

# JC ENGINEERING, Inc.

## Civil & Environmental Engineering

2854 Cranberry Highway.

East Wareham, Massachusetts 02538

Ph. 508-273-0377

March 5, 2024

**RECEIVED**

By Bourne Health Department at 10:37 am, Mar 06, 2024

Bourne Board of Health  
24 Perry Avenue  
Buzzards Bay, MA 02532

RE: Waiver Request for 405 Circuit Avenue, Pocasset, MA

Dear Members:

Please accept this letter of request to be heard before the Board of Health at their next meeting to discuss a waiver from Board of Health Regulations for the continued use of the existing septic system at 405 Circuit Avenue, Pocasset, MA to accommodate proposed renovations of the property. The existing septic system consists of a 1,000-gallon septic tank, a distribution box, and an SAS comprising 20 total ARC 36HC plastic chambers in a field configuration with inspection ports. The SAS does not meet 310 CMR 15.211 and the local Board of Health regulation of 150-ft minimum setback to wetlands (i.e Coastal Bank). The SAS is 116.1' away from the Coastal Bank at its closest point and 142.1' away from the Mean High-Water line at its closest point. See below a list of waivers and variances previously approved by the health department for the existing septic system back in 2011 under Permit No. 69-11.

**In accordance with 310 CMR 15.401 - 15.405, the following Local Upgrade Approvals were approved by the Bourne Health Department from 310 CMR 15.211:**

- 1.) A 5.0' waiver (10.0' to 5.0') for the minimum setback distance from the SAS to the western & northern property line.
- 2.) A 2.8' waiver (10.0' to 7.2') for the minimum setback distance from the SAS to the existing shed.
- 3.) A 1.0' waiver (10.0' to 9.0') for the minimum setback distance from the SAS to the existing garage.

**The following local variance was approved by the Bourne Health Department from the 150-ft minimum setback to wetlands:**

- 1.) A 33.9' variance (150.0' - 116.1') from the Coastal Bank to the SAS.

405 Circuit Avenue

March 5, 2024

Page 2

The proposed project involves the construction of a 2<sup>nd</sup> floor balcony partially over the footprint of the existing enclosed porch; the removal of an 8'x1' section of the western side of the enclosed porch; the construction of a new dormer within the footprint of the existing home; and renovations to the enclosed porch. The porch work includes interior renovations and adding 5 concrete sonotubes underneath the existing footprint of the porch for improved structural support. No lateral expansion or net increase of bedrooms are proposed under this project. The existing home has three (3) total bedrooms, and the existing septic system was designed and approved for three (3) total bedrooms.

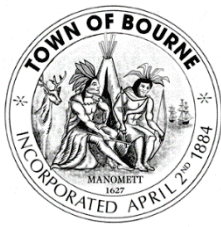
Enclosed are the completed application and Plot Plan dated February 16, 2024 (REV.1: 3-5-24). Thank you in advance for your consideration of this request.

Sincerely,

*Michael Pimentel*

Michael Pimentel, E.I.T., C.S.E.

Senior Project Engineer



# Bourne Board of Health Application for Septic Variance or Waiver Requests



In accordance with the established procedures of the Bourne Board of Health, this application is for septic variances and waivers which have not been approved administratively and require approval at a public meeting. Please use the following application form for guidance on how to apply for variances and waivers which serve new construction, changes in use, or increases in flow to on-site sewage disposal systems with design flows of less than 10,000 gallons/ day.

## 1. Facility Name and Address:

Owner's Name Brent T. Warren, Trustee of the 405 Circuit Avenue Realty Trust

Facility's Street Address 405 Circuit Avenue, Pocasset, MA

Owner's Telephone Number 508-951-9701

Owner's E-mail Address \_\_\_\_\_

Owner's Mailing Address 519 Spring Street, West Bridgewater, MA 02379

## 2. Applicant or Preparer's Name and Address (if different from above):

Preparer's Name Michael Pimentel, EIT, CSE

Company JC Engineering, Inc.

Telephone Number 508-273-0377

E-mail Address mpimentel@jceng.org

Mailing Address 2854 Cranberry Highway, East Wareham

State/ Zip Code MA 02538

## 3. Type of Facility (check all that apply):

Residential    Commercial    Institutional    School    Industrial

## 4. Describe Facility (i.e. single-family dwelling, 45 seat restaurant): \_\_\_\_\_

Existing 3-bedroom single family home.

## 5. Type of System (check all that apply):   Conventional Title 5   I/A System

Pumped System    Gravity System    Pressure Dosed    Tight Tank    Other

6. Describe the existing/ proposed septic system components: \_\_\_\_\_

The existing septic system consists of a 1,000-gallon septic tank; a distribution box; and an SAS comprising 20 total ARC 36HC plastic chambers in a field configuration with inspection ports. Existing system is proposed to remain as is with this waiver request.

7. Design Flow per 310 CMR 15.203 (in gallons/ day):

\_\_\_\_\_  
Design flow of system: 330 gpd

\_\_\_\_\_  
Total design flow of facility: 355 gpd  
\_\_\_\_\_

8. Enclose a **letter of request for variances/ waivers** which makes reference to the specific provisions of Title 5 and/ or the Board Bourne of Health Regulations for which a variance is sought. Please use this opportunity to demonstrate compliance with 310 CMR 15.410, and to justify the relevant facts and circumstances of the individual case. Note that with regard to variances for new construction, enforcement of the provision from which a variance is sought must be shown to deprive the applicant of substantially all beneficial use of the subject property in order to be manifestly unjust. Be sure to explain why full compliance with the applicable regulations is not feasible, and how a level of environmental protection that is at least equivalent to that provided under Title 5 and the Board of Health Regulations can be achieved without strict application of said regulations.

9. In order for this Application to be deemed complete, it must be accompanied by the following:

- \$125 filing fee + any other applicable permit application fees paid to the Town of Bourne.
- Application for a Disposal System Construction Permit (may be filled out by installer)
- Six copies of Letter of request describing nature of variances (see samples)
- Six sets of complete engineered plans and specifications, one with original stamp of design engineer; plus, one electronic copy.
- Six sets of floor plans, existing and proposed.
- Six copies of Nitrogen Loading Calculation Worksheet *\*required for all applications*
- If abutter notification is required, one of each of the following must be submitted:
  - A copy of the certified list of abutters from the Assessor's Department
  - Sample letter for abutter notification postmarked 10 days prior to meeting date
  - Proof of certified mailing (receipts) meeting requirements of 310 CMR 15.405(2)
- Proposals for installation of Innovative/Alternative septic systems must be accompanied by:
  - A copy of the Certification for Use including technology specific conditions
  - Draft disclosure notice for the I/A technology to be recorded in the deed
- Hydrogeologic data for all leaching facilities proposed within 100ft of a wetland/watercourse
- Percentage of Increase Worksheet may be required for waivers or increases in flow

10. Certification:

"I certify under penalty of law that this document and all attachments, to the best of my knowledge and belief, are true, accurate, and complete. I am aware that there may be significant consequences for submitting false information, including, but not limited to, penalties or fine and/or imprisonment for deliberate violations."

Facility Owner's Signature *Brent T. Warren* Date 3-5-24

Print Name Brent T. Warren

Signature of Preparer *Michael Pimentel* Date 3-5-24

Print Name Michael Pimentel

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For Office Use Only

Completed Application Received: \_\_\_\_\_

Reviewed By: \_\_\_\_\_

Hearing Date: \_\_\_\_\_

Permit #: \_\_\_\_\_ Existing  
\_\_\_\_\_ Proposed

Septic Plans Dated: \_\_\_\_\_

Floor Plans Dated: \_\_\_\_\_

Drawn By: \_\_\_\_\_

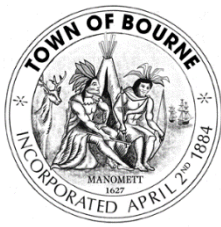
Drawn By: \_\_\_\_\_

Before BOH in past:    NO    YES                    *If yes, enclose copy of minutes. (Date \_\_\_\_\_)*

Notes: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Circle all that apply:    \_\_\_\_\_ Approved    \_\_\_\_\_ Continued    \_\_\_\_\_ Disapproved    \_\_\_\_\_ Other

Notes: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_



Terri A. Guarino  
Health Agent

# TOWN OF BOURNE BOARD OF HEALTH

24 Perry Avenue  
Buzzards Bay, MA 02532  
www.townofbourne.com/health  
Phone (508) 759-0600 ext. 1513  
330 gpd x (508) 759-0679



## Percentage of Increase Worksheet

Date of Hearing: 3-13-24

Address of Hearing: 24 Perry Avenue, Buzzards Bay, MA 02532

Owners Mailing Address: 519 Spring Street, West Bridgewater, MA

Request for variances or waivers that include renovations, alterations, or additions to the existing dwelling, architectural of the existing house and the proposed house must be submitted to the Board of health at the time of the variance or waiver request and shall include the following:

	EXISTING	PROPOSED	% INCREASE
Bedroom Square Footage (any labeled bedroom and or room which provides minimum seclusion as per Board of Health definition)	427 sf	377 sf	-11.7%
Non-Bedroom Space (living room, kitchen, bathrooms, closets, hallways etc.)	924 sf	1,125 sf	+21.8%
<b>Percentage of Total Increase</b>			<u>+11.2%</u>

For the purpose of any variances or waiver requests for a reduction in the 150 foot setback to the wetlands/top of coastal bank, which includes a proposal for renovations, alterations or additions to the existing dwelling, the following guidelines shall apply:

For projects where the renovations, alterations or additions result in an increase of bedroom space by Board of Health definition, of 25% or greater, a septic system which includes nitrogen removal, i.e. some type of Alternative Technology System with pressure dosing shall be required

For projects where the renovations, alterations or additions result in an increase of non-bedroom space such as kitchen, living room, bathroom etc. of 50% or greater an Alternative Technology system may be required.

**Formula for total increase percentage:**

Subtract existing from proposed = square footage added  
Divide square footage added by existing = % increase

**800 existing      1200 proposed**  
1200 – 800 = 400 square footage added  
400 / 800 = 50% increase



# Town of Bourne - Water Resources Nitrogen Loading and Mitigation Worksheet

See Cape Cod Commission Technical Bulletin 91-001 for further details:  
https://capecodcommission.org/resource-library/file?url=/depl/commission/team/Website\_Resources/regulatory/NitrogenLoadTechbulletin.pdf

Facility Address: 405 Circuit Avenue  
Preparer's Name: JC Engineering, Inc.  
Date:  
Watershed:

Project Nitrogen Load	Proposed Wastewater	New Construction/ Increases in Flow, Raze & Rebuild, or Repairs/ Upgrades	Existing Conditions
1. Project Title-5 wastewater flows: <input type="text" value="330.0"/> gpd (a) Actual wastewater flows: <input type="text" value="175.0"/> * (b) Average wastewater flows: <input type="text" value="252.5"/> gpd (a)+(b) +2= (A) <small>* Actual water use flows per unit in Bourne</small>			Calculate (A) through (P) as w/ (A) through (P): Title-5 wastewater flows: <input type="text" value="330.0"/> gpd Actual wastewater flows: <input type="text" value="175.0"/> * Avg. wastewater flows: <input type="text" value="252.5"/> gpd (A')
Place <input checked="" type="checkbox"/> in applicable box: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Will the project be connected to sewer ? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Is project Title-5 wastewater flow 10,000 gpd or greater ?  Place <input checked="" type="checkbox"/> in applicable box and multiply unsewered wastewater flow by applicable conversion factor: <input checked="" type="checkbox"/> Standard Title-5 System (35-ppm-N) x 0.048359 <input type="checkbox"/> DEP-approved I/A System (25-ppm-N) x 0.034542 <input type="checkbox"/> DEP-approved I/A System (19-ppm-N) x 0.026252 <input type="checkbox"/> DEP-approved Enhanced I/A (12-ppm-N) x 0.016580 } Type of system: _____  Wastewater nitrogen load (Title-5 flows) = <input type="text" value="15.96"/> kg-N/yr (B) Wastewater nitrogen load (Actual flows) = <input type="text" value="8.46"/> kg-N/yr (C)			Place <input checked="" type="checkbox"/> in applicable box: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Is existing development on sewer ? (If 'Yes', then go to line 2.)  <input checked="" type="checkbox"/> Standard Title-5 System <input type="checkbox"/> DEP-approved I/A System (commercial) <input type="checkbox"/> DEP-approved I/A System (residential) <input type="checkbox"/> DEP-approved enhanced I/A  <input type="text" value="15.96"/> kg-N/yr (B') <input type="text" value="8.46"/> kg-N/yr (C') wastewater offsets
<b>Stormwater Runoff</b> Town of Bourne Recharge rate for Bourne (inches; for natural areas from Technical Bulletin 91-001): <input type="text" value="21"/> (RECH)  Project site area: <input type="text" value="0.114"/> acres (D) Project site wetland area: <input type="text" value="0.000"/> acres (E) Project site upland area: <input type="text" value="0.114"/> acres (F) Pervious unpaved upland: <input type="text" value="0.072"/> acres (G)  <input type="text" value="0"/> % using LID Paved area: <input type="text" value="583"/> s.f. (H) <small>Factor may be adjusted for employment of LID → LID = low impact development</small> x 1.4158E-04 = <input type="text" value="0.08254347"/> kg-N/yr (I)  Roof area: <input type="text" value="1,260"/> s.f. (J) x 7.0792E-05 = <input type="text" value="0.0892"/> kg-N/yr (K)			Project site area: <input type="text" value="0.114"/> acres (D) Project site wetland area: <input type="text" value="0.000"/> acres (E) Project site upland area: <input type="text" value="0.114"/> acres (F) Pervious unpaved upland: <input type="text" value="0.072"/> acres (G)  Paved area: <input type="text" value="583"/> s.f. (H) Paving runoff offset: <input type="text" value="0.0825"/> kg-N/yr (I')  Roof area: <input type="text" value="1,260"/> s.f. (J') Roof runoff offset: <input type="text" value="0.0892"/> kg-N/yr (K')
<b>Fertilizer</b> Previous unpaved upland - roof area = Managed turf/ lawn area: <input type="text" value="1,876"/> s.f. x 3.4019E-04 = <input type="text" value="0.638"/> kg-N/yr (L)			Managed Turf/ lawn area: <input type="text" value="1,876"/> s.f. Fertilizer offset: <input type="text" value="0.638"/> kg-N/yr (L')
<b>Total Nitrogen Load</b> Total project nitrogen load (Title-5 flows): <input type="text" value="16.77"/> kg-N/yr (M)= (B)+(I)+(K)+(L) Total project nitrogen load (Actual flows): <input type="text" value="9.27"/> kg-N/yr (N)= (C)+(I)+(K)+(L) Nitrogen load per acre (Average): <input type="text" value="114.21"/> kg-N/yr/acre (O)= (M)+(N) +2 +(D)			Existing nitrogen load (Title-5 flows): <input type="text" value="16.77"/> kg-N/yr (M') Existing nitrogen load (Actual flows): <input type="text" value="9.27"/> kg-N/yr (N') Nitrogen offset per acre: <input type="text" value="114.21"/> kg-N/yr/acre (O')
<b>Proposed Nitrogen Loading Concentration</b> Project nitrogen loading concentration (Title-5 flows): <input type="text" value="21.37"/> ppm-N (P)= $(a)+723.76 + (G)x(RECH)+9.7286 + (H)+10,594 + (K)+0.75$ Project nitrogen loading concentration (Actual flows): <input type="text" value="16.25"/> ppm-N (Q)= $(b)+723.76 + (G)x(RECH)+9.7286 + (H)+10,594 + (K)+0.75$ Project nitrogen loading concentration (Average): <input type="text" value="18.81"/> ppm-N (R)= (P)+(Q) +2			<b>Existing nitrogen loading concentrations:</b> Title-5 flows: <input type="text" value="21.37"/> ppm-N (P') Actual flows: <input type="text" value="16.25"/> ppm-N (Q') Average: <input type="text" value="18.81"/> ppm-N (R')

next page -->

**Resource/ Impact Based Criteria**

**Marine Water Recharge Areas / Coastal Embayments**

2.  Yes  No Is the project located in any of the following watersheds: **Buttermilk Bay Basins, Phinneys Harbor / Back River / Eel Pond, Pocasset River Basin, Pocasset Harbor / Hen Cove / Red Brook Harbor, Megansett / Squeteague Harbors\*\* ?**  
(If 'No', then go to line 3.)

Name of Watershed (from Regional Policy Plan Data Viewer): \_\_\_\_\_

Critical Nitrogen-loading limit\*\* :  kg-N/year/acre (S)

Yes  No Does project's nitrogen load (O) exceed the existing load (O') AND the critical nitrogen load (S) ?  
(If 'No', then go to line 3.)

Excess project nitrogen load to be mitigated:  kg-N/yr (T)= LESSER OF (O)-(S) x(F) AND (O)-(O') x(F)

\*\* When a nitrogen-loading limit has been determined through either a Total Maximum Daily Load (TMDL), a Massachusetts Estuaries Project-accepted technical report, or specified by a Commission-approved comprehensive wastewater management plan pursuant to Objective WR3, or if impaired water quality has been documented for the receiving coastal waters, the nitrogen loading limit shall be 0 kg-N/yr per acre pursuant to Objective WR3.

**Groundwater Quality**

3.  Yes  No Does the project's nitrogen loading concentration in groundwater (R) exceed the greater of 5 ppm or the existing concentration (R') ?  
(If 'Yes', the project will need to provide an alternative strategy for meeting these thresholds by using another worksheet)

**Potential Public Water Supply Areas**

4.  Yes  No Is project in a Potential Public Water Supply Area (PPWSA) ?  
(If 'No', then go to line 5.)

Yes  No Does the project's nitrogen loading concentration (R) exceed the greater of 1 ppm or the existing concentration (R') ?  
(If 'Yes', the project must provide an alternative strategy for meeting Objective WR1)

Yes  No Does the project use, treat, generate, store or dispose of hazardous materials in excess of the greater of a) household quantities or b) existing quantities ?  
(If 'Yes', the project must provide an alternative strategy for meeting Objective WR1)

**Wellhead Protection Areas**

5.  Yes  No Is project in a Wellhead Protection Area (WHPA) ?

Yes  No Does the project's nitrogen loading concentration (R) exceed the greater of 5 ppm or the existing concentration (R') ?  
(If 'Yes', the project must provide an alternative strategy for meeting Objective WR1)

Yes  No Does the project use, treat, generate, store or dispose of hazardous materials in excess of the greater of a) household quantities or b) existing quantities ?  
(If 'Yes', the project must provide an alternative strategy for meeting Objective WR1)

**Fresh Water Recharge Areas**

6.  Yes  No Is project wastewater disposed of within 300 feet of a stream or fresh surface water body?  
(If 'No', then go to line 7.)

Yes  No Is the project located in a freshwater recharge area (FWRA) hydraulically upgradient of a stream or fresh surface water body?  
(If 'Yes', the project must provide an alternative strategy for meeting Objective WR2)

**Other Potential Impacts**

7.  Yes  No Will the project withdraw more than 20,000 gallons of water per day ?  
(If 'Yes', then the project must provide documentation demonstrating that there will not be significant impacts to water levels, surface waters and wetlands)

8. **The project must demonstrate compliance with Objective WR4, including use of Low Impact Development to mitigate impacts of stormwater runoff and O & M plans for maintaining stormwater infrastructure and landscaping.**

# Nitrogen Loading Calculations

## 3 Bedroom Conventional Septic System

### 405 Circuit Avenue, Pocasset, MA

Number of Bedrooms:	3	Water Recharge Factor =	1.75	Feet	(Bourne @ 18" per year)
Lot Size:	4,970 Square Feet	Natural Area:	3,127	Square Feet	
Roof/Deck:	1,260 Square Feet	Lawn/Garden:	3,127	Square Feet	
Pavement/Gravel:	583 Square Feet	Title V flow:	110	Gallons per day per bedroom	

#### WASTEWATER

Title V (2 people per bedroom)

$$3 \text{ bedrooms} \times \frac{110 \text{ gpd}}{\text{bedroom}} \times \frac{3.785 \text{ L}}{\text{gal}} = 1249.1 \text{ L/d} \times \frac{35 \text{ mg}}{\text{L}} = 43,716.8 \text{ mg/d}$$

Actual (2.5 people / unit average occupancy within the town)

$$3 \text{ bedrooms} \times \frac{110 \text{ gpd}}{\text{bedroom}} \times \frac{3.785 \text{ L}}{\text{gal}} \times \frac{2.5}{6} = 520.4 \text{ L/d} \times \frac{35 \text{ mg}}{\text{L}} = 18,215.3 \text{ mg/d}$$

#### IMPERVIOUS SURFACES

$$\text{Roof Area} = 1,260 \text{ Sq. Ft.} \times \frac{40 \text{ in.}}{\text{Year}} \times \frac{\text{feet}}{12 \text{ in.}} \times \frac{28.32 \text{ L}}{\text{cub. Ft.}} \times \frac{1 \text{ yr}}{365 \text{ day}} = 325.9 \text{ L/d} \times \frac{0.75 \text{ mg}}{\text{L}} = 244.4 \text{ mg/d}$$

$$\text{Pave Area} = 583 \text{ Sq. Ft.} \times \frac{40 \text{ in.}}{\text{Year}} \times \frac{\text{feet}}{12 \text{ in.}} \times \frac{28.32 \text{ L}}{\text{cub. Ft.}} \times \frac{1 \text{ yr}}{365 \text{ day}} = 150.8 \text{ L/d} \times \frac{1.5 \text{ mg}}{\text{L}} = 226.2 \text{ mg/d}$$

#### LAWN

$$\text{Lawn Area} = 3,127 \text{ Sq. Ft.} \times \frac{3 \text{ lbs.}}{1000 \text{ s.f.*yr}} \times \frac{1 \text{ yr}}{365 \text{ d}} \times \frac{454,000 \text{ mg}}{\text{lb.}} \times 0.25 = 2,917.1 \text{ mg/d}$$

#### NATURAL

$$\text{Natural Area} = 3,127 \text{ Sq. Ft.} \times \frac{1.75 \text{ ft}}{\text{yr}} \times \frac{28.32 \text{ L}}{\text{cub. Ft.}} \times \frac{1 \text{ yr}}{365 \text{ d}} = 424.6 \text{ L/d}$$

#### SUMMARY

Title V Flow	43716.8	+	244.4	+	226.2	+	2917.1	mg	=	47104.4	mg	=	21.91		ppm
	1249.1	+	325.9	+	150.8	+	424.6	liters		2150.3	liters				

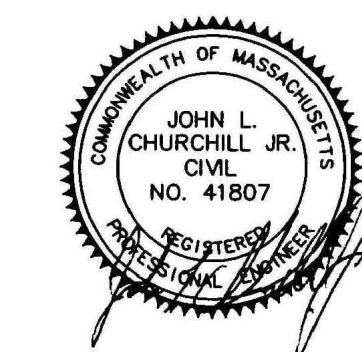
Actual	18215.3	+	244.4	+	226.2	+	2917.1	mg	=	21603.0	mg	=	15.20		ppm
	520.4	+	325.9	+	150.8	+	424.6	liters		1421.7	liters				

Final Calculation ( 21.91 + 15.20 ) / 2 = 18.55 ppm



# PROPOSED RENOVATION TO THE EXISTING STRUCTURE LOCATED AT 405 CIRCUIT AVENUE, BOURNE, MA

C-0	COVER PAGE
GN-0	GENERAL NOTES
EX-1	EXISTING LAYOUTS & SECTIONS
EX-2	EXISTING ELEVATIONS
D-1	DEMOLITION PLANS
A-1	PROPOSED FLOOR PLANS
A-2	PROPOSED BALCONY LAYOUT & ELEVATIONS
A-3	PROPOSED SECTIONS
A-4	PROPOSED KITCHEN ELEVATIONS
A-5	GROSS FLOOR AREAS
F-1	PROPOSED FOUNDATION PLAN & DETAILS
S-1	PROPOSED FRAMING PLANS
S-2	PROPOSED STRUCTURAL DETAILS

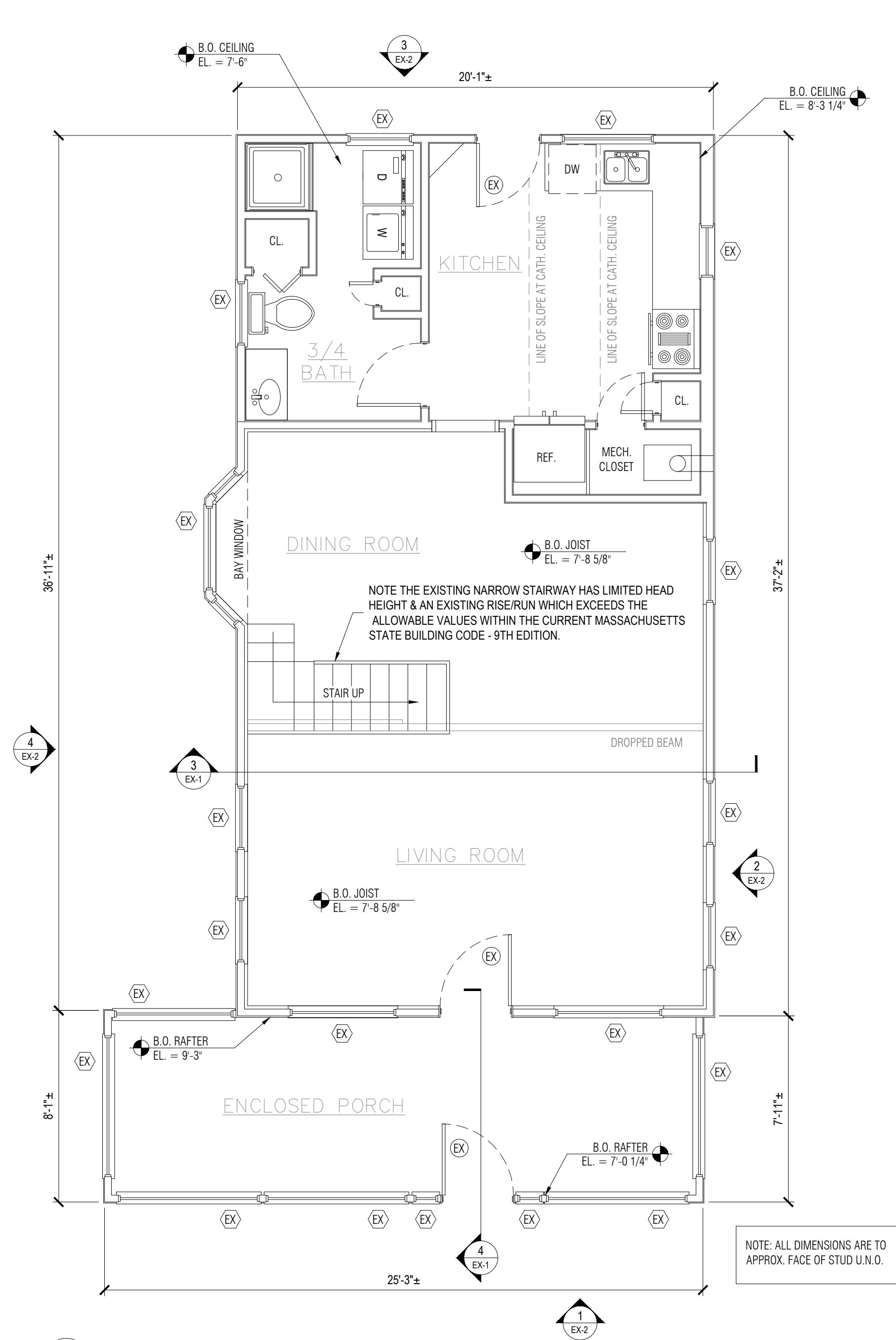


2-19-24  
Date

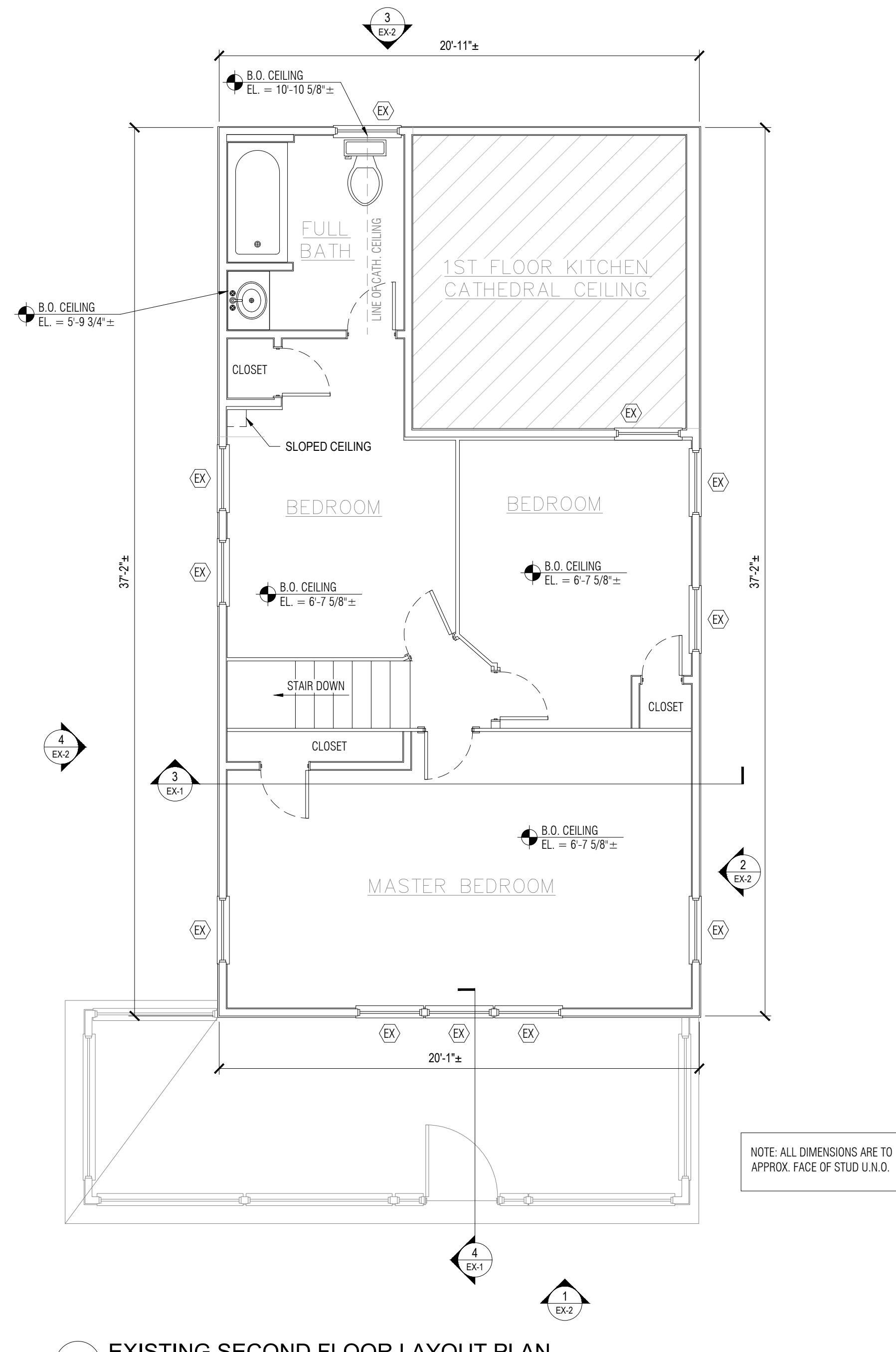
Professional Engineer

PROPOSED RENOVATION FOR PERMIT/CONSTRUCTION			
COVER PAGE			
SCALE: PER PLANS	APPROVED BY: JLC	DRAWN BY: MKV	
DATE: 10/4/2023		REVISED: 2/19/2024	
PREPARED BY: JC ENGINEERING, INC.			
405 CIRCUIT AVE. BOURNE, MA	JOB NUMBER: 2007-1	DRAWING NUMBER: C-0	

