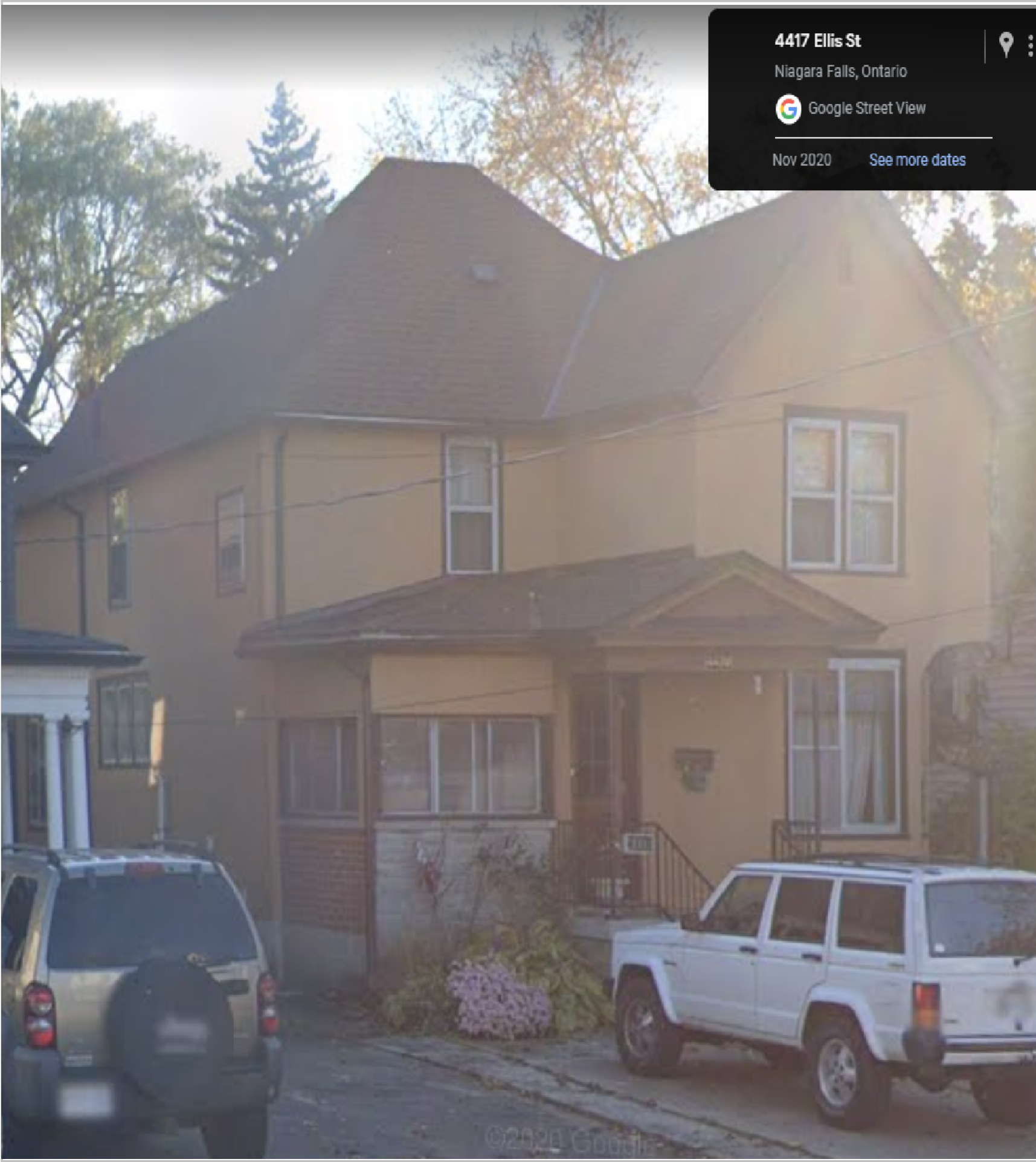


4

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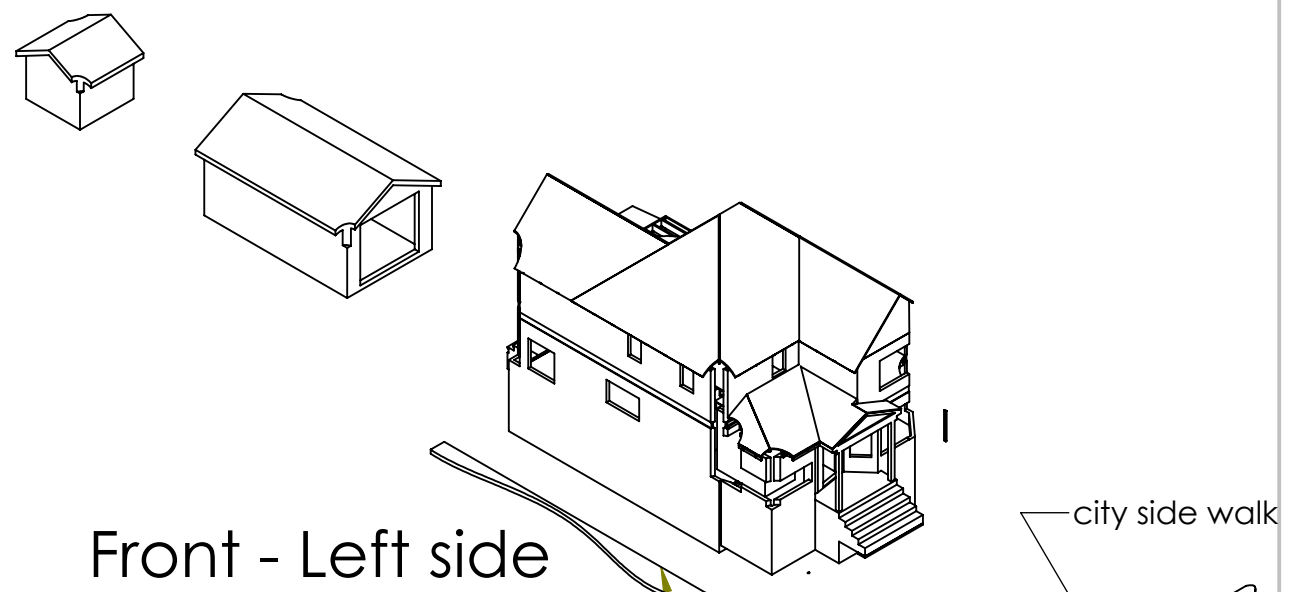
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1

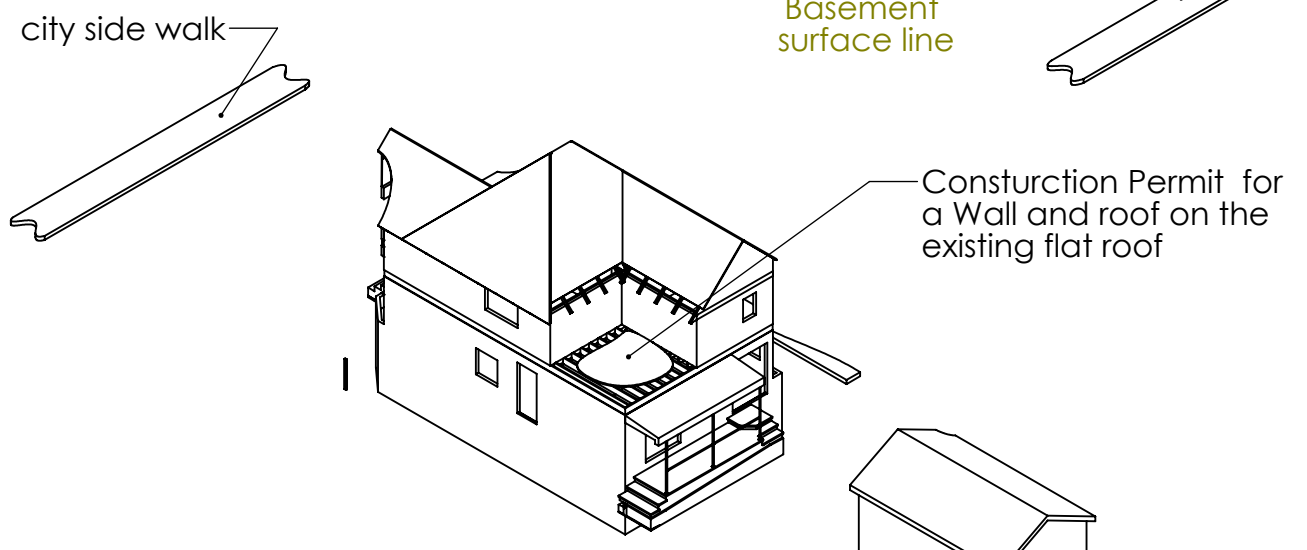


4417 Ellis St
Niagara Falls, Ontario
Google Street View
Nov 2020 See more dates

Index
 Page 1 of 18 - Introduction
 Page 2 of 18 - Survey 4430 Ellis Street
 Page 3 of 18 - Zoning drawing as per request
 Page 4 to 5 of 18 - Minor variance drawing requirement
 Page 6 to 18 of 18 - Construction drawings and details



Front - Left side Isometric view



Back - Right side Isometric view

DATE: September 20, 2023		DETAILS: For Construction Permit		Mobile phone - GCB - 778-386-0151	
DRAWN: GCB		DATE: 2023/09/20		TITLE: Tre Ford - 4430 Ellis Street	
CHECKED:				(Existing Structure)	
ENG APPR.:				File Name and/or DWG. NO. 4430 Ellis DWG rev 3	
MFG APPR.:				REV : 1	
Units - Inches [mm] - Scale - 1 : 250				SHEET 1 OF 18	

4

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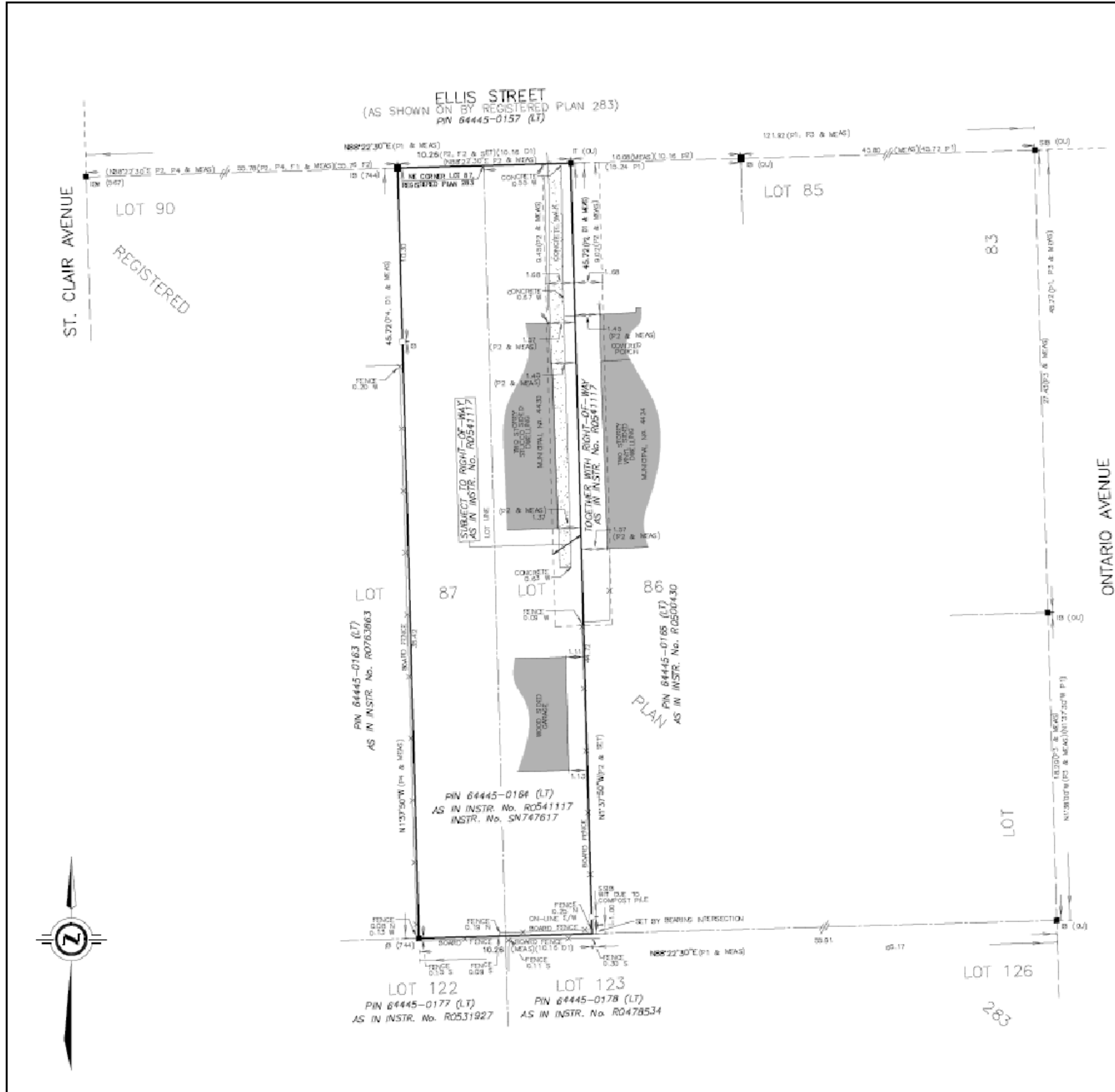
1

B

B

A

A



PLAN OF SURVEY OF
PART OF LOTS 86 & 87,
REGISTERED PLAN 283
 CITY OF NIAGARA FALLS
 REGIONAL MUNICIPALITY OF NIAGARA
 SCALE 1 : 150

J.D. BARNES LIMITED
 © COPYRIGHT 2023
METRIC DISTANCES AND/OR COORDINATES SHOWN ON THIS PLAN ARE IN METRES AND CAN BE CONVERTED TO FEET BY DIVIDING BY 0.3048.

NOTES
 BEARINGS ARE UTM GRID, DERIVED FROM GNSS OBSERVATIONS, UTM ZONE 17, NAD83 (CSRS) (2010.0).
 DISTANCES ARE GROUND AND CAN BE CONVERTED TO GRID BY MULTIPLYING BY THE COMBINED SCALE FACTOR OF 0.9999992.
 FOR BEARING COMPARISONS, A ROTATION OF 4°37'30" COUNTER-CLOCKWISE WAS APPLIED TO BEARINGS ON P1, P2 & P4.

LEGEND

■	DENOTES	SURVEY MONUMENT FOUND
□	DENOTES	SURVEY MONUMENT SET
○	DENOTES	STANDARD IRON BAR
○	DENOTES	IRON BAR ROUND
○	DENOTES	IRON BAR
○	DENOTES	IRON PIPE
○	DENOTES	REGISTERED PLAN 283
P1	DENOTES	PLAN OF SURVEY BY MATTHEWS & CAMERON LTD. DATED MAY 23, 1986, L.N. 20594
P2	DENOTES	PLAN OF SURVEY BY MATTHEWS, CAMERON, HEYWOOD & KERRY T. HOWE SURVEYING LTD. DATED FEBRUARY 24, 2014, L.N. 40244
P4	DENOTES	PLAN OF SURVEY BY MATTHEWS & CAMERON LTD. DATED OCTOBER 11, 1994, L.N. 25135
P8	DENOTES	INSTRUMENT NO. R0548117
P9	DENOTES	FIELD NOTES OF SURVEY BY MATTHEWS & CAMERON LTD. DATED MAY 3, 1984, L.N. 24544
P2	DENOTES	FIELD NOTES OF SURVEY BY MATTHEWS & CAMERON LTD. DATED MAY 27, 1983, L.N. 25594
MEAS	DENOTES	MEASURED
WT	DENOTES	WITNESS
R057	DENOTES	R. BLAKE ERWIN, O.L.S.
R04	DENOTES	MATTHEWS, CAMERON, HEYWOOD-KERRY T. HOWE SURVEYING LTD.
OU	DENOTES	UNKNOWN
+	DENOTES	FENCE
---	DENOTES	PROPERTY LINE

N-NORTH / S-SOUTH / E-EAST / W-WEST

SURVEYOR'S CERTIFICATE
 I CERTIFY THAT:
 1. THIS SURVEY AND PLAN ARE CORRECT AND IN ACCORDANCE WITH THE SURVEYS ACT, THE SURVEYORS ACT AND THE REGULATIONS MADE UNDER THEM.
 2. THE SURVEY WAS COMPLETED ON DECEMBER 15, 2023.

DECEMBER 15, 2023 DATE
 Andrew Handwerker
 ANDREW HANDWERKER
 ONTARIO LAND SURVEYOR

THIS PLAN OF SURVEY RELATES TO ADS PLAN SUBMISSION FORM NUMBER V-57739 AND IS NOT VALID UNLESS EMBOSSED BY A SURVEYOR'S SEAL.

