

Verification of NROD Boundary
For 710 3rd Avenue
Tax Lot 3-1E-01AA-00501, Oregon City, Oregon

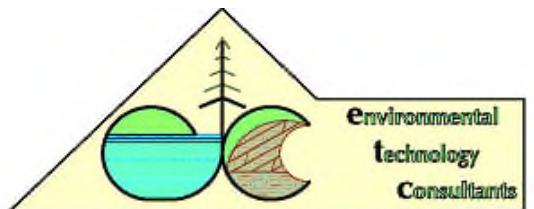


ETC Job EVA19002 (Previous number 07013)

Evaluated by: _____
Annakate Martin

February, 2019

Prepared for:
Mark Zawadski



"Creating Tomorrow's Environment - Today"

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TABLE OF CONTENTS

Verification of NROD Boundary	1
TABLE OF CONTENTS.....	2
INTRODUCTION	3
PURPOSE OF THIS REPORT:	3
PROPOSED USE:	3
DISCLAIMER:.....	4
QUALIFICATIONS OF ANNAKATE MARTIN.....	4
QUALIFICATIONS OF JOHN MCCONNAUGHEY	4
Landscape Setting and Land Use	5
Study Area	5
JURISDICTIONAL CONSIDERATIONS	5
LANDSCAPE SETTINGS.....	5
EXISTING SITE CONDITIONS.....	6
Methods.....	6
Site Specific Methodology:	6
Previous Studies.....	6
Mapping Method	6
Description of All Wetlands and Other Non-Wetland Waters	6
Assessment of Vegetation.....	7
NROD Buffers per Chapter 17.49.120.....	9
PROJECT TIMELINE	12
REQUESTED ACTIONS.....	13
APPENDIX A) Figures.....	14
APPENDIX B) Ground Level Color Photographs	15
APPENDIX C).....	19

Cover page.

A view of the tax lot looking north onto the property. The existing house is on the adjacent lot on the west side of the subject parcel.

INTRODUCTION

PURPOSE OF THIS REPORT:

This report verifies the NROD boundary as required by PA19-03 Pre-Application Conference Date 2/4/2019:

(Excerpt from PA19-03)

Natural Resource Overlay District (NROD):

Natural Resource Overlay District

Since your 2007 approval, the City's natural resource code has changed. An updated mitigation report and plan, along with code responses, is required.

The City's jurisdiction is within the vegetated corridor surrounding the protected features, however, activities within wetlands, streams, or other protected water features are regulated by the Department of State Lands (DSL) and the Army Corps of Engineers. Permit applications or other review with these agencies may be required.

17.49.120 Maximum disturbance allowance for highly constrained lots of record.

In addition to the General Development Standards of Section 17.49.100, the following standards apply to a vacant lot of record that is highly constrained by the NROD, per subsections 17.49.90(B) and 17.49.90(F):

The subject lots is entirely covered by an NROD overlay, and so meets the definition of a highly constrained lot of record.

A. Standard for Residential Development. In the NROD where the underlying zone district is zoned Residential (R-10, R-8, R-6, R-5, R-3.5): the maximum disturbance area allowed for new residential development within the NROD area of the lot is three thousand square feet.

Response: The lot is zoned R-6 and the proposed use is a new construction, and so the maximum disturbance on lot 501 is 3,000 SQFT

B. In all areas of Oregon City, the disturbance area of a vacant, highly constrained lot of record within the NROD shall be set back at least fifty feet from the top of bank on Abernethy Creek, Newell Creek, or Livesay Creek or twenty-five feet from the top of bank of any tributary of the aforementioned Creeks, other water body, or from the delineated edge of a wetland located within the NROD area.

Response: The wetlands and water bodies of the subject property are not the above-mentioned creeks. The setback is therefore 25' from wetlands and water bodies.

C. If the highly constrained lot of record cannot comply with the above standards, a maximum one thousand five hundred square foot disturbance within the NROD area may be allowed.

Response: The lot is "highly constrained" as it is entirely covered by an NROD overlay. The project can not comply with the 25' setback as the corner of the house will be 7.8' from Canemah Cr and will fill a small emergent wetland. The proposed disurbance is 1,102 SQFT on lot 501 and 527 SQFT in the right-of-way. 1,102 on lot 501 is less than the 3,000 SQFT maximum allowed by this section. The disturbance to the ROW does not appear to be addressed by this section.