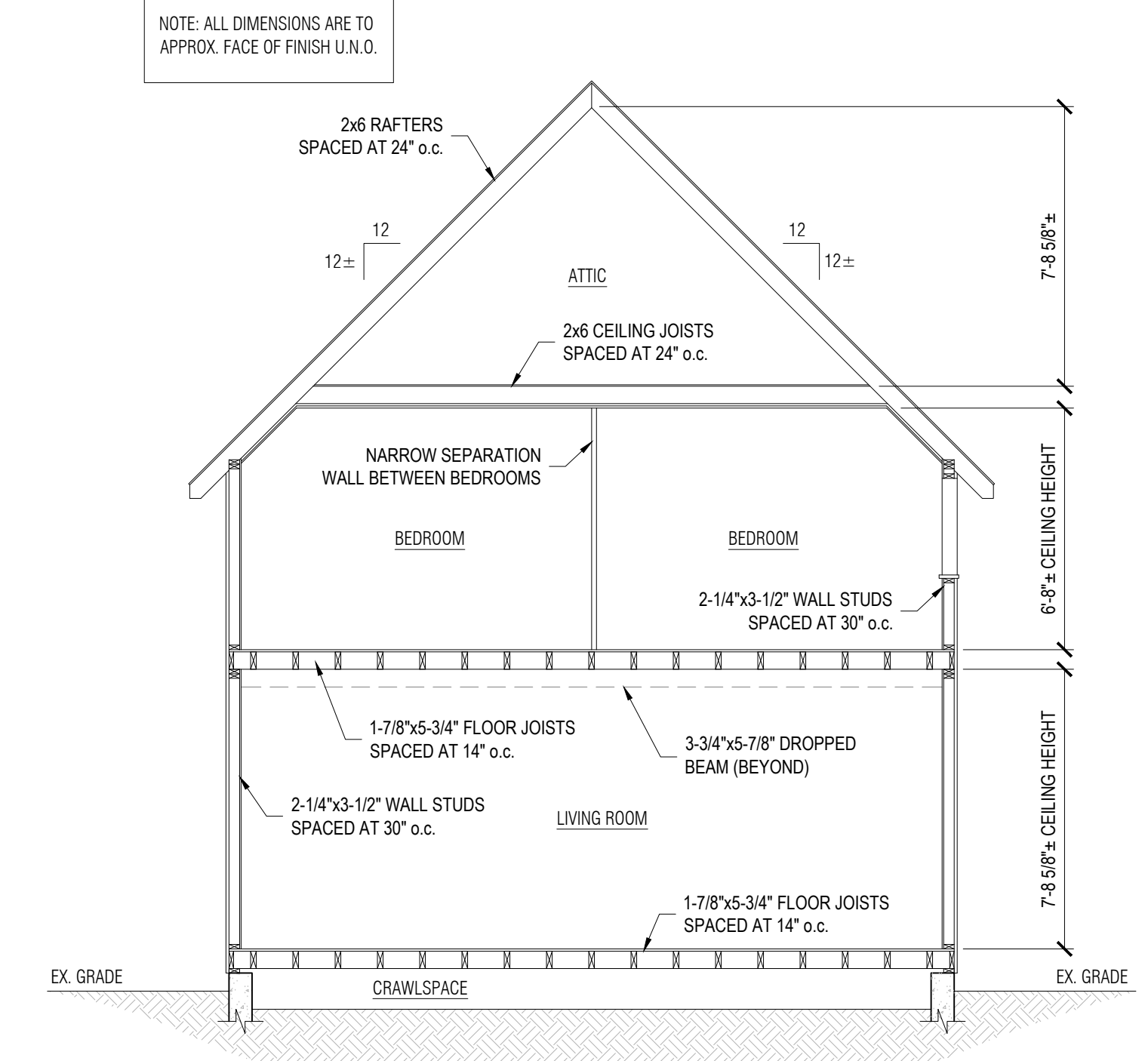




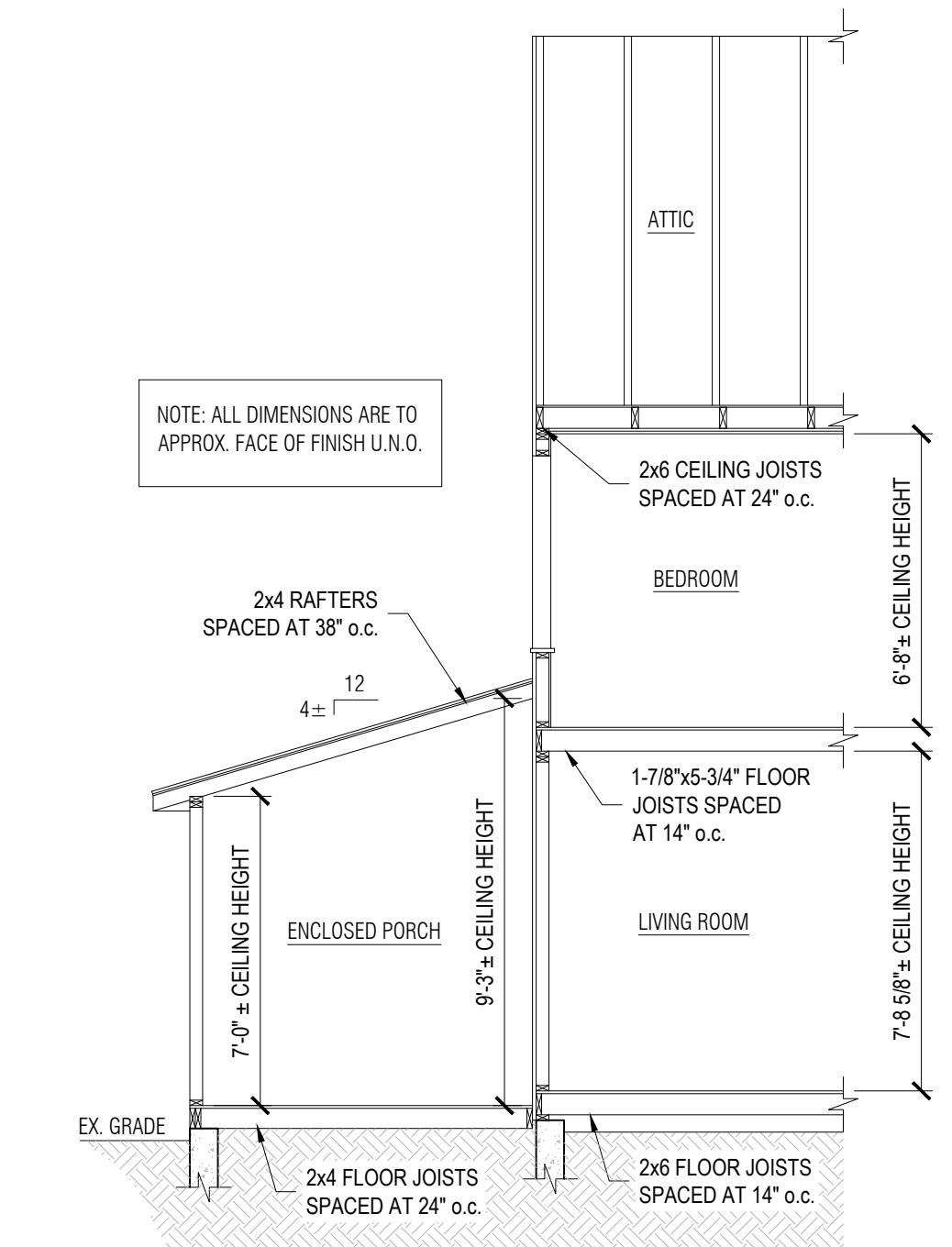
1 EXISTING FIRST FLOOR LAYOUT PLAN  
SCALE: 1/4"=1'-0"



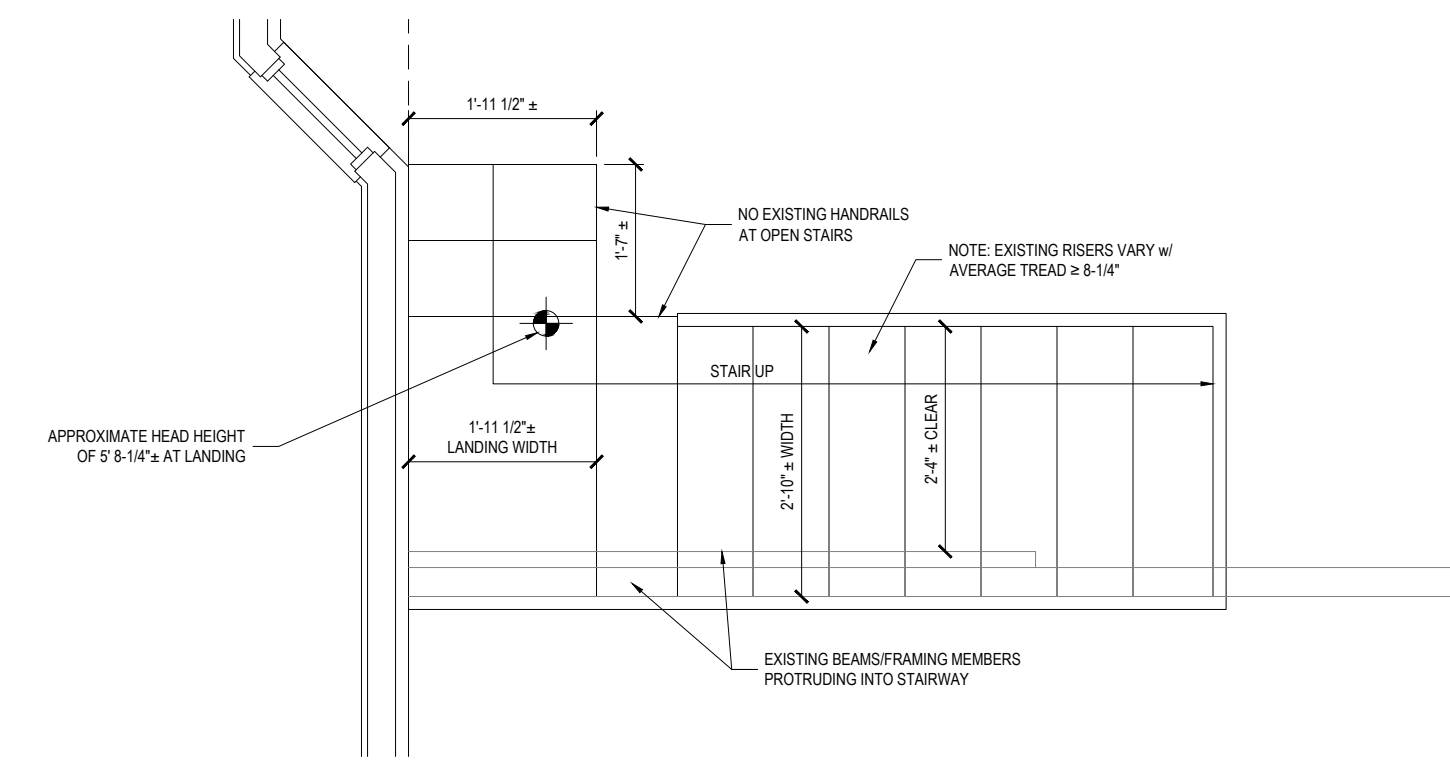
2 EXISTING SECOND FLOOR LAYOUT PLAN  
SCALE: 1/4"=1'-0"



3 EXISTING CROSS-SECTION  
SCALE: 1/4"=1'-0"



4 EXISTING PARTIAL SECTION  
SCALE: 1/4"=1'-0"

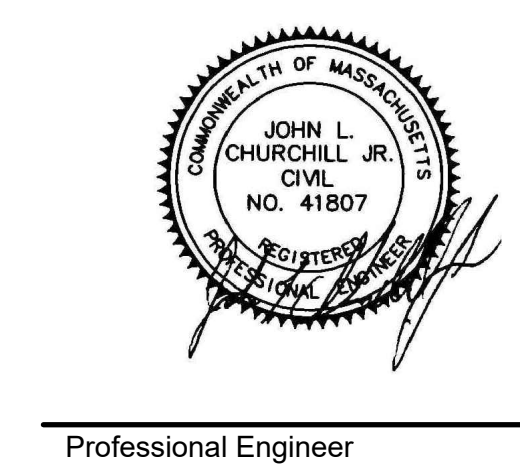


5 EXISTING STAIR DIMENSIONS  
SCALE: 1/2"=1'-0"

WINDOW SCHEDULE						
LABEL	HARDWARE	DESCRIPTION	SIZE	ROUGH OPENING	MODEL #	AMOUNT
EX		EXISTING WINDOW TO REMAIN - UNLESS NOTED OTHERWISE ON DEMOLITION DRAWING D-1				

DOOR SCHEDULE					
LABEL	HARDWARE	SIZE	FRAME	TYPE	AMOUNT
EX		EXISTING DOOR TO REMAIN - UNLESS NOTED OTHERWISE ON DEMOLITION DRAWING D-1			

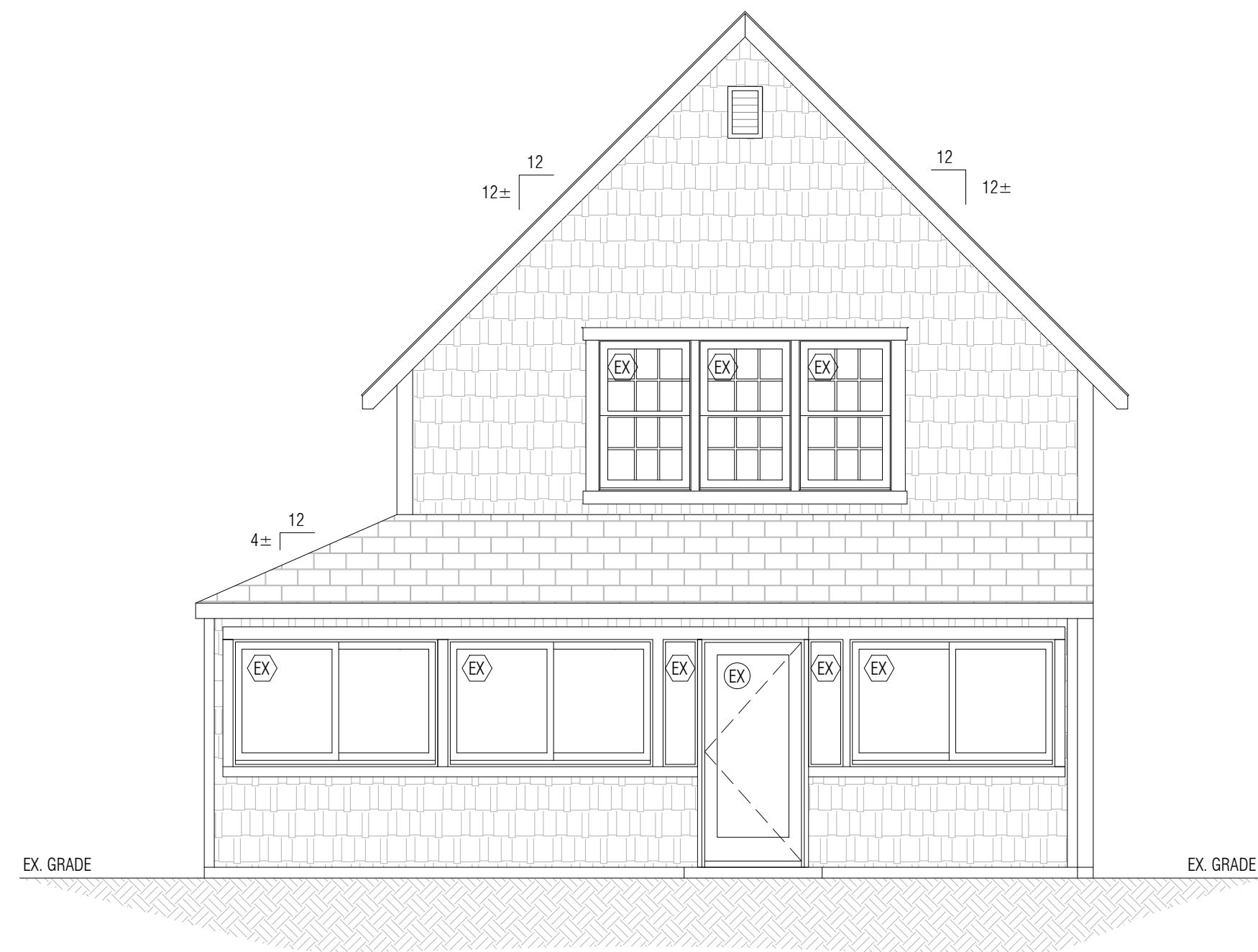
2-19-24  
Date



Professional Engineer

PROPOSED RENOVATION  
FOR PERMIT/CONSTRUCTION  
EXISTING LAYOUTS & SECTIONS

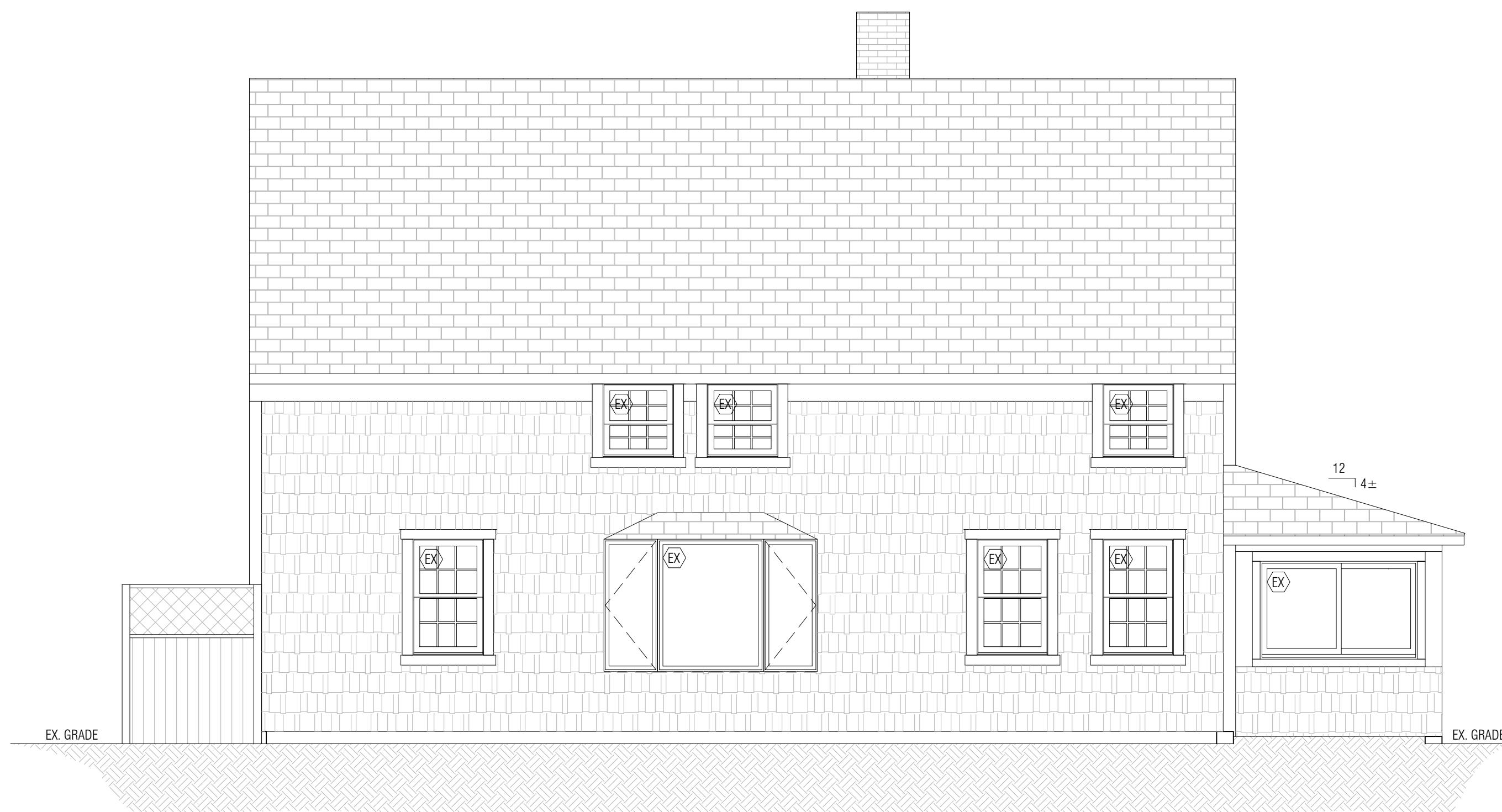
DATE: 10/4/2023  
APPROVED BY: JLC  
PREPARED BY: JC ENGINEERING, INC.  
JOB NUMBER: 2007-1  
DRAWING NUMBER: EX-1



1 EXISTING FRONT ELEVATION  
SCALE: 1/4"=1'-0"



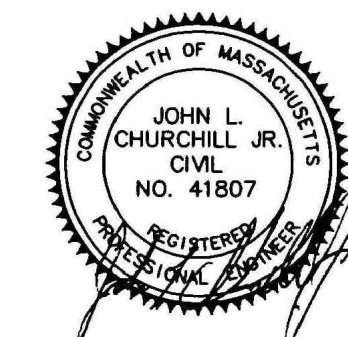
2 EXISTING RIGHT SIDE ELEVATION  
SCALE: 1/4"=1'-0"



3 EXISTING LEFT SIDE ELEVATION  
SCALE: 1/4"=1'-0"





4 EXISTING REAR ELEVATION  
SCALE: 1/4"=1'-0"

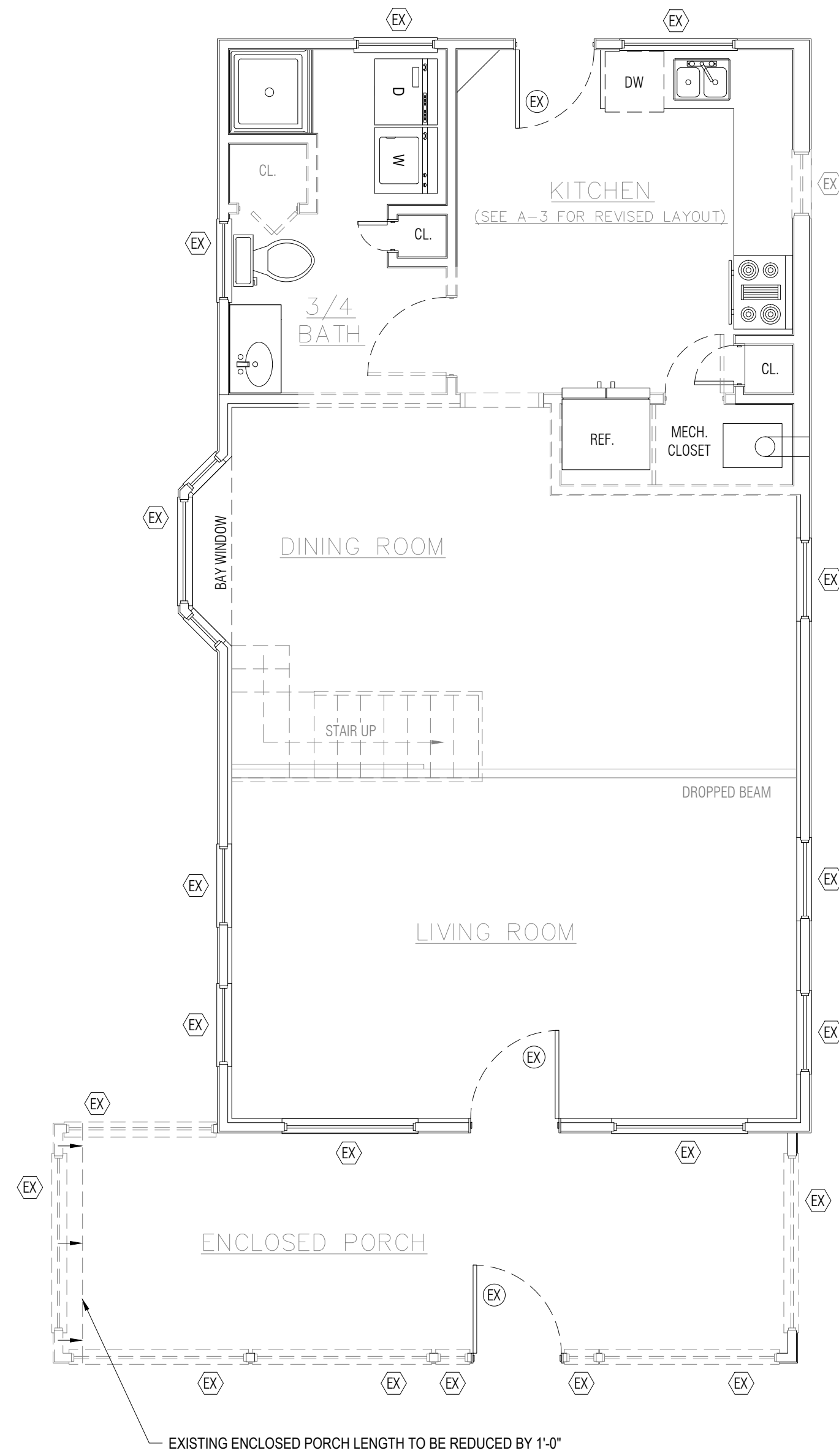


2-19-24  
Date

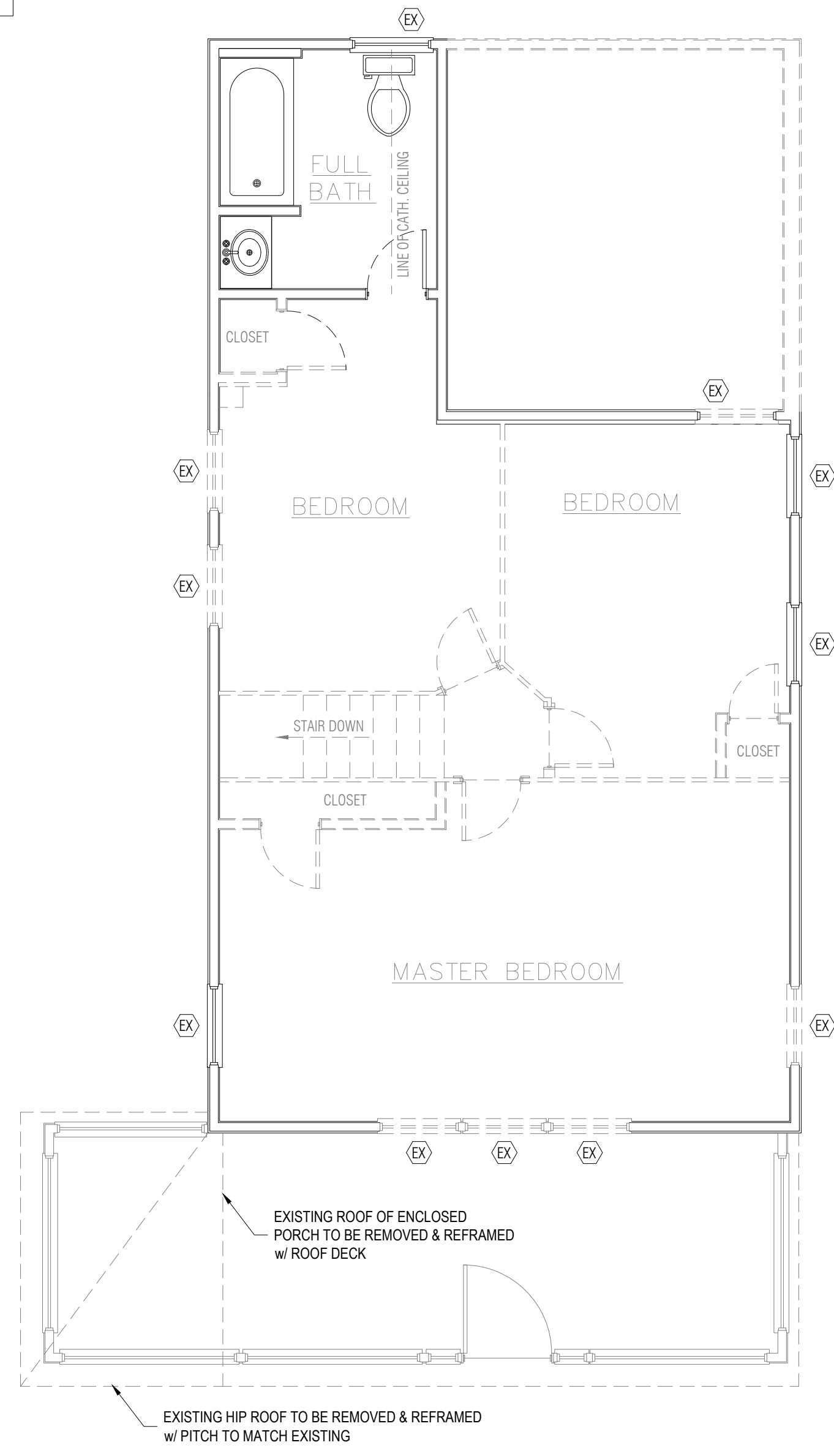
Professional Engineer

PROPOSED RENOVATION FOR PERMIT/CONSTRUCTION			
EXISTING ELEVATIONS			
SCALE: PER PLANS	APPROVED BY: JLC	DRAWN BY: MKV	REVISD: 2/19/2024
DATE: 10/4/2023	PREPARED BY: JC ENGINEERING, INC.		
405 CIRCUIT AVE. BOURNE, MA	JOB NUMBER: 2007-1	DRAWING NUMBER: EX-2	