J.D. BARNES SURVEYING MAPPING GIS
 LAND INFORMATION SPECIALISTS
 4318 PORTAGE ROAD - UNIT 2, NIAGARA FALLS, ON L2E 6A4
 T: (905) 358-3600 F: (905) 358-0234 www.jdbarnes.com

DRAWN BY:	CHECKED BY:	REVISION NO.:
BC	A.J.H.	23-16-352-00

DETAILS: For scale Official Zoning drawing by J.D.Barnes digital provided independently as an attachment with this submission

TITLE: Tre Ford - 4430 Ellis Street
 (subtitle) Zoning Layout

File Name and/or 4430 Ellis DWG rev 3 REV : 1
 DWG. NO. SHEET 2 OF 18

4

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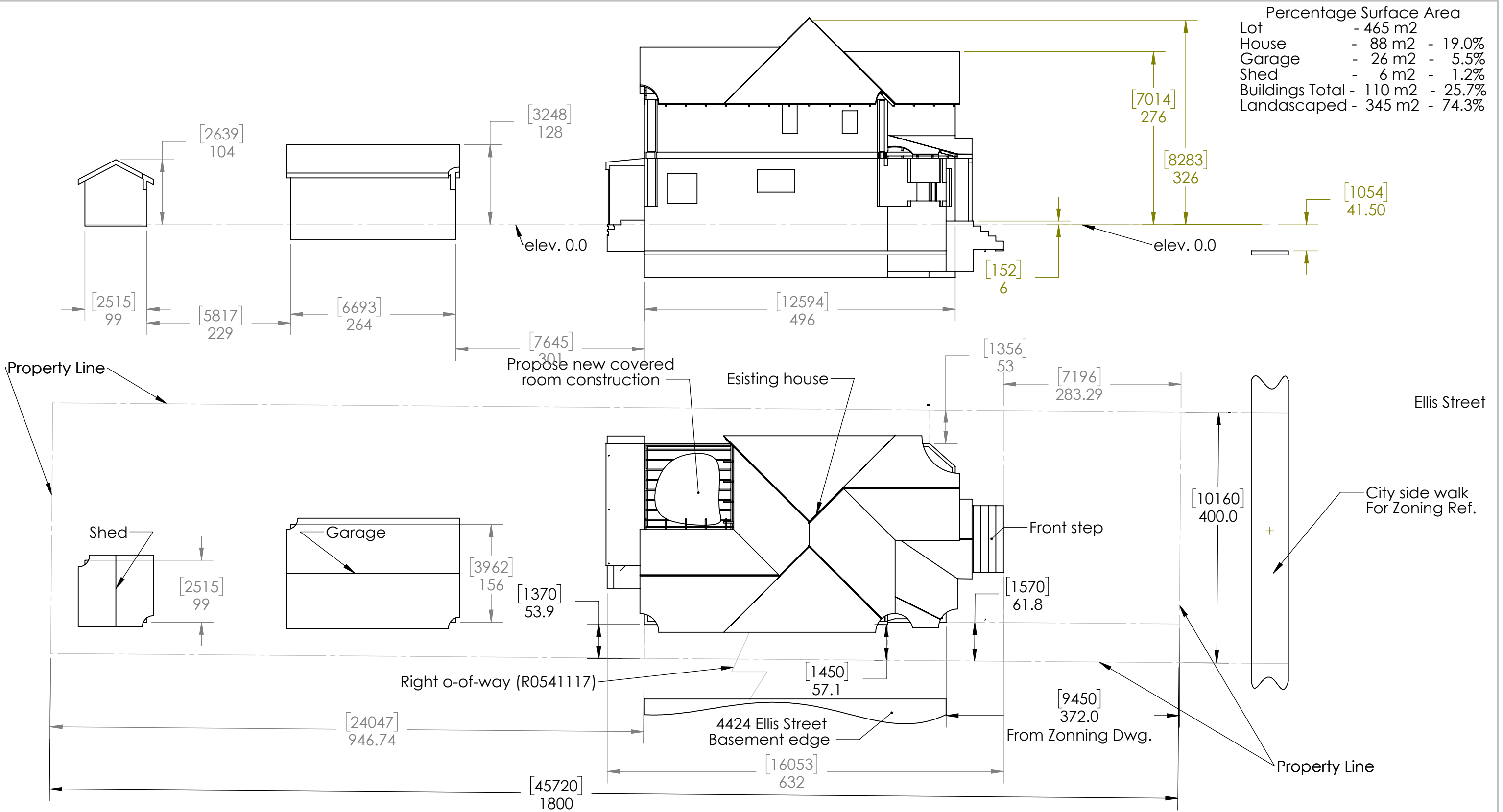
Percentage Surface Area	
Lot	- 465 m2
House	- 88 m2 - 19.0%
Garage	- 26 m2 - 5.5%
Shed	- 6 m2 - 1.2%
Buildings Total	- 110 m2 - 25.7%
Landscaped	- 345 m2 - 74.3%

B

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Zoning Drawing reference: see page 2 of 17

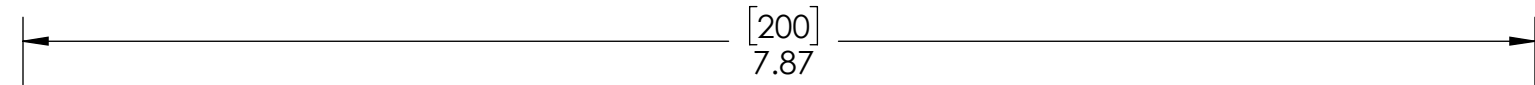
Revision 1 : November 20, 2023	DETAILS: Zoning reference : File G:\2023\23-16-362\00-23-16-362\Drawing\23-16-362-00-PlanOfSurvey.dwg
Revision 1 : November 20, 2023	DETAILS: Zoning required changes : Change scale to 1 : 150 ... remove landscape elevation lines
DATE: September 20, 2023	DETAILS: For Construction Permit
	TITLE: Tre Ford - 4430 Ellis Street
	(subtitle) Plan view - Zoning - Elevation - Minor Variance
	File Name and/or DWG. NO. 4430 Ellis DWG rev 3
	REV : 1
	SHEET 3 OF 18

4

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Percentage Parking Area to Landscape

Lot surface area = 10.16*45.72 = 464.5 m²
 Parking 3 = 6.0*6.2 = 45.7 m²
 Parking 1 & 2 = 5.5*7.2 = 39.6 m²
 RofW area not include in 1, 2 & 3 = 1.57 *16.10 = 25.8 m²
 Total Parking Area = 111.1 m²
 % of Parking = 111.1/464.5 = 23.9%

Percentage Parking Area to Frontage width

Frontage width = 10.16 m
 Parking Depth = 7.2 m
 Front yard width = 10.20 m
 Parking 1 width = 2.75 m
 Parking 2 width = 2.75 m
 Right of way width = 1.57 m
 Parking 1, 2 & ROW = 7.07 m

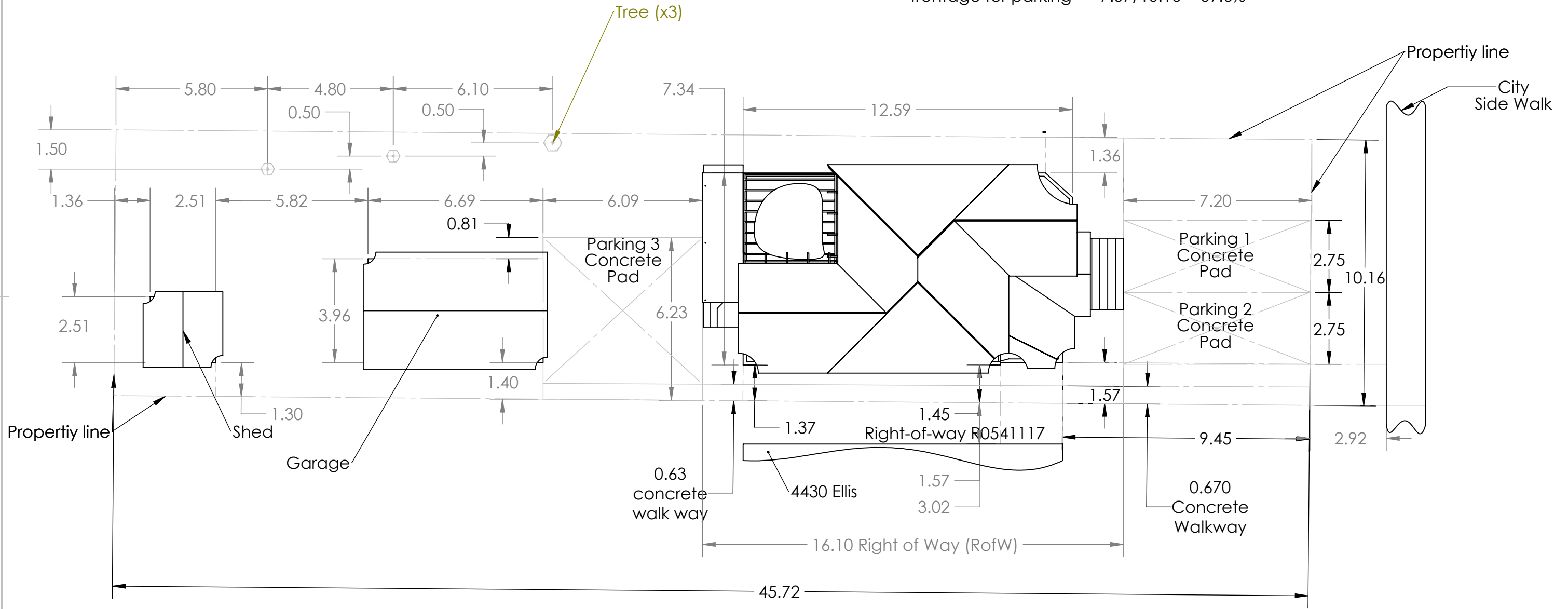
Percentage Surface Area

Lot - 465 m²
 House - 88 m² - 19.0%
 Garage - 26 m² - 5.5%
 Shed - 6 m² - 1.2%
 Buildings Total - 110 m² - 25.7%
 Landscaped - 345 m² - 74.3%

Percentage of frontage for parking = 7.07/10.16 = 69.6%

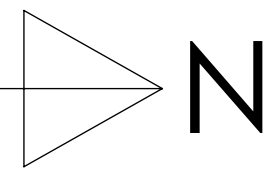
B

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DATE: March 12, 2024	DETAILS: For Minor Variance, Zoning and Construction Permit
DATE: September 20, 2023	DETAILS: For Construction Permit
DRAWN: GCB 2023/09/20	TITLE: Tre Ford - 4430 Ellis Street
CHECKED:	(subtitle) Plan view - Zoning - Minor Variance
ENG APPR.:	File Name and/or DWG. NO. 4430 Ellis DWG rev 3
MFG APPR.:	REV : 3
Units - Metres - Scale 1:150	SHEET 4 OF 18

4

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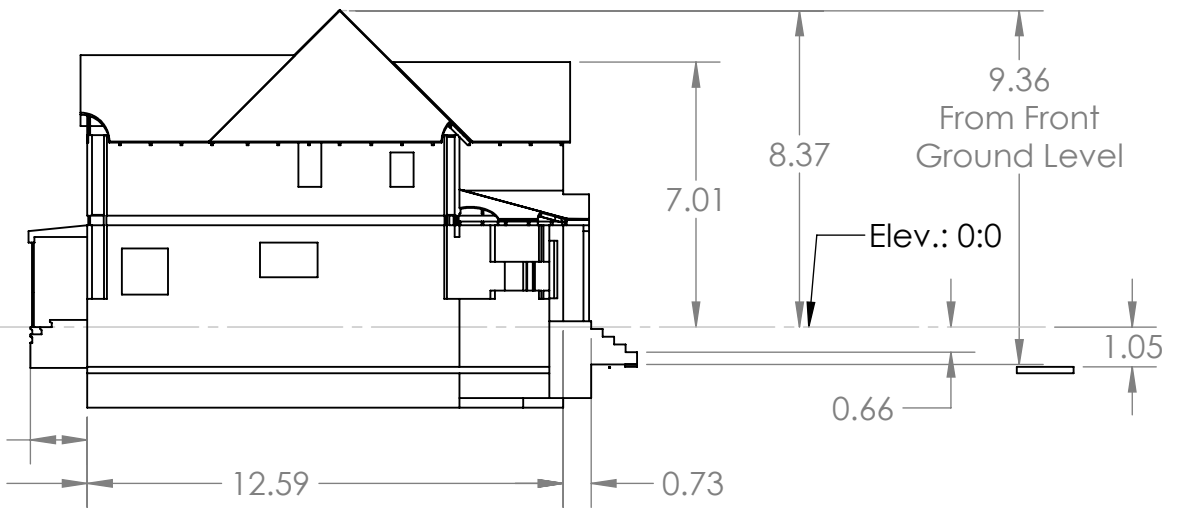
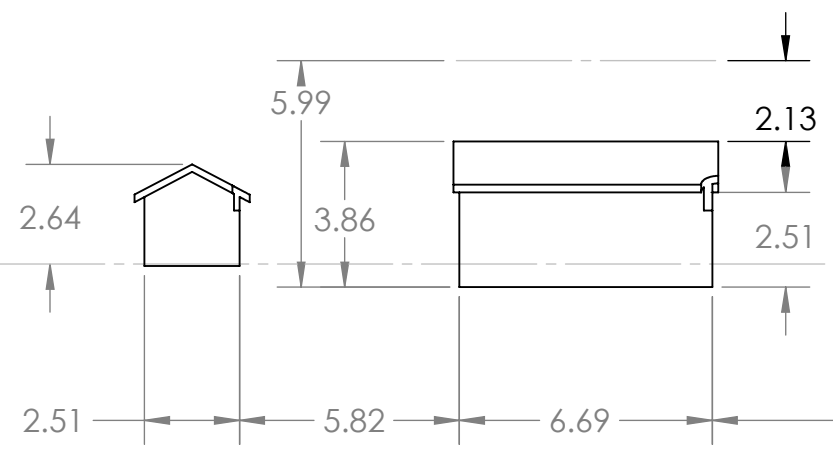
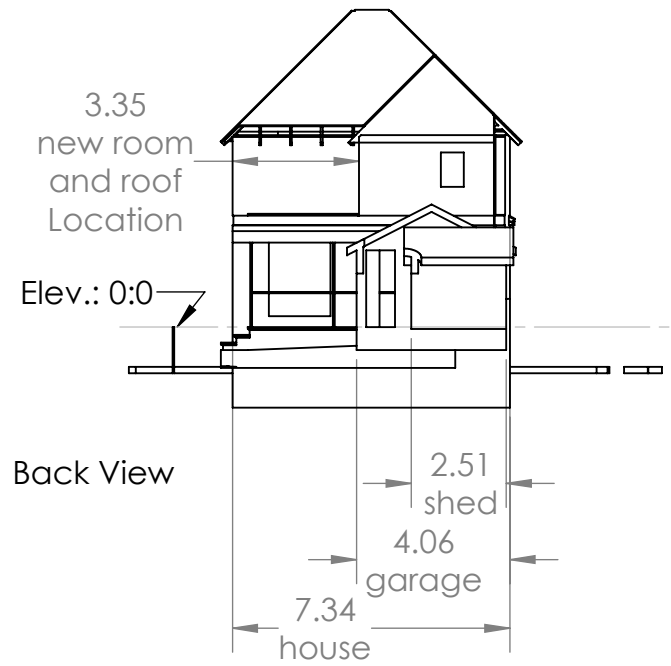
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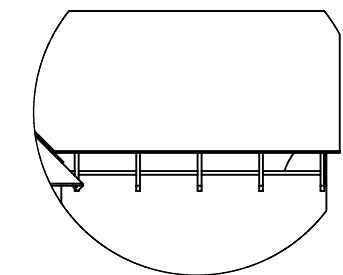
B

B



Left side view

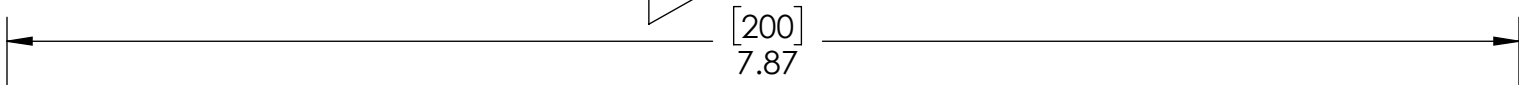
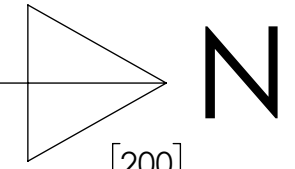
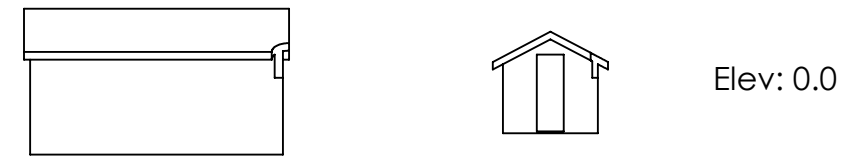
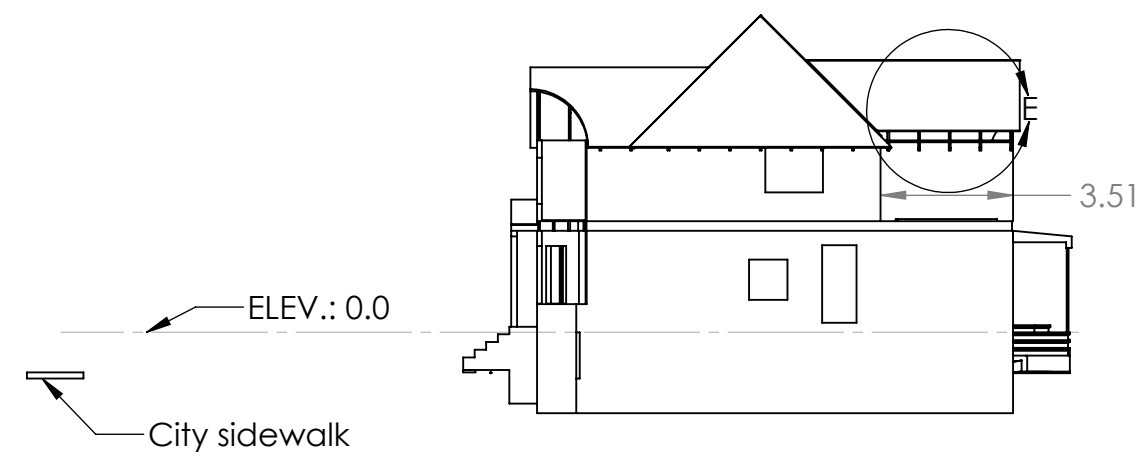
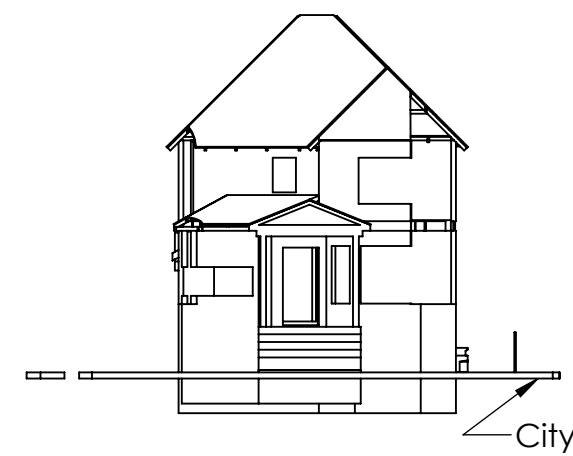
Note 1 : Expose framing are use to identify the location of the new construction and existing framing
 Note 2 : Dimension are provided on the new construction drawings.