PROPOSED USE:

The project proposes to a single-family 1,080 SQFT house with a 527 SQFT driveway on the following parcel: 3-1E-1AA-00501 –710 3rd Avenue, Oregon City, Oregon

DISCLAIMER:

This report documents the investigation, best professional judgment and conclusions of the investigator. It is correct and complete to the best of my knowledge. Wetland boundaries and buffers shown in this report should be considered a Preliminary Jurisdictional Determination of wetlands and other waters and used at your own risk unless it has been reviewed and approved in writing by the appropriate planning authority.

QUALIFICATIONS OF ANNAKATE MARTIN

I earned a Bachelor of Science degree in Natural Resources from Washington State University in 2002. In 2002 I worked for the University of Idaho on MAP tracking steelhead and salmon on the Snake River out of Clarkston, Washington. 2002-2003 I worked for Idaho Fish and Game as a field technician for identifying fish in remote streams in Idaho. In 2004, 2016 and currently I have worked for Environmental Technology Consultants conducting wetland delineations and all other environmental reports. From 2007-2014 I worked for 3 Kings Environmental conducting Phase I ESA reports, asbestos and lead surveys. In 2011 I started my own company primarily providing erosion control services. I was employed with Clark Public Utilities as a Watershed Coordinator in which I oversaw property restoration and maintaining a nursery.

I am currently working on getting my certification as a Professional Wetland Scientist from Portland State University. I have 17 years working in the environmental field specializing in many different areas.

No part of my compensation is dependent on the outcome of my investigations or conclusions I may draw from the observed data.

QUALIFICATIONS OF JOHN MCCONNAUGHEY

I earned a Bachelor of Science degree from the University of Oregon in 1978 and in 1984 I earned a Masters of Fisheries Science degree from the University of Alaska at Juneau, (since renamed the University of Alaska, Southeast). The Juneau curriculum specializes in the study of Pacific salmon. I held positions with agencies tasked with salmon research and management beginning with summer jobs in 1979 in Rogue River, the Oregon Dept of Fish and Wildlife, and then with the Alaska Department of Fish and Game in Ketchikan Alaska, in 1980. I worked on salmon projects with ADF&G in Anchorage and Juneau for 5 years before moving to American Samoa to serve as a fisheries projects leader for the Department of Marine and Wildlife Resources. Upon returning stateside, I worked for the Yakama/Klickitat Fisheries Project out of Yakima Washington for 5 years leading four research projects studying aspects of salmon supplementation projects in the Yakima River.

I have been employed with Environmental Technology Consultants for the past 10 years. In 2010 I earned certification as a Professional Wetland Scientists, (PWS) from the Society of Wetlands Scientists, (SWS), and was renewed in 2015.

No part of my compensation is dependent on the outcome of my investigations or conclusions I may draw from the observed data.

Landscape Setting and Land Use

Study Area

The subject site is a single parcel totaling 0.11 acres in Oregon City, Oregon, tax lot 501 and physical address of 710 3rd Avenue, the entire property was traversed. The NROD map shows this parcel in the NROD due to a protected water feature, South Canemah Creek, that has been realigned and cuts through the property and is a perennial stream. The stream has a man-made rock channel to control the flow of water.

JURISDICTIONAL CONSIDERATIONS

- Oregon City, Oregon
- Clackamas County, Oregon
- Watershed –Willamette River¹
- Not in a mapped FEMA floodway.
- Not in a 100-year FEMA flood zone.
- No NWI or LWI wetlands mapped on the parcels.
- NWI and LWI wetlands are mapped within 200ft of the parcels
- Oregon City NROD Areas (Entire parcel)
- Oregon City WRQ Areas (Entire parcel)

LANDSCAPE SETTINGS

The subject property has a steep slope of approximately 20 to 30% to the north. There are no apparent past usages for the property and the surrounding properties are single-family residential.

South Canemah Creek traverses the property from south to north direction, it comes onto the property from the middle south and traverses through the middle where it exits near the northeast corner of 3rd Avenue. Single family residences surround the property with 3rd Avenue to the north.

The drainage basin is South Canemah Creek and the Willamette River. The stream appears to go along a culvert down the north side of 3rd Avenue and is then piped south and goes along Apperson Street downstream to Highway 99E. The stream is culverted under Highway 99 and goes into the Willamette River.