WALL KEY PLAN	
	EXISTING WALL TO BE REMOVED
	EXISTING WALL TO REMAIN



**1** FIRST FLOOR DEMO PLAN  
SCALE: 1/4"=1'-0"



**2** SECOND FLOOR DEMO PLAN  
SCALE: 1/4"=1'-0"

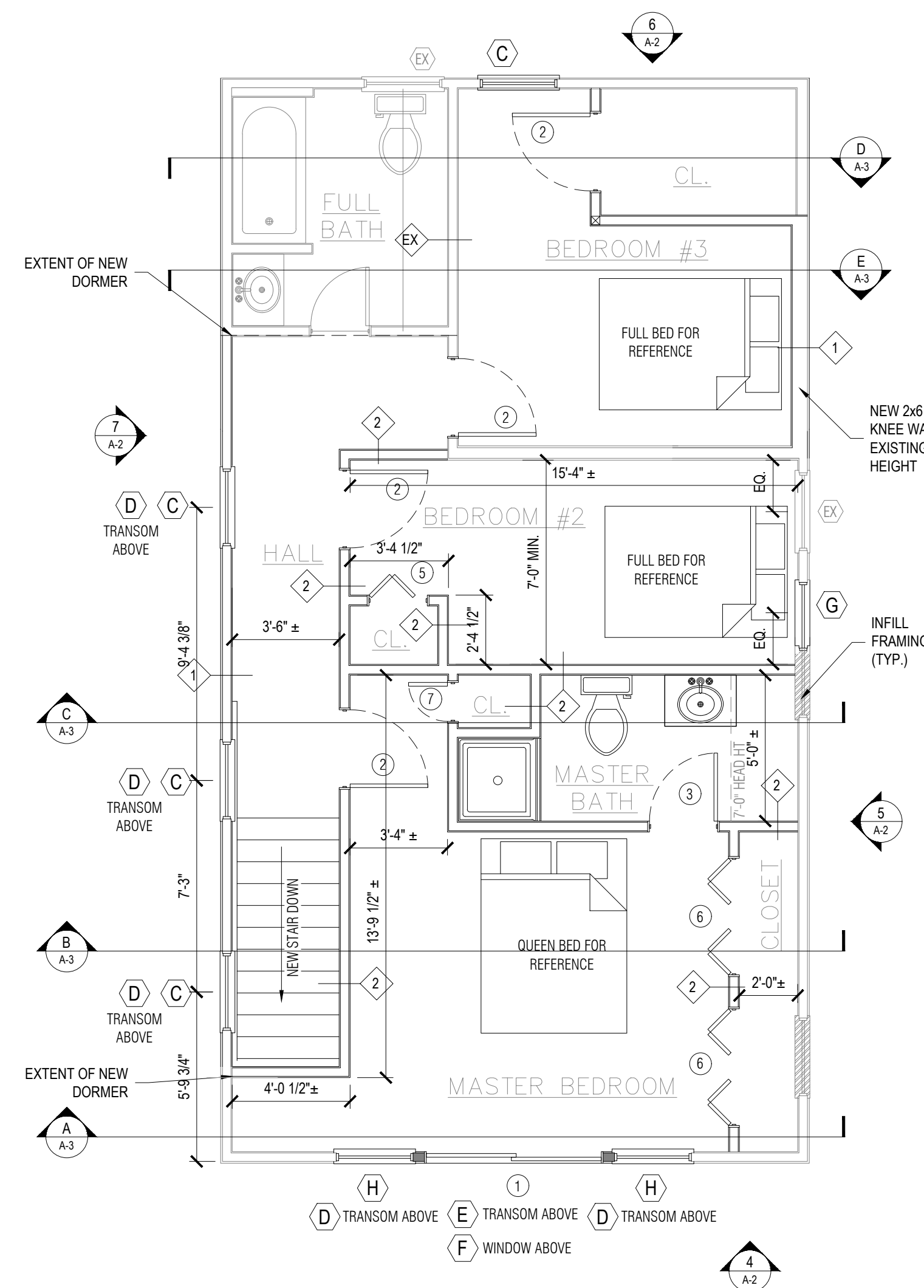
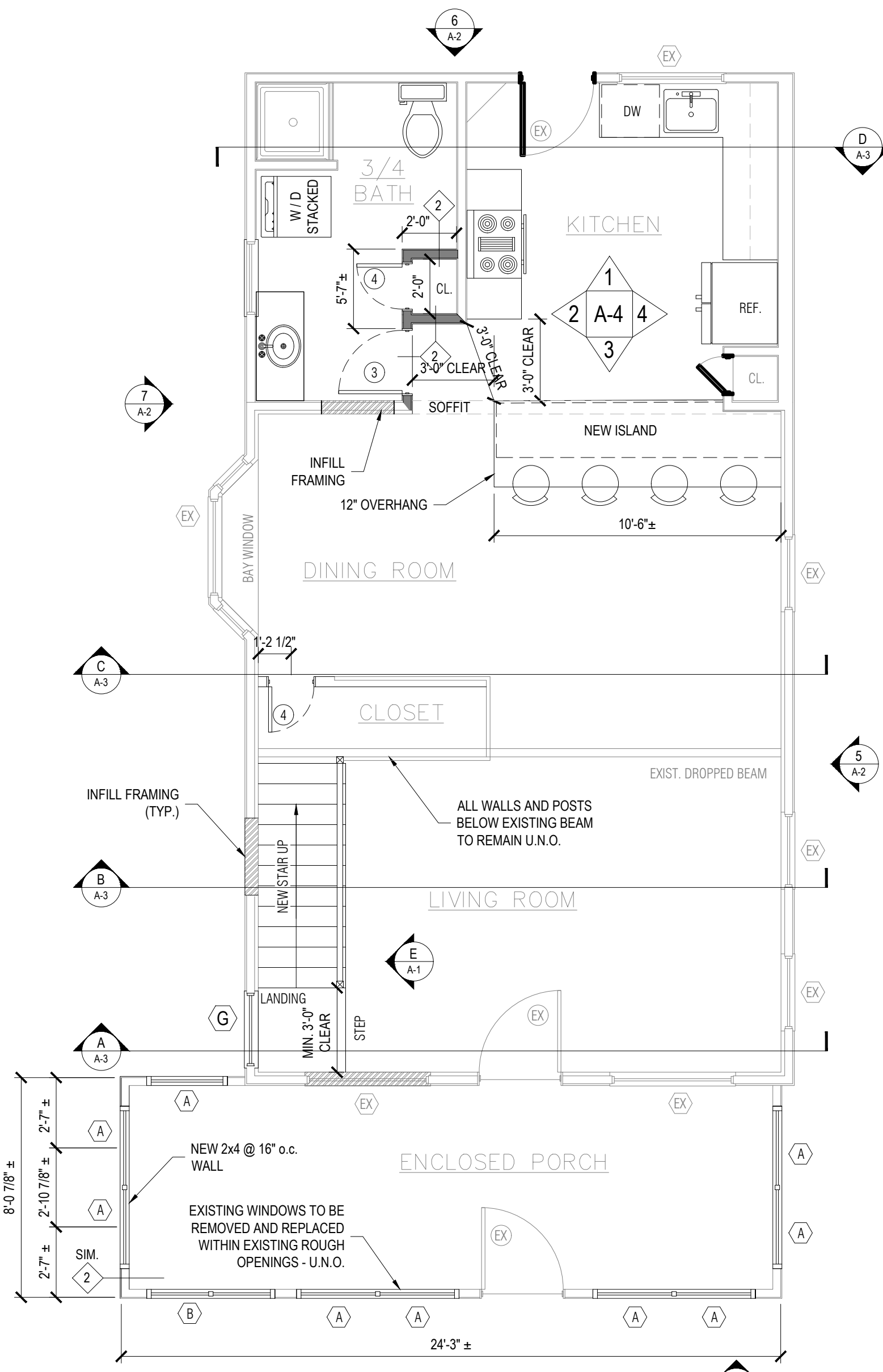
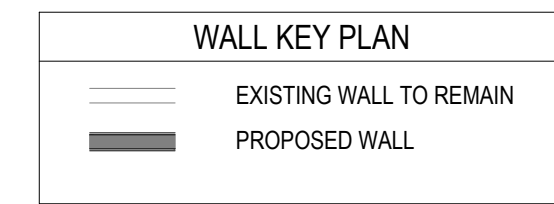


2-19-24  
Date

Professional Engineer

PROPOSED RENOVATION FOR PERMIT/CONSTRUCTION			
PROPOSED DEMO PLANS			
SCALE: PER PLANS	APPROVED BY: JLC	DRAWN BY: MKV	DATE: 10/4/2023
PREPARED BY: JC ENGINEERING, INC.		REVISD: 2/19/2024	
405 CIRCUIT AVE. BOURNE, MA	JOB NUMBER: 2007-1	DRAWING NUMBER: D-1	

NOTE: 2ND FLOOR LAYOUT HAS BEEN REVISED TO ALLOW FOR THE CONSTRUCTION OF A NEW SET OF STAIRS BUILT CONFORMING TO THE MASSACHUSETTS STATE BUILDING CODE - 9TH EDITION.



**WALL TYPE SCHEDULE**

LABEL	STUD SIZE & SPACING	TYPE	FINISHES	TOP PLATES
1	2x6 SPF #1/2 @ 16" o.c.	EXT. BEARING	7/16" CDX (or EQ.) @ EXTERIOR	DOUBLE 2x6
2	2x4 SPF #1/2 @ 16" o.c.	INT. NON-BEARING	1/2" GYPSUM BOARD @ BOTH FACES	SINGLE 2x4
3	2x6 SPF #1/2 @ 16" o.c.	INT. NON-BEARING	1/2" GYPSUM BOARD @ BOTH FACES	SINGLE 2x6

**WINDOW SCHEDULE**

LABEL	MODEL #	DESCRIPTION	SIZE	AMOUNT
EX	EXISTING WINDOW TO REMAIN - U.N.O ON DEMOLITION DRAWING D-1			
A	ANDERSEN TW21032 (OR SIM.)	DOUBLE HUNG w/ REMOVABLE INT. GRILLES	2-11 5/8" x 3-4 7/8" (EACH UNIT)	9
B	ANDERSEN TW2032 (OR SIM.)	DOUBLE HUNG w/ REMOVABLE INT. GRILLES	4-8 1/2" x 3-4 7/8"	1
C	ANDERSEN TW26310 (OR SIM.)	DOUBLE HUNG w/ REMOVABLE INT. GRILLES	2-7 5/8" x 4-0 7/8"	6
D	ANDERSEN CTR2810 (OR SIM.)	TRANSOM w/ REMOVABLE INT. GRILLES	2-7 1/2" x 1'-0"	5
E	ANDERSEN CTR6010 (OR SIM.)	TRANSOM w/ REMOVABLE INT. GRILLES	5-11 7/8" x 1'-0"	1
F	ANDERSEN OVL1824 (OR SIM.)	FIXED PANEL OVAL	5-11 7/8" x 1'-0"	1
G	ANDERSEN 26210 (OR SIM.)	DOUBLE HUNG w/ TEMPERED GLASS & REMOVABLE INT. GRILLES	2-7 5/8" x 3-0 7/8"	1
H	ANDERSEN 26410 (OR SIM.)	DOUBLE HUNG w/ TEMPERED GLASS & REMOVABLE INT. GRILLES	2-7 5/8" x 5-0 7/8"	2

**DOOR SCHEDULE**

LABEL	HARDWARE	SIZE	FRAME	TYPE	AMOUNT
EX	EXISTING DOOR TO REMAIN - UNLESS NOTED OTHERWISE ON DEMOLITION DRAWING D-1				
1	TBD	6'-0" X 6'-8"	TBD	SLIDING DOOR w/ REMOVABLE INTERIOR GRILLES	1
2	TBD	2'-8" X 6'-8"	PINE	BEDROOM ENTRY DOOR & SIM.	4
3	TBD	2'-4" X 6'-8"	PINE	BATHROOM ENTRY DOOR & SIM.	2
4	TBD	1'-8" X 6'-8"	PINE	BATHROOM CLOSET DOOR & SIM.	2
5	TBD	2'-0" X 6'-8"	PINE	BI-FOLD CLOSET DOOR	1
6	TBD	4'-0" X 6'-8"	PINE	BI-FOLD CLOSET DOOR	2
7	TBD	1'-4" X 6'-8"	PINE	CLOSET DOOR	1



PROPOSED RENOVATION  
 FOR PERMIT/CONSTRUCTION  
 PROPOSED. FLOOR PLANS

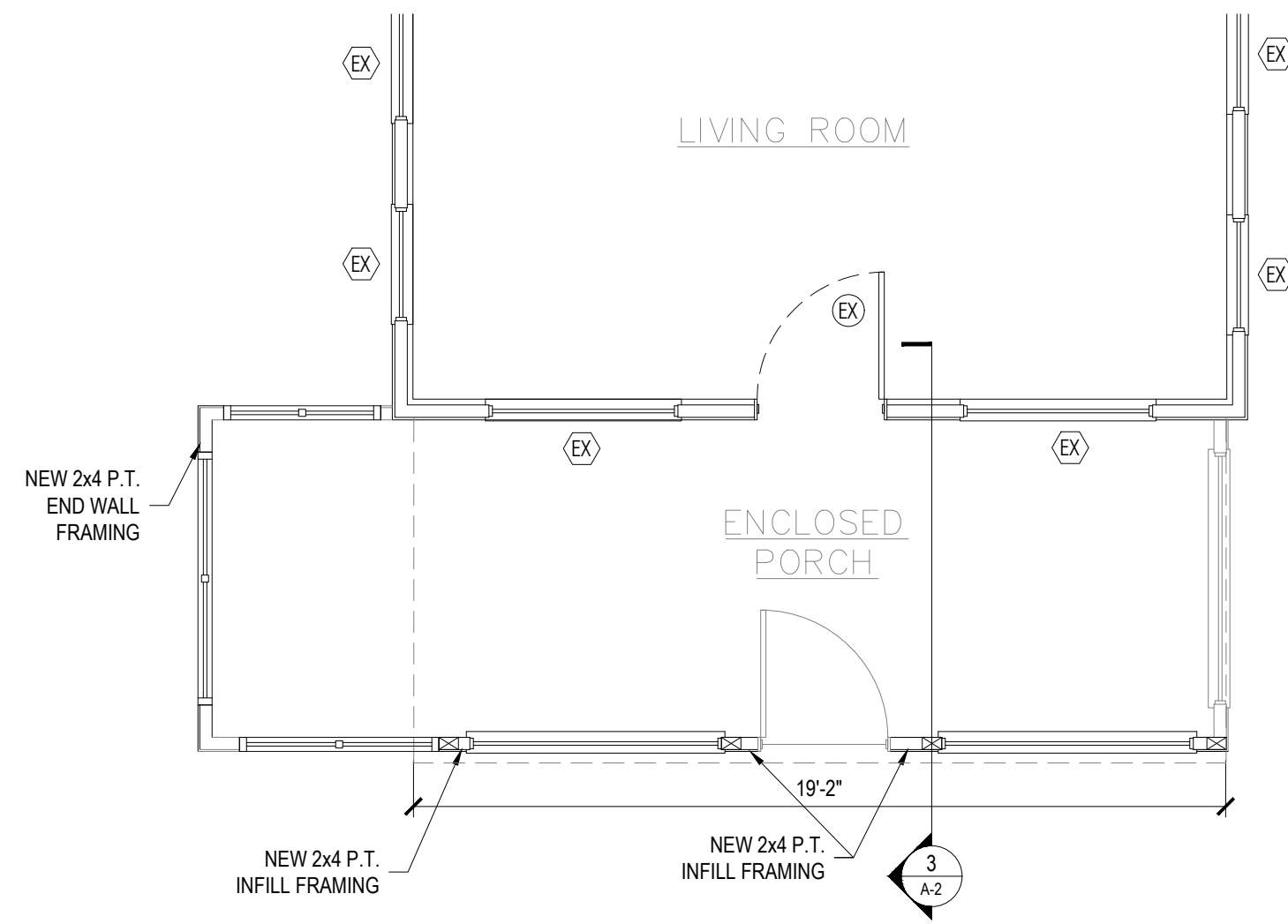
SCALE: PER PLANS APPROVED BY: JLC DRAWN BY: MKV  
 DATE: 10/4/2023 REVISED: 2/19/2024

PREPARED BY:  
**JC ENGINEERING, INC.**

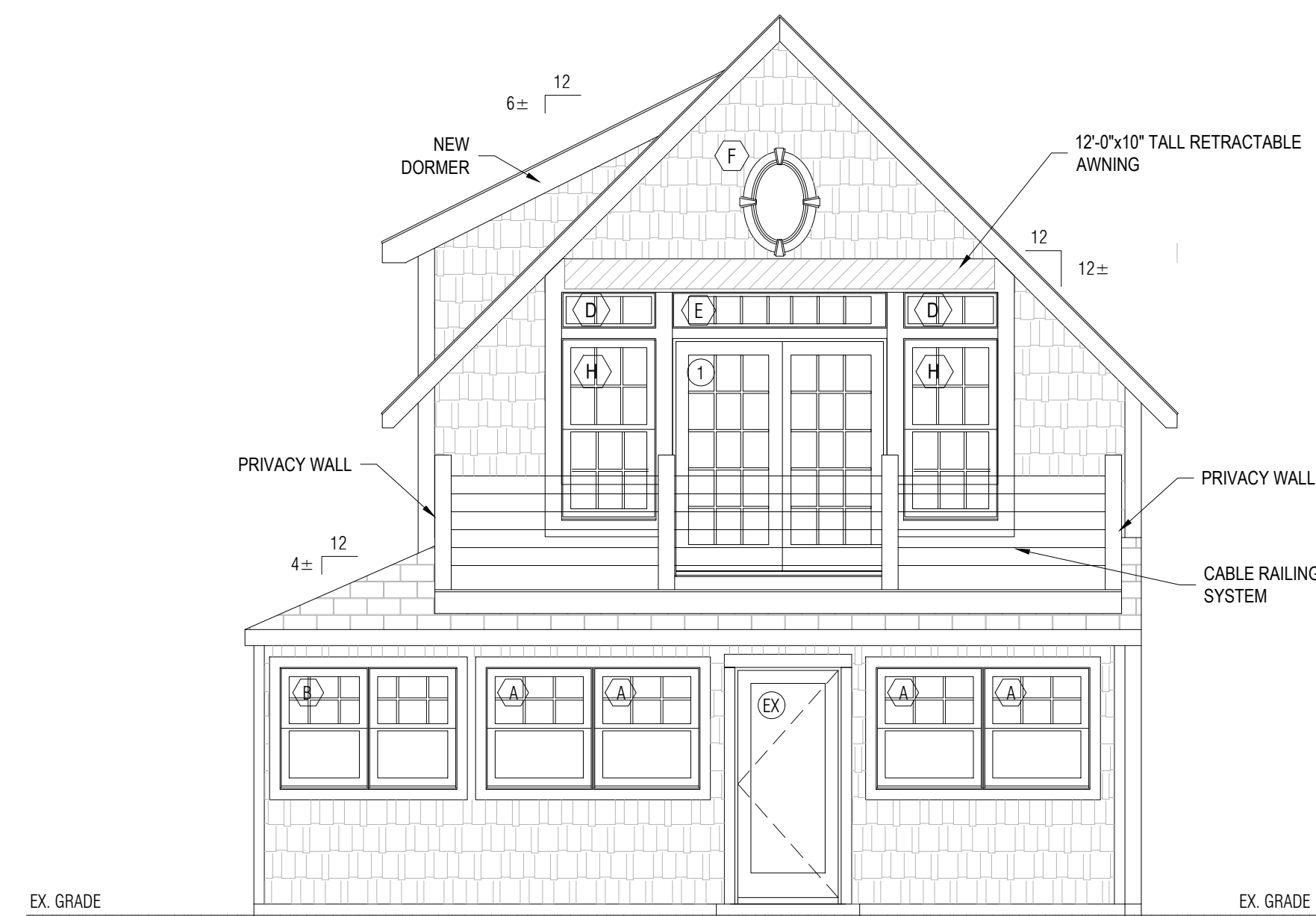
405 CIRCUIT AVE. BOURNE, MA JOB NUMBER: 2007-1 DRAWING NUMBER: A-1

2-19-24  
 Date

Professional Engineer



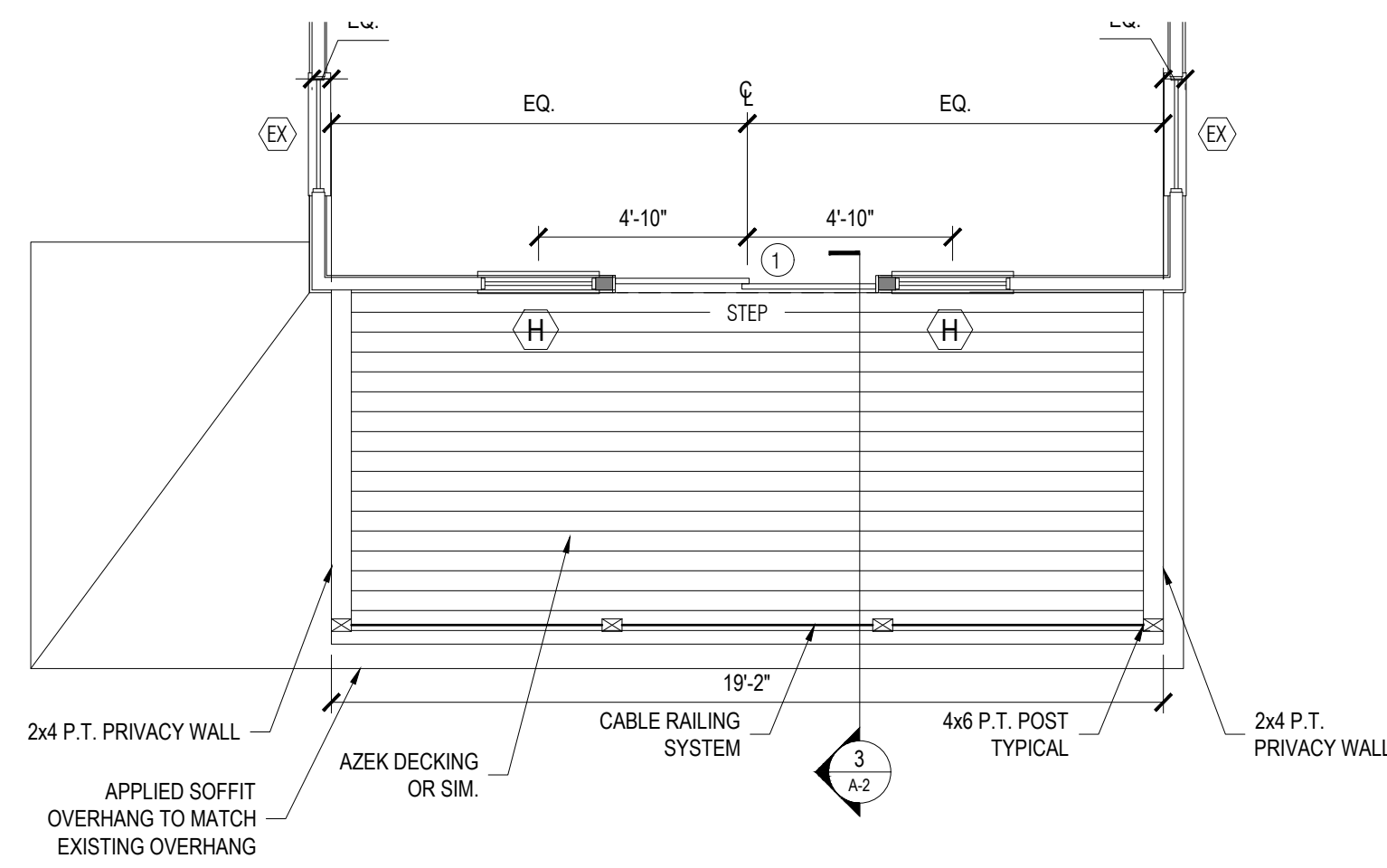
1 PARTIAL PROPOSED ENCLOSED PORCH LAYOUT  
SCALE: 1/4"=1'-0"