DETAIL E
 Existing roof framing
 (to connect with new roof)
 SCALE 1 : 100

A

A



DATE:	March 12, 2024	DETAILS:	For Minor Variance, Zoning and Construction Permit
DATE:	September 20, 2023	DETAILS:	For Construction Permit
DRAWN	GCB	DATE	2023/09/20
CHECKED		TITLE:	Tre Ford - 4430 Ellis Street
ENG APPR.		(subtitle)	Zoning and Elevation
MFG APPR.		File Name and/or DWG. NO.	4430 Ellis DWG rev 3
Units - Inches [mm] - Scale - 1 : 200			REV : 1
			SHEET 5 OF 18

4

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4

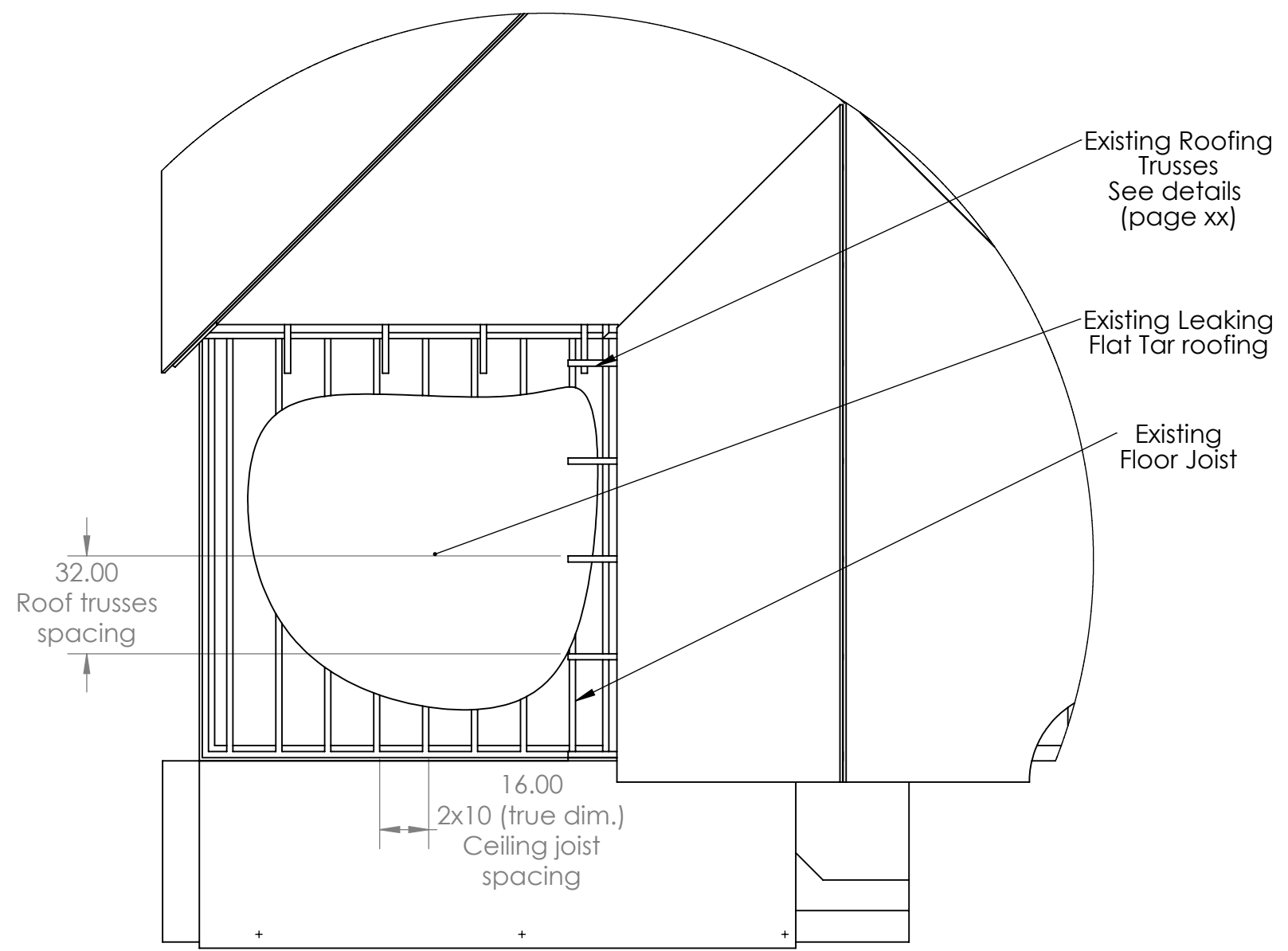
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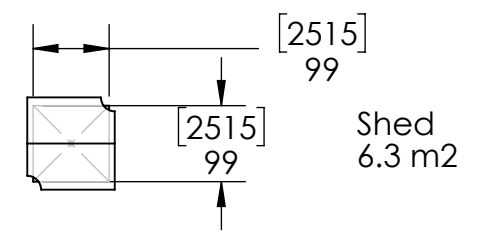
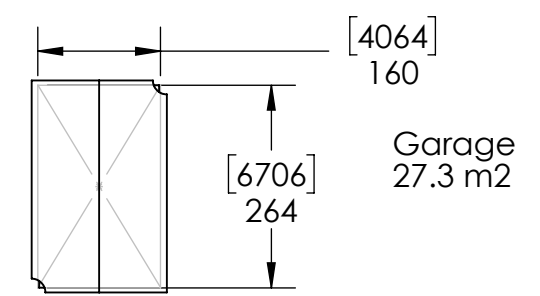
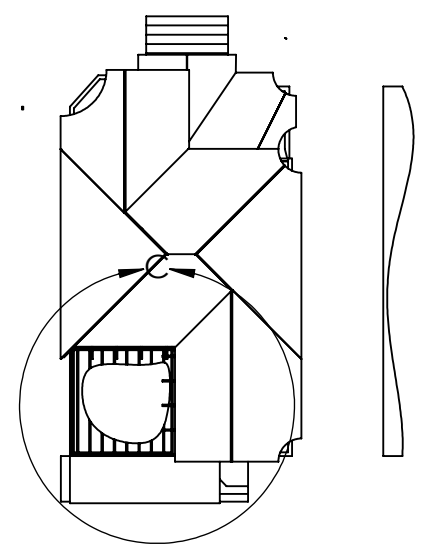
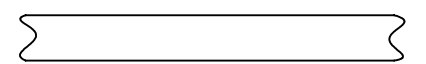
1

B

B



DETAIL C
SCALE 1 : 50



Top View
Construction section
scale 1: 250

A

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1

DATE:	September 20, 2023	DETAILS:	For Construction Permit
DRAWN	GCB	2023/09/20	TITLE: Tre Ford - 4430 Ellis Street
CHECKED			(subtitle) Zoning and Elevation
ENG APPR.			File Name
MFG APPR.			4430 Ellis DWG rev 3
Units - Inches [mm] - Scale (see dwg.)			DWG. NO.
			REV : 1
			SHEET 6 OF 18

4

3

2

1

Basic surface sketch and dimension

Covered Porch
Surface Area
3.8 m²

Main floor
Surface Area
Outside perimeter
88.1 m²
Inside perimeter
82.7 m²

Basement
Surface Area
Outside Perimeter
72.7 m²
Inside Perimeter
69.0 m²

Second Floor
Surface Area
Outside Perimeter
69.1 m²
Inside Perimeter
63.3 m²

Covered Porch
Surface Area
6.8 m²

Uncovered Porch
Surface Area
1.4 m²

New Renovated/
Altered Surface Area
11.8 m²

Alteration
Surface Area
14.3 m²

[12594]
496

[3353]
132

[3905]
154

[3505]
138

[3658]
144

289.00
(7.3 m)

B

B

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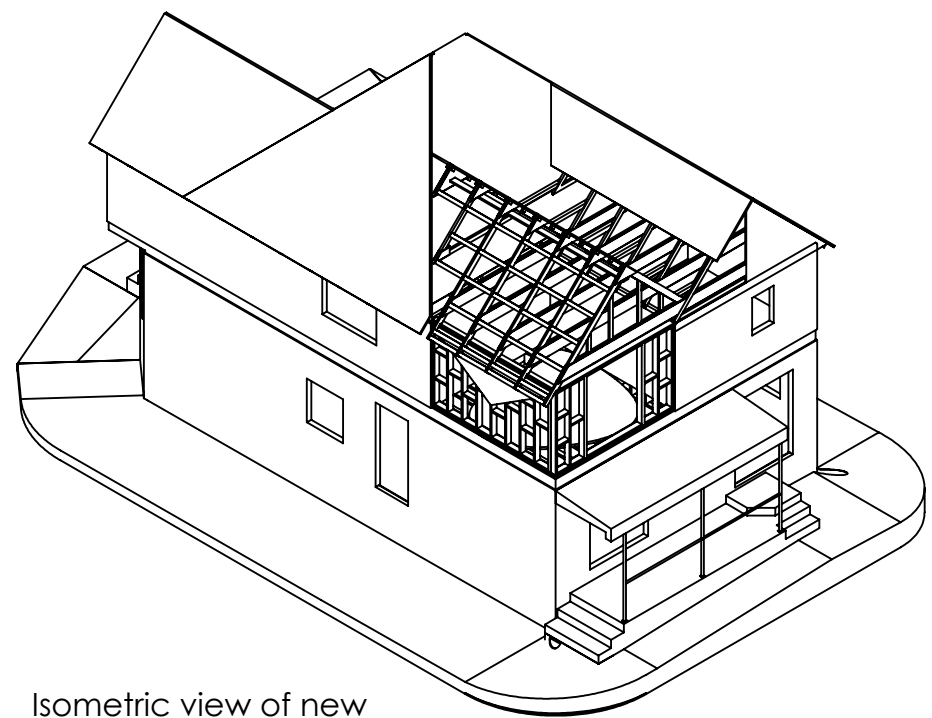
DATE: September 20, 2023		DETAILS: For Construction Permit	
DRAWN	NAME	DATE	TITLE:
CHECKED	GCB	2023/09/20	Tre Ford - 4430 Ellis Street
ENG APPR.			(Surface Area Calculation)
MFG APPR.			File Name
			4430 Ellis DWG rev 3
Units - Inches [mm] - Scale - 1 : 72			REV : 1
			SHEET 7 OF 18

4

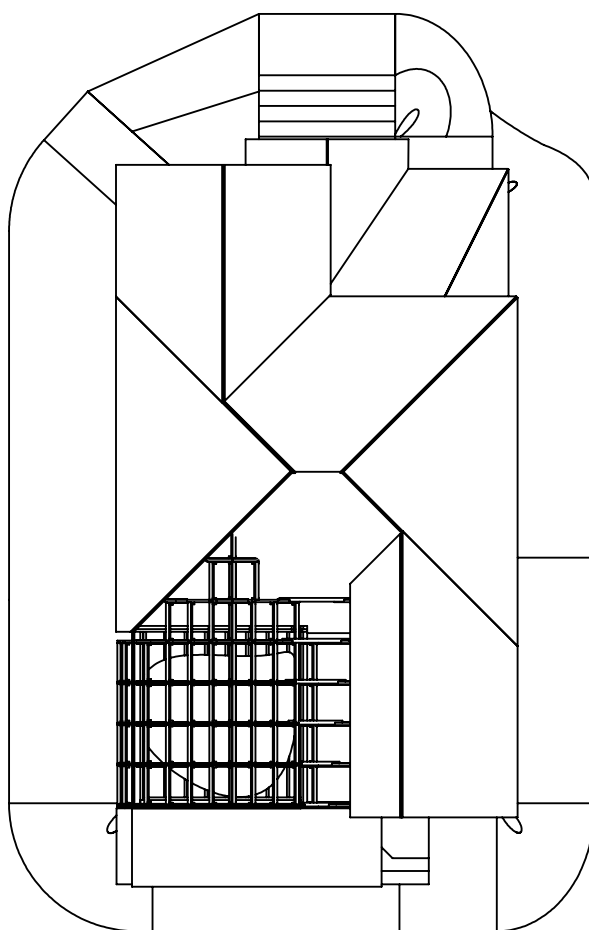
3

2

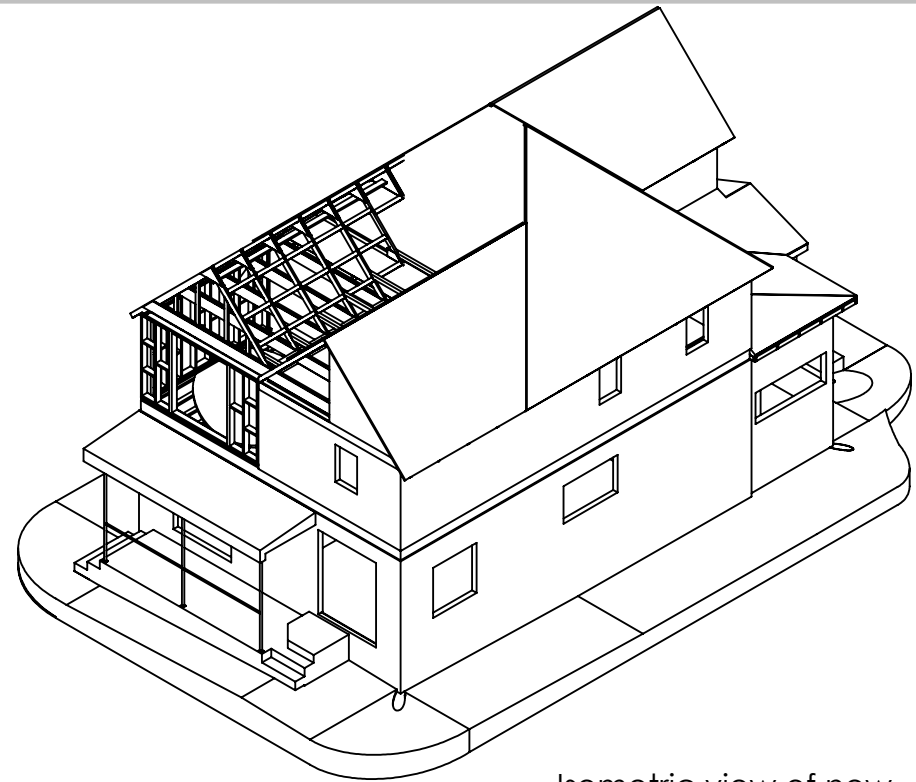
1



Isometric view of new
roof and wall framing
from left hand side



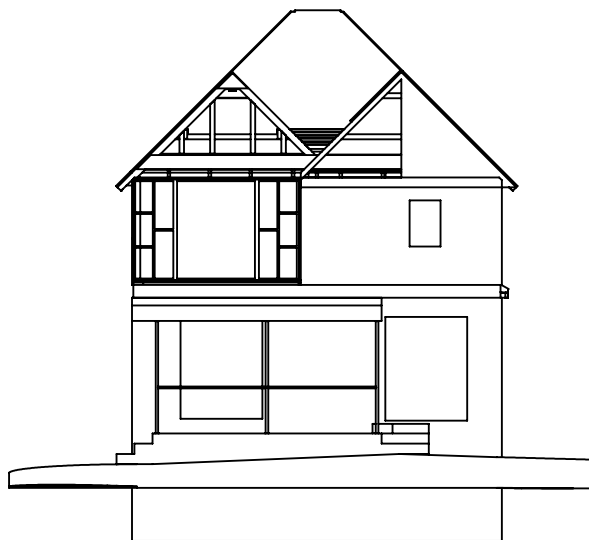
Top view
New roof and wall framing



Isometric view of new
roof and wall framing
from right hand side



Left side view
New roof and wall framing



Back view
New roof and wall framing

DATE: September 20, 2023		DETAILS: For Construction Permit	
DRAWN	NAME	DATE	TITLE:
CHECKED	GCB	2023/09/20	Tre Ford - 4430 Ellis Street
ENG APPR.			(subtitle)
MFG APPR.			(New construction - Roof and wall framing)
Units - Inches [mm] - Scale - 1 : 144			File Name
			and/or
			DWG. NO.
			4430 Ellis DWG rev 3
			REV : 1
			SHEET 8 OF 18

4

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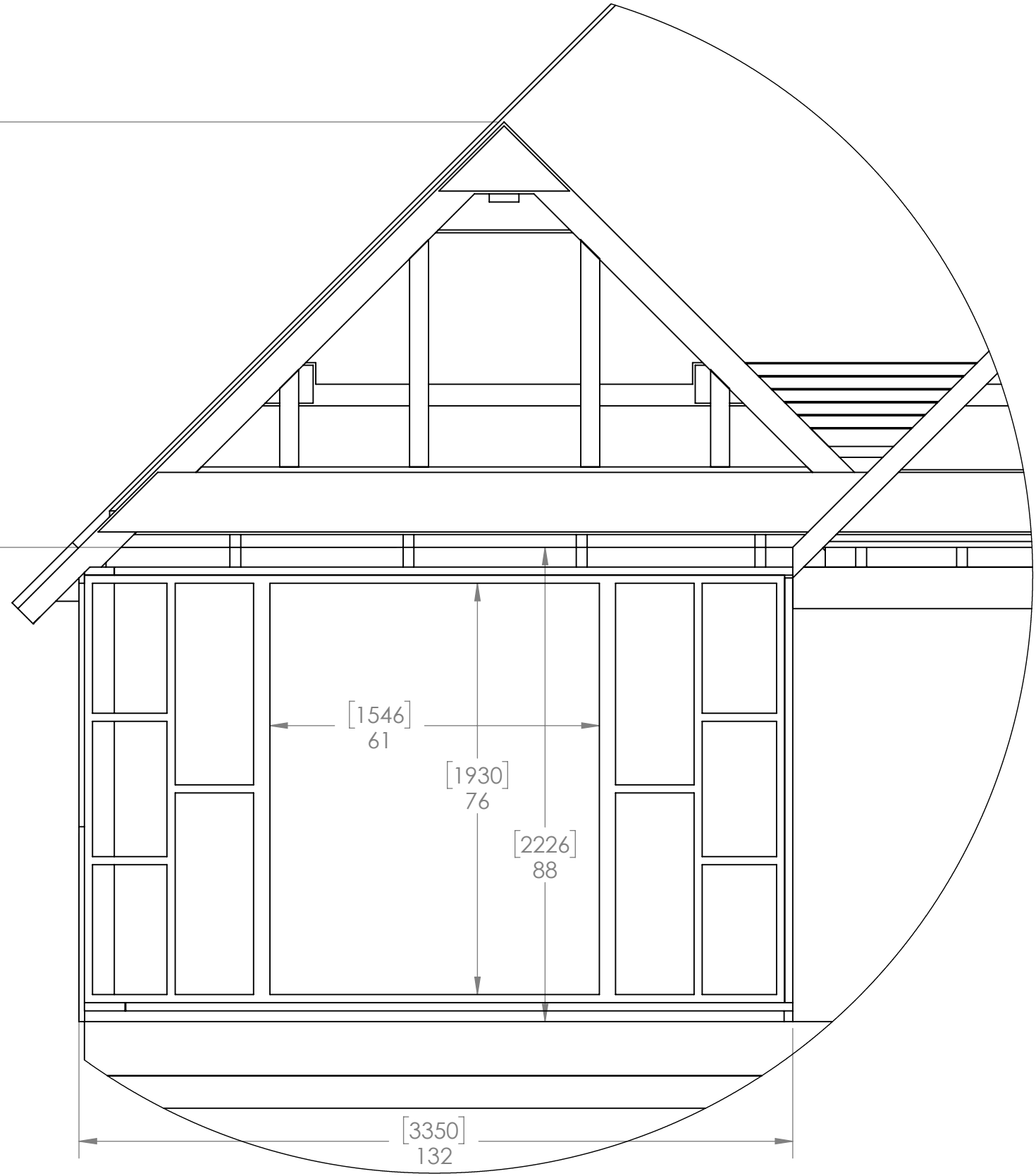
2

