupported height.



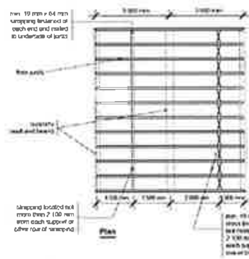
9.23.8.1. Bearing for Beams

Beams shall be designed to have a minimum length of bearing at end supports.



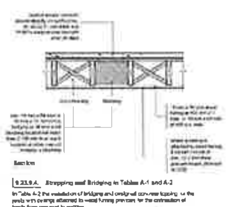
9.23.9.1. End Bearing for Joists

Adequate bearing area to ensure transfer of loads.

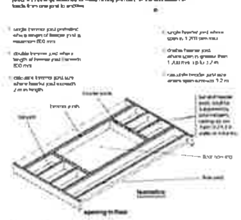


9.23.9.4. Strapping and Bridging in Tables A-1 and A-2

Strapping or bridging in Table A-1 for the distribution of loads from one joist to another.

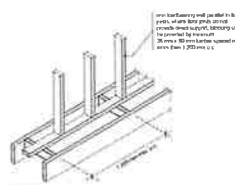


9.23.9.4. Strapping and Bridging in Tables A-1 and A-2

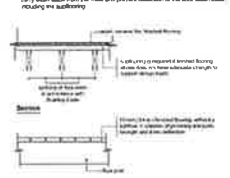


9.23.9.5. Header Joists
9.23.9.6. Trimmer Joists
9.23.9.7. Support of Tail and Header Joists

Openings in floors require header, trimmer and tail joists to support dead and live gravity loads. Loading is transferred from tail joist to header joist and header joist to trimmer joist.

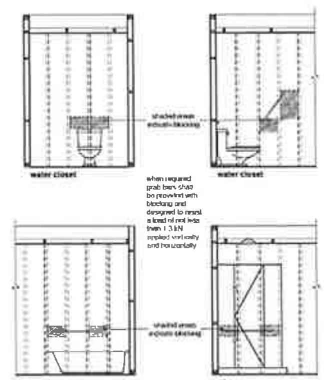


9.23.9.8. Support of Walls



9.23.14.1. Subflooring Required

Subflooring is required if the finished flooring does not have adequate strength to support the design loads.



Elevations

9.31.2.3. Grab Bars

The design for the anchorage of grab bars shall be adequate for the anticipated horizontal and vertical loads.

Brian Facey
30 MacKenzie Road
Marmora / Lake
Ontario
PHONE: 416-663-4262
FAX:
brianfacey@gmail.com

SES DRAFTING AND DESIGN

SES DRAFTING AND DESIGN
PO Box 248
Stirling
Ontario
K0K 3E0
PHONE:613 827 3957
EMAIL:
scottestewart@sympatico.ca

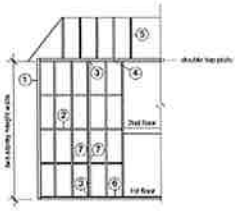
SCALE: 0.1562" = 1'-0"
DRAWN BY:
DATE: Thursday, May 4, 2023

SECTION LETTER A
PAGE NUMBERS 1 1

PAGE: 7/ 8

OBC DETAILS

I HAVE REVIEWED AND TAKE RESPONSIBILITY FOR THESE DESIGNS UNDER THE REQUIREMENTS OF THE O.B.C.
QUALIFIED DESIGNER SCOTT E. STEWART BCIN #33398 FIRM #36T14

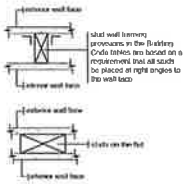


① studs clad with minimum 9.5 mm plywood, waferboard or OSB on the exterior and minimum of 12.7 mm gypsum board on the interior
② solid ledgers at a maximum of 1 200 mm o.c.
③ studs fastened to top and bottom plates with maximum 3 dmm x 87 mm toe-nails
④ double top plates fastened together
⑤ roof framing members spaced maximum of 600 mm o.c. and fastened to top plate
⑥ bottom plate fastened to floor joists, blocking or rim joists with not less than 82 mm nails spaced more than 300 mm o.c.
⑦ stud members are singular or double, refer to Tables A-33 to A-33