EXISTING SITE CONDITIONS

There have been no buildings on the property historically and has South Canemah Creek that cuts through the lot. Currently the lot is still undeveloped.

The proposed use is a 1080 SQFT single-family residence and a 527 SQFT driveway on the property on the very northern edge of the lot along 3rd Avenue. A small section of the creek has a stone wall about where the proposed southeast corner of the house will be located. The proposed house is 8 feet from the creek.

Methods

Site Specific Methodology: All areas of the parcel were accessible by foot. We conducted a pedestrian survey to verify the location of water and other natural resources which form the basis of the NROD overlay. We also reviewed available maps and aerial photos to identify and map NROD features.

Previous Studies

A previous Water Resource Report was conducted in March 2007 by ETC. A “Determination of Application Completeness” was given May 1, 2007 for project WR 07-12: Water Resource. The Determination has been added as Appendix A, Figure 2.

Mapping Method

A topo survey of the property was provided to us by the client that was done by Centerline Concepts in 2005. It includes the entire site and the centerline of South Canemah Creek. ETC in 2007 conducted a survey with the Topcon GPS unit for the purposes of the Water Resources Report and when the site was traversed 2/19/2019 the location of the wetland and water features had not changed.

Description of All Wetlands and Other Non-Wetland Waters

South Canemah Creek traverses its way from south to north through the subject property. It comes onto the property from the south and exits the property on the northwest corner where it goes into a roadside ditch along 3rd Avenue, ultimately the stream is culverted to the north side of Highway 99E, past the railroad tracks and into the Willamette River. This is known to be a perennial stream as documented by The City of Oregon City. From the previous Water Resources report conducted by ETC they found that the stream varied from 8-10 feet width and had an average depth of 4 feet on the subject site. I observed that the stream appeared to be altered historically by ditching and the construction of a stone wall.

A small emergent wetland was found along the west property line. At the time of the site visit 2/19/19 there was surface water observed in the wetland area, *Scirpus microcarpus* (OBL), *Juncus effuses* (FACW), *Rumex crispus* (FACW), *Equisetum arvense* (FAC), *Ranunculus repens*

(FACW). There are small slope springs just of the property to the north which would be the proposed location of the driveway. It is classified as Palustrine – Emergent-Persistent-Saturated, PEM1.

North of the property is a roadside ditch along 3rd Avenue right of way, this feature drains the hillside seeps and springs from the slopes to the south. The ditch has taken on wetland characteristics. There would be impact to this area from a proposed concrete bottomless box that progresses into a driveway.

Assessment of Vegetation

A. Rubus thicket

The majority of the vegetated corridor on the property consisted of 100% cover with a dense thicket of *Rubus discolor* (Himalayan Blackberry, FACU). The only other plant providing significant cover within this area was one *Acer macrophyllum* that was 10” in diameter, and the conditions are summarized as follows:

Stratum	Scientific Name	Common Name	Domina	Native	Nuisanc
Tree	<i>Acer macrophyllum</i>	Bigleaf Maple	X	X	
Shrub	<i>Rubus armenicus</i>	Himalayan Blackberry	X		X
	<i>Buddleia davidii</i>	Butterfly Bush			
Herb	<i>Polystichum munitum</i>	Sword Fern		X	
	<i>Equisetum arvense</i>	Common Horsetail		X	X
	<i>Hedera helix</i>	English Ivy			X

Table 1: *Rubus discolor* Thicket

Tree canopy: 5%

Shrub canopy: 100%

Groundcover: 0%

Non-native species cover: 100%

B. Lawn (Lolium-Festuca)

This association is where the proposed house will be located and is in the west portion of the site in a maintained area associated with the adjacent Tax Lot 500. One 10” Big Leaf Maple and One 12” Incense Cedar tree. It is represented in the following sample:

Stratum	Scientific Name	Common Name	Domina	Native	Nuisanc
Tree	<i>1 Acer macrophyllum</i>	Bigleaf Maple	X	X	
	<i>1 Calocedrus decurrens</i>	Incense Cedar			X
Shrub	<i>Rubus armeniacus</i>	Himalayan Blackberry			X
	<i>Malus sylvestris</i>	Domestic Apple			
Herb	<i>Lolium perenne</i>	Perennial Rye	X		
	<i>Festuca rubra</i>	Red Fescue		X	
	<i>Hypochaeris radicata</i>	Spotted Cat's-ear			
	<i>Schedonorus arundinacea</i>	Tall Fescue			
	<i>Ranunculus repens</i>	Creeping			
	<i>Cardamine obovata</i>	Small Bittercress		X	