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B

B

[1996]
79



DETAIL D
SCALE 1 : 25

4

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A

A



Back view
New roof and wall framing
scale 1:100

DATE:	September 20, 2023	DETAILS:	For Construction Permit
DRAWN	GCB	2023/09/20	TITLE: Tre Ford - 4430 Ellis Street
CHECKED			(subtitle) (Back view of new roof and wall framing)
ENG APPR.			File Name
MFG APPR.			and/or
Units - Inches [mm]- Scale (see dwg.)			DWG. NO. 4430 Ellis DWG rev 3
			REV : 1
			SHEET 9 OF 18

4

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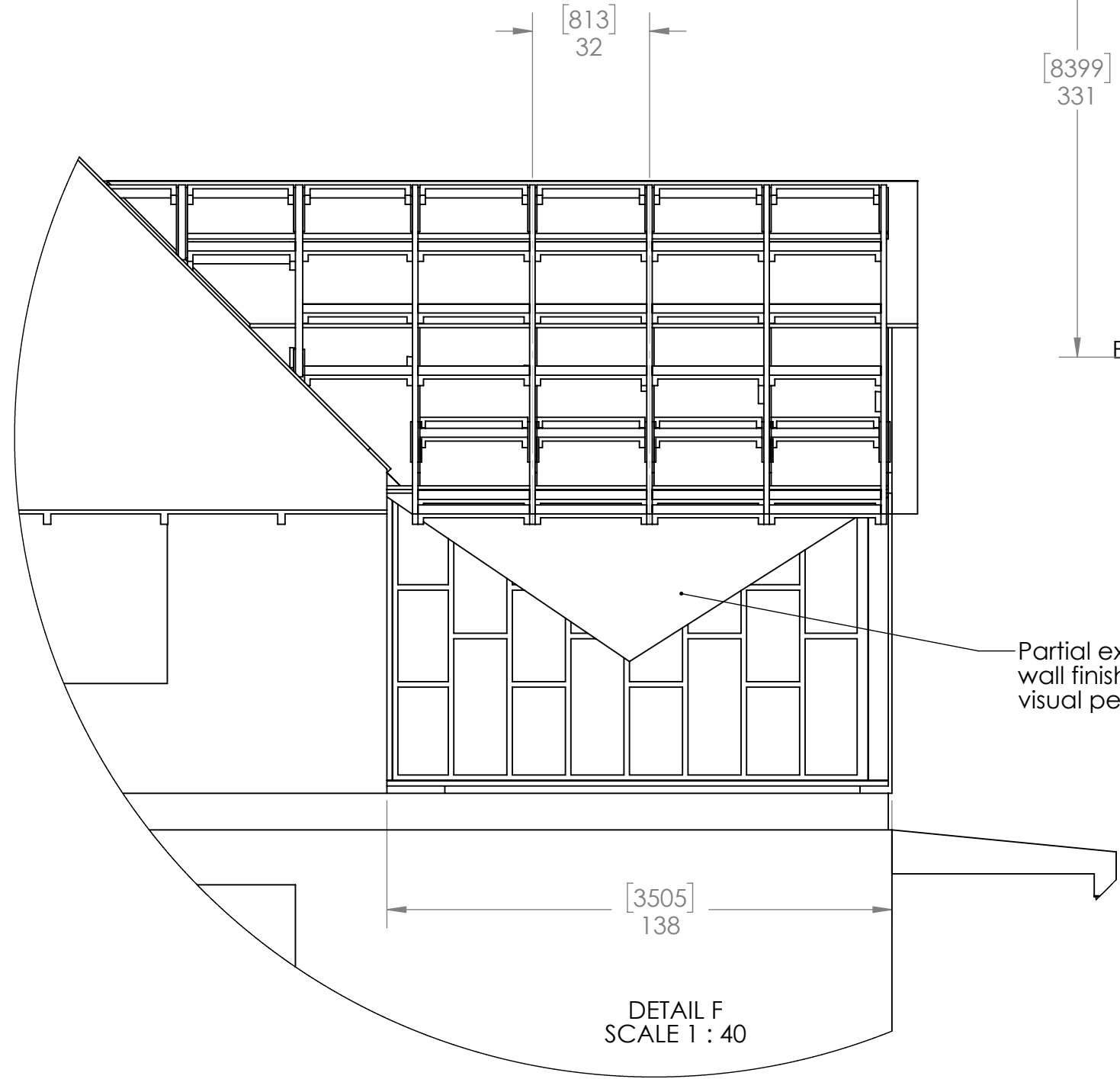
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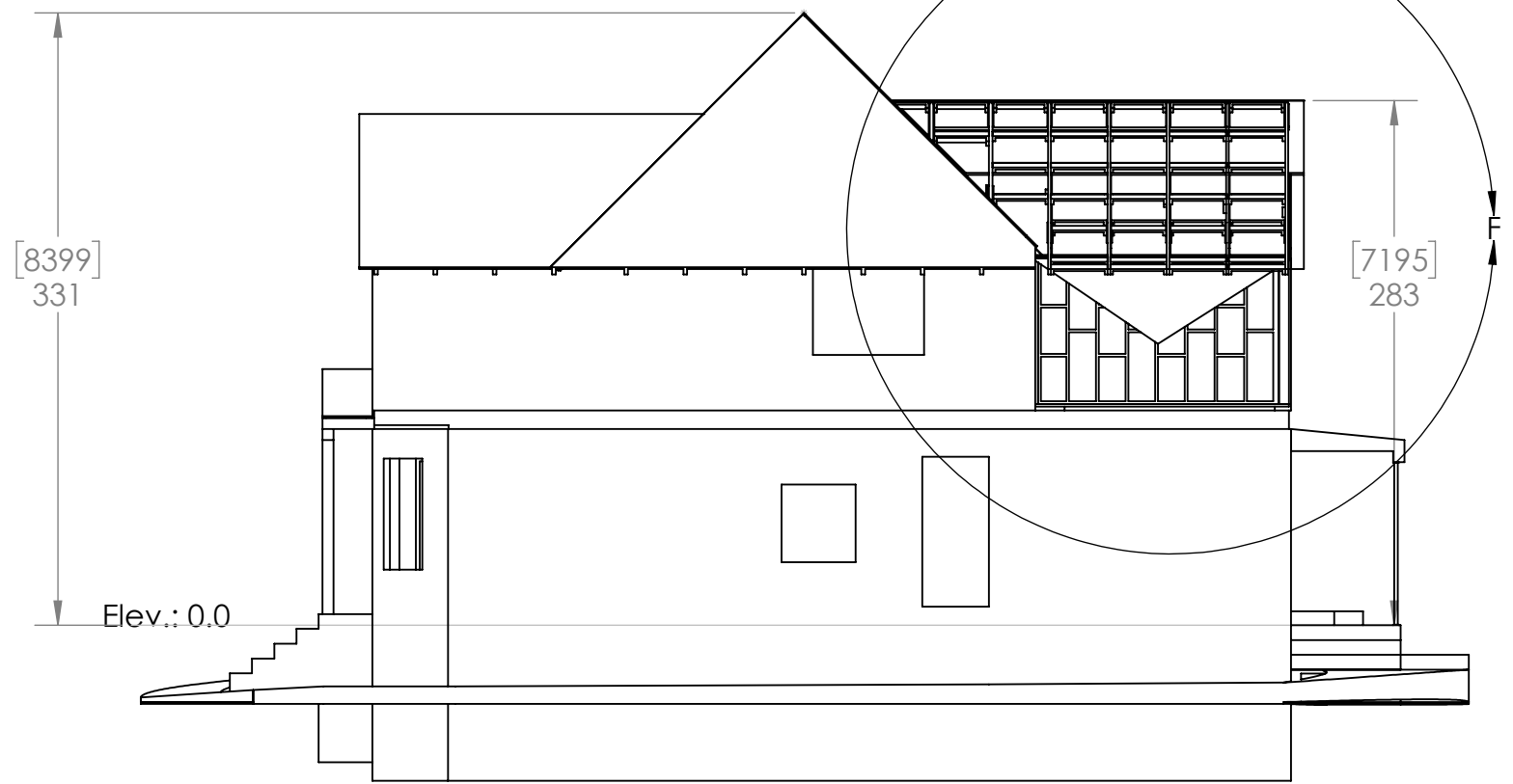
B

A

A



Partial exterior wall finish for visual perspective



Right side
Scale - 1:100

Elev.: 0.0

DATE: September 20, 2023		DETAILS: For Construction Permit	
NAME	DATE	TITLE:	Tre Ford - 4430 Ellis Street
DRAWN GCB	2023/09/20	(subtitle)	(Side view of new roof and wall framing)
CHECKED		File Name	4430 Ellis DWG rev 3
ENG APPR.		and/or	
MFG APPR.		DWG. NO.	
Units - Inches - Scale as shown			REV : 1
			SHEET 10 OF 13

4

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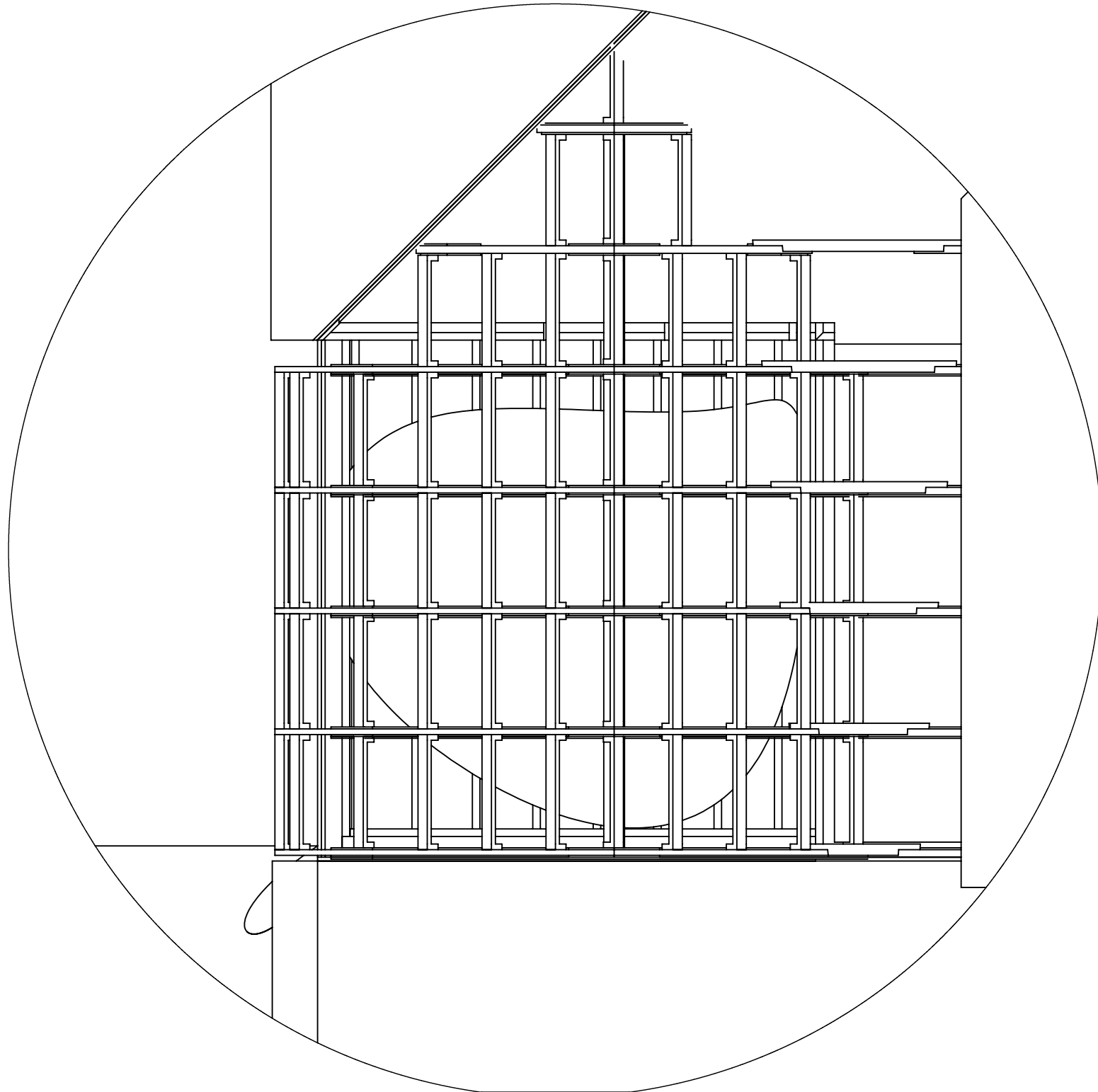
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B

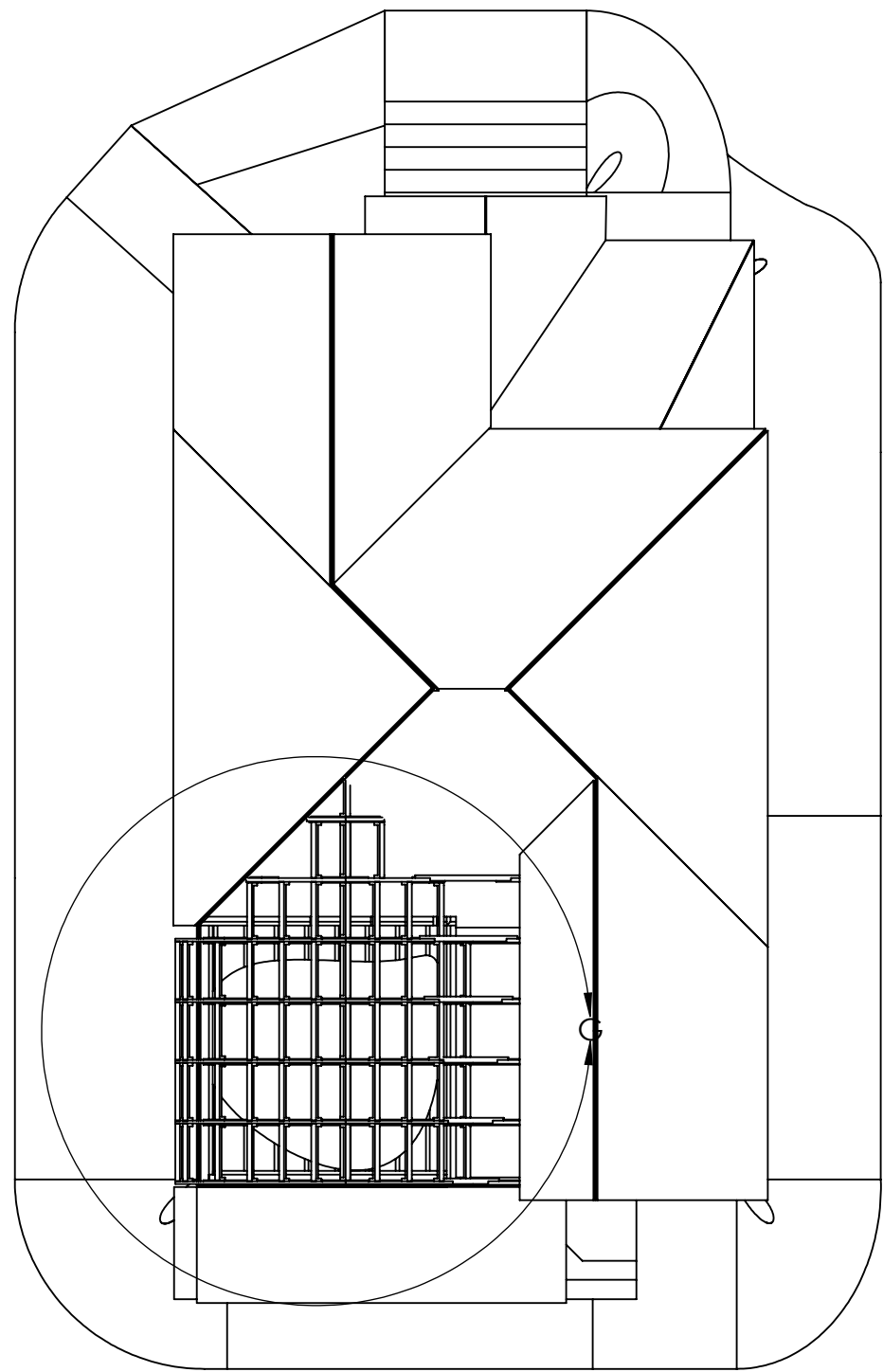
B

A

A



DETAIL G
SCALE 1 : 36



Top View
Scale : 1:96

DATE: September 20, 2023		DETAILS: For Construction Permit	
DRAWN	GCB	2023/09/20	TITLE: Tre Ford - 4430 Ellis Street
CHECKED			(subtitle) (Top view of new roof and wall framing)
ENG APPR.			File Name
MFG APPR.			and/or
Units - Inches [mm] - Scale [see dwg.]			DWG. NO. 4430 Ellis DWG rev 3
			REV : 1
			SHEET 11 OF 18