Elevation

9.23.10.1. Stud Size and spacing

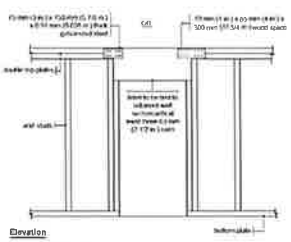
Two storey height walls are permitted to support roof loads
The size and spacing of studs should conform to Table 9.23.10.1



Plan

9.23.10.3. Orientation of Studs

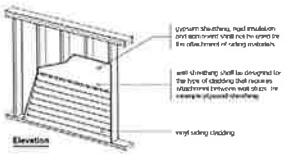
Designed for installation at right angles to the wall face and on the flat.



Elevation

9.23.11.3. Top Plates

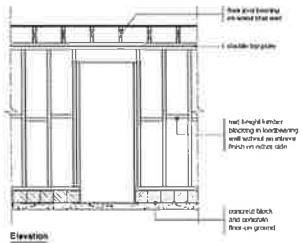
Lintels to be designed with splices to serve the role of the top plates.



Elevation

9.23.16.1. Required Sheathing

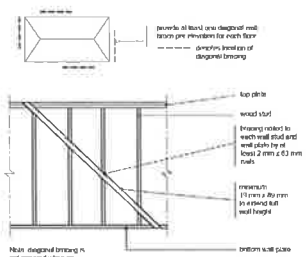
The requirement for wall sheathing depends on the exterior wall design and its components. Sheathing can be used as a base for the attachment of siding. Certain sheathing are not acceptable for the attachment of cladding and shall not be designed for that purpose



Elevation

9.23.10.2. Bracing and Lateral Support

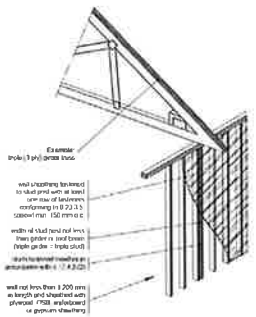
Loadbearing interior walls require a finish in accordance with Section 9.29. to prevent the wall from buckling. Where an interior finish is not applied, blocking or strapping should be designed



Elevation

9.23.10.2. Bracing and Lateral Support

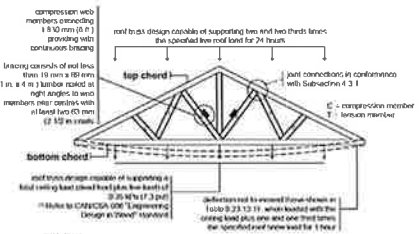
Exterior walls shall be designed to provide resistance to gravity and lateral loads.



Isometric

9.23.10.7. Stud Posts Built into Walls

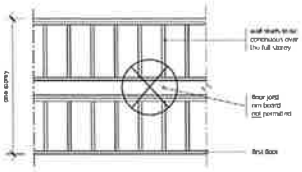
Stud posts built into walls supporting a girder truss or roof beam to conform with Tables A-34 to A-37 and to the requirements in the above figure



Elevation

9.23.13.11. Wood Roof Trusses

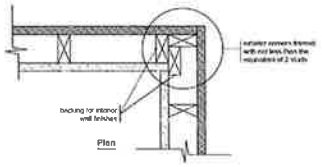
Wood roof trusses designed in conformance with Part 9 should comply with above requirements



Elevation

9.23.10.4. Continuity of Studs

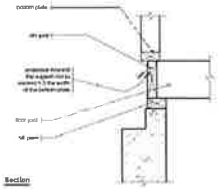
Wall studs are required to be continuous for the full storey height



Plan

9.23.10.5. Support for Cladding Materials

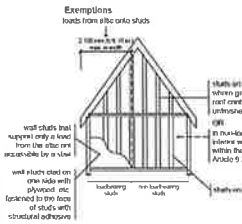
Corners in wall stud framing should be designed to provide adequate support and nailing surfaces for cladding materials.