Table 2: Lawn

Tree canopy: 5%

Shrub canopy: 5%
Groundcover: 100%
Non-native species cover: 90%

C. Wetland (Scirpus-Juncus-Poa)

The vegetated corridor consists of a small percentage of wetlands. The vegetation in the wetlands is represented by the following sample:

Stratum	Scientific Name	Common Name	Domina	Native	Nuisanc
Shrub	<i>Rubus discolor</i>	Himalayan Blackberry			X
Herb	<i>Poa sp.</i>	Bluegrass species	X		
	<i>Scirpus microcarpus</i>	Small-fruited Bulrush	X	X	
	<i>Juncus effusus</i>	Soft Rush	X	X	
	<i>Ranunculus repens</i>	Creeping Buttercup			
	<i>Equisetum arvense</i>	Common Horsetail		X	X
	<i>Cardamine</i>	Small Bittercress		X	
	<i>Rumex crispus</i>	Curly Dock			

Table 3: Wetland Association

Tree canopy: 0%
Shrub canopy: 5%
Groundcover: 80%
Non-native species cover: 50%

In accordance with Table 2 of OCMC 17.49, the following summarizes the classifications of the various associations discussed:

Rubus Thicket:	Degraded
Lawn	Degraded
Wetlands:	Degraded

NROD Buffers per Chapter 17.49.120

Natural Resource Overlay District letter dated 2/4/2019 from the City of Oregon City to the client:

Since your 2007 approval, the City's natural resource code has changed. An updated mitigation report and plan, along with code responses, is required. The City's jurisdiction is within the vegetated corridor surrounding the protected features, however, activities within wetlands, streams, or other protected water features are regulated by the Department of State Lands (DSL) and the Army Corps of Engineers. Permit applications or other review with these agencies may be required.

17.49.120 Maximum disturbance allowance for highly constrained lots of record.

In addition to the General Development Standards of Section 17.49.100, the following standards apply to a vacant lot of record that is highly constrained by the NROD, per subsections 17.49.90(B) and 17.49.90(F):

A. Standard for Residential Development. In the NROD where the underlying zone district is zoned Residential (R-10, R-8, R-6, R-5, R-3.5): the maximum disturbance area allowed for new residential development within the NROD area of the lot is three thousand square feet.

Response: The lot is zoned R-6 and is entirely covered by the NROD overlay area. The proposed development is a single-family residential home, the proposed disturbance is 1,102 SQFT on Tax Lot 3-1E-01AA-00501 and the disturbance in the 3RD Avenue right-of-way is 527 SQFT.

B. In all areas of Oregon City, the disturbance area of a vacant, highly constrained lot of record within the NROD shall be set back at least fifty feet from the top of bank on Abernethy Creek, Newell Creek, or Livesay Creek or twenty-five feet from the top of bank of any tributary of the aforementioned Creeks, other water body, or from the delineated edge of a wetland located within the NROD area.

Response: The single-family residence will be 8' feet away from the Canemah Creek. There is a small degraded, 178 square foot wetland that is proposed to be impacted by the single-family residence.

C. If the highly constrained lot of record cannot comply with the above standards, a maximum one thousand five hundred square foot disturbance within the NROD area may be allowed.

☐ The 1500 sf maximum applies to the disturbance areas on the lot. Disturbance in the right of way will not count towards this maximum but is required to be mitigated.

Response: Due to the location of the resources, impacts to a small emergent wetland area are unavoidable. Therefore, this section applies, the proposed house including a 5' construction buffer will create a 1,102 SQFT NROD disturbance on lot 501 and a 527 SQFT disturbance in the right-of-way.

17.49.180 - Mitigation standards.

The following standards (or the alternative standards of Section 17.49.190) apply to required mitigation:

- A. Mitigation shall occur at a two-to-one ratio of mitigation area to proposed NROD disturbance area. Mitigation of the removal or encroachment of a wetland or stream shall not be part of this chapter and will be reviewed by the Division of State Lands or the Army Corp of Engineers during a separate review process;

The mitigation onsite will be 2-1 ratio, please see Figure 6.