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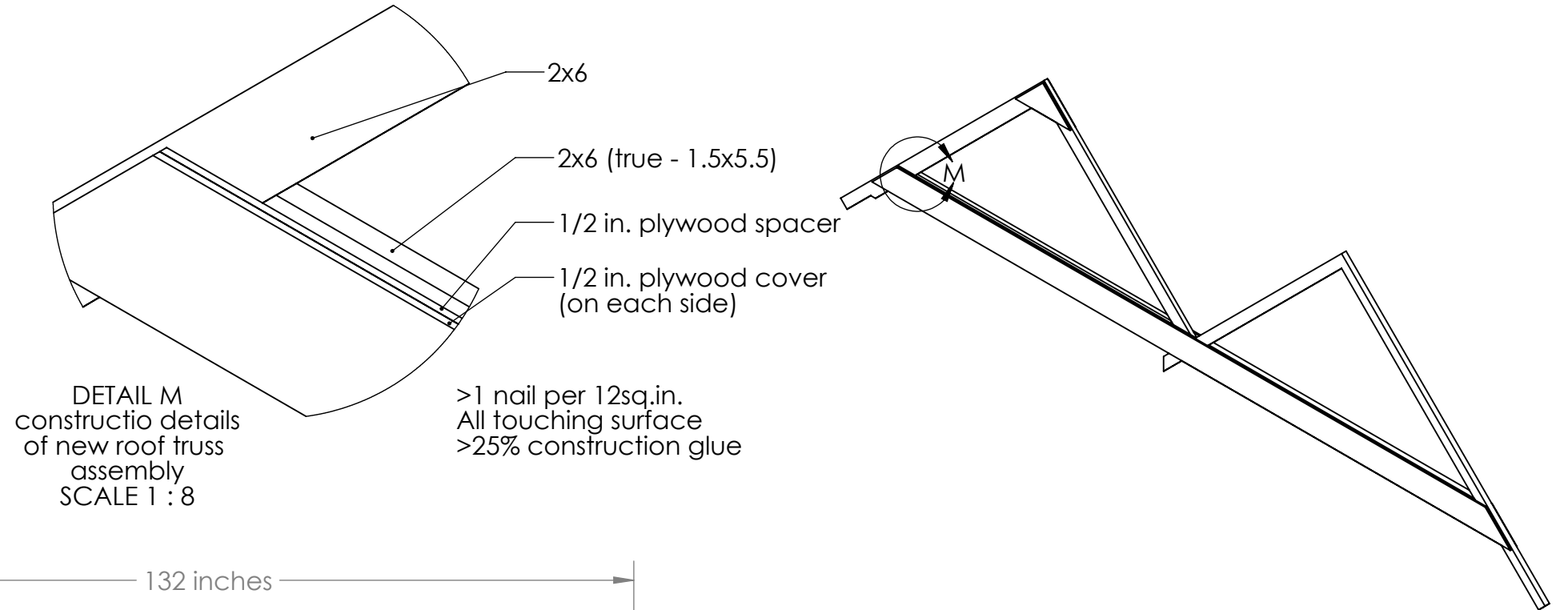
1

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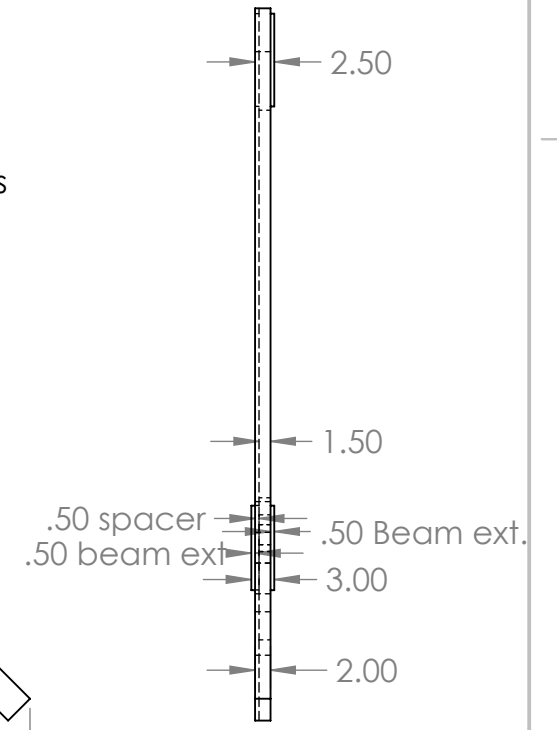
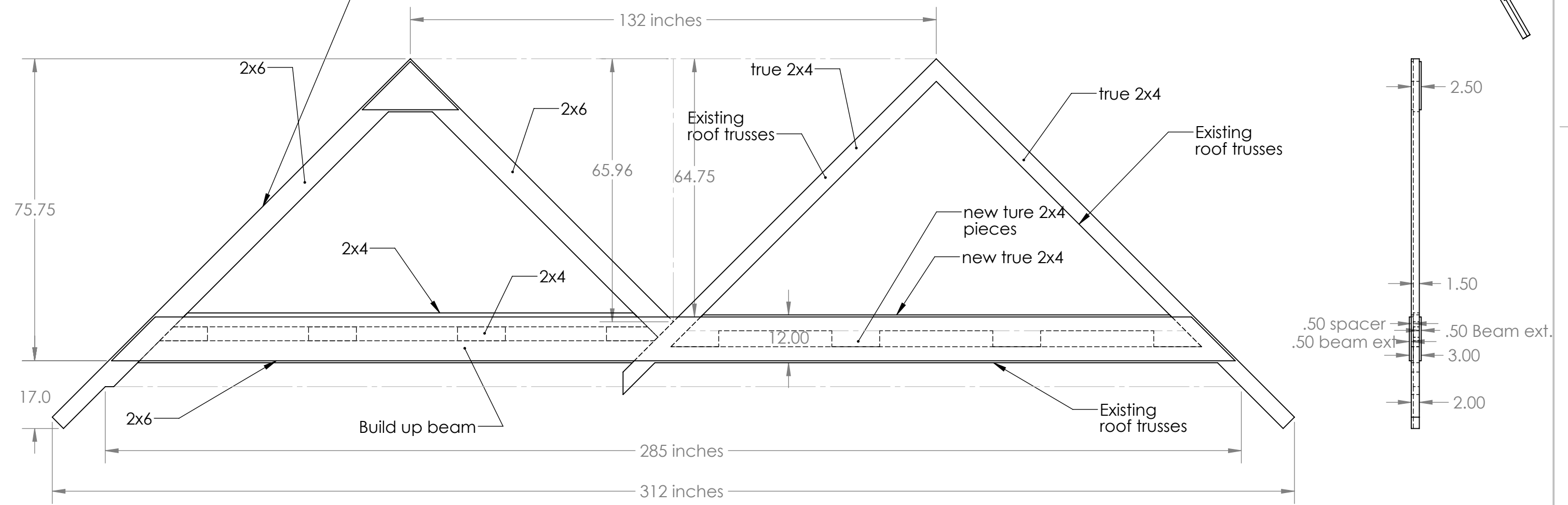
A



DETAIL M
constructio details
of new roof truss
assembly
SCALE 1 : 8

>1 nail per 12sq.in.
All touching surface
>25% construction glue

new truss design and attachment to existing



New roof truss
assebly and build
beam
Scale 1:25

DATE: September 20, 2023		DETAILS: For Construction Permit	
DRAWN	GCB	DATE	2023/09/20
CHECKED		TITLE:	Tre Ford - 4430 Ellis Street
ENG APPR.		(subtitle)	(New roof truss fabrication assembly)
MFG APPR.		File Name	4430 Ellis DWG rev 3
Units - Inches [mm]- Scale [see dwg.]		DWG. NO.	REV : 1
			SHEET 12 OF 18

4

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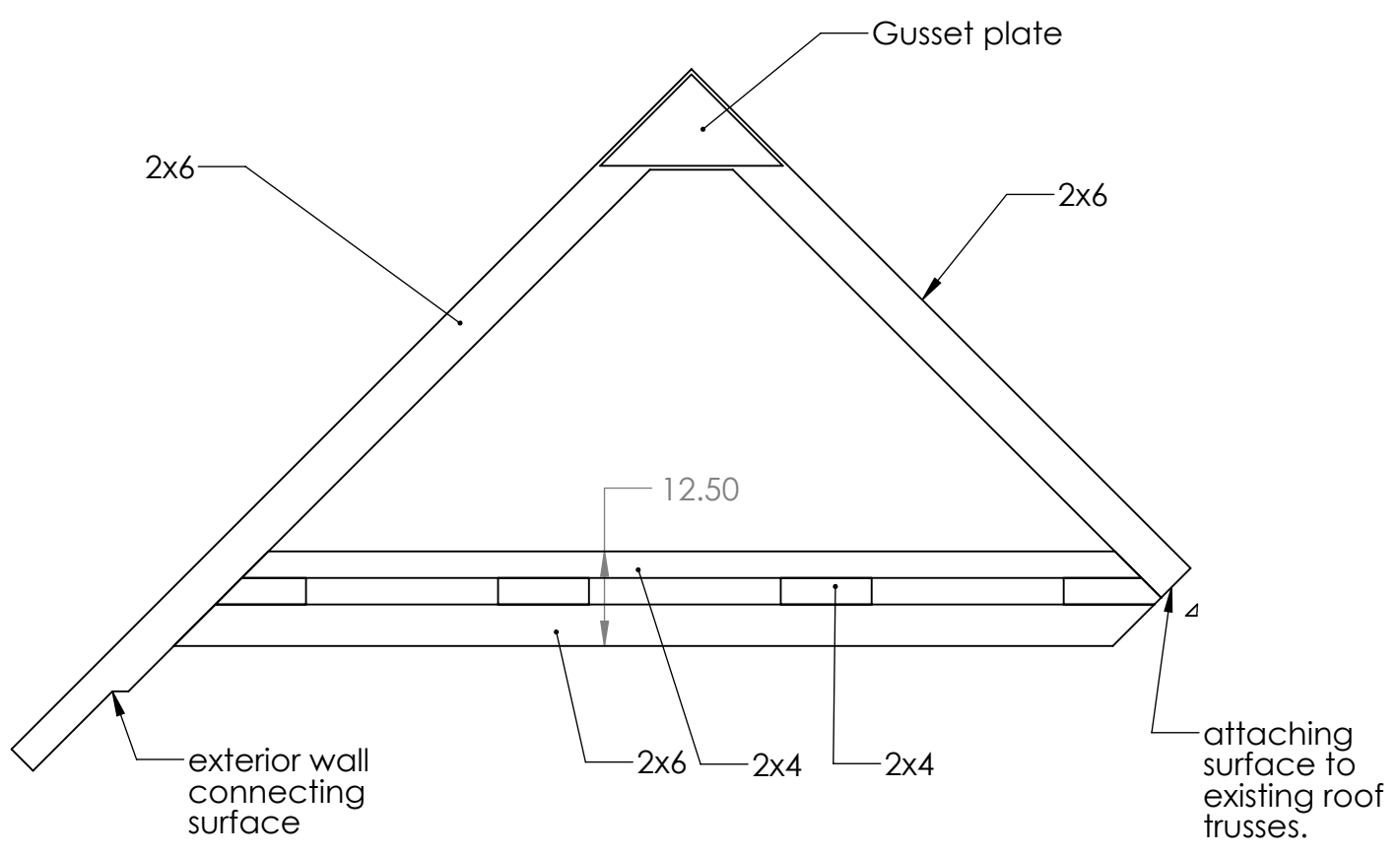
1

B

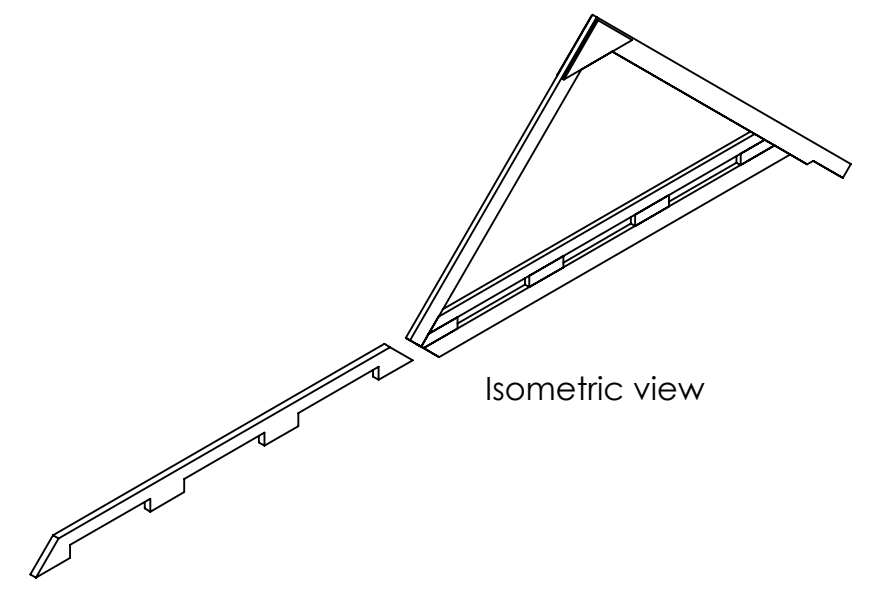
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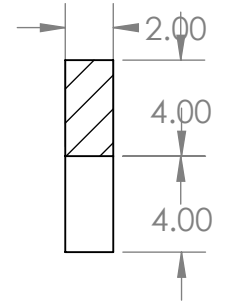
A



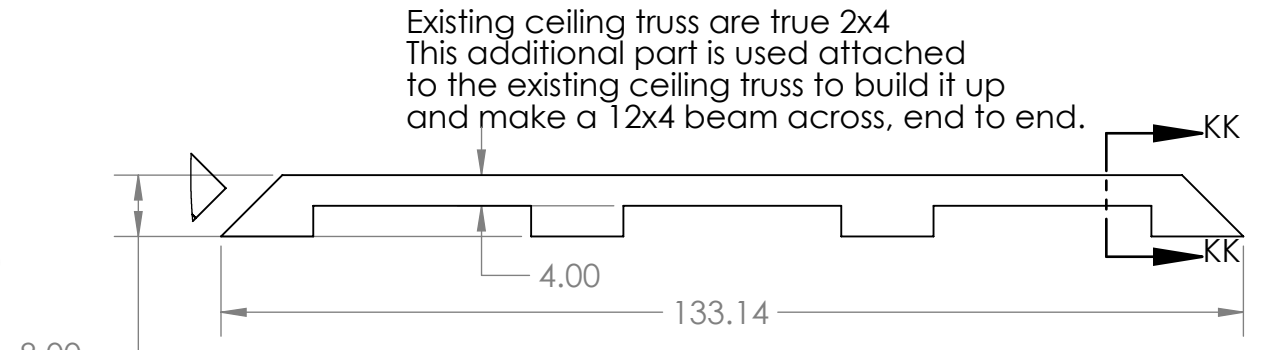
DETAIL L
SCALE 1 : 25



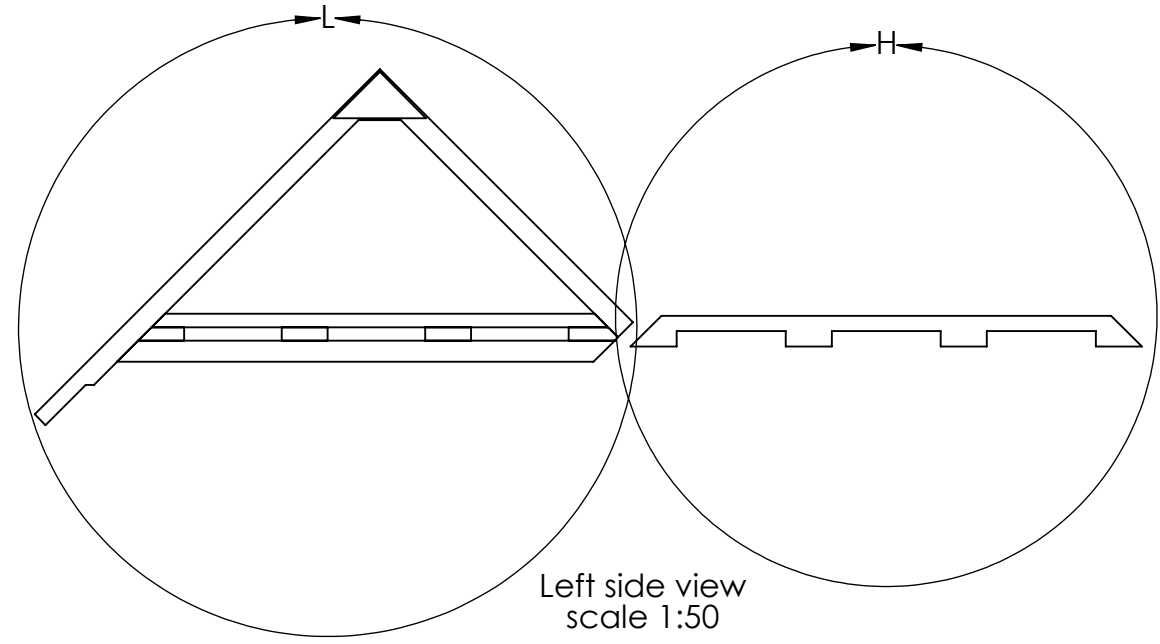
Isometric view



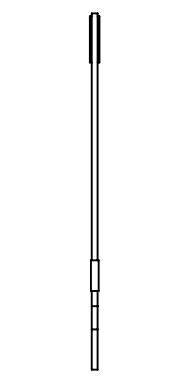
SECTION KK
SCALE 1 : 8



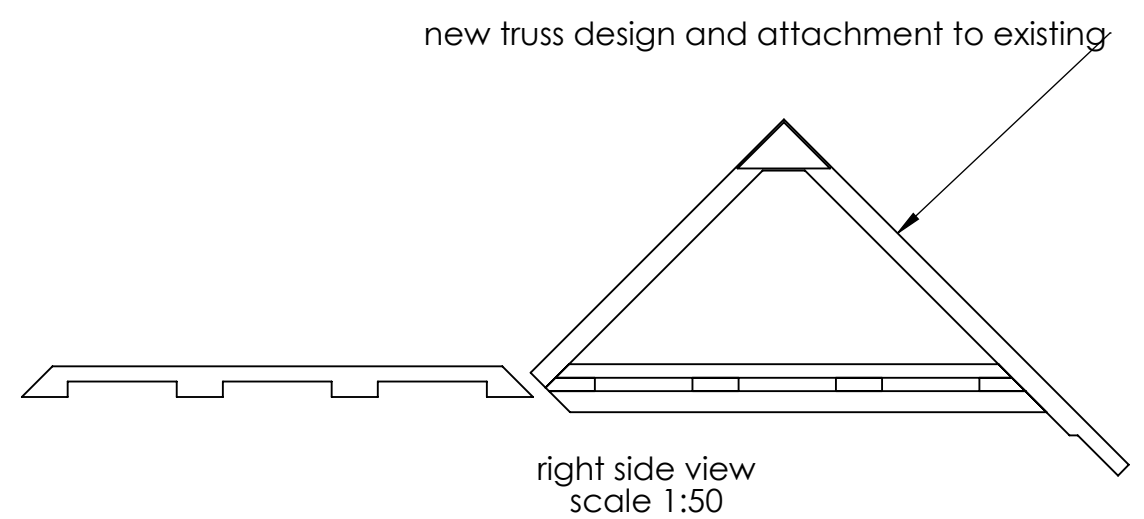
DETAIL H
(existing roof truss framing beam part)
SCALE 1 : 25