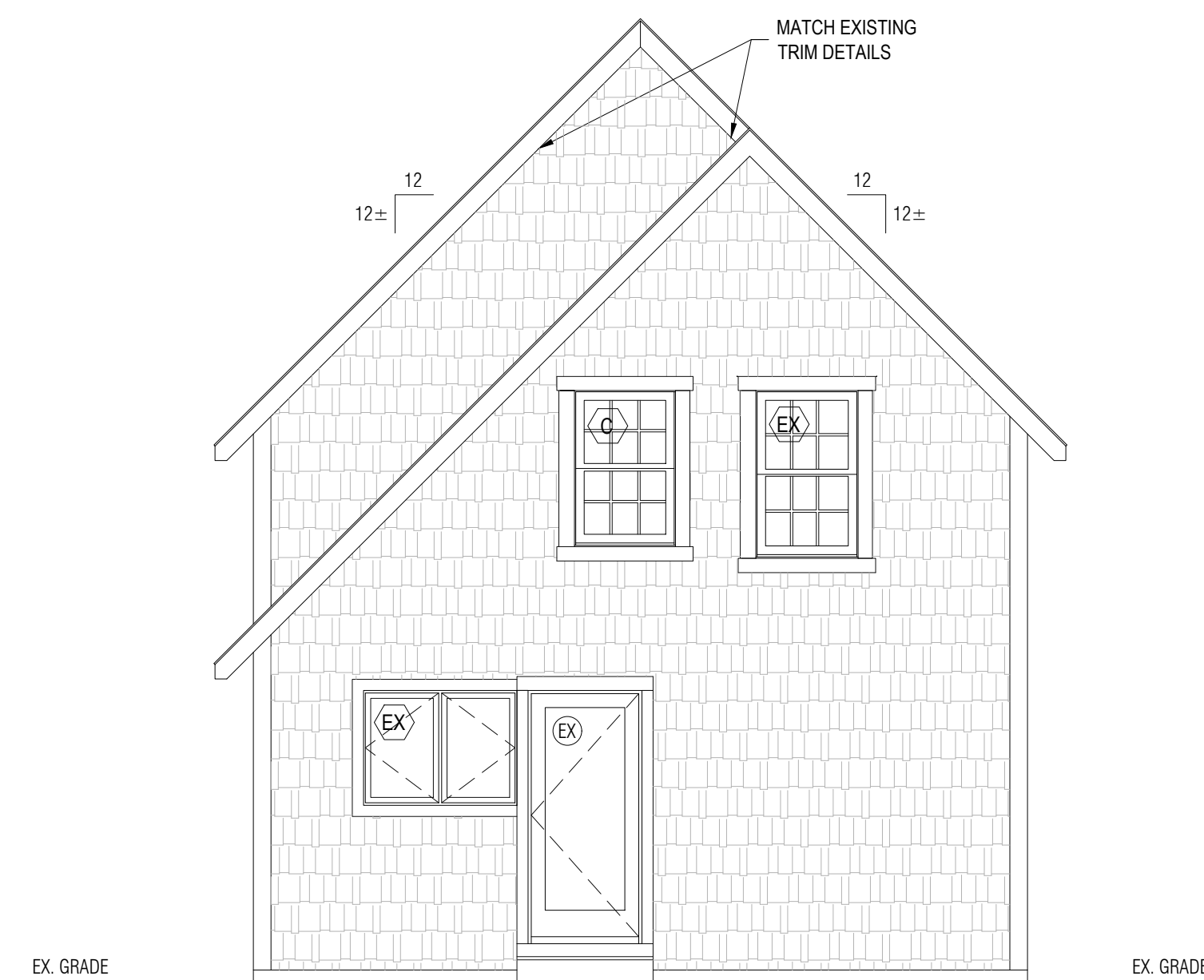
4 PROPOSED FRONT ELEVATION  
SCALE: 1/4"=1'-0"



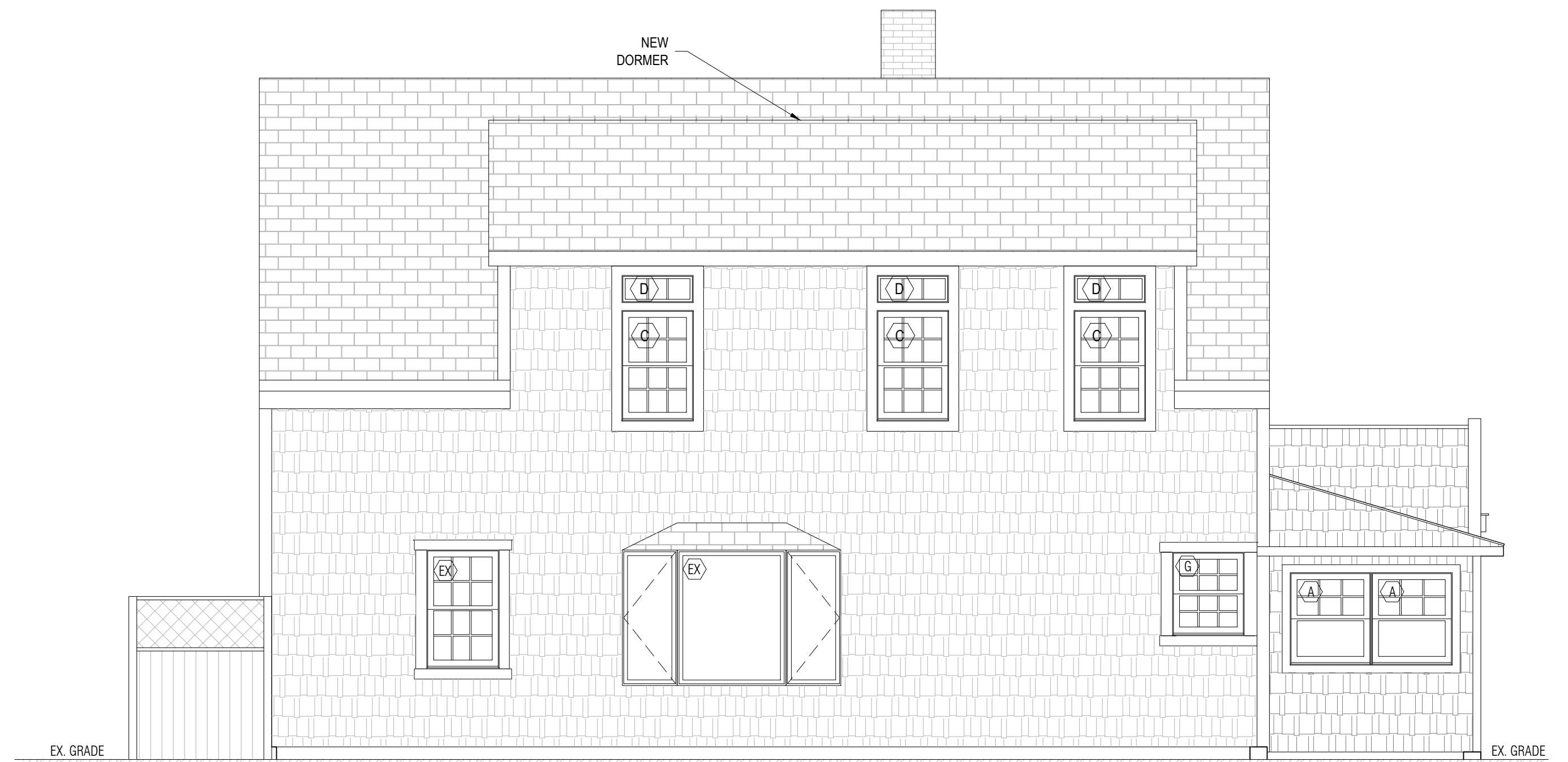
5 PROPOSED RIGHT SIDE ELEVATION  
SCALE: 1/4"=1'-0"



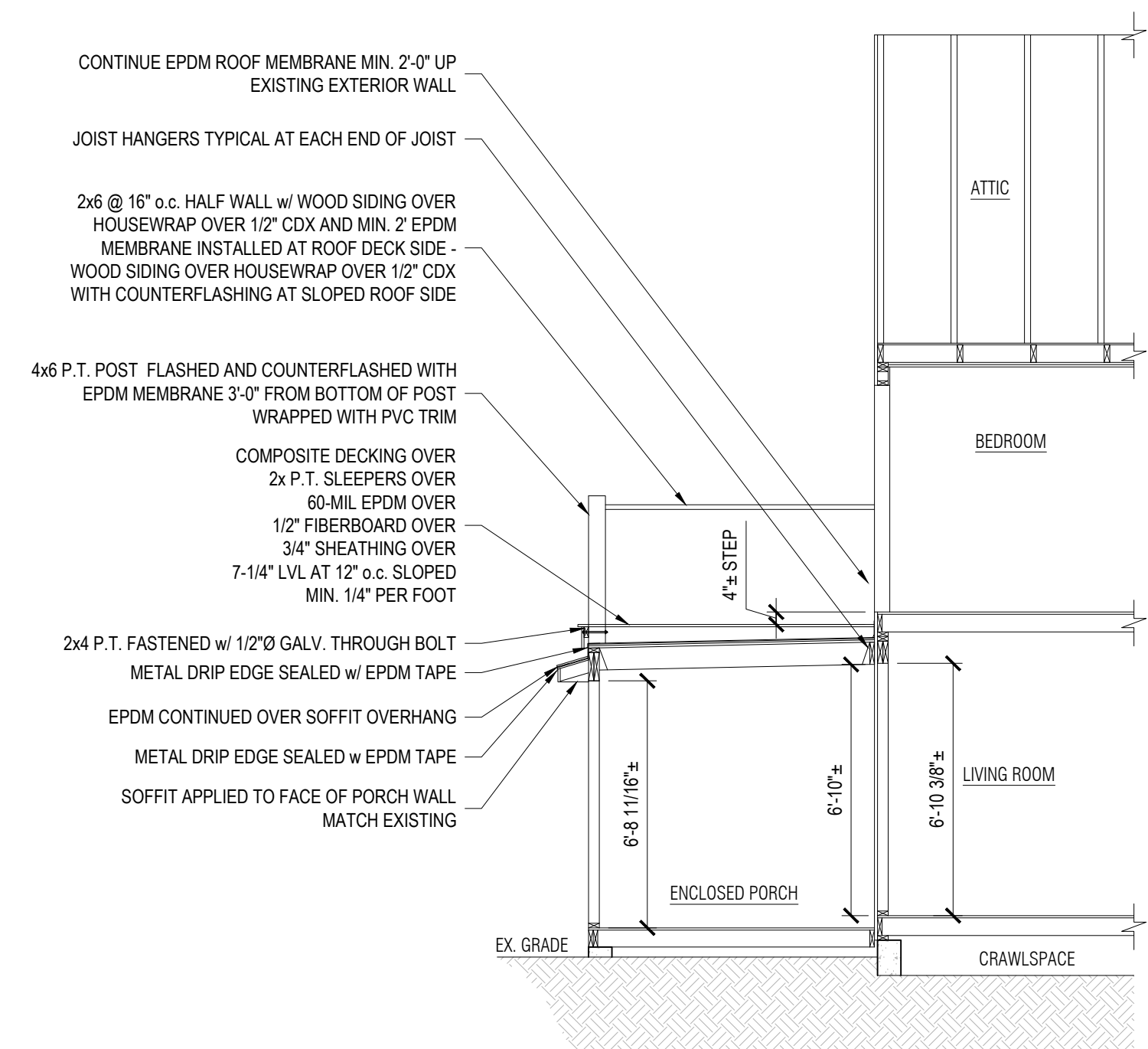
2 PARTIAL PROPOSED ROOF DECK LAYOUT  
SCALE: 1/4"=1'-0"



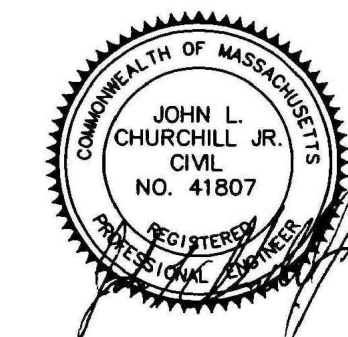
6 PROPOSED REAR ELEVATION  
SCALE: 1/4"=1'-0"



7 PROPOSED LEFT SIDE ELEVATION  
SCALE: 1/4"=1'-0"



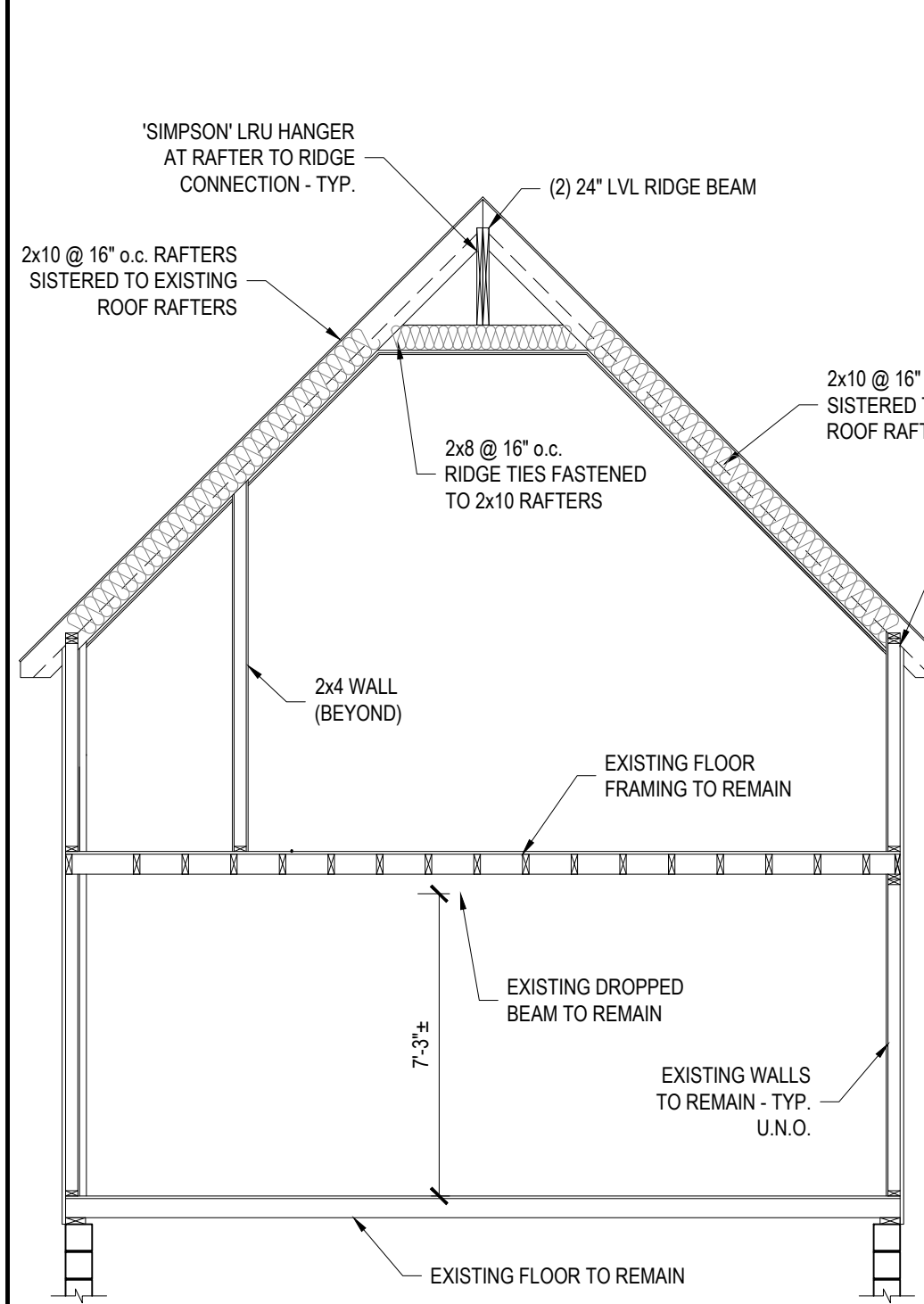
3 PROPOSED CROSS-SECTION AT ROOF DECK  
SCALE: 1/4"=1'-0"



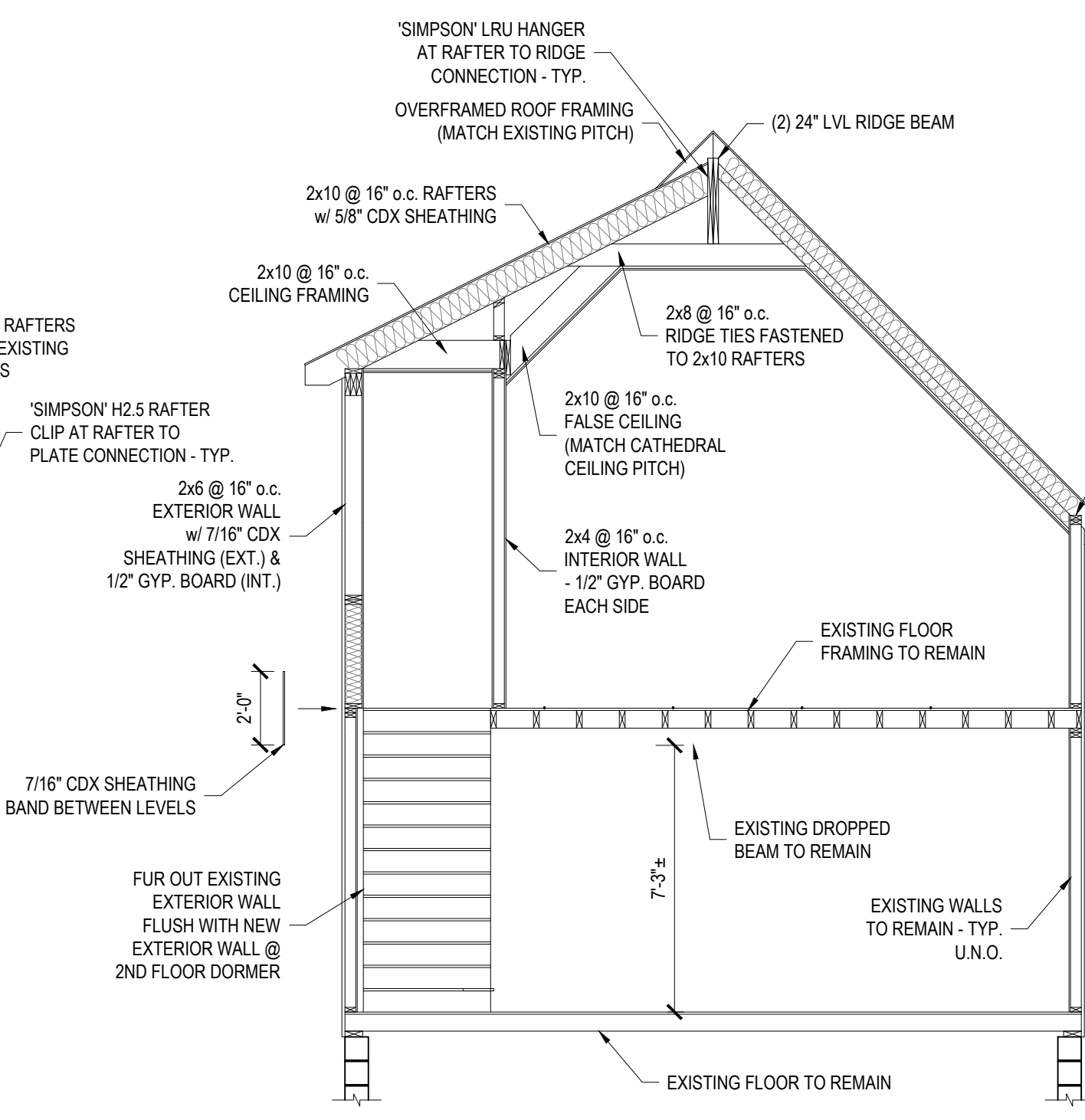
PROPOSED RENOVATION FOR PERMIT/CONSTRUCTION PROPOSED PLANS - BALCONY			
SCALE: PER PLANS	APPROVED BY: JLC	DRAWN BY: MKV	DATE: 10/4/2023
PREPARED BY: JC ENGINEERING, INC.		JOB NUMBER: 2007-1	DRAWING NUMBER: A-2
405 CIRCUIT AVE. BOURNE, MA			

2-19-24  
Date

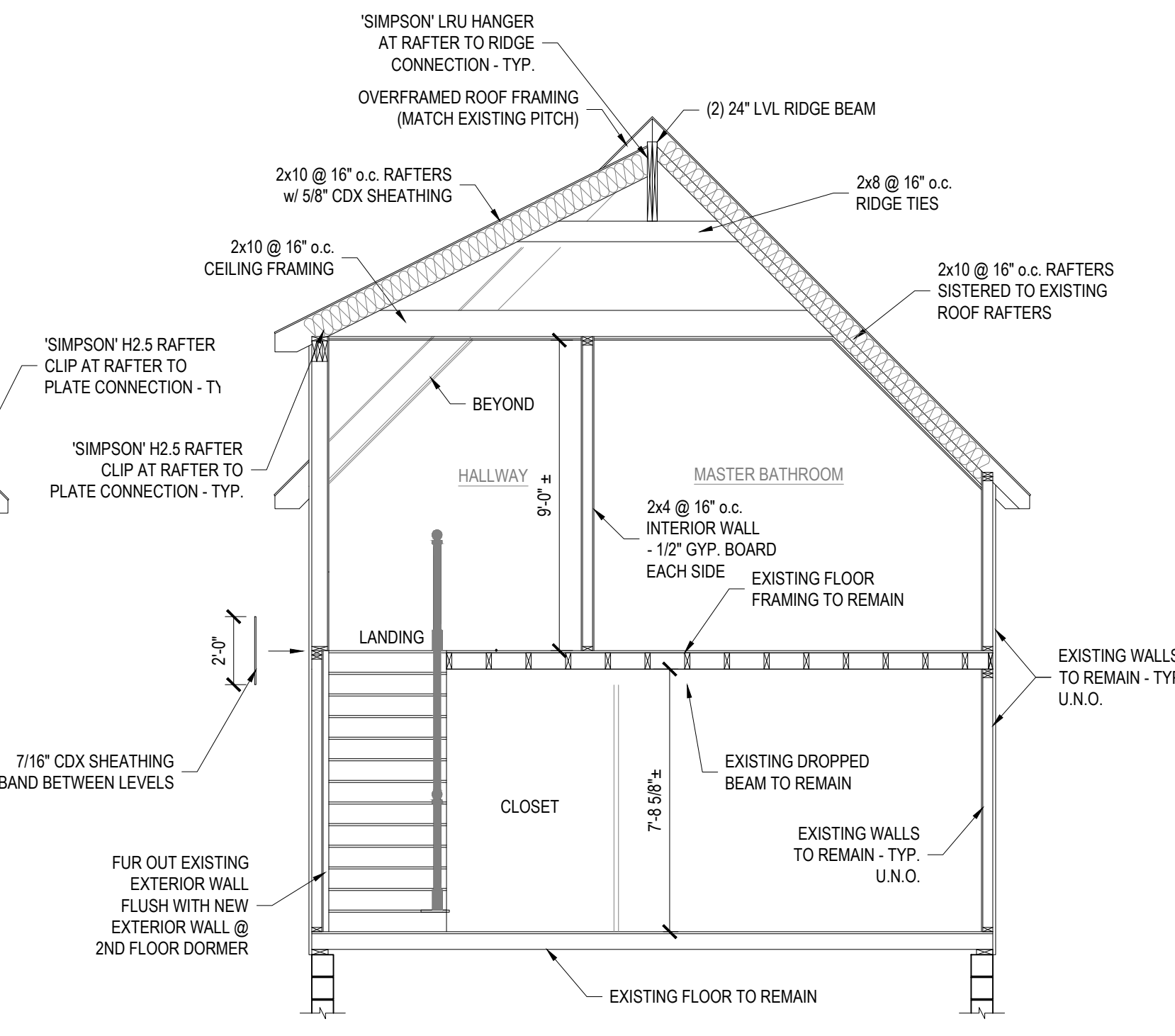
Professional Engineer



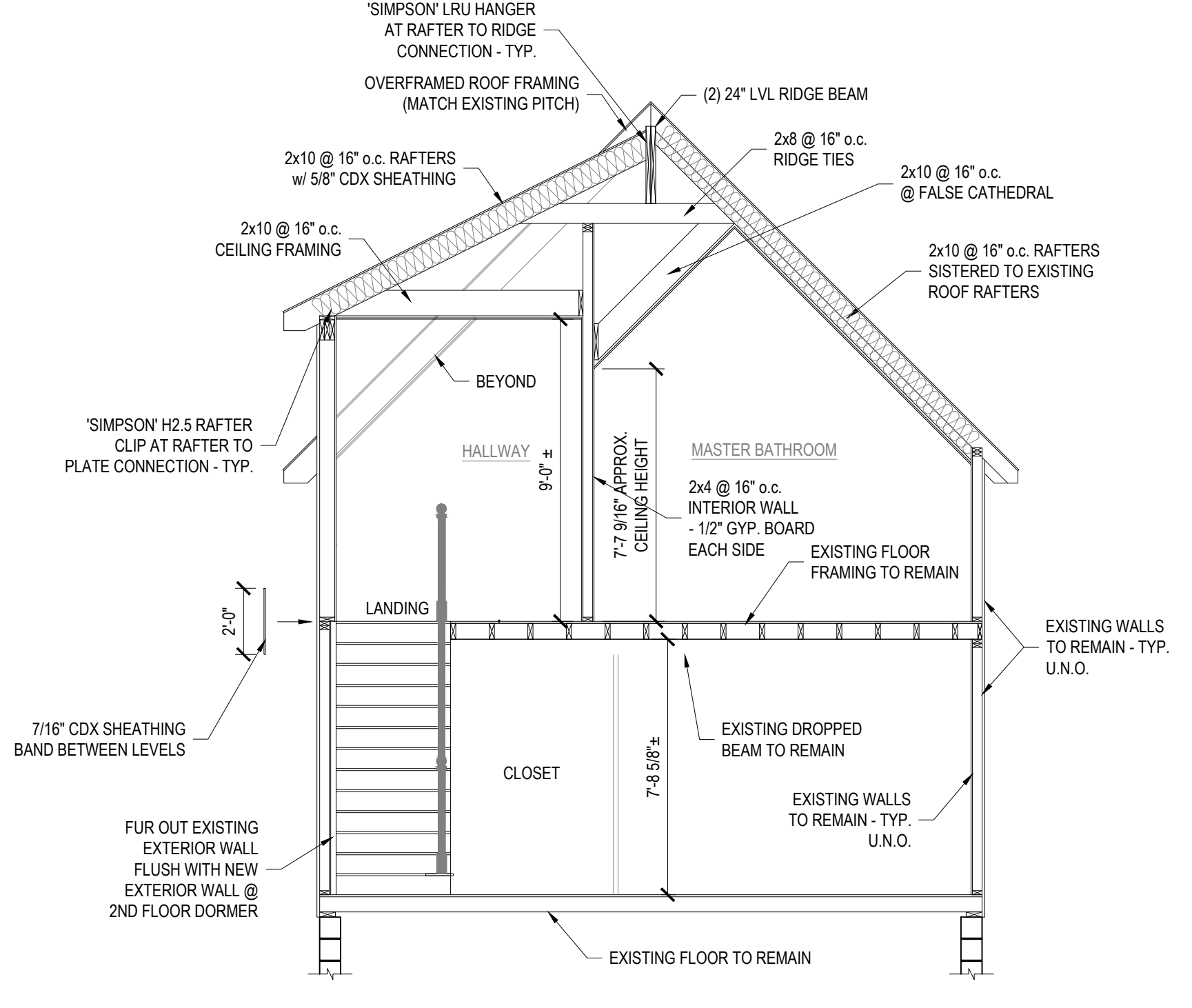
**A** PROPOSED SECTION @ MASTER BED.  
SCALE: 1/4"=1'-0"