Section

9.23.11.2. Bottom Wall Plates

Bottom wall plates are used to fasten the stud wall to the building floor system. Adequate bearing and fastening between the bottom plate and the support below (rim joist) is critical



Exemptions
loads from attic onto studs

Elevation

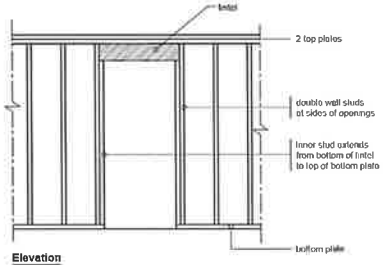
9.23.10.3. Orientation of Studs

Designed for installation at right angles to the wall face and on the flat.

Elevation

9.23.10.6. Studs as Sides of Openings

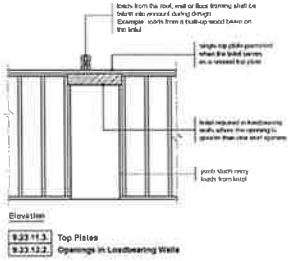
Single wall studs are permitted on either side of an opening in a non-loadbearing wall.



Elevation

9,23,10.6. Studs at Sides of Openings

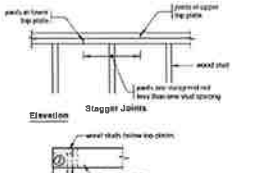
Studs at the sides of openings are doubled to provide support to lintels and to transfer loads.



Section

9.23.11.3. Top Plates
9.23.12.2. Openings in Loadbearing Walls

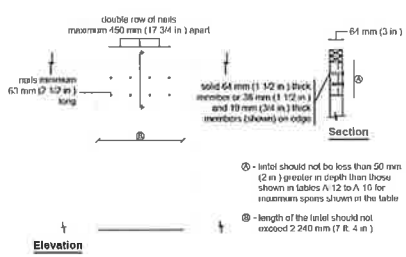
A single top plate may be designed when a lintel serves as a second top plate and the top plate forms a tie across the lintel. Openings in loadbearing walls greater than the required stud spacing shall contain a lintel.



Elevation

9.23.11.4. Joints in Top Plates

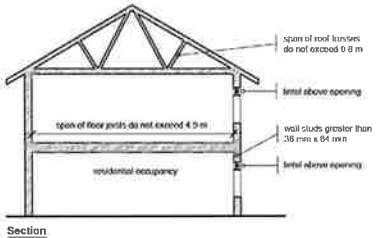
Joints in top plates reduce the stiffness and strength of the structure to resist forces due to gravity and lateral loads, such as wind.



Section

9.23.12.4. Lintel Spans and Sizes

Loadbearing exterior and interior walls with 38 mm x 84 mm (2 in. x 3 in.) framing members, lintels must be sufficiently thick, deep and fastened in order to distribute the anticipated lateral and gravity loads.



Section

9.23.12.3. Lintel Spans and Sizes

The spans and sizes of wood lintels shall conform to the spans shown in Tables A-12 to A-16 in accordance with the criteria in Figure 9.23-28. Where any of the criteria cannot be met, the design shall conform to Part 4 of the Building Code. Walls of 38 mm x 84 mm in size shall conform to 9.23.12.3. (2) and (3)

Brian Facey
30 MacKenzie Road
Marmora / Lake
Ontario
PHONE: 416-863-4262
FAX:
brianfacey@gmail.com

SES DRAFTING AND DESIGN

SES DRAFTING AND DESIGN
PO Box 248
Stirling
Ontario
K0K 3E0
PHONE:613.827.3957
EMAIL:
scottestewart@sympatico.ca

SCALE: 0.1200" = 1'-0"
DRAWN BY:
DATE: Thursday, May 4, 2023

SECTION LETTER: A
PAGE NUMBERS: 11

PAGE: 8/ 8

OBC DETAILS CONTINUED

I HAVE REVIEWED AND TAKE RESPONSIBILITY FOR THESE DESIGNS UNDER THE REQUIREMENTS OF THE O.B.C.
QUALIFIED DESIGNER SCOTT E. STEWART BCIN #33398 FIRM #36114

TAB E


MacKenzie Rd
MacKenzie Rd
30
26
28
42
44
46