Left side view
scale 1:50



Front view
scale 1:50



right side view
scale 1:50

DATE: September 20, 2023		DETAILS: For Construction Permit	
DRAWN	GCB	2023/09/20	TITLE: Tre Ford - 4430 Ellis Street
CHECKED			(subtitle) (Roof truss frame fabrication assembly)
ENG APPR.			File Name and/or DWG. NO. 4430 Ellis DWG rev 3
MFG APPR.			REV : 1
Units - Inches [mm]- Scale [see dwg.]			SHEET 13 OF 18

4

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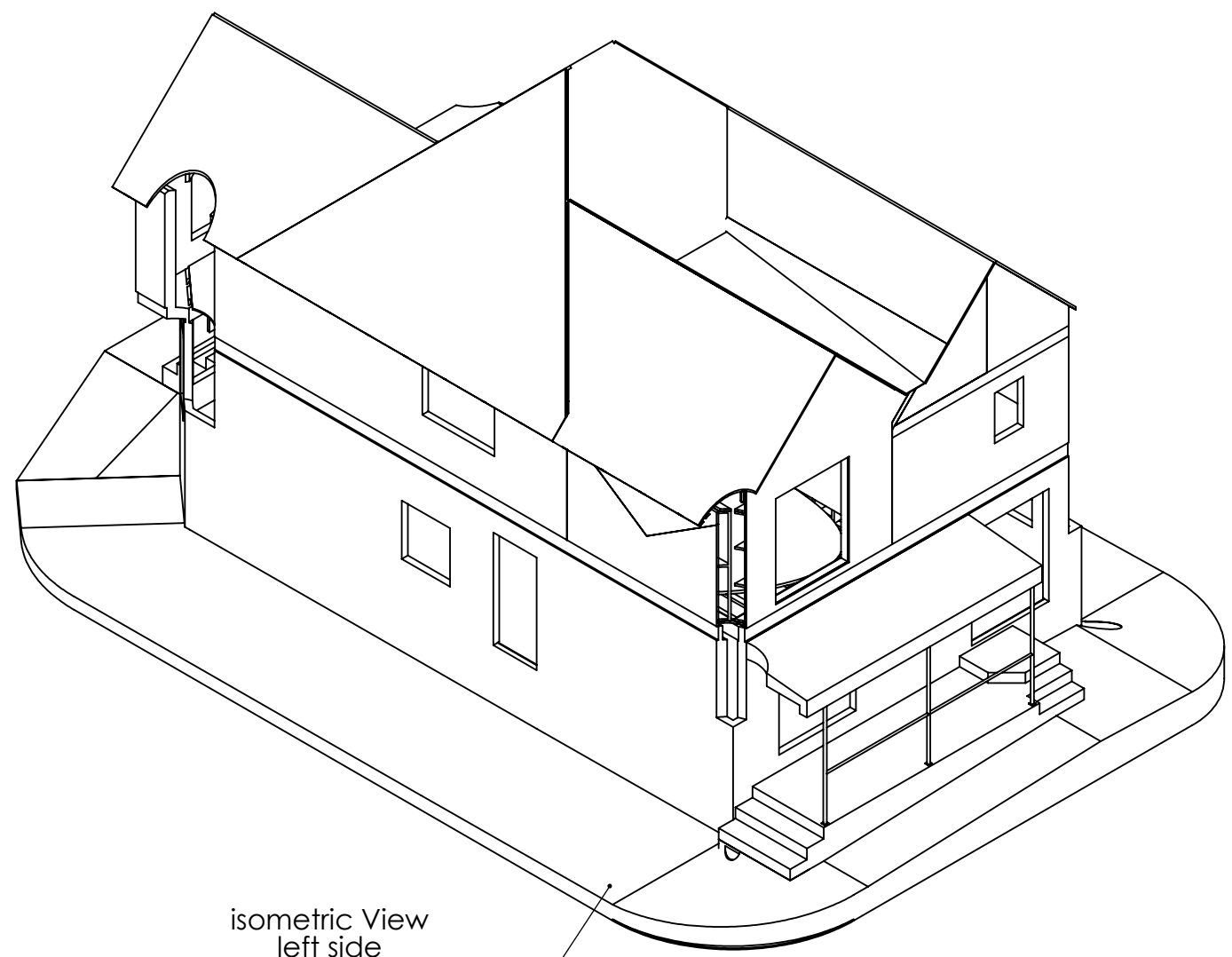
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2

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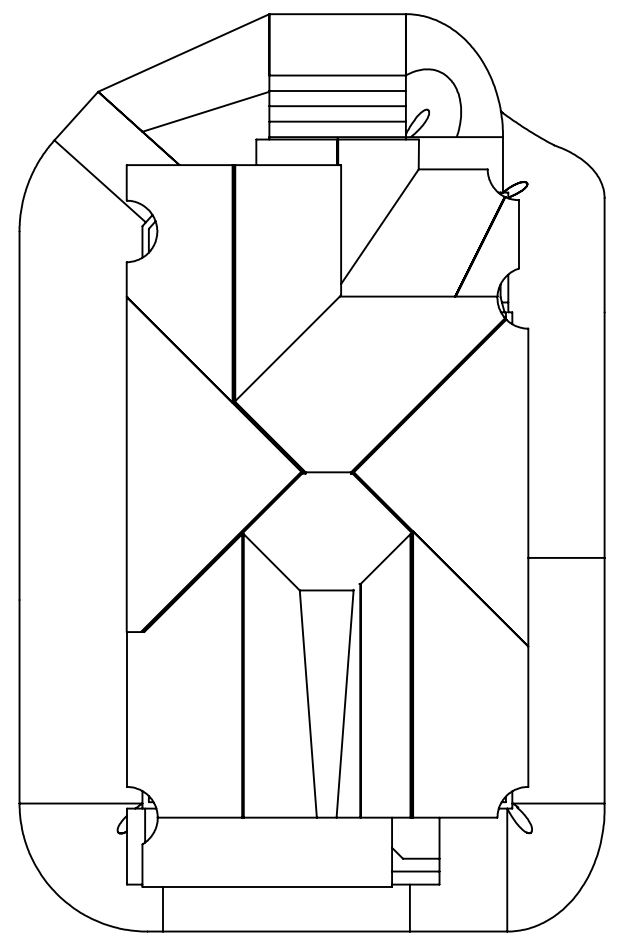
B

B



isometric View
left side
scale 1:100

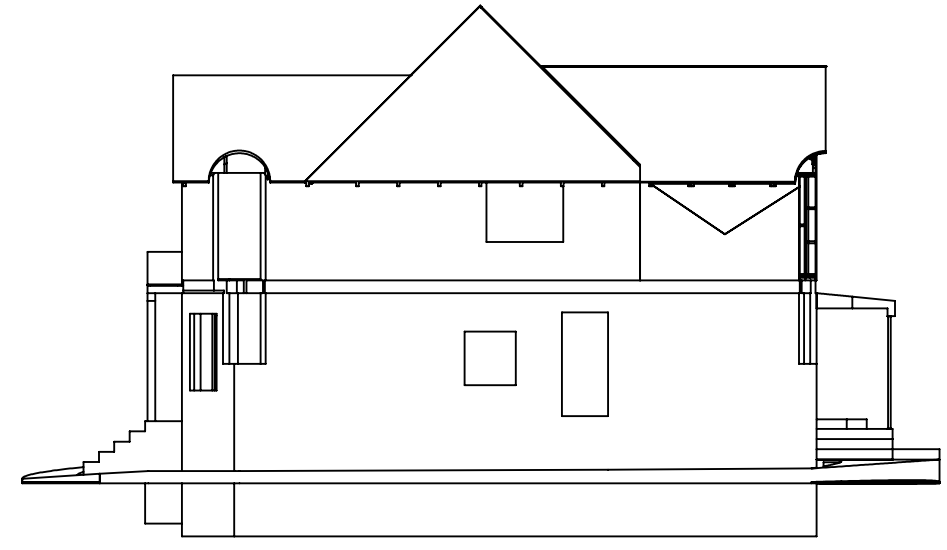
final - 4430 Ellis - original structure



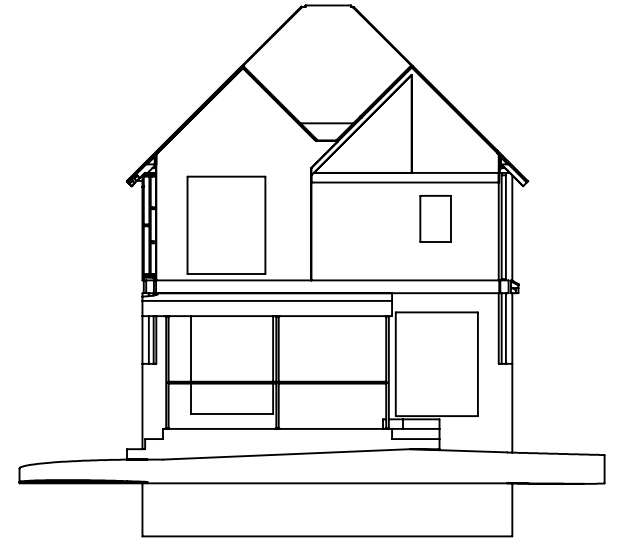
Top View
Scale 1:150

A

A



Right Side View
Scale 1:150



Back View
Scale 1:150

4

3

2

1

DATE: September 20, 2023		DETAILS: For Construction Permit	
DRAWN	NAME	DATE	TITLE:
CHECKED	GCB	2023/09/20	Tre Ford - 4430 Ellis Street
ENG APPR.			(Completed Structure)
MFG APPR.			File Name
Units - Inches [mm]- Scale [see dwg.]			and/or
			DWG. NO.
			4430 Ellis DWG rev 3
			REV : 1
			SHEET 14 OF 18

4

3

2

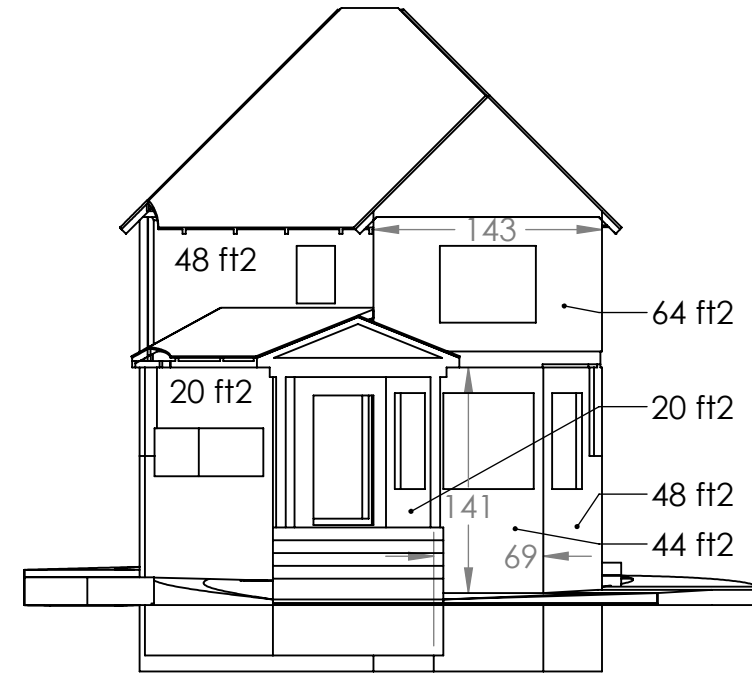
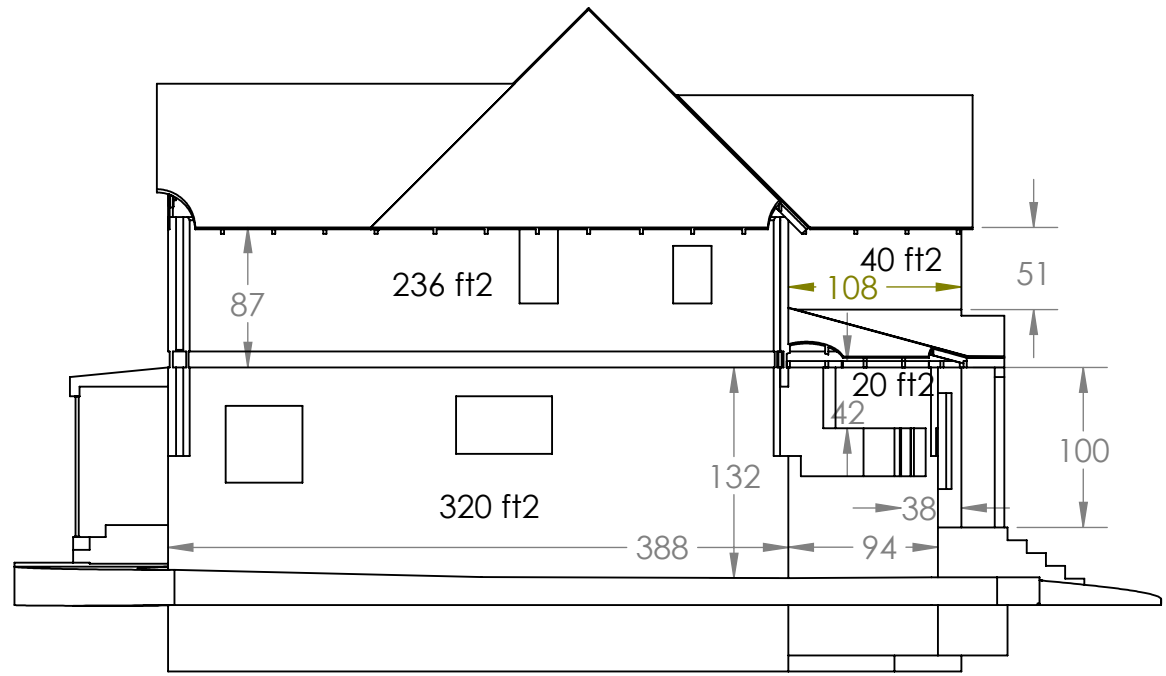
1

B

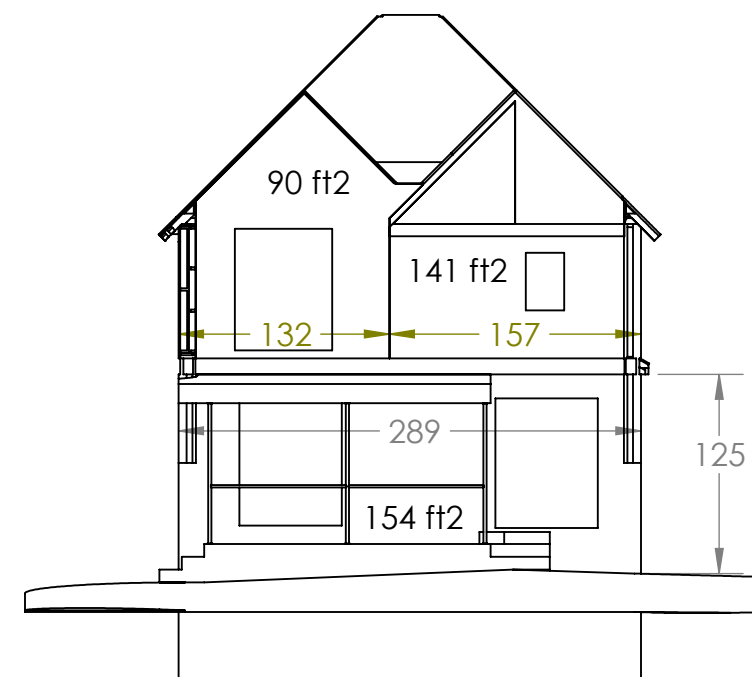
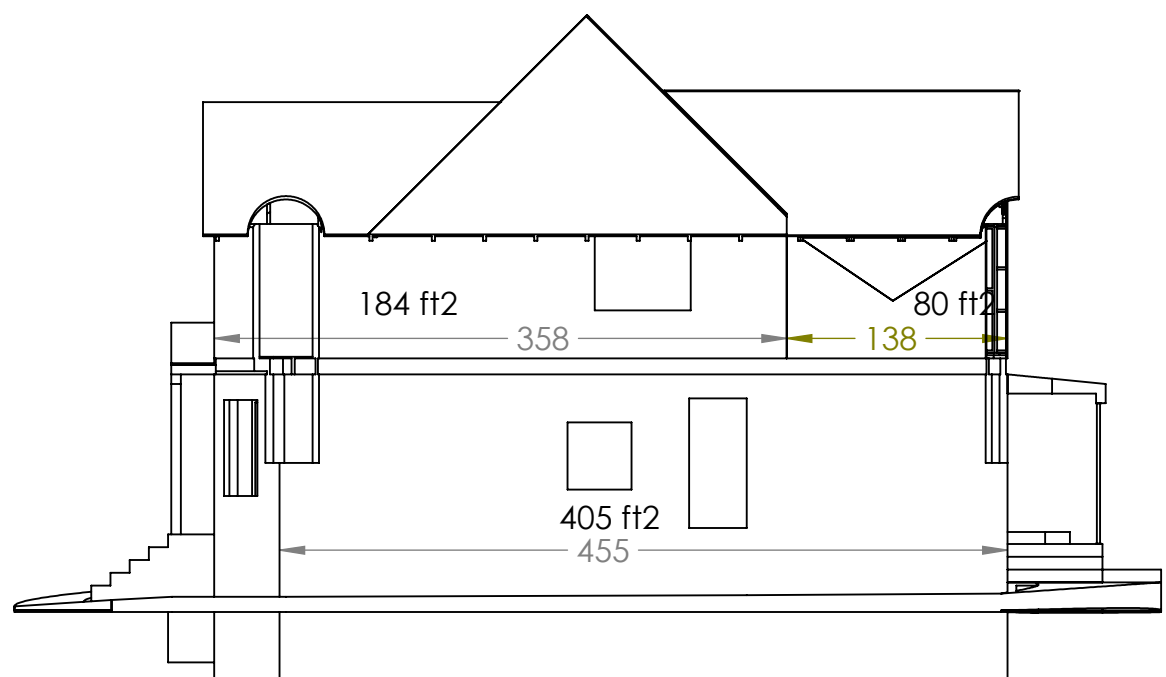
B

A

A



1	236 ft²
2	40 ft²
3	320 ft²
4	20 ft²
5	184 ft²
6	405 ft²
7	80 ft²
8	48 ft²
9	64 ft²
10	20 ft²
11	20 ft²
12	48 ft²
13	90 ft²
14	141 ft²
15	154 ft²
16	44 ft²
<hr/>	
TT	1914 ft²



DATE:	September 20, 2023	DETAILS:	For Construction Permit
DRAWN	GCB	TITLE:	Tre Ford - 4430 Ellis Street
CHECKED		(subtitle)	(Exterior wall surfaces dimensions information)
ENG APPR.		File Name	4430 Ellis DWG rev 3
MFG APPR.		and/or	
Units - Inches [mm] - Scale - 1:120		DWG. NO.	REV : 1
			SHEET 15 OF 18