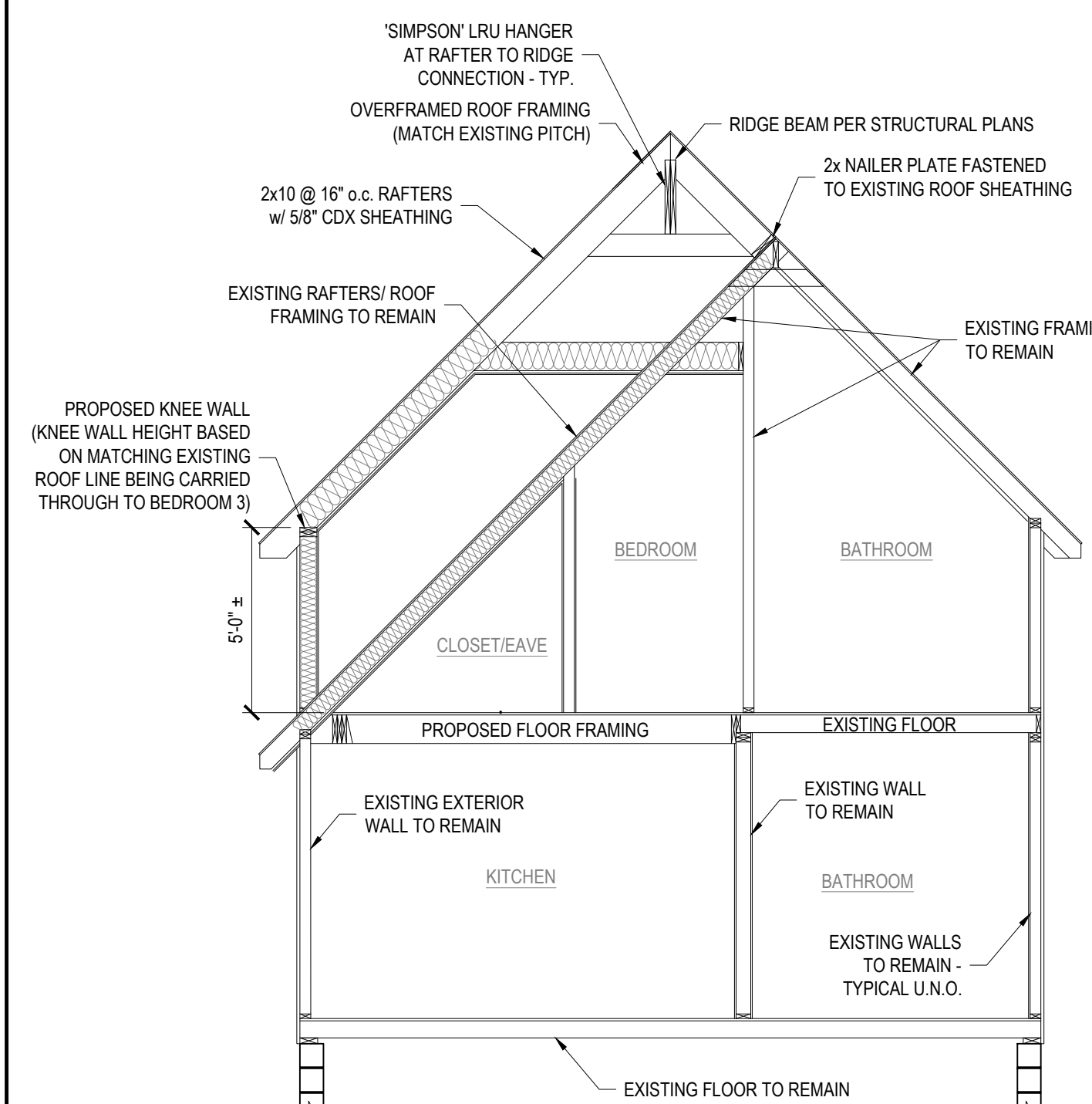
**B** PROPOSED SECTION @ STAIRS/MASTER  
SCALE: 1/4"=1'-0"



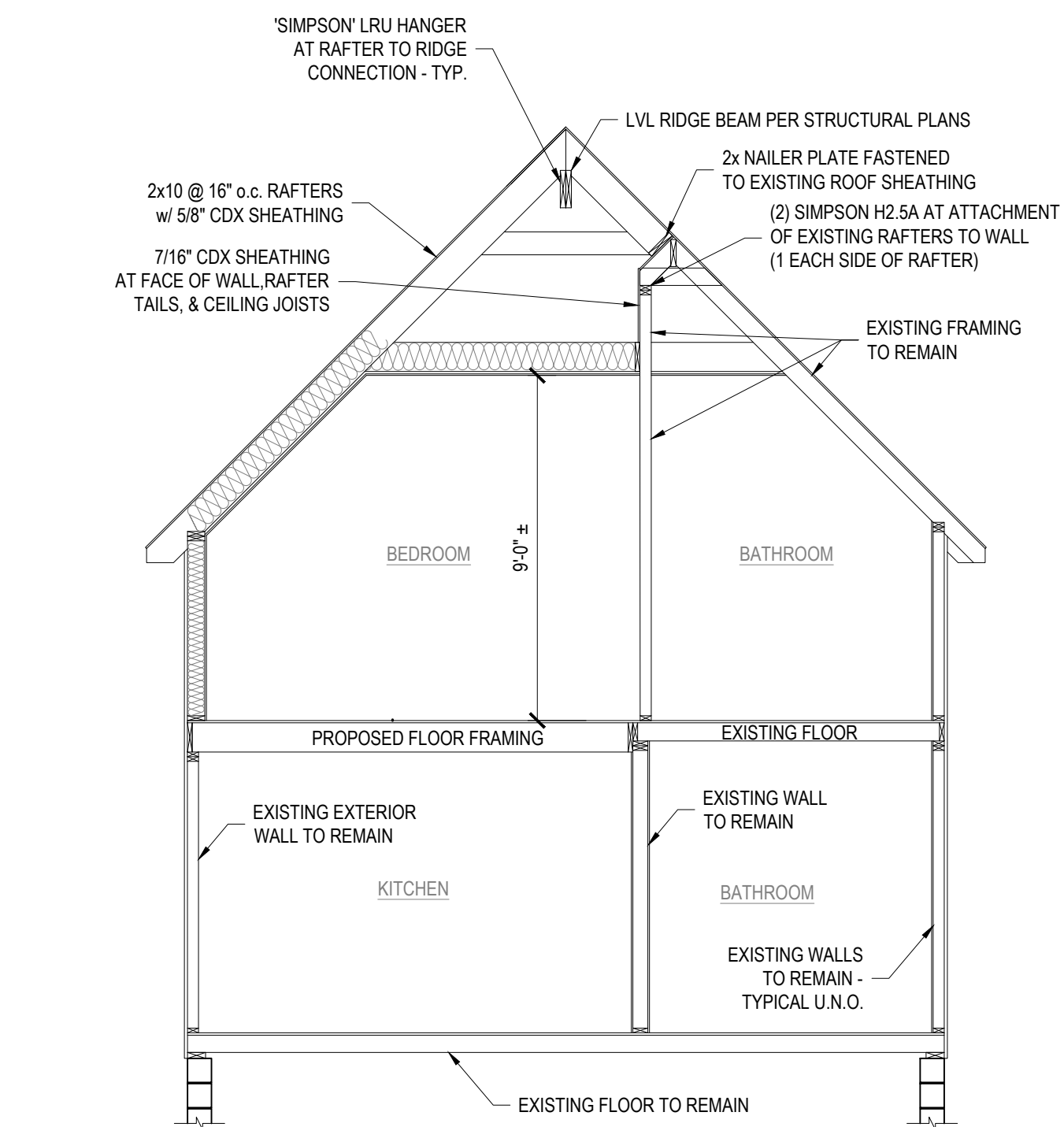
**C.1** PROPOSED SECTION @ STAIRS/HALLWAY  
SCALE: 1/4"=1'-0"



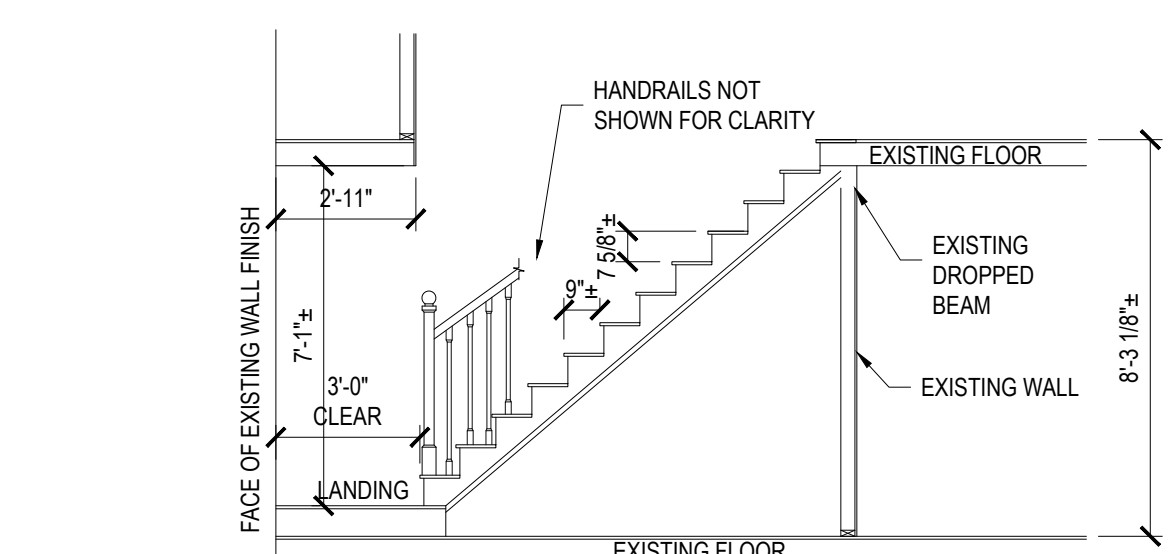
**C.2** ALT. PROP. SECTION @ STAIRS/HALLWAY  
SCALE: 1/4"=1'-0" ALTERNATE TO SECTION C.1



**D** PROPOSED SECTION @ NEW BEDROOM  
SCALE: 1/4"=1'-0"



**E** PROPOSED SECTION @ NEW BEDROOM  
SCALE: 1/4"=1'-0"



**F** PROPOSED PARTIAL STAIR SECTION  
SCALE: 1/4"=1'-0"

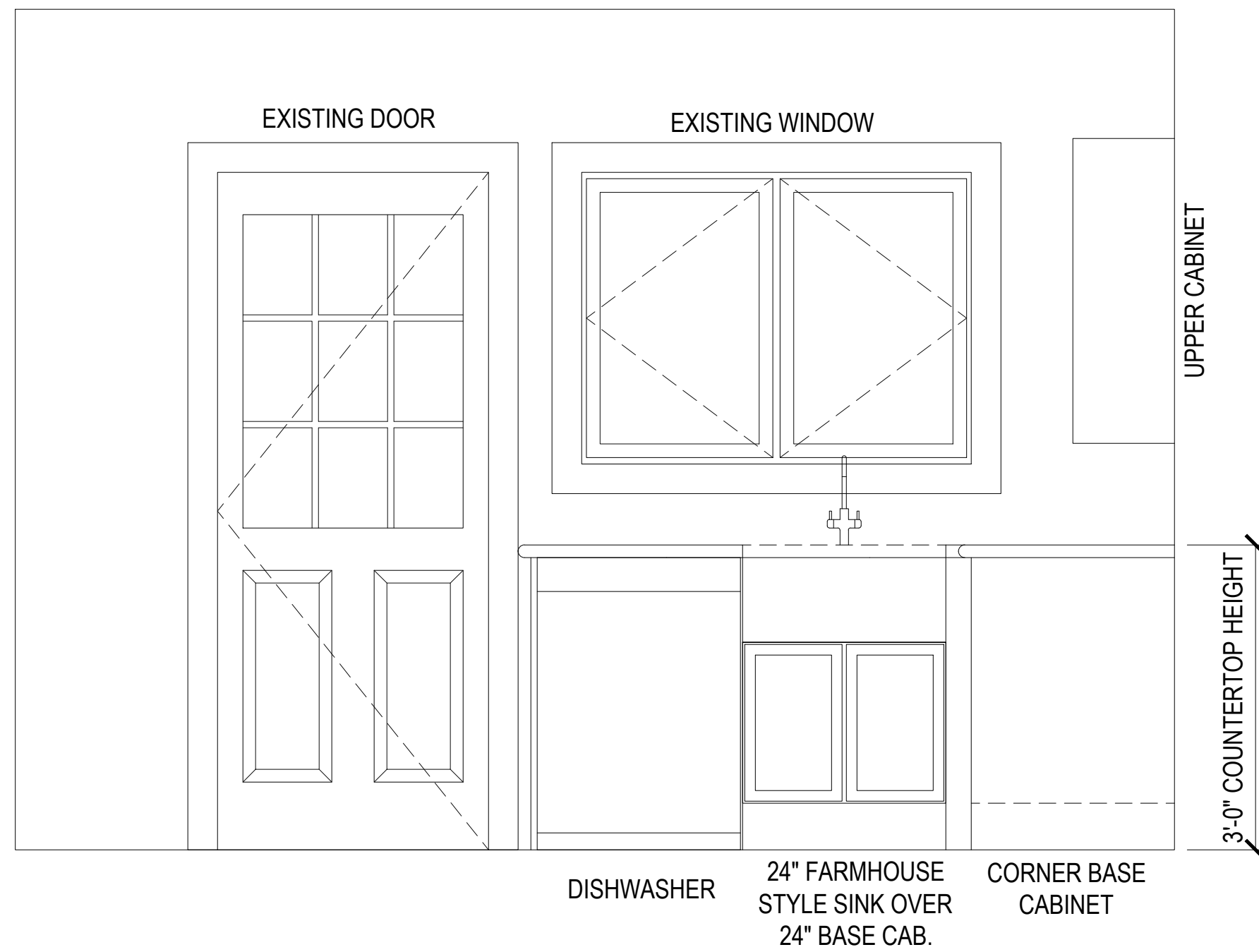


2-19-24  
Date

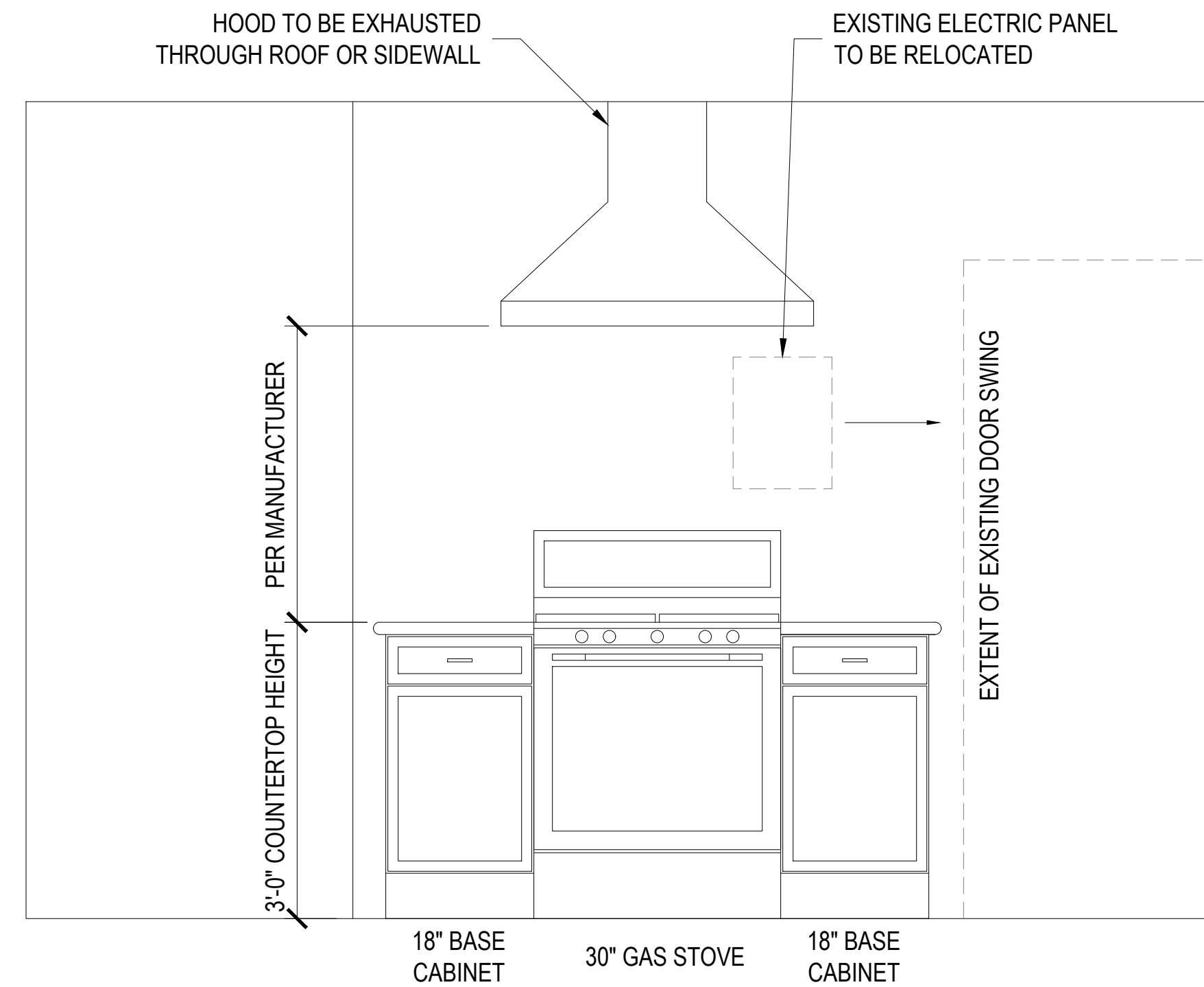
Professional Engineer

PROPOSED RENOVATION FOR PERMIT/CONSTRUCTION PROPOSED SECTIONS			
SCALE: PER PLANS	APPROVED BY: JLC	DRAWN BY: MKV	REVISD: 2/19/2024
DATE: 10/4/2023	PREPARED BY: JC ENGINEERING, INC.	JOB NUMBER: 2007-1	DRAWING NUMBER: A-3
405 CIRCUIT AVE. BOURNE, MA			

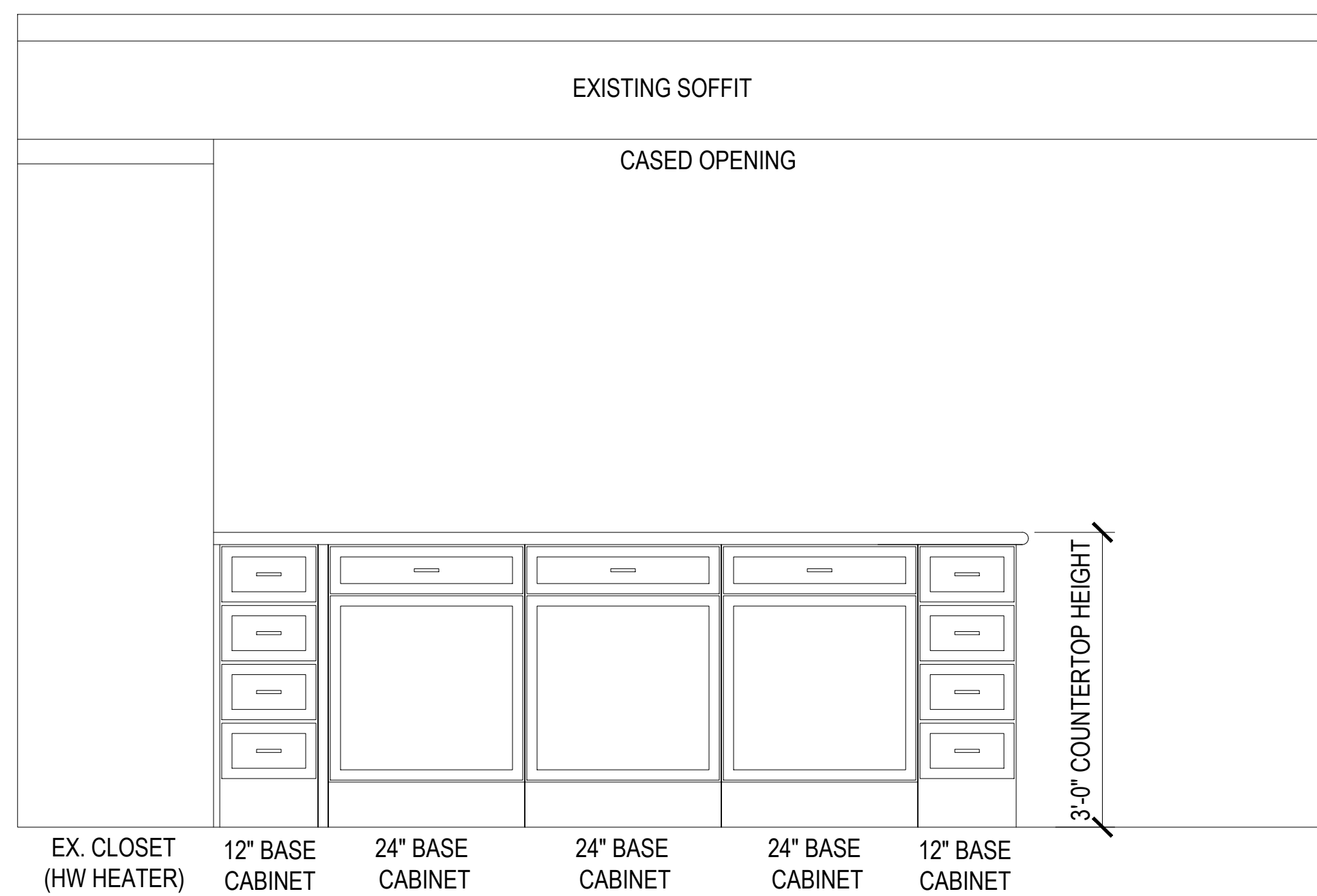




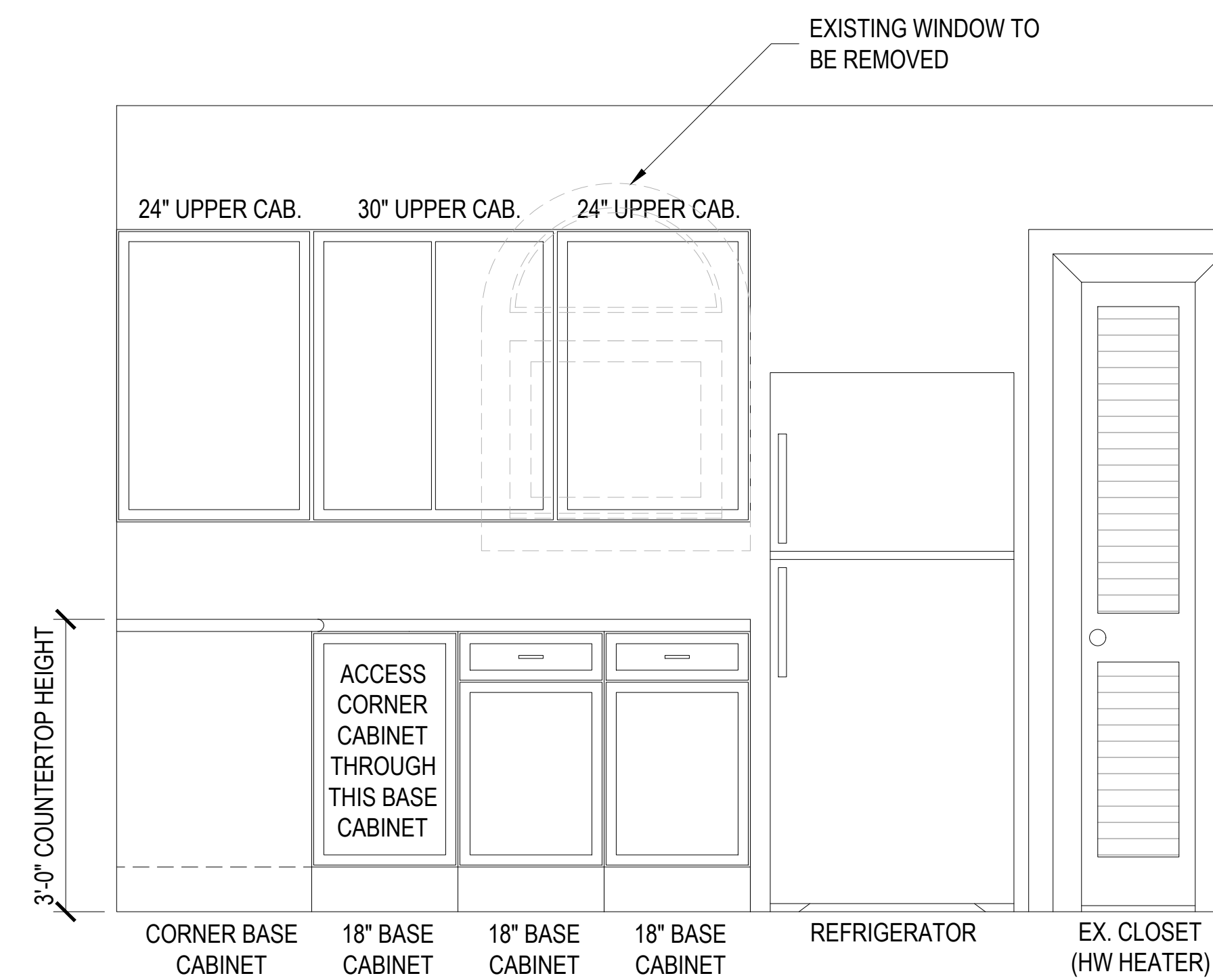
1 PROPOSED KITCHEN ELEVATION  
3/4" = 1'-0"