4

3

2

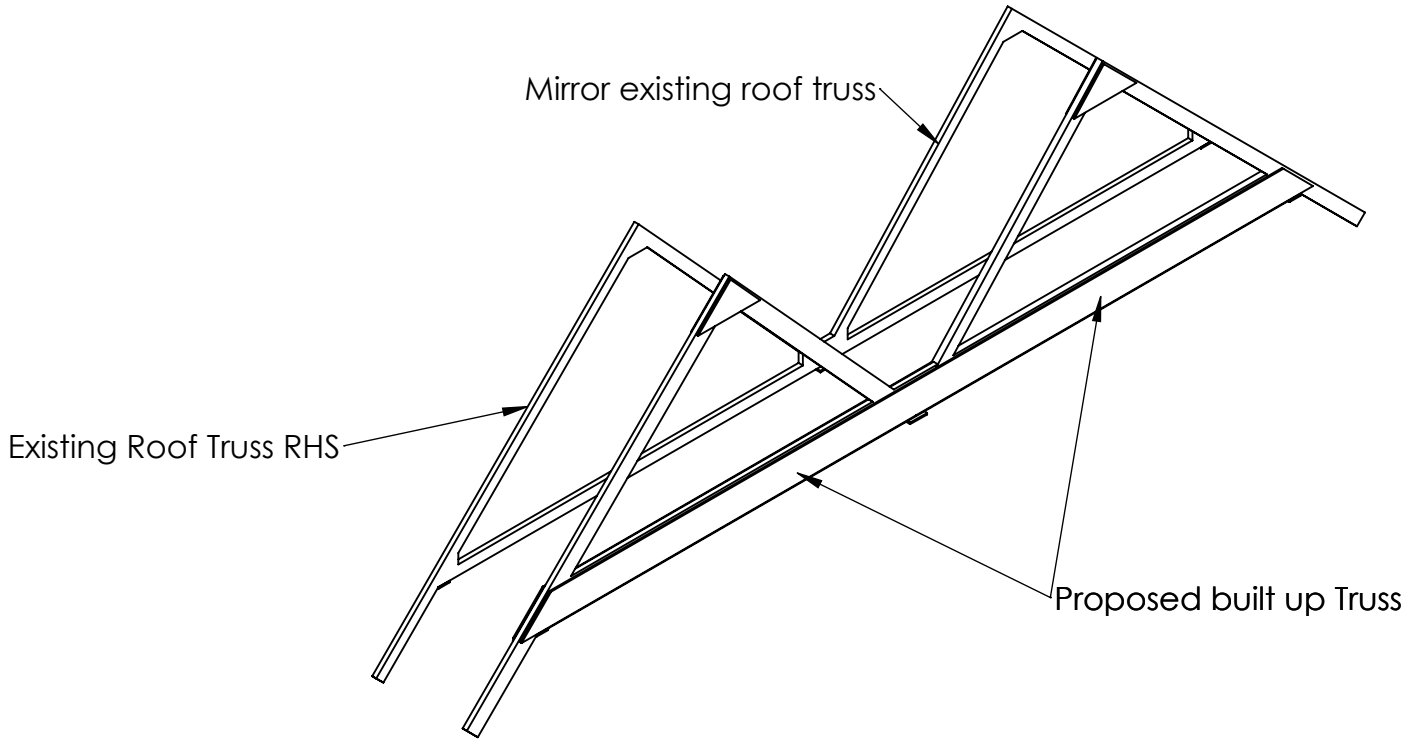
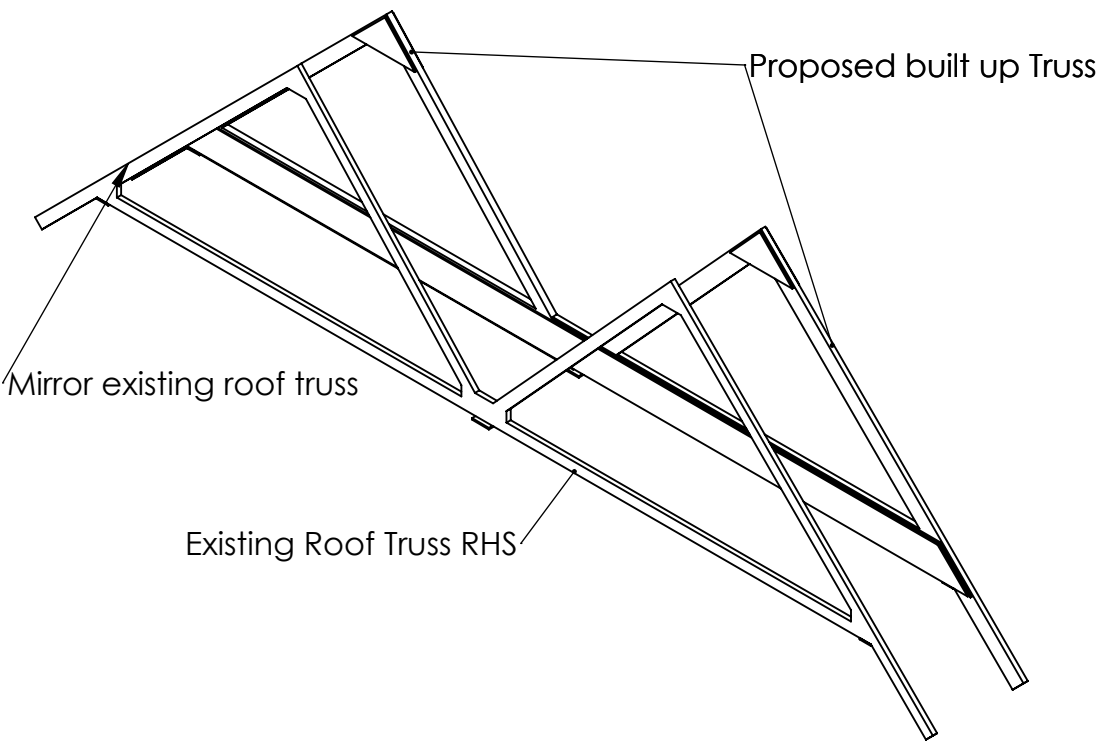
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3

2

1

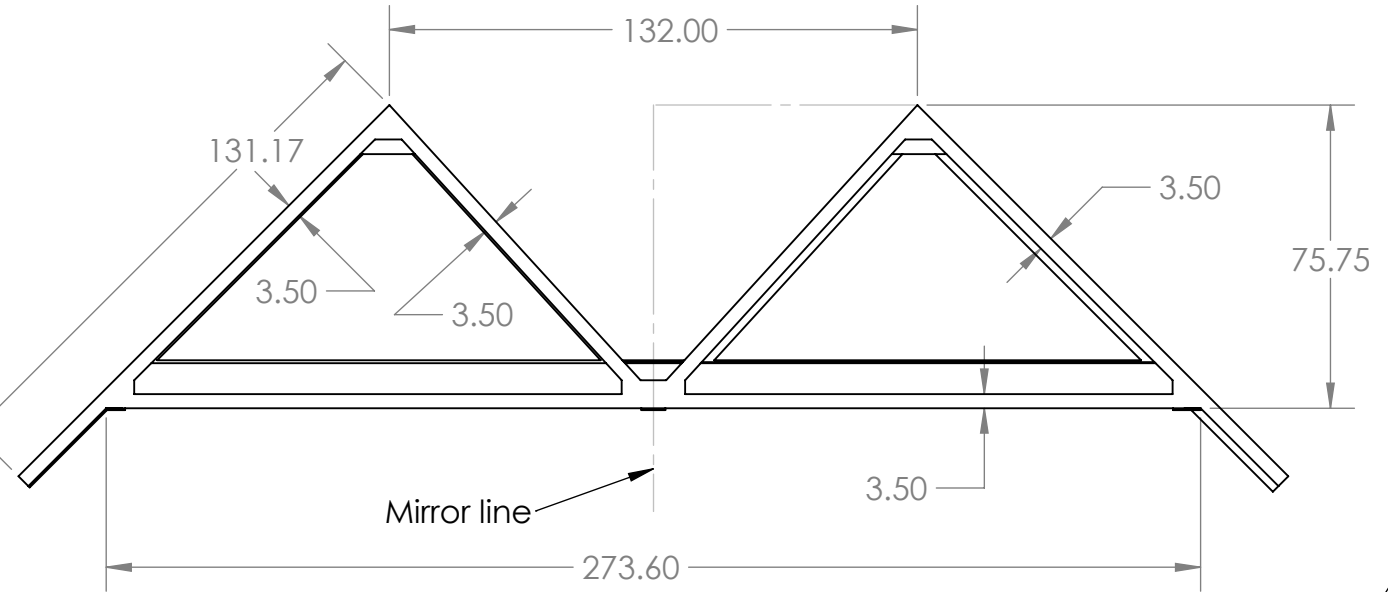


B

B

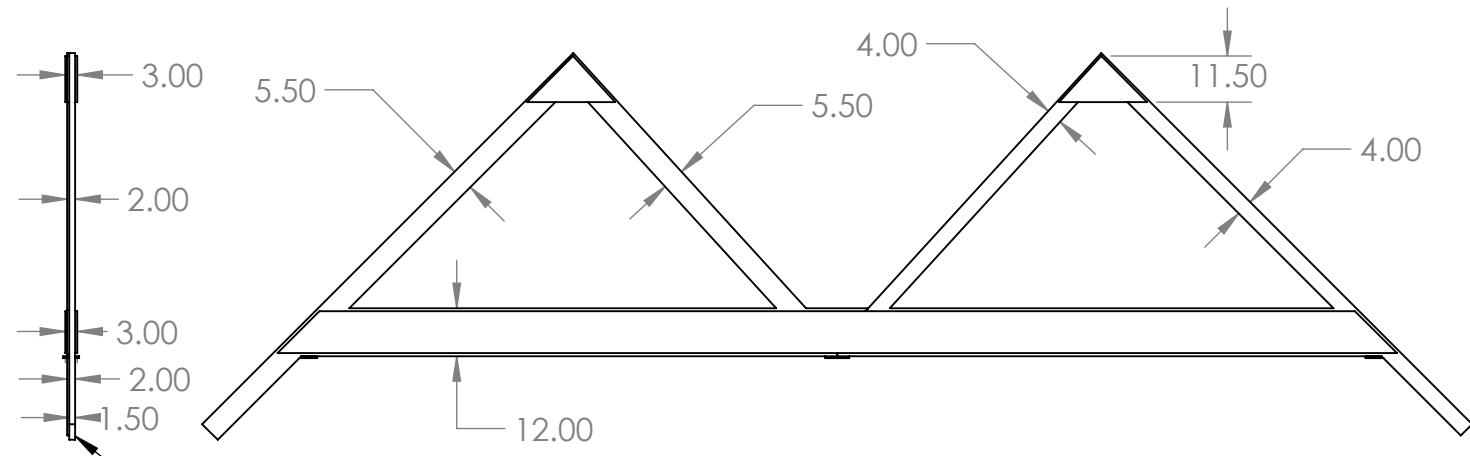
A

A



Manufactured Roof Truss

Manufactured Roof Truss



Proposed Roof Truss

Proposed Roof Truss

DATE:	October 10, 2023	DETAILS:	Safety factor simulation - for information to whom it may concerned		
DRAWN	GCB	DATE	2023/10/10	TITLE:	
CHECKED				Tre Ford - 4430 Ellis Street	
ENG APPR.				Safety Factor simulation for comparison of	
MFG APPR.				Existing Roof Truss versus Proposed upgraded Roof Truss	
Units - Inches [mm]- Scale - 1:48			File Name and/or DWG. NO.	4430 Ellis DWG rev 3	REV : 1
					SHEET 16 OF 18

4

3

2

1

4

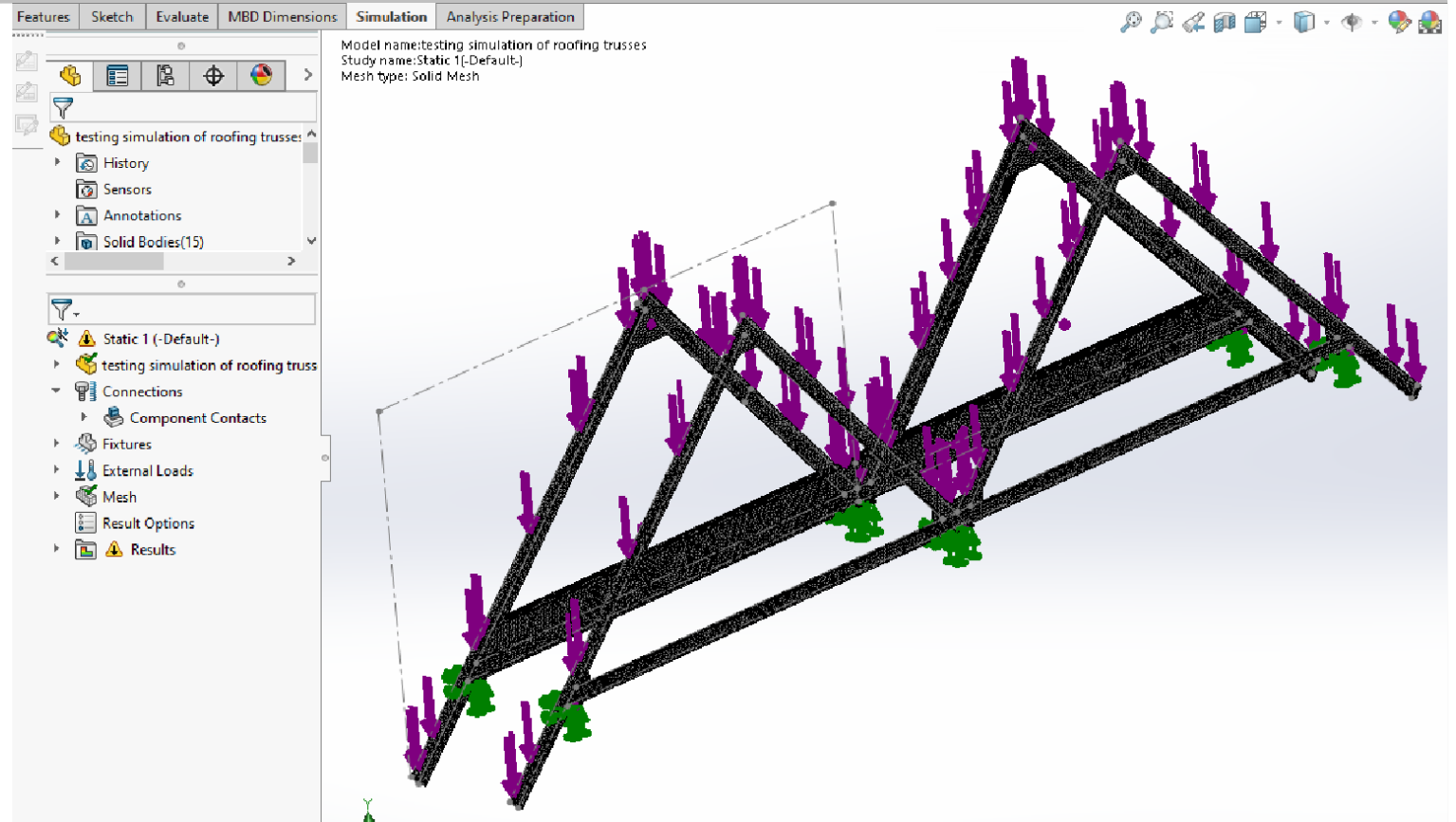
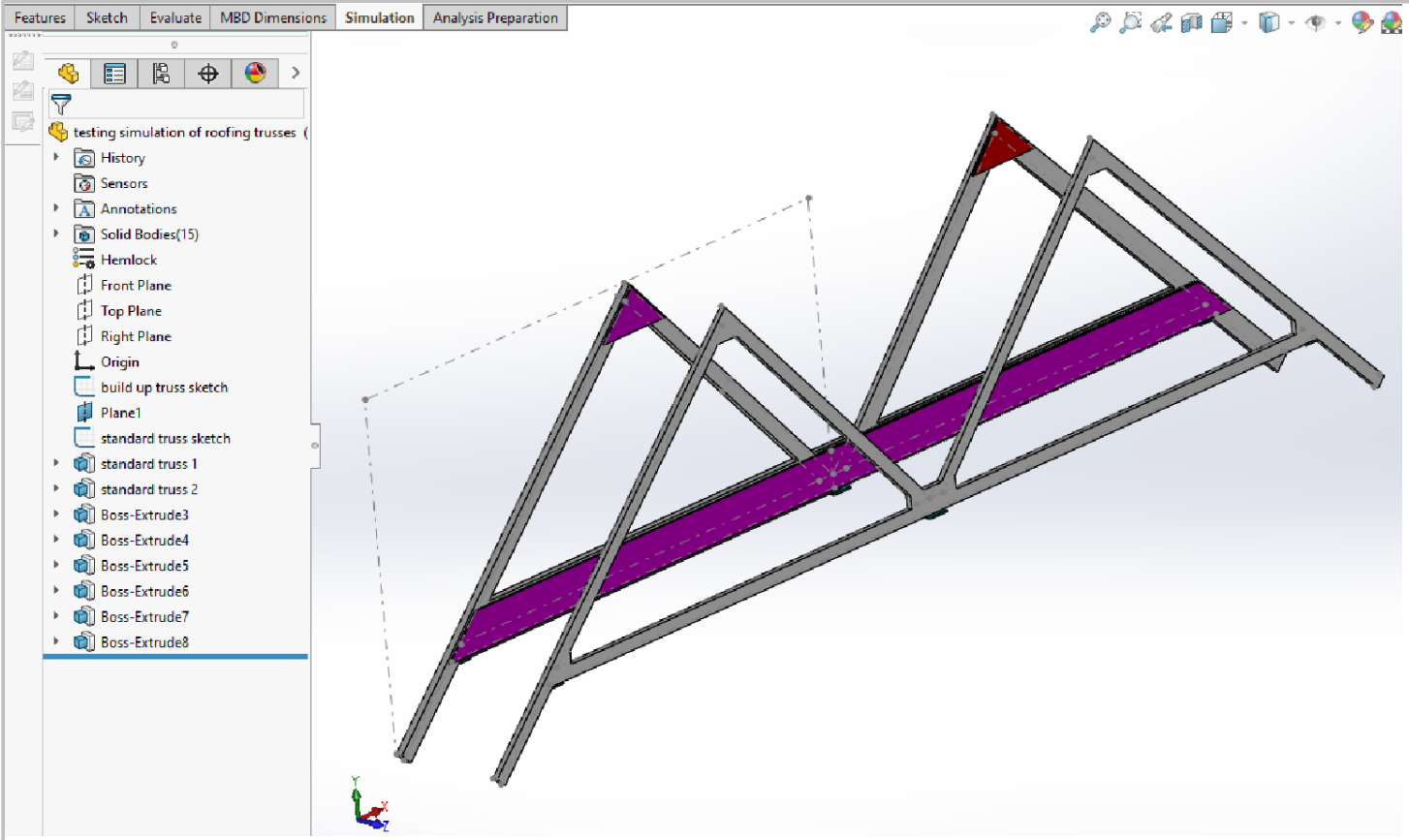
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2

1

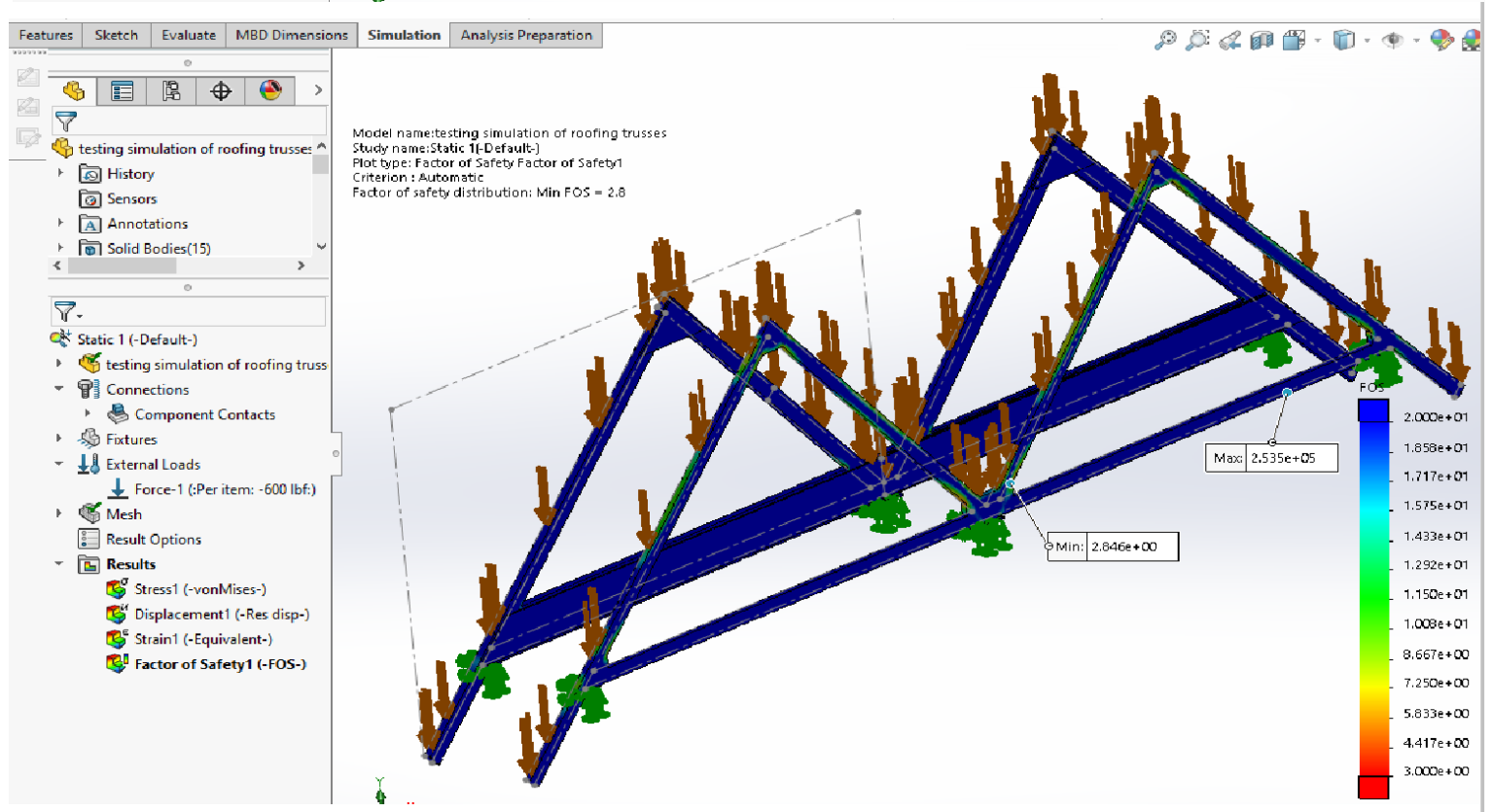
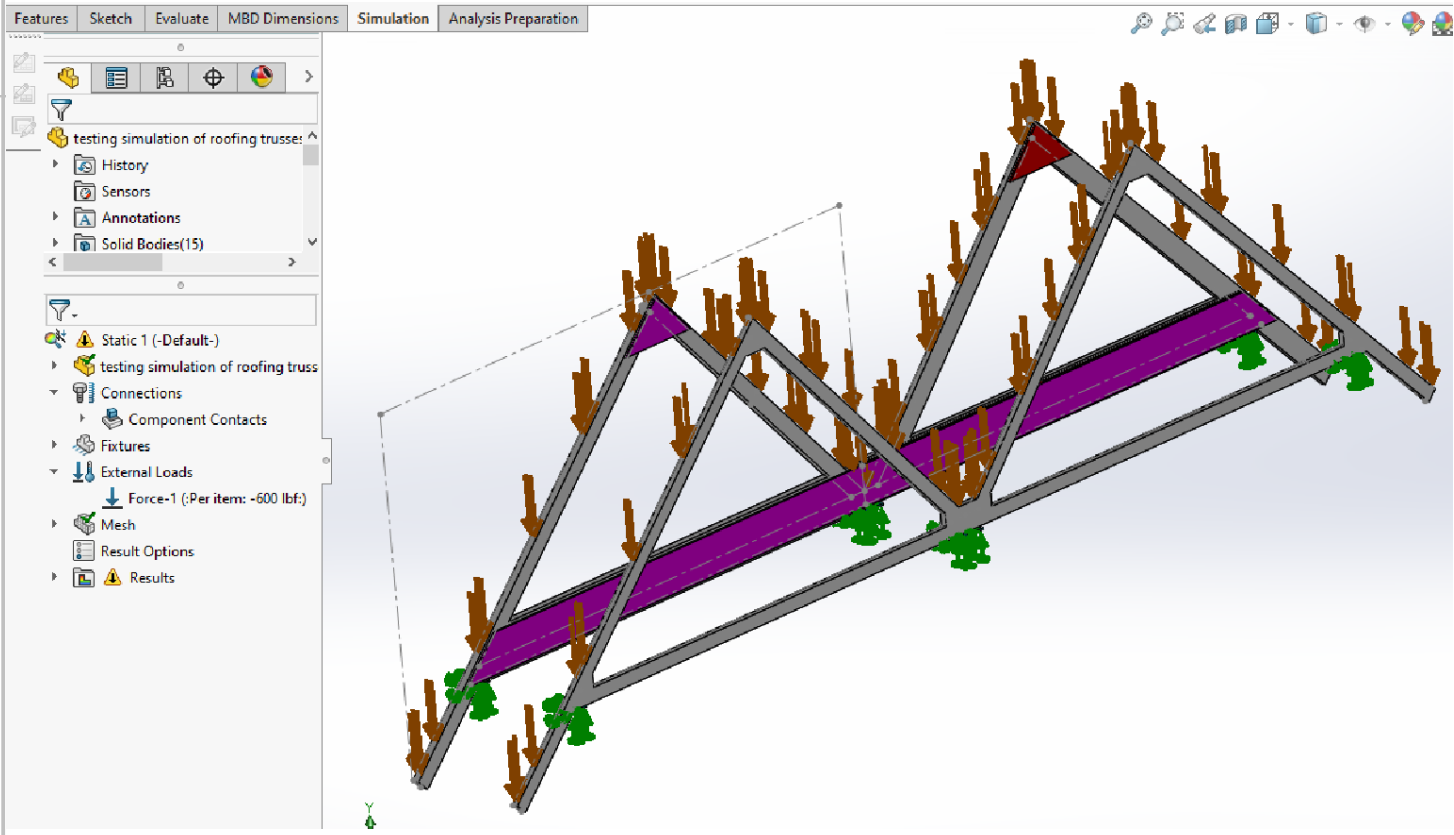
B

B



A

A



Comparing the safety factor of a manufactured roof truss versus the propose roof truss. Simulation done using Solidworks 3D Cad and simulation... applied load 40 lbf/ft2.. Area is based on 32 inches truss centre (width) and 264 inches (leght). Each roof truss member is expose to 600 lbf distributed forces... Conclusion, both structure are in blue, they have a S.F. above 20. The minimum S.F. is on the Manufactured Truss which would suggest that the proposed truss is over designed.

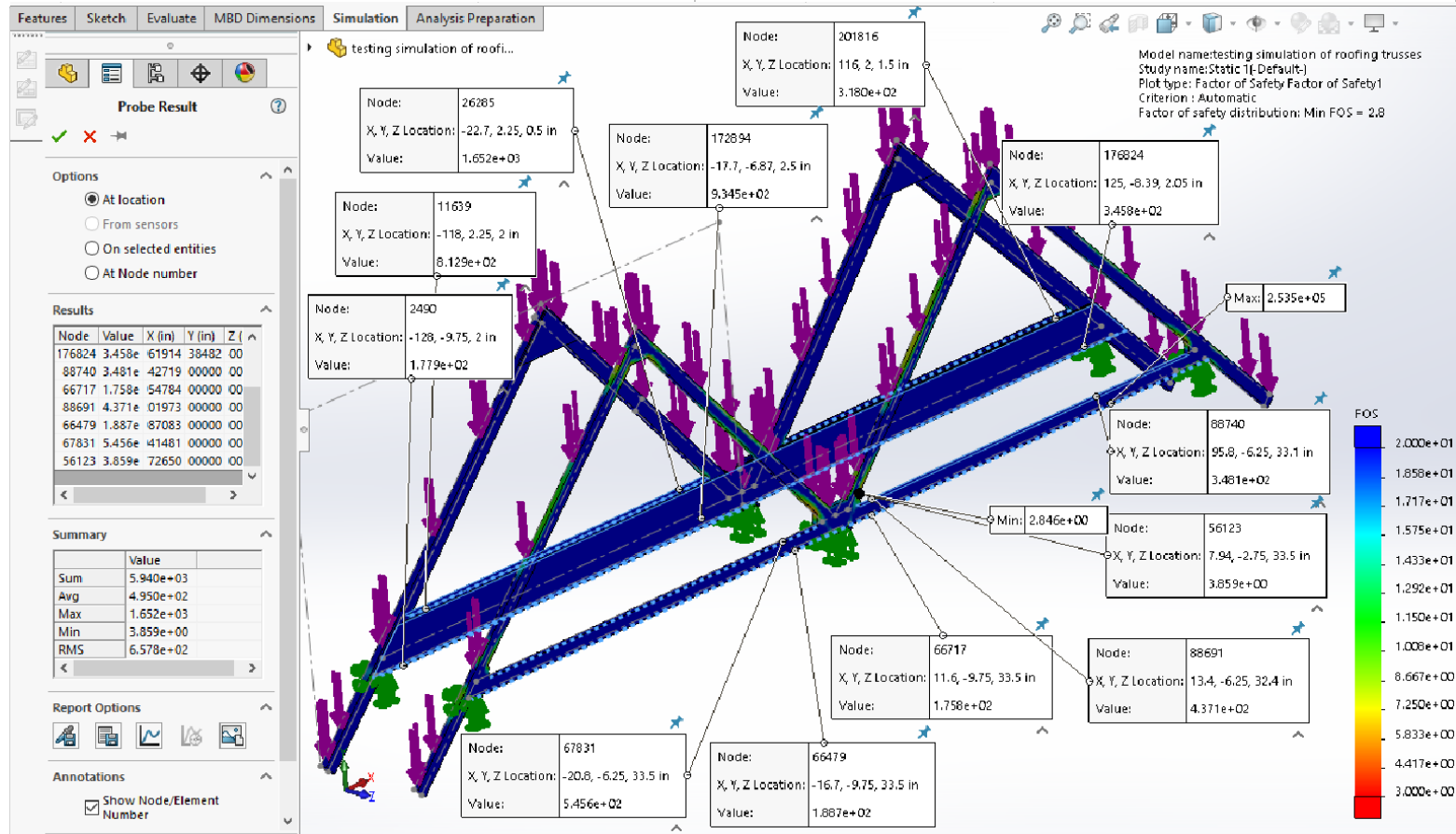
DATE:	October 10, 2023	DETAILS:	Safety factor simulation - for information to whom it may concerned		
DRAWN:	GCB	DATE:	2023/10/10	TITLE:	
CHECKED:				Tre Ford - 4430 Ellis Street	
ENG APPR.:				Safety Fature simulation for comparasion of	
MFG APPR.:				Existing Roof Truss versus Proposed upgraded Roof Truss	
DO NOT SCALE DRAWING				File Name and/or DWG. NO.	4430 Ellis DWG rev 3
				REV : 1	SHEET 17 OF 18

4

3

2

1



Minimum Safety Factor -SF- Analysis

Abstract:

The minimum SF analysis using Computer Simulation. S.F must be analyzed with caution for its actual impact on potential failures. Computer Analysis approximate design behaviour using finite element analysis. When comparing to static analysis, which use equations derived for average stress at a location on simple 2 dimensional structure. Finite element analysis analyzed all location providing 3 dimensional stress information. These analysis involves 1000's of equations to describe the structure. For this reason it can only be done using computer and specialized simulation software.

Simulation Analysis Setup and Observation:

The simulation software use is Solidworks Simulation 2019. When setting up, we simplify the task by simulating only once similar designs. For example roof truss every 32 inches. All the trusses between each end would have the same load. In this case analyzing one truss with the equivalent snow-load would work. The edge have half the load therefore they would have a higher safety factor. For the modification, we compare the SF of the existing roof truss to our upgraded truss by applying the following condition to both...

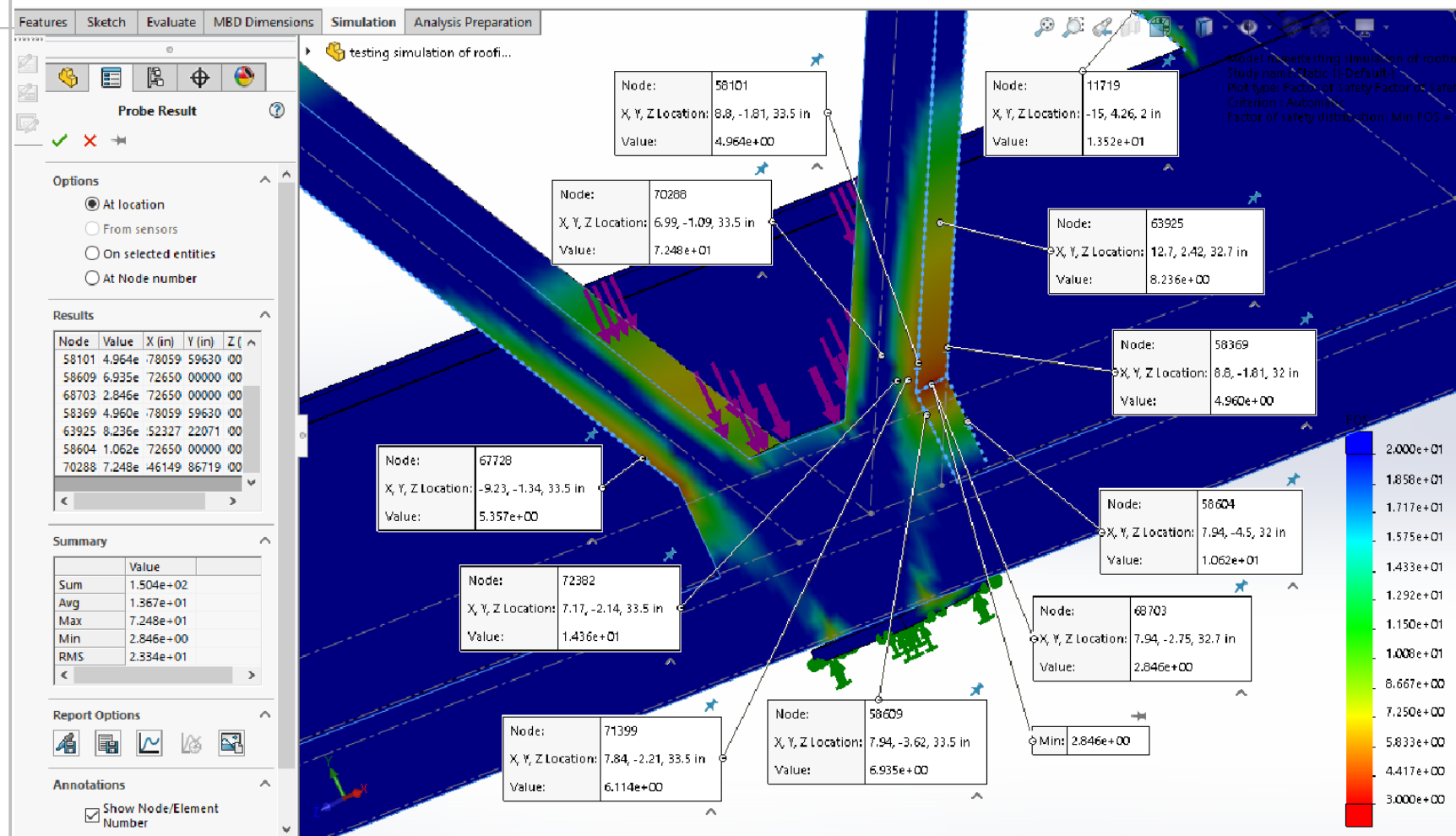
1. constant snow load of 40lb/ft2 (note : over-design for a 45 degree slop roof)
2. equivalent surface area of 32 inches wide x 318 inches long, which is the projected normal surface area of the roof section

Results:

The result shows that the existing roof truss would have a minimum SF of 2.8 while the upgrade truss structure as a minimum SF of 72 around the same area.

Conclusion:

The proposed upgrade is totally safe and over design.



DATE:	October 10, 2023	DETAILS:	Safety factor simulation - for information to whom it may concerned	
DRAWN:	GCB	DATE:	2023/10/10	TITLE:
CHECKED:				Tre Ford - 4430 Ellis Street
ENG APPR.:				Safety Facture simulation for comparision of
MFG APPR.:				Existing Roof Truss versus Proposed upgraded Roof Truss
				File Name and/or DWG. NO.
				4430 Ellis DWG rev 3
				REV : 1
				SHEET 18 OF 18