2 PROPOSED KITCHEN ELEVATION  
3/4" = 1'-0"



3 PROPOSED KITCHEN ELEVATION  
3/4" = 1'-0"



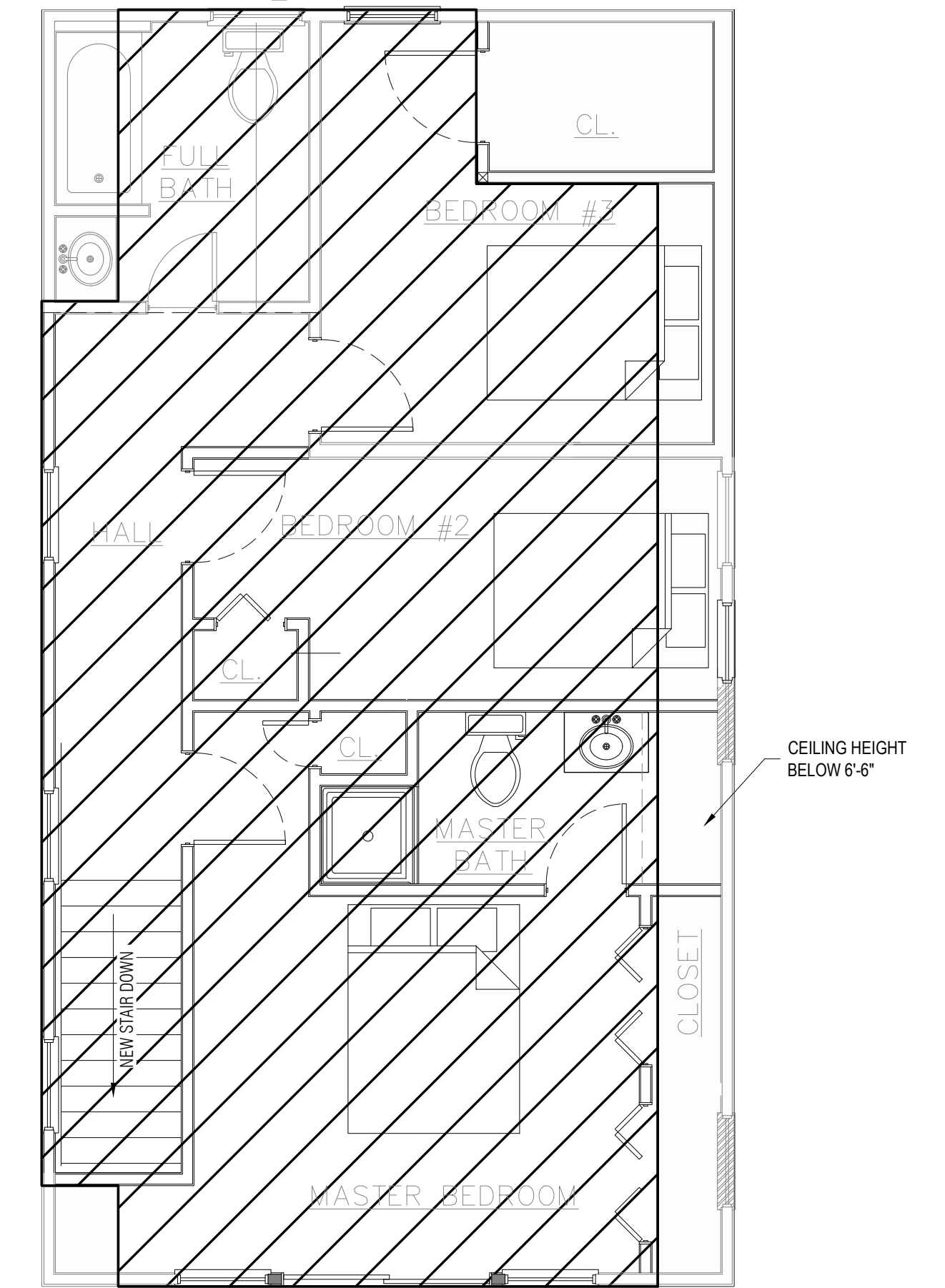
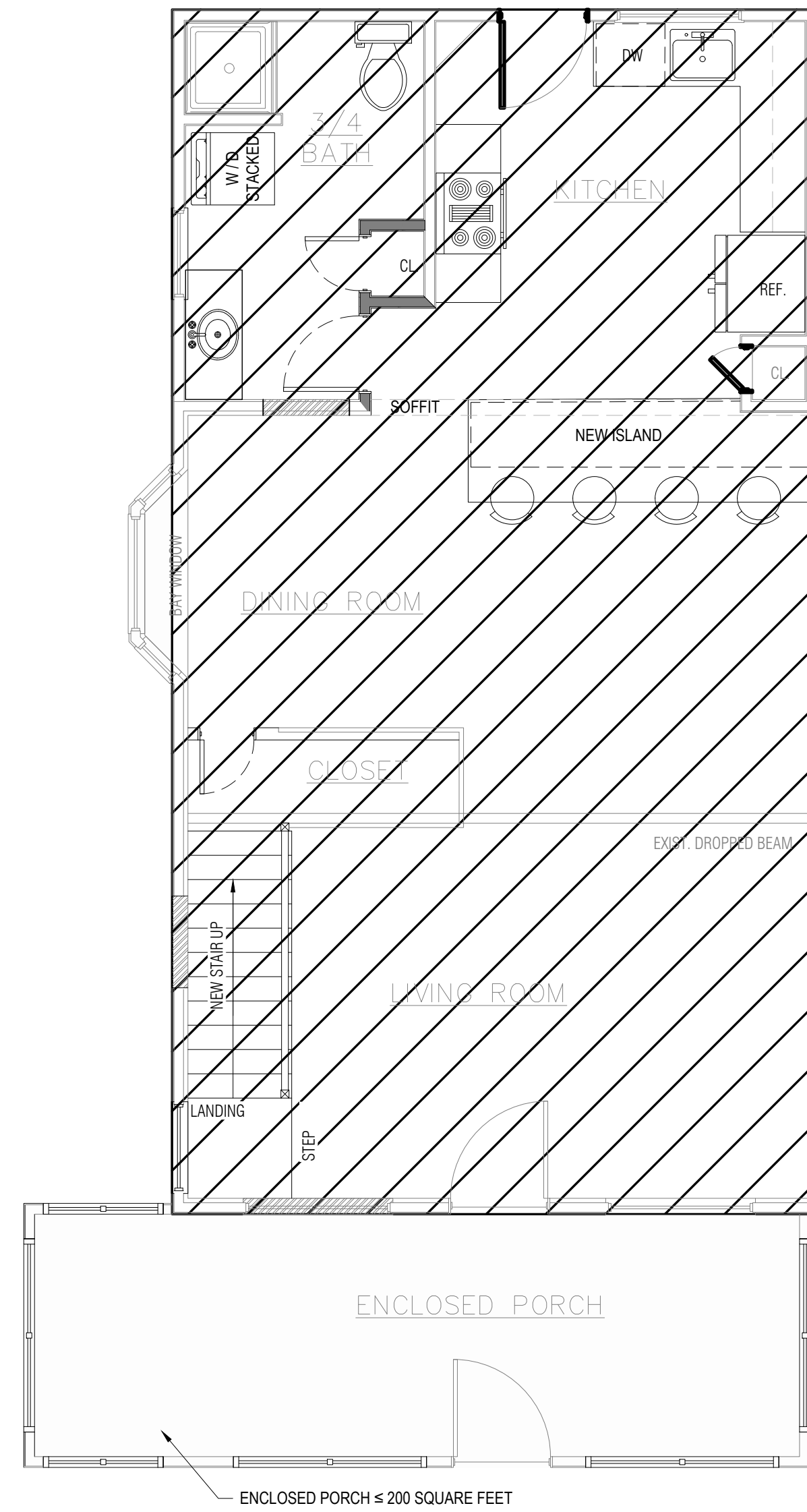
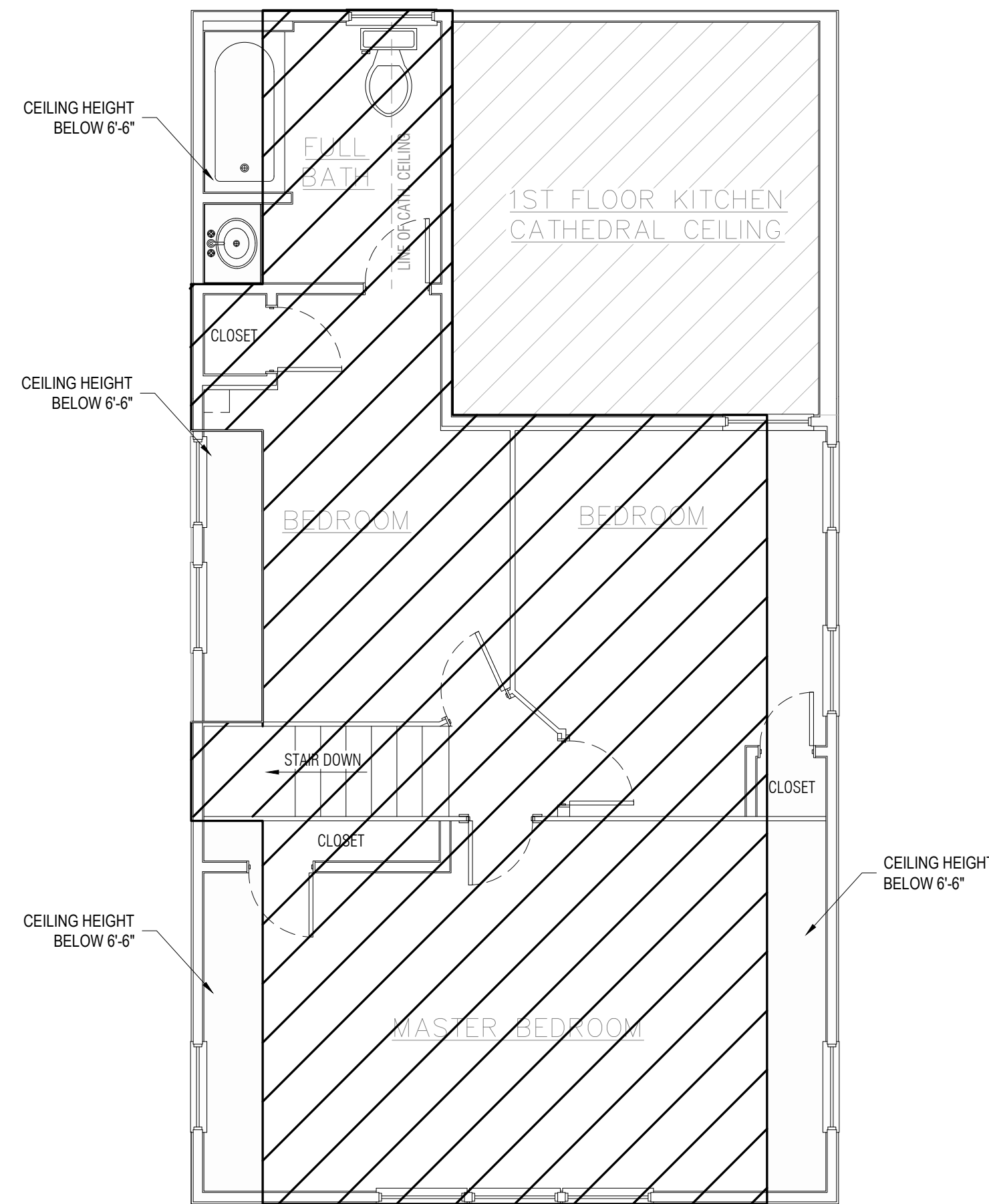
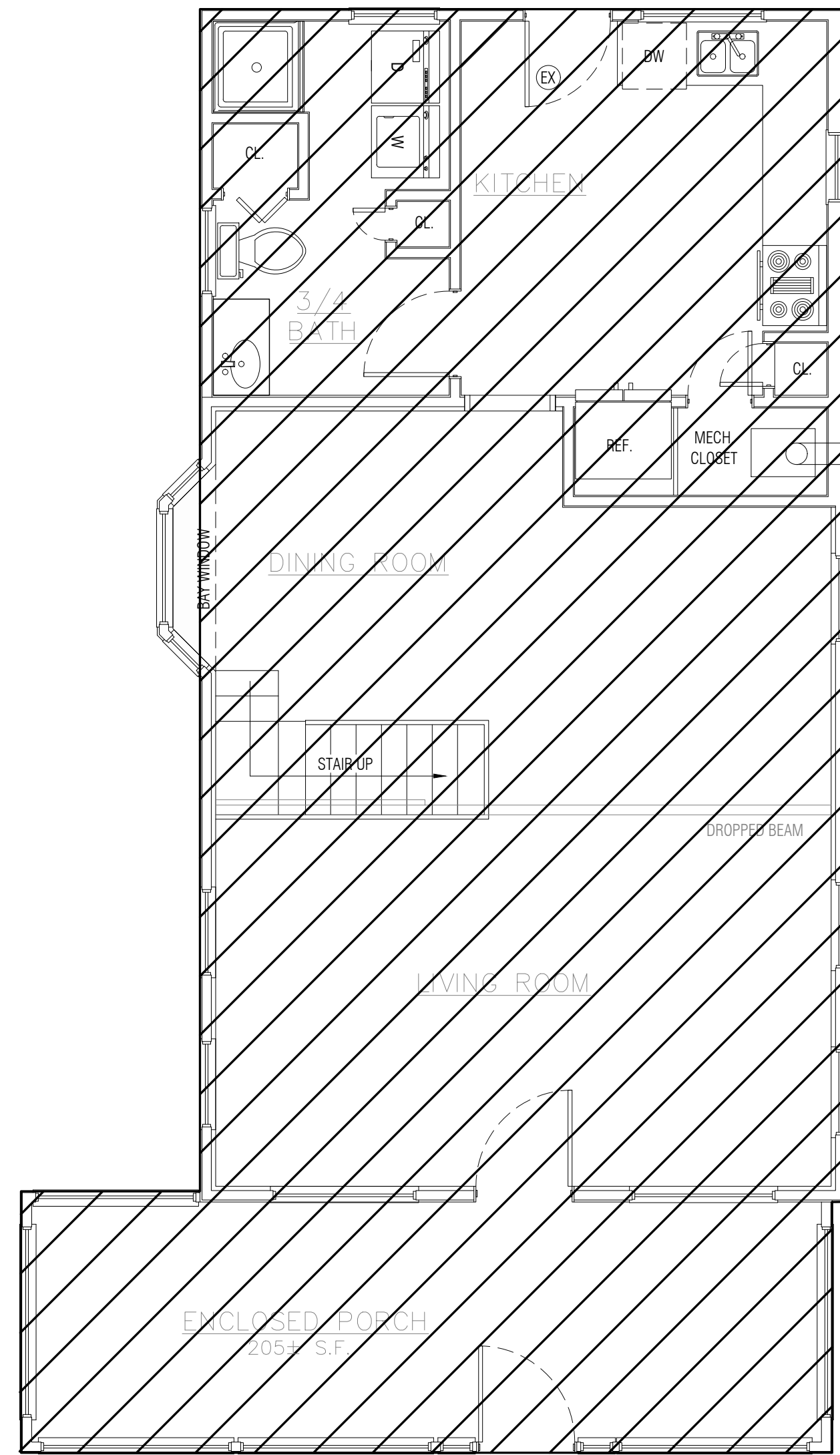
4 PROPOSED KITCHEN ELEVATION  
3/4" = 1'-0"



2-19-24  
Date

Professional Engineer

PROPOSED RENOVATION			
FOR PERMIT/CONSTRUCTION			
PROPOSED PLANS—KITCHEN ELEV.			
SCALE: PER PLANS	APPROVED BY: JLC	DRAWN BY: MKV	
DATE: 10/4/2023		REVISED: 2/19/2024	
PREPARED BY: JC ENGINEERING, INC.			
405 CIRCUIT AVE. BOURNE, MA	JOB NUMBER: 2007-1	DRAWING NUMBER: A-4	



1 EXISTING FIRST FLOOR GROSS FLOOR AREA  
SCALE: 1/4"=1'-0"

2 EXISTING SECOND FLOOR GROSS FLOOR AREA  
SCALE: 1/4"=1'-0"

3 PROPOSED FIRST FLOOR GROSS FLOOR AREA  
SCALE: 1/4"=1'-0"

4 PROPOSED SECOND FLOOR GROSS FLOOR AREA  
SCALE: 1/4"=1'-0"

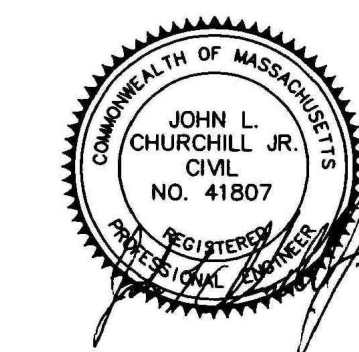
EXISTING GROSS FLOOR AREAS	
EXISTING FLOOR AREAS TO BE COUNTED TOWARDS MAXIMUM GROSS FLOOR AREA (PER SECTION 2456 - TABLE)	
EXISTING FIRST FLOOR - FLOOR AREA	751 SQUARE FEET
EXISTING ENCLOSED PORCH - FLOOR AREA	205 SQUARE FEET
EXISTING SECOND FLOOR - FLOOR AREA	479 SQUARE FEET
EXISTING 1-STORY DETACHED GARAGE - FLOOR AREA	0 SQUARE FEET (< 480 SQ. FT.)
TOTAL EXISTING FLOOR AREA = 1,435 SQUARE FEET	
EXISTING GROSS FLOOR AREA = 28.9% (1,435 SQ. FT. / 4,970 SQ. FT.)	

PROPOSED GROSS FLOOR AREAS	
PROPOSED FLOOR AREA TO BE COUNTED TOWARDS MAXIMUM GROSS FLOOR AREA (PER SECTION 2456 - TABLE)	
PROPOSED FIRST FLOOR - FLOOR AREA	751 SQUARE FEET (NO CHANGE)
PROPOSED ENCLOSED PORCH - FLOOR AREA	0 SQUARE FEET (< 200 SQ. FT.)
PROPOSED SECOND FLOOR - FLOOR AREA	616 SQUARE FEET
EXISTING 1-STORY DETACHED GARAGE - FLOOR AREA	0 SQUARE FEET (< 480 SQ. FT.)
TOTAL PROPOSED FLOOR AREA = 1,367 SQUARE FEET	
PROPOSED GROSS FLOOR AREA = 27.5% (1,367 SQ. FT. / 4,970 SQ. FT.)	

NON CONFORMING LOT COVERAGE WORKSHEET*			
NON-CONFORMING LOT SIZE (SQUARE FEET)	MAXIMUM GROSS FLOOR AREA TO LOT AREA	MAXIMUM LOT COVERAGE	MAXIMUM BLDG. HEIGHT
4,970 SQUARE FEET (< 6,000 SQ. FT.)	25%	25%	25'
GROSS FLOOR AREA ALLOWED: 4,970 S.F. x 25% = 1,243 S.F.			
MAXIMUM LOT COVERAGE RELIEF OVER GFA: 1,243 x 10% = 124 SQ. FT. OVER GROSS FLOOR AREA			
MAXIMUM GFA w/ 10% RELIEF: 1,243 + 124 = 1,367 SQUARE FEET			
EXISTING MAXIMUM GFA : 1,435 SQUARE FEET ≥ MAXIMUM GFA w/ 10% RELIEF			
PROPOSED MAXIMUM GFA : 1,367 SQUARE FEET ≤ MAXIMUM GFA w/ 10% RELIEF			

\*PER SECTION 2456 TABLE (REQUIRED TO SATISFY SECTION 2450 OF THE ZONING BYLAW)

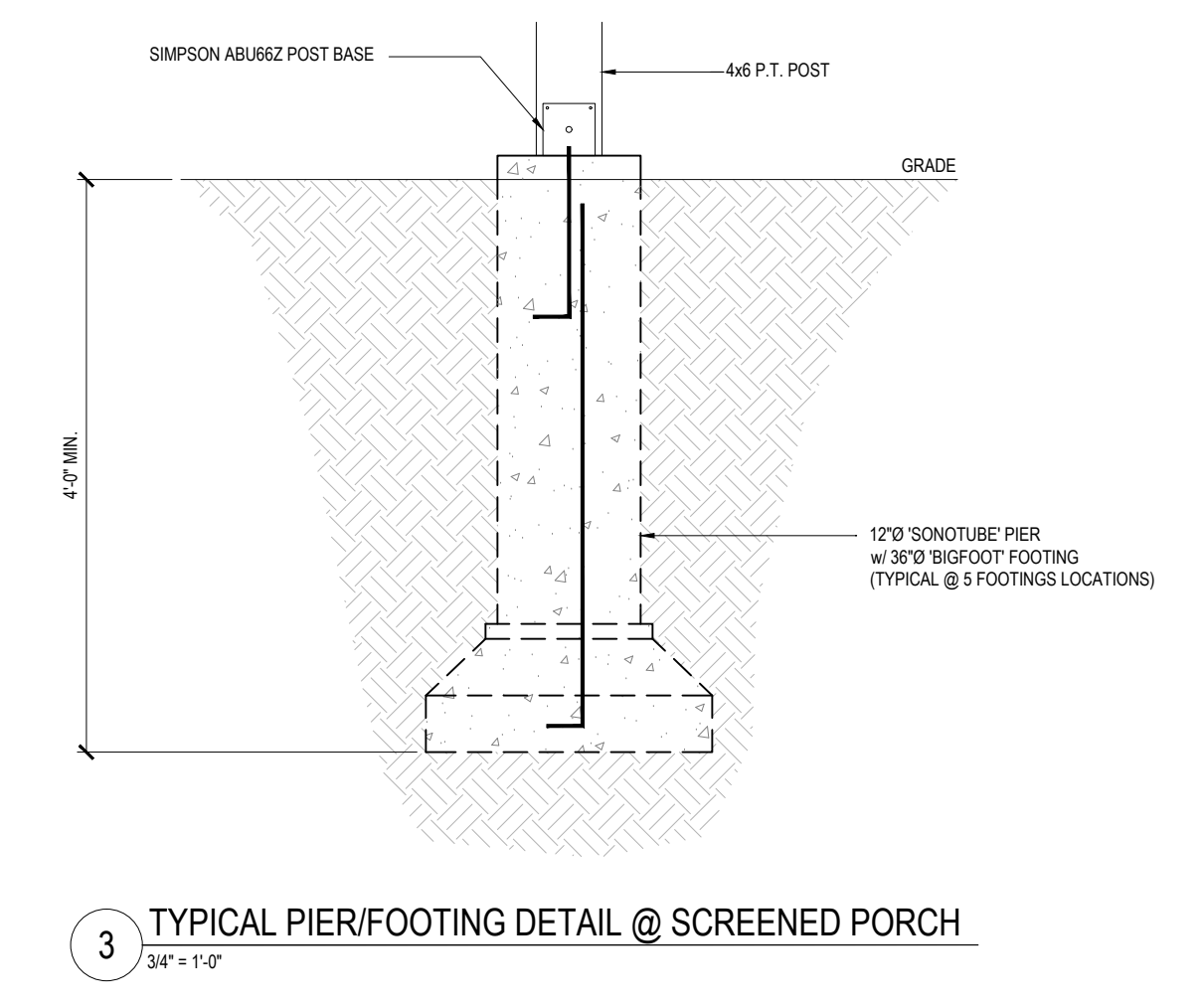
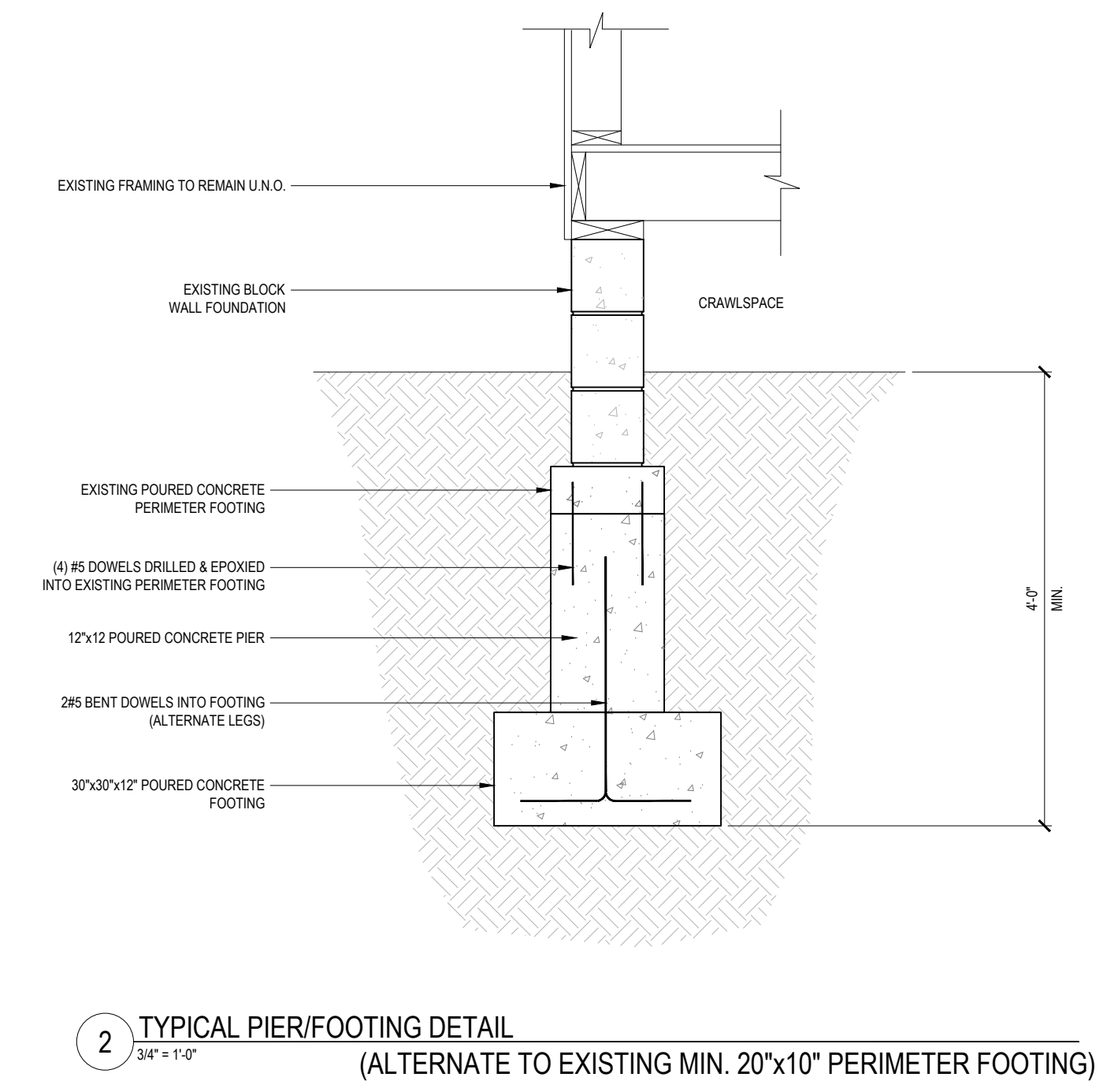
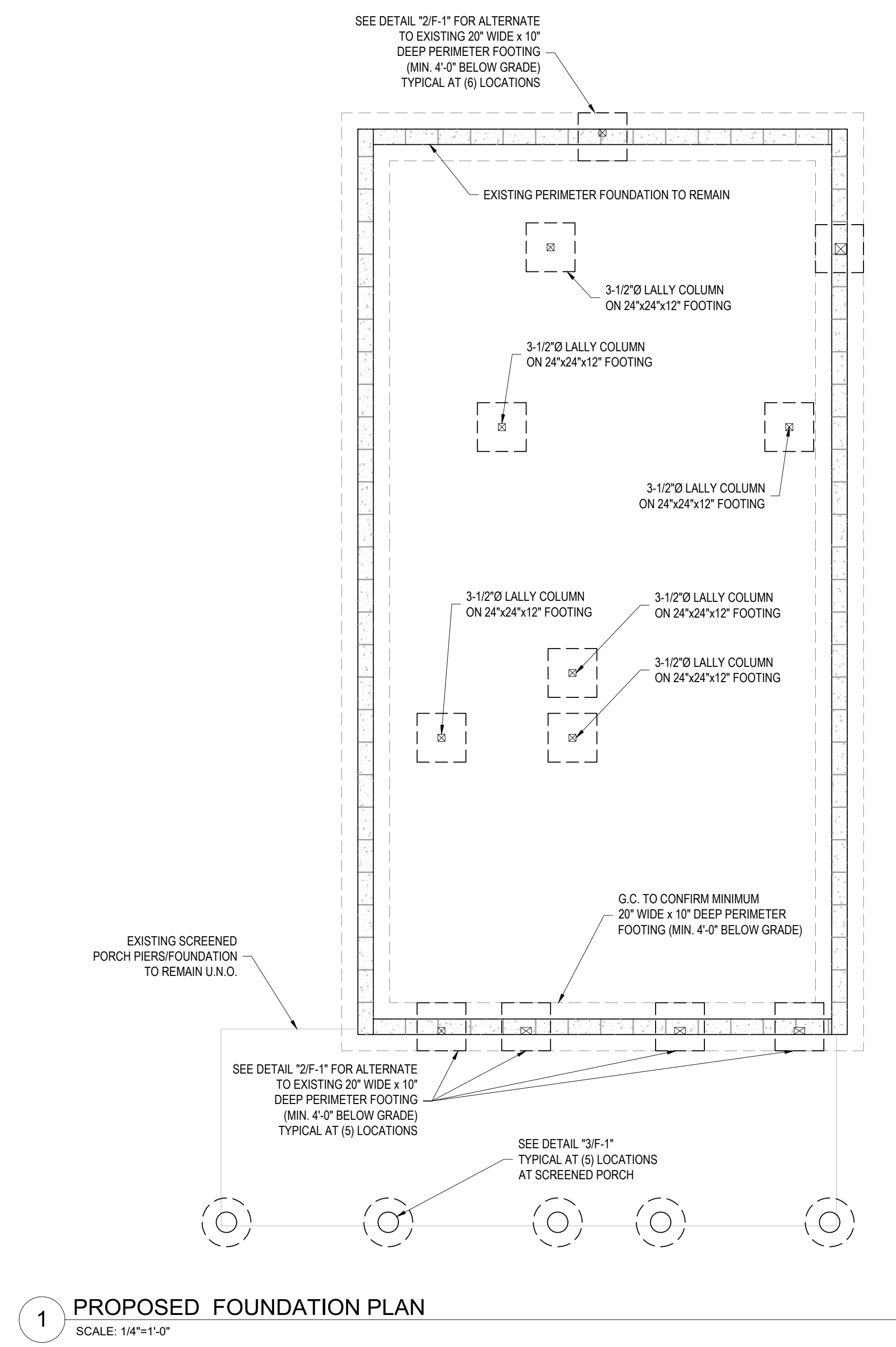
GROSS FLOOR AREA KEY PLAN	
	AREA CONTRIBUTING TO GFA
	AREA NOT CONTRIBUTING TO GFA (PER TABLE IN SECTION 2456)



2-19-24  
Date

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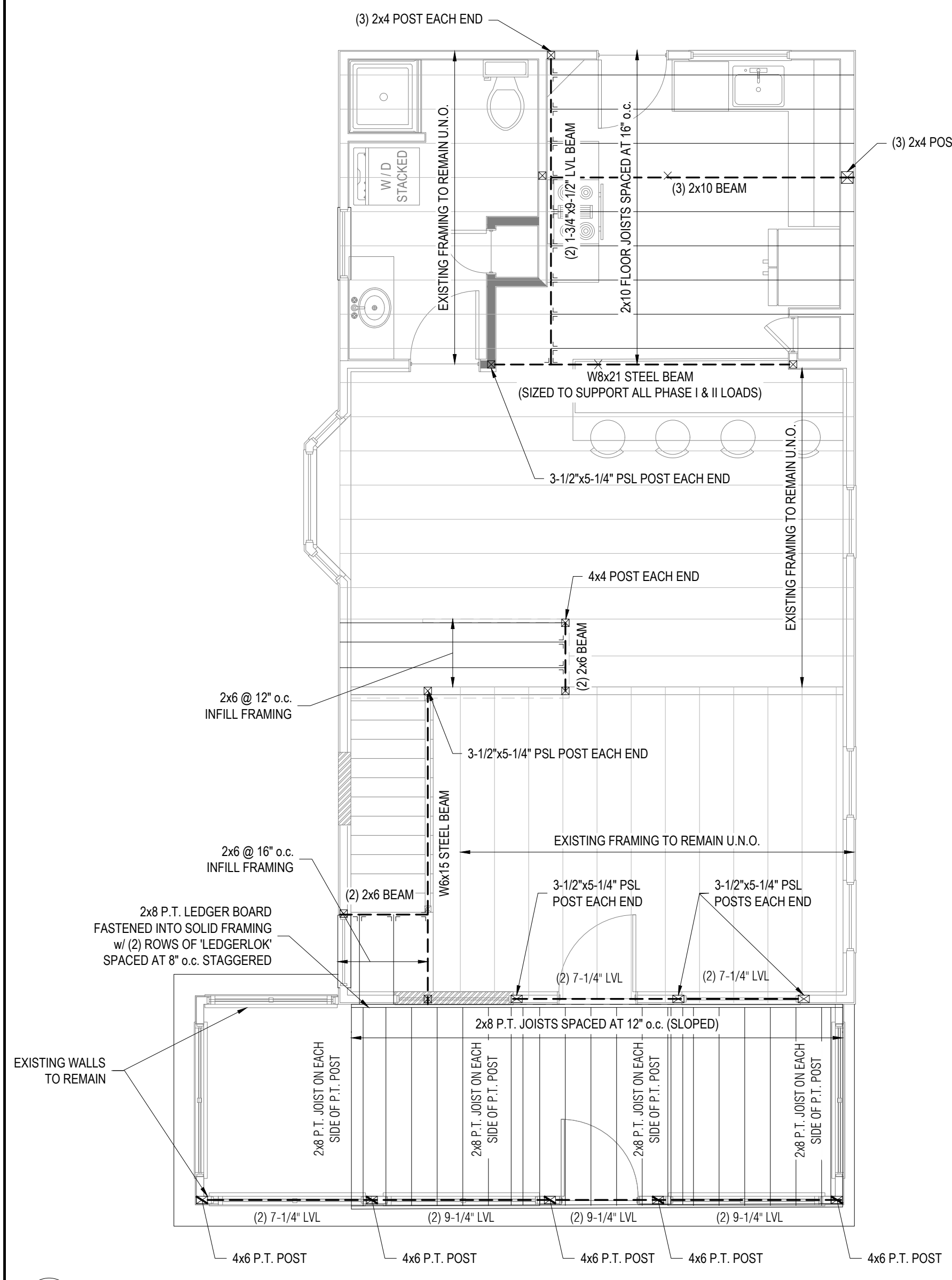
PROPOSED RENOVATION FOR PERMIT/CONSTRUCTION GROSS FLOOR AREAS			
SCALE: PER PLANS	APPROVED BY: JLC	DRAWN BY: MKV	DATE: 10/4/2023
PREPARED BY: JC ENGINEERING, INC.		JOB NUMBER: 2007-1	DRAWING NUMBER: A-5
405 CIRCUIT AVE. BOURNE, MA			



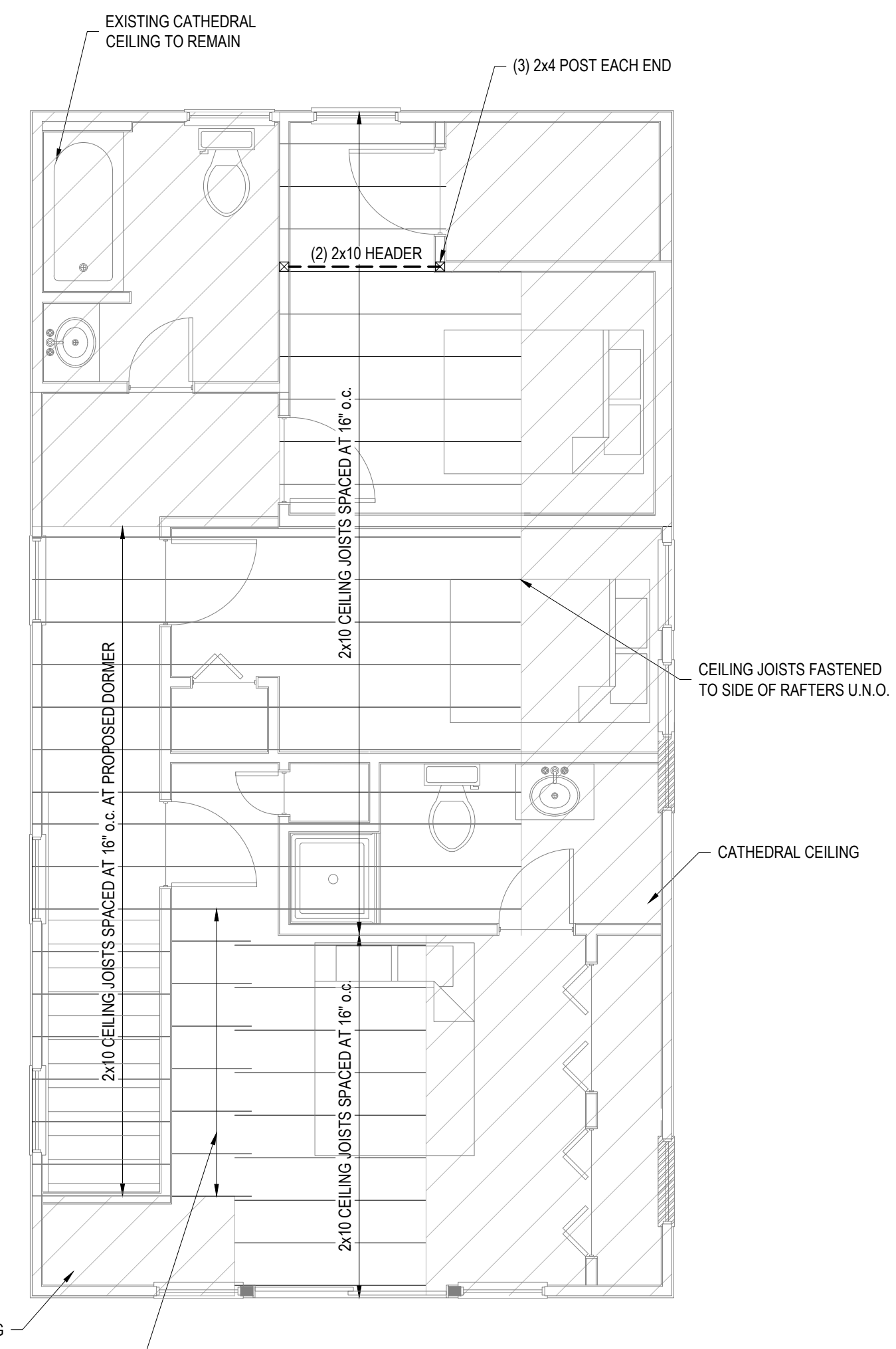
PROPOSED RENOVATION FOR PERMIT/CONSTRUCTION FOUNDATION PLAN & DETAILS			
SCALE: PER PLANS	APPROVED BY: JLC	DRAWN BY: MKV	
DATE: 10/4/2023		REVISED: 2/19/2024	
PREPARED BY: <b>JC ENGINEERING, INC.</b>			
405 CIRCUIT AVE. BOURNE, MA	JOB NUMBER: 2007-1	DRAWING NUMBER: F-1	

2-19-24  
Date

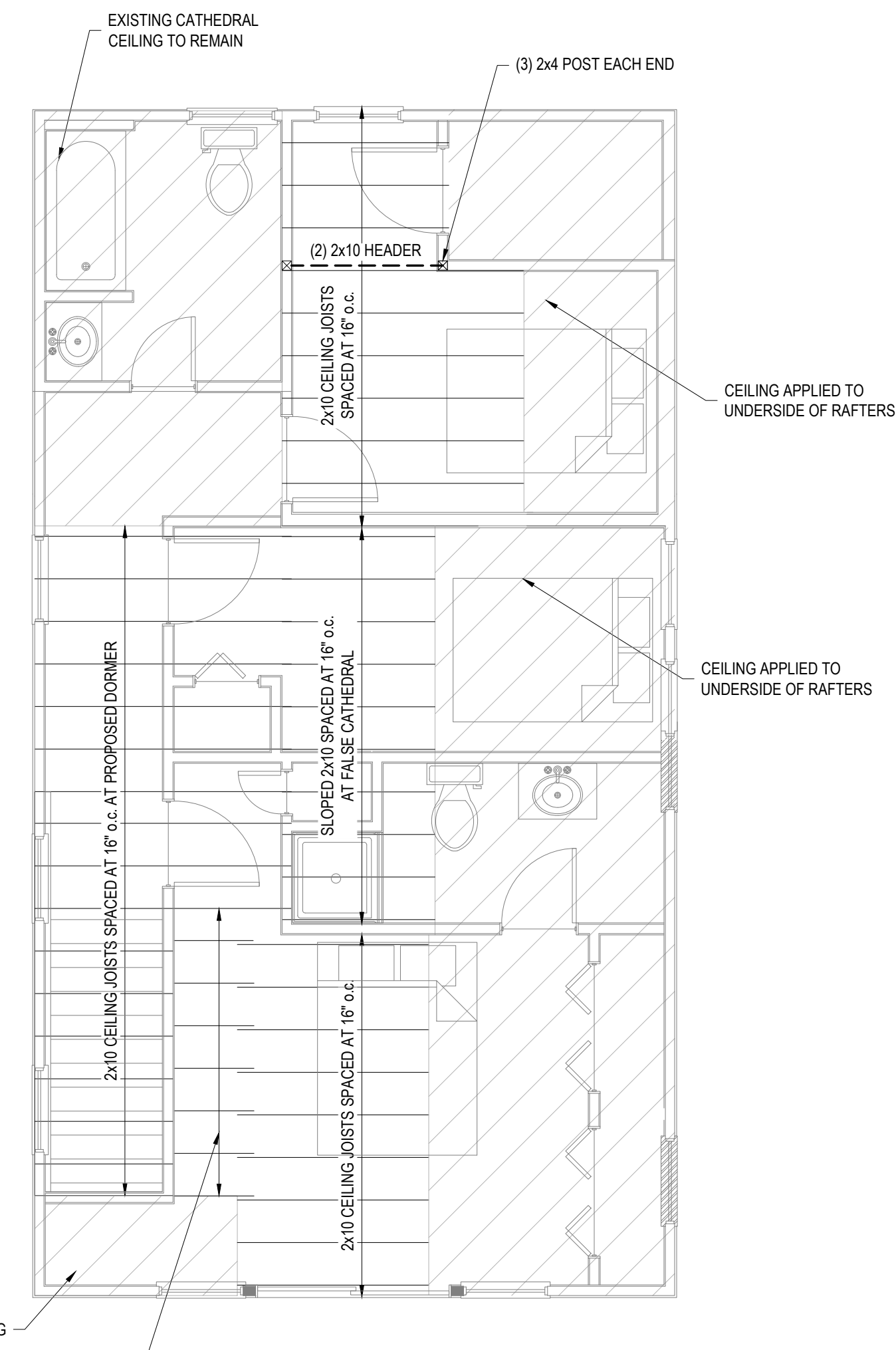
Professional Engineer



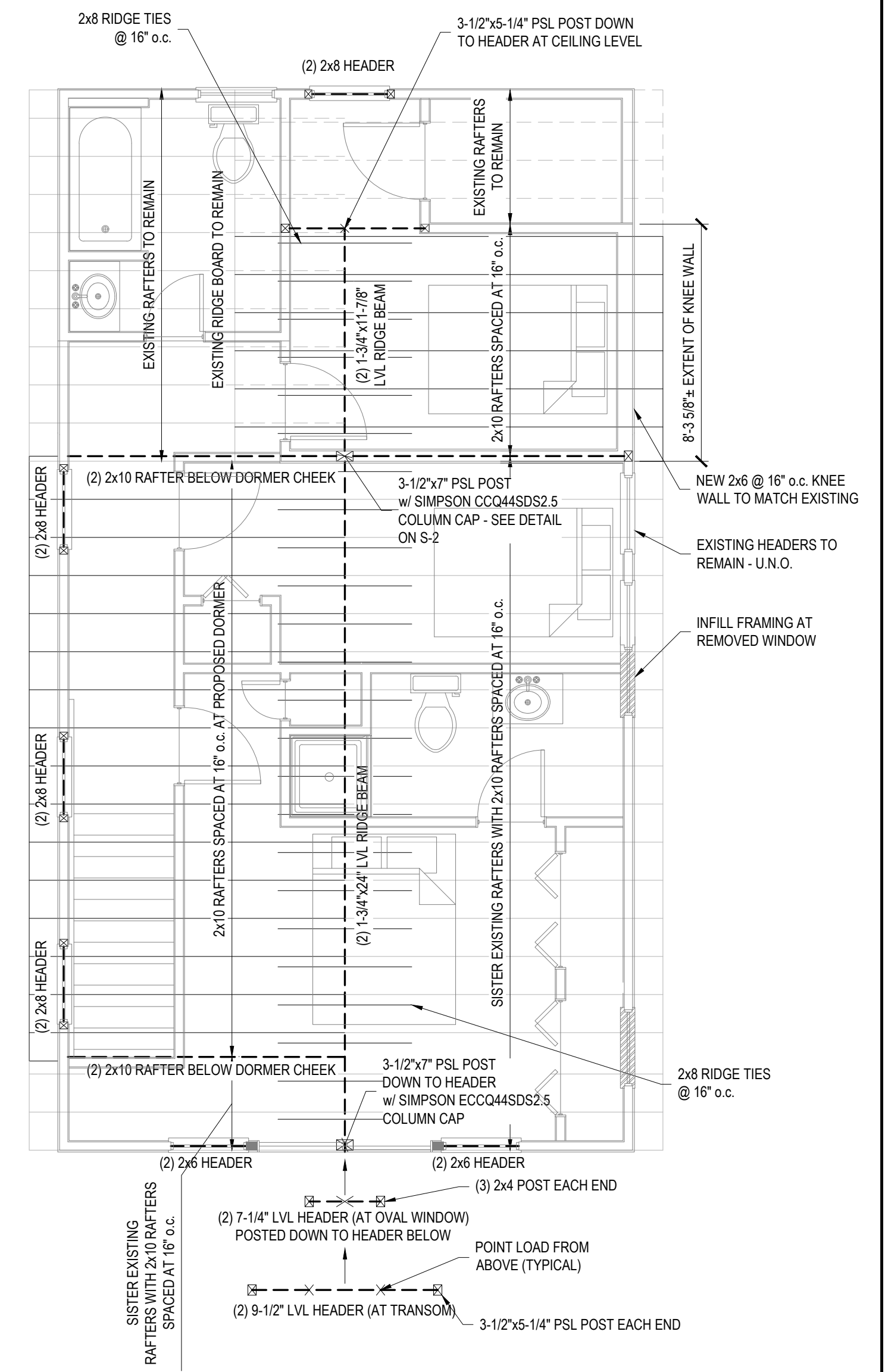
**1 PROPOSED SECOND FLOOR/LOW ROOF FRAMING PLAN**  
SCALE: 1/4"=1'-0"



**2.1 PROPOSED CEILING FRAMING PLAN**  
SCALE: 1/4"=1'-0"



**2.2 ALT. PROPOSED CEILING FRAMING PLAN**  
SCALE: 1/4"=1'-0" ALTERNATE TO PLAN "2.1/S-1"



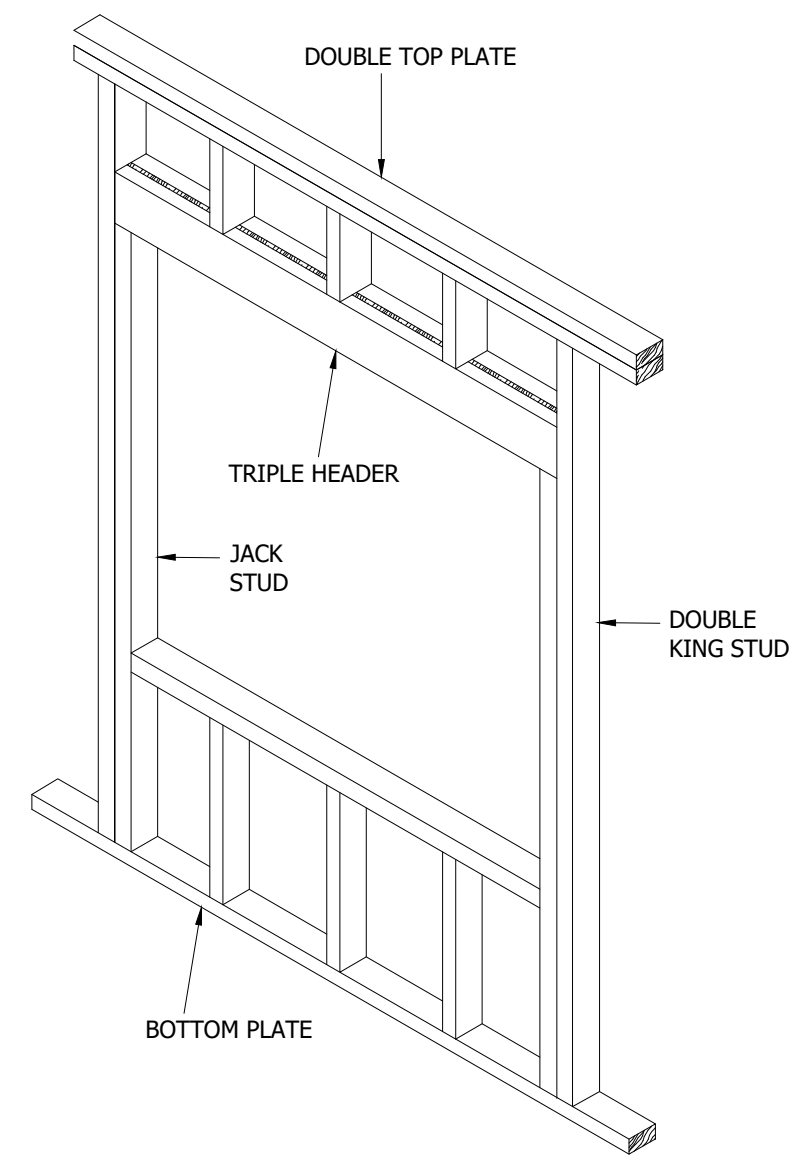
**3 PROPOSED ROOF FRAMING PLAN**  
SCALE: 1/4"=1'-0"



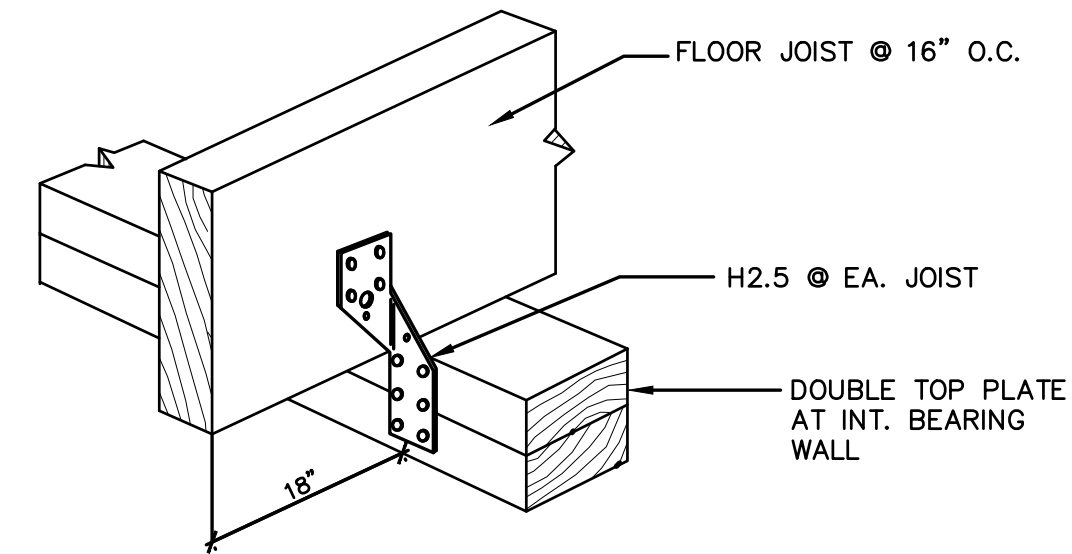
2-19-24  
Date

Professional Engineer

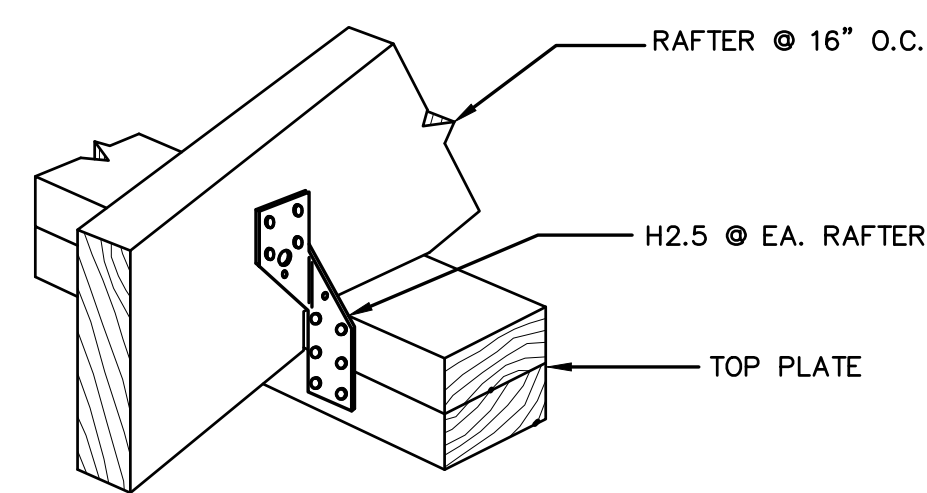
<b>PROPOSED RENOVATION FOR PERMIT/CONSTRUCTION FRAMING PLANS</b>			
SCALE: PER PLANS	APPROVED BY: <b>JLC</b>	DRAWN BY: <b>MKV</b>	DATE: 10/4/2023
PREPARED BY: <b>JC ENGINEERING, INC.</b>		REVISD BY: <b>2/19/2024</b>	
405 CIRCUIT AVE. BOURNE, MA		JOB NUMBER: <b>2007-1</b>	DRAWING NUMBER: <b>S-1</b>



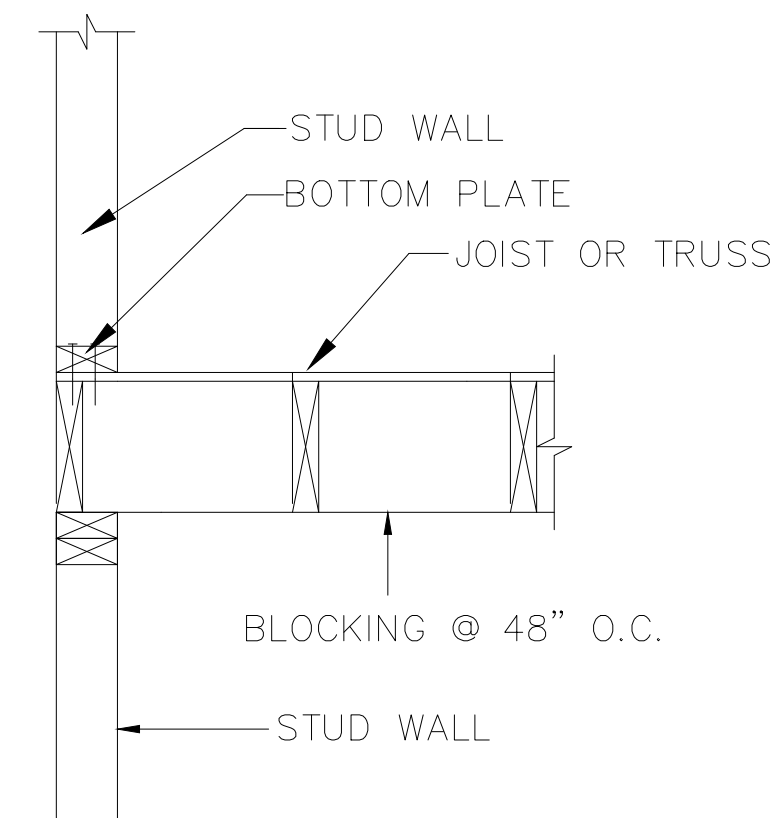
EXTERIOR WALL OPENINGS, HEADER  
DETAILS WITH JACK STUDS  
NOT TO SCALE



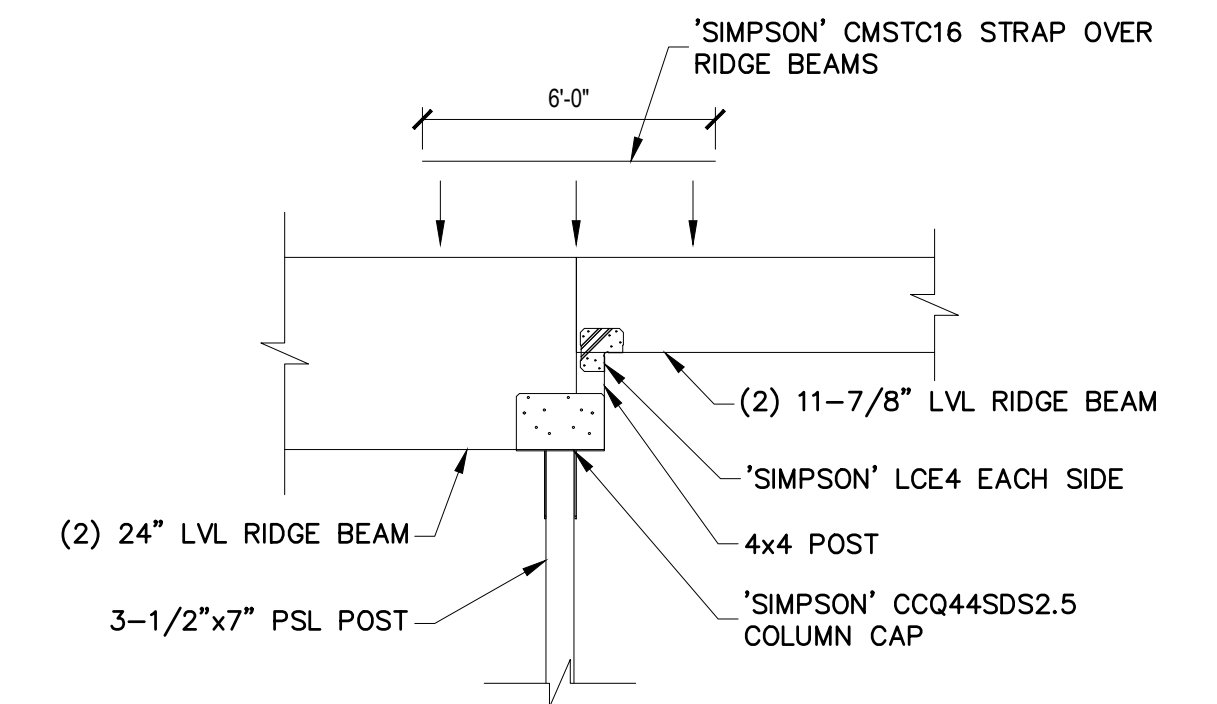
TYPICAL JOIST TO PLATE CONNECTION  
NOT TO SCALE



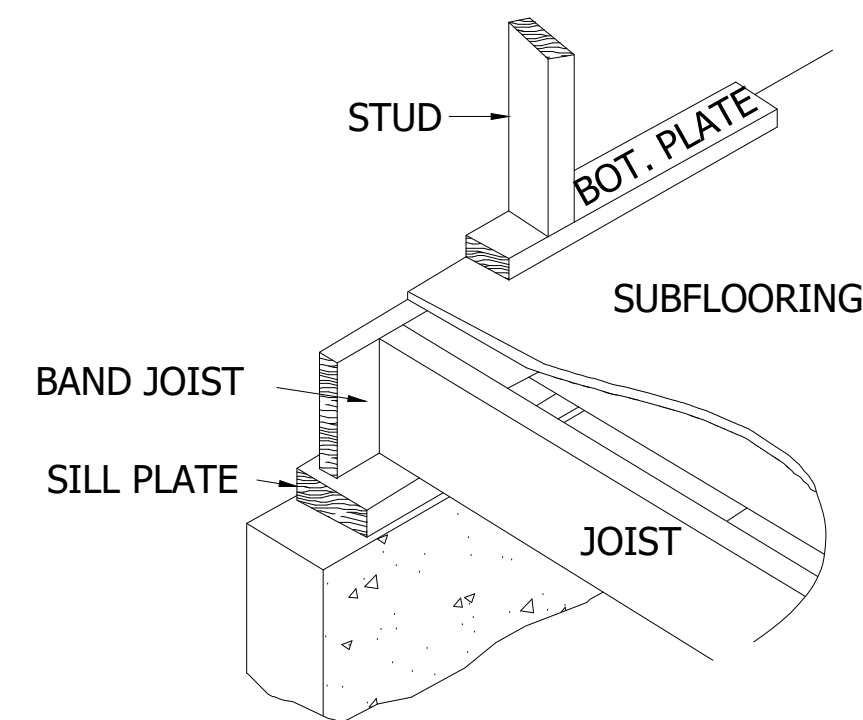
TYPICAL RAFTER TO PLATE CONNECTION  
NOT TO SCALE



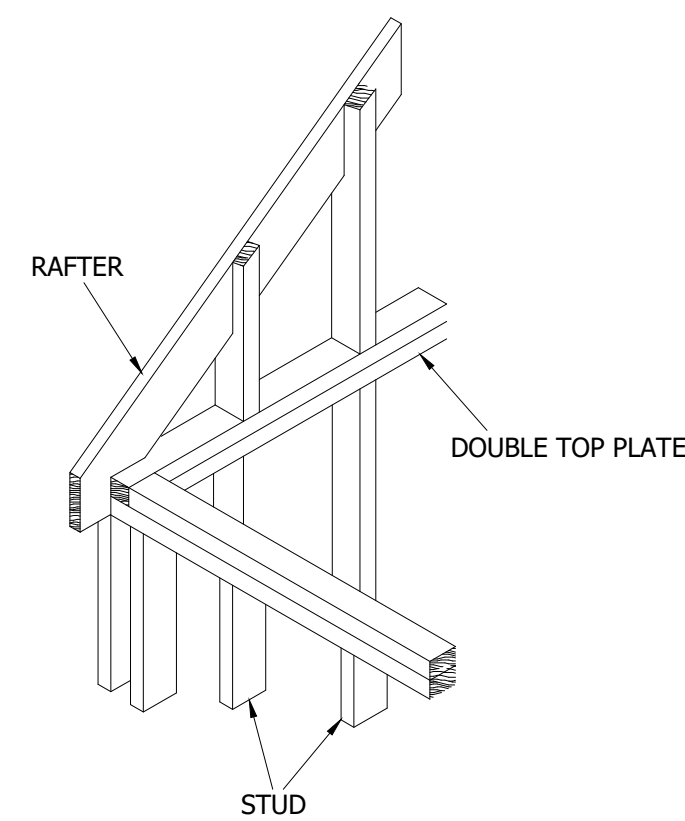
FLOOR BRACE DETAIL  
NOT TO SCALE



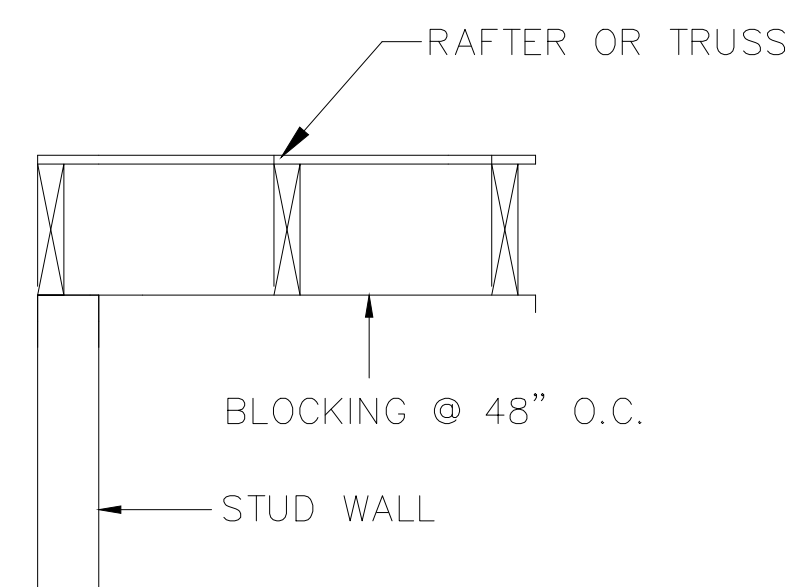
RIDGE CONNECTION DETAIL  
NOT TO SCALE



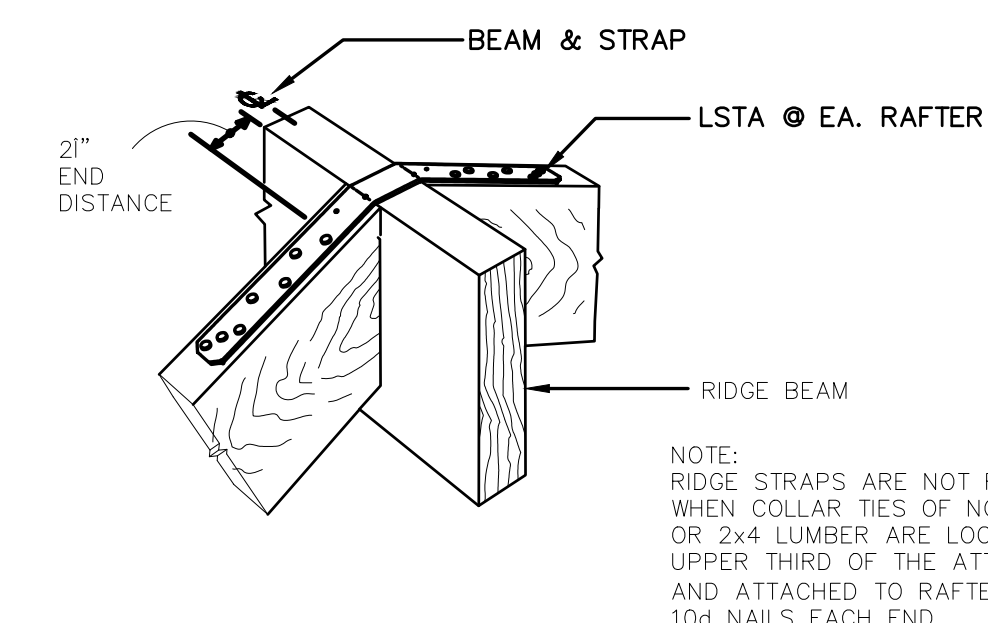
FLOOR FRAMING AT EXTERIOR WALL  
NOT TO SCALE



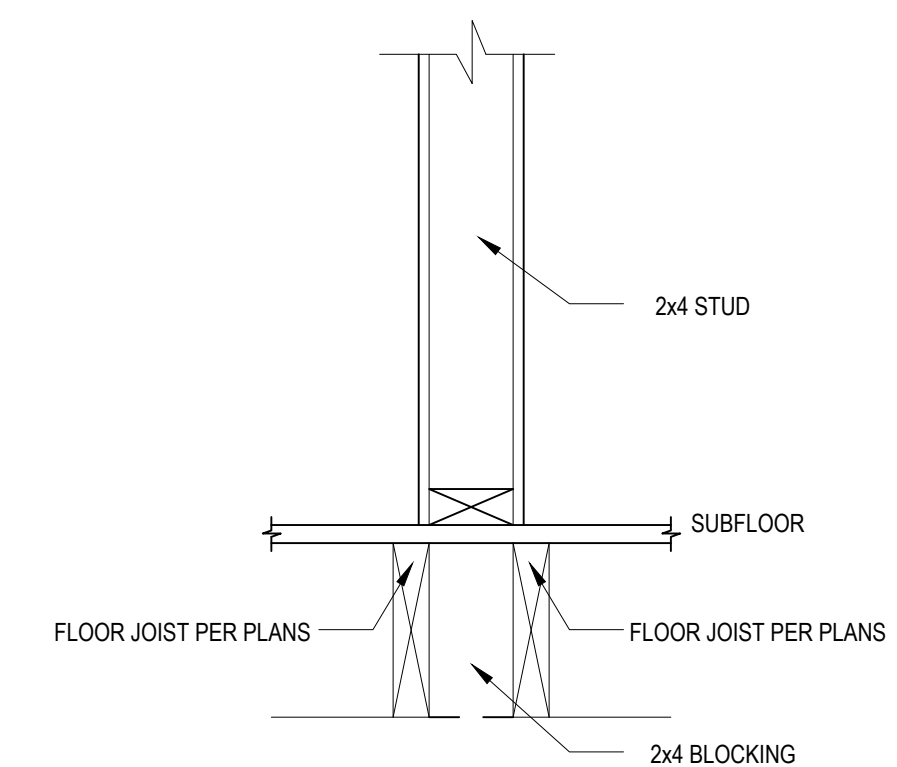
FRAMING AT GABLE ENDS  
NOT TO SCALE



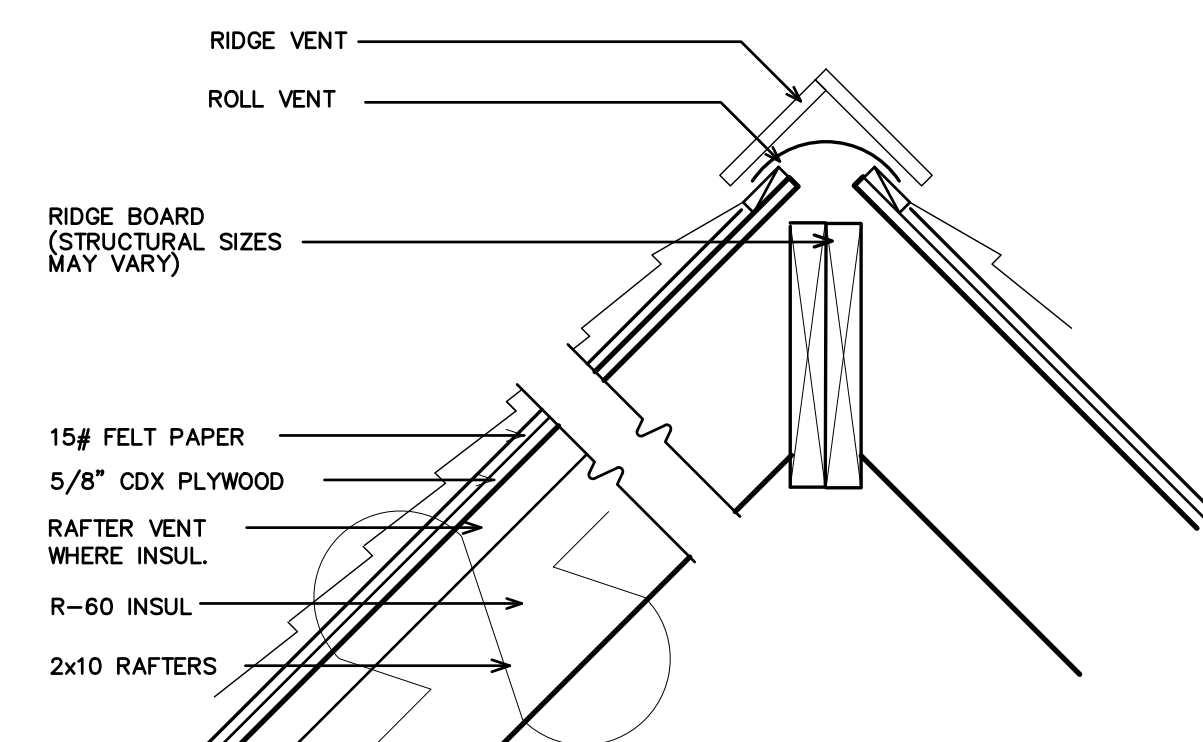
ROOF BRACE DETAIL  
NOT TO SCALE



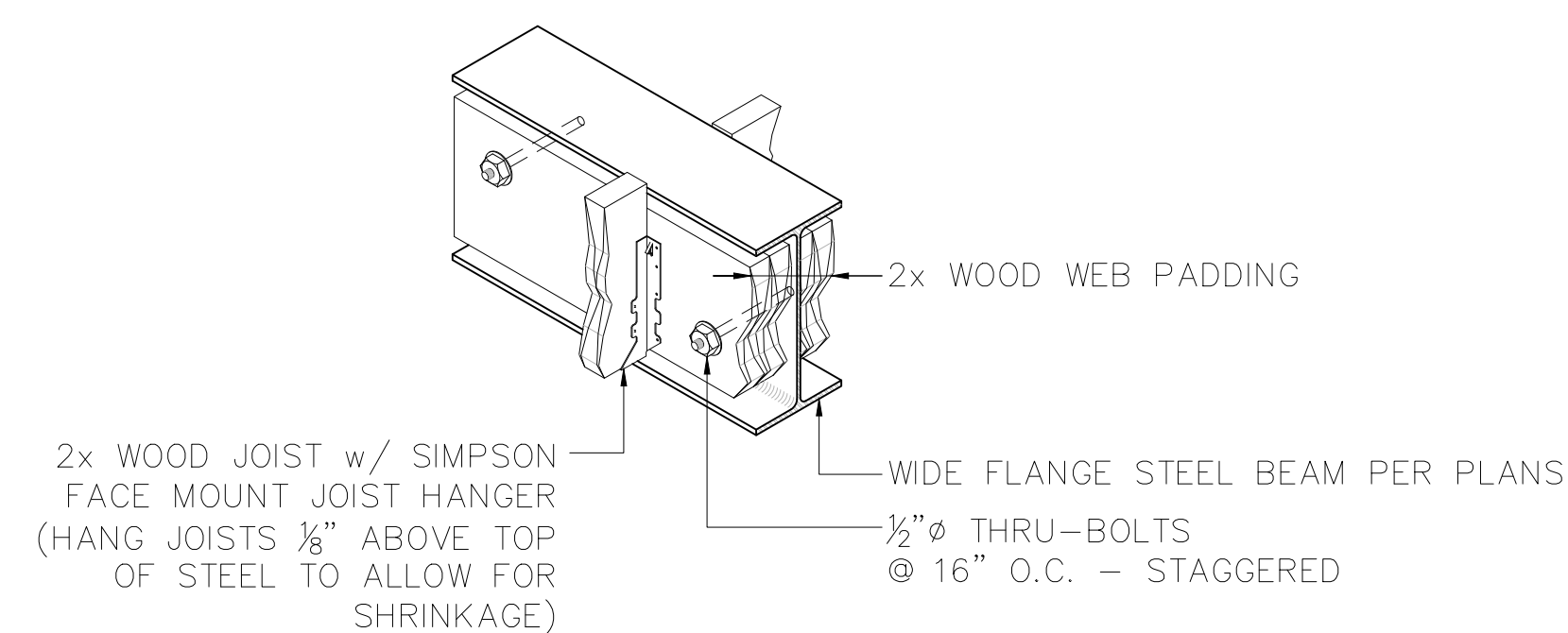
RIDGE BEAM STRAP DETAIL  
NOT TO SCALE



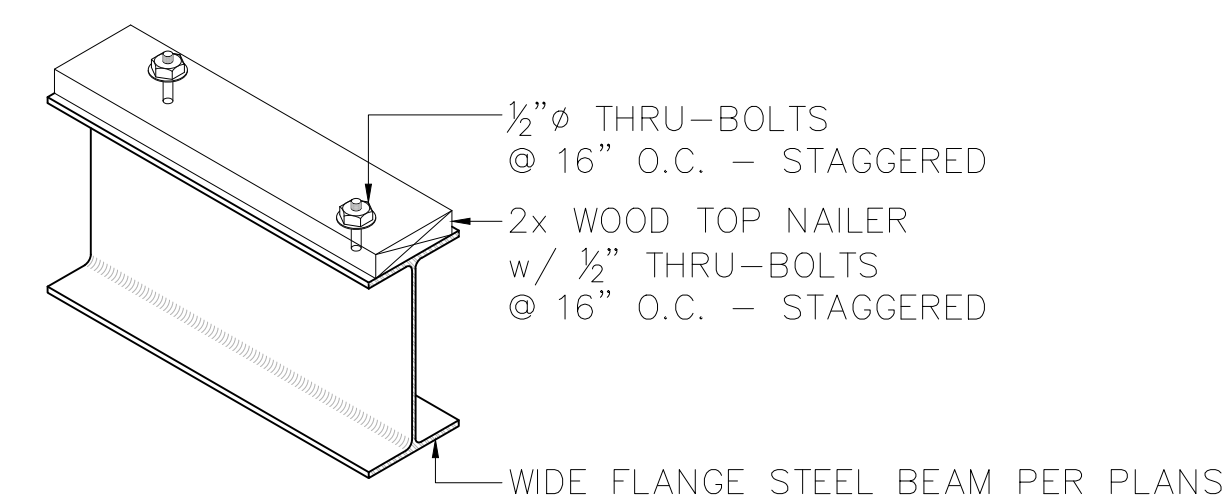
DOUBLE JOIST BELOW PARTITION WALL DETAIL  
NOT TO SCALE



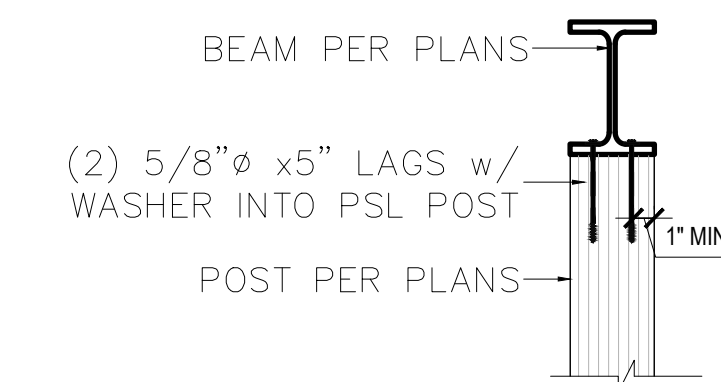
RIDGE VENT DETAIL  
NOT TO SCALE



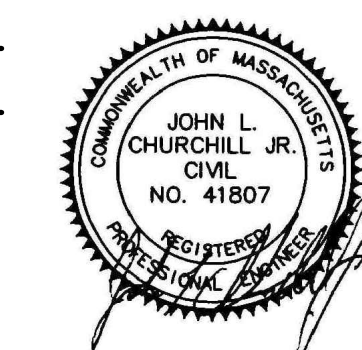
STEEL BEAM WEB PADDING DETAIL  
NOT TO SCALE



STEEL BEAM NAILER DETAIL  
NOT TO SCALE



STEEL BEAM TO PSL POST DETAIL  
NOT TO SCALE



Professional Engineer

PROPOSED RENOVATION FOR PERMIT/CONSTRUCTION			
TYPICAL DETAILS			
SCALE: PER PLANS	APPROVED BY: JLC	DRAWN BY: MKV	DATE: 10/4/2023
PREPARED BY: JC ENGINEERING, INC.		JOB NUMBER: 2007-1	DRAWING NUMBER: S-2
405 CIRCUIT AVE. BOURNE, MA			

2-19-24  
Date

In accordance with 310 CMR 15.401 - 15.405, the following Local Upgrade Approvals were approved by the Bourne Health Department from 310 CMR 15.211:

- (1.) A 5.0' waiver (10.0' to 5.0') for the minimum setback distance from the SAS to the western & northern property line.
- (2.) A 2.8' waiver (10.0' to 7.2') for the minimum setback distance from the SAS to the existing shed.
- (3.) A 1.0' waiver (10.0' to 9.0') for the minimum setback distance from the SAS to the existing garage.

The following local variance was approved by the Bourne Health Department from the 150-ft minimum setback to wetlands:

- (1.) A 33.9' variance (150.0' - 116.1') from the Coastal Bank to the proposed SAS.

**NOTES:**

1. SEE ARCHITECTURAL PLANS PREPARED BY JC ENGINEERING, INC. FOR PROPOSED HOUSE RENOVATIONS DESIGN, DETAILS, AND SPECIFICATIONS.
2. LOCATION OF EXISTING SEPTIC SYSTEM COMPONENTS SHOWN ON THIS PLAN WAS TAKEN FROM A TITLE 5 INSPECTION REPORT DATED 2-14-23 ON FILE WITH THE TOWN OF BOURNE BOARD OF HEALTH. COMPONENTS WERE NOT LOCATED BY A FIELD INSTRUMENT SURVEY (EXCEPT FOR SEPTIC TANK) AND ARE CONSIDERED APPROXIMATE IN LOCATION.
3. CONTRACTOR SHALL VERIFY ALL EXISTING UTILITIES' LOCATIONS PRIOR TO CONSTRUCTION THROUGH DIG-SAFE AT LEAST 72 HOURS PRIOR TO COMMENCING WORK ON SITE AT 1-888-DIG-SAFE AND ANY OTHER APPLICABLE AGENCIES.
4. THIS PLAN MAY NOT DEPICT ALL EXISTING UTILITIES (UNDERGROUND OR ABOVE GROUND). CONTRACTOR SHALL VERIFY ALL EXISTING UTILITIES' LOCATIONS PRIOR TO CONSTRUCTION THROUGH DIGSAFE AND ANY OTHER APPLICABLE AGENCIES AT LEAST 72 HOURS PRIOR TO COMMENCING WORK ON SITE.
5. TOP OF COASTAL BANK, AS SHOWN ON THIS PLAN, WAS DELINEATED BASED ON THE STANDARDS UNDER MA DEP DWW POLICY 92-1 (ISSUED: MARCH 3, 1992).
6. ELEVATIONS BASED ON N.A.V.D. 1988 DATUM. SEE PLAN FOR BENCHMARK LOCATION AND ELEVATION.

**OWNER OF RECORD:**  
BRENT T. WARREN, TRUSTEE OF THE  
405 CIRCUIT AVENUE REALTY TRUST  
519 SPRING STREET  
WEST BRIDGEWATER, MA 02379

**FEMA FLOOD ZONE (ENTIRE LOT):**  
AE (EL. 15) & VE (EL. 17)

**FEMA MAP NUMBER:**  
25001C0492J (dated 7-16-14)

**ASSESSOR'S MAP & LOT:**  
MAP 42.4, LOT 30

**DEED REFERENCE:**  
BOOK 35760, PAGE 248

**PLAN REFERENCES:**  
1. PLAN BOOK 28, PAGE 1  
2. PLAN BOOK 396, PAGE 97  
3. PLAN BOOK 417, PAGE 40

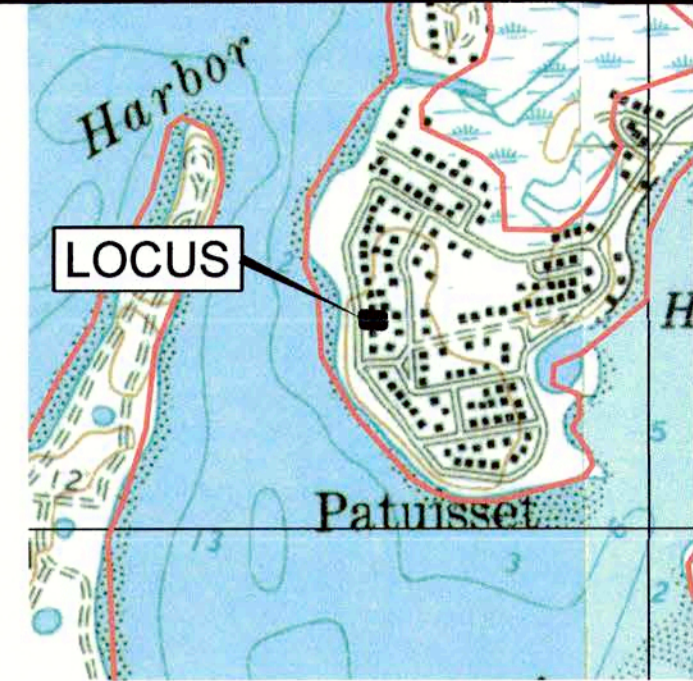
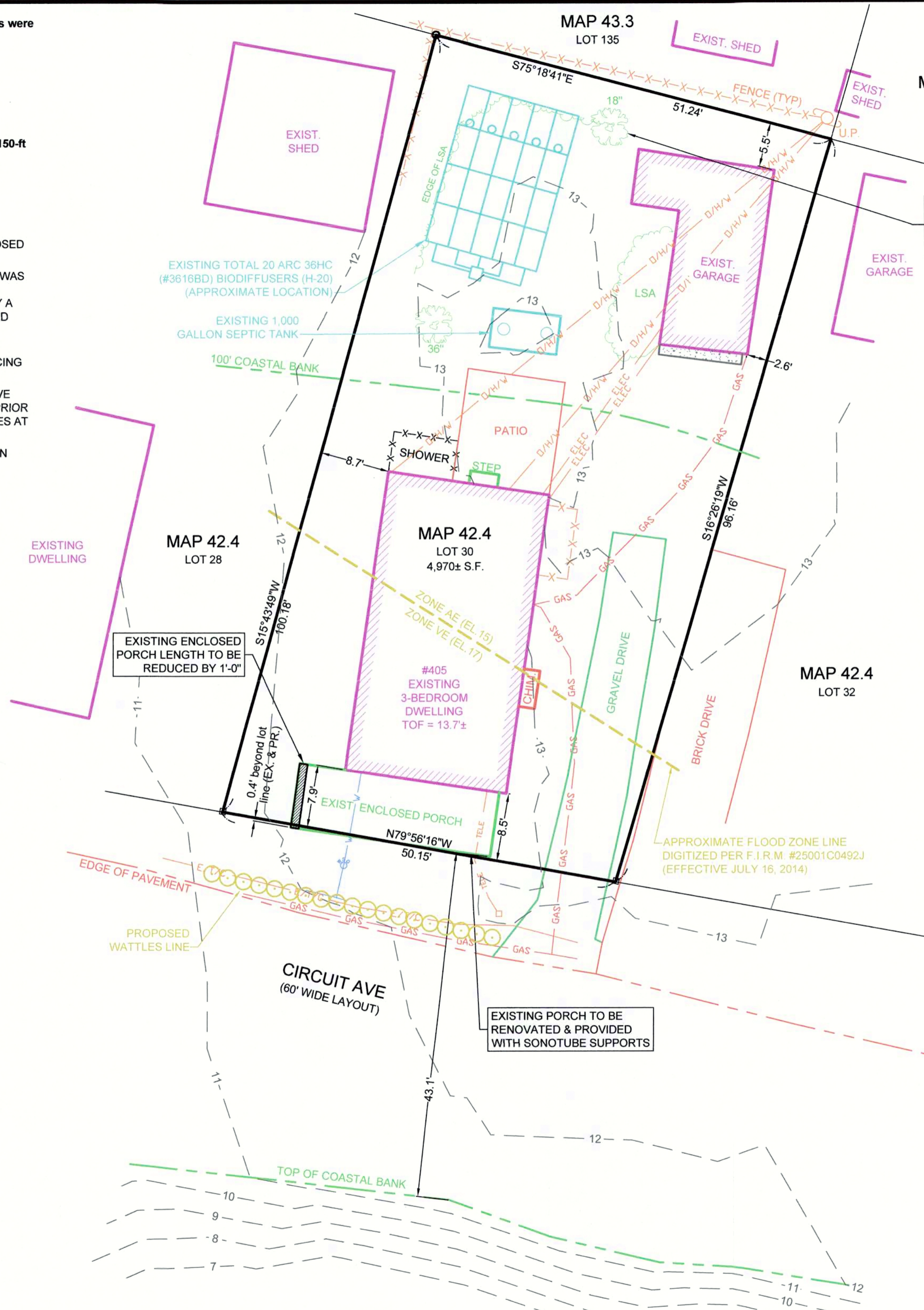
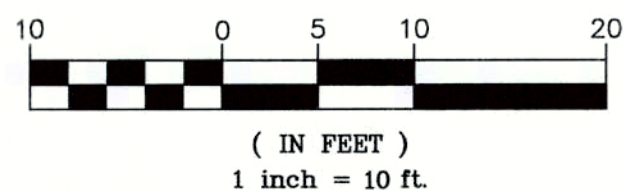
**ZONING SCHEDULE: R-40 DISTRICT**  
PROPERTY IS NOT LOCATED WITHIN THE WATER RESOURCE DISTRICT  
LOT AREA = 4,970± S.F.

ITEM	REGULATION	EXISTING	PROPOSED
LOT AREA	40,000 S.F.	4,970 S.F.	4,970 S.F.
FRONTAGE	125' MIN.	50.15'	50.15'
FRONT YARD	30' MIN.	(0.4')	(0.4')
SIDE YARD	15' MIN.	2.6'	2.6'
REAR YARD	15' MIN.	5.5'	5.5'
LOT COVERAGE	*25% MAX.	25.5%	25.3%
BUILDING HEIGHT	*25' MAX.	26±	26±
GROSS FLOOR AREA	*25% MAX.	**28.9%	**27.5%
USABLE OPEN SPACE	20% MIN.	62.7%	62.5%

\*SEE BOURNE ZONING BYLAW SECTION 2450.

\*\*PER ARCHITECTURAL PLANS.

**GRAPHIC SCALE**



**U.S.G.S. LOCUS MAP**  
SCALE: 1"=1000'



I hereby certify that the lot corners, dimensions, and setbacks to the EXISTING STRUCTURES as shown on this plan are correct and were based on a field instrument survey. Conformance to the Town of Bourne By-Laws and Regulations shall be determined by the Zoning Enforcement Agent.



Professional Land Surveyor

3/5/24  
Date

**PLOT PLAN**  
AT  
405 CIRCUIT AVENUE  
POCASSET, MA

PREPARED FOR:  
BRENT T. WARREN

PREPARED BY:  
JC ENGINEERING, INC.  
2854 CRANBERRY HIGHWAY  
EAST WAREHAM, MA 02532

SCALE: 1" = 10' FEBRUARY 16, 2024  
REV. 1 (3-5-24): Added previously approved variances