- B. Mitigation shall occur on the site where the disturbance occurs, except as follows:
1. The mitigation is required for disturbance associated with a right-of-way or utility in the right-of-way; **No disturbance to the utility. 527 SQFT of disturbance will be in the right-of-way for the driveway.**
 2. The mitigation shall occur first on the same stream tributary, secondly in the Abernethy, Newell or Livesay Creek or a tributary thereof, or thirdly as close to the impact area as possible within the NROD; **The mitigation will happen onsite.**
 3. An easement that allows access to the mitigation site for monitoring and maintenance shall be provided as part of the mitigation plan. **Access to the mitigation area will be allowed.**
- C. Mitigation shall occur within the NROD area of a site unless it is demonstrated that this is not feasible because of a lack of available and appropriate area. In such cases, the proposed mitigation area shall be contiguous to the existing NROD area so the NROD boundary can be easily extended in the future to include the new resource site. **Please see Figure 6.**
- D. Invasive and nuisance vegetation shall be removed within the mitigation area; **Ivy, Reed Canary Grass and Blackberry will be removed.**
- E. Required Mitigation Planting. An applicant shall meet Mitigation Planting Option 1 or 2 below, whichever option results in more tree plantings, except that where the disturbance area is one acre or more, Mitigation Option 2 shall be required. All trees, shrubs and ground cover shall be selected from the Oregon City Native Plant List.

NOTE: Applications on sites where no trees are present or which are predominantly covered with invasive species shall be required to mitigate the site, remove the invasive species and plant trees and native plants pursuant to Option 2.

The site has only three small trees, and is predominately covered with invasive species. Two of the trees will be removed by this development. Therefore, the site better meets the intent for Option 2.

1. Mitigation Planting Option 1.
 - a. Option 1 - Planting Quantity. This option requires mitigation planting based on the number and size of trees that are removed from the site pursuant to Table 17.49.180E.1.a. Conifers shall be replaced with conifers. Bare ground shall be planted or seeded with native grasses and ground cover species.

Table 17.49.180E.1.a.—Required Planting Option 1

Size of Tree to be Removed (DBH)	Number of Trees and Shrubs to be Replanted
6 to 12"	2 trees and 3 shrubs
13 to 18"	3 trees and 6 shrubs
19 to 24"	5 trees and 12 shrubs
25 to 30"	7 trees and 18 shrubs

Over 30"	10 trees and 30 shrubs
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One 10" Maple will be removed and one 12" Incense Cedar will be removed. The required mitigation per Option 1 is then 4 trees and 6 shrubs. Two of the trees need to be conifers to satisfy the requirement.

- b. Option 1 - Plant Size. Replacement trees shall be at least one-half inch in caliper on average, measured at six inches above the ground level for field grown trees or above the soil line for container grown trees. Oak, madrone, ash or alder may be one-gallon size. Conifers shall be a minimum of six feet in height. Shrubs must be in at least one-gallon container size or the equivalent in ball and burlap, and shall be at least twelve inches in height at the time of planting. All other species shall be a minimum of four-inch pots;
 - c. Option 1 - Plant Spacing. Except for the outer edges of mitigation areas, trees and shrubs shall be planted in a non-linear fashion. Plant spacing for new species shall be measured from the driplines of existing trees when present. Trees shall be planted on average between eight and twelve feet on center, and shrubs shall be planted on average between four and five feet on center, or clustered in single species groups of no more than four plants, with each cluster planted on average between eight and ten feet on center.
 - d. Option 1 - Mulching and Irrigation. Mulch new plantings a minimum of three inches in depth and eighteen inches in diameters. Water new plantings one inch per week from June 30th to September 15th, for the three years following planting.
 - e. Option 1 — Plant Diversity. Shrubs shall consist of at least two different species. If ten trees or more are planted, no more than one-half of the trees may be of the same genus.
2. Mitigation Planting Option 2.
- a. Option 2 - Planting Quantity. In this option, the mitigation requirement is calculated based on the size of the disturbance area within the NROD. Native trees and shrubs are required to be planted at a rate of five trees and twenty-five shrubs per every five hundred square feet of disturbance area (calculated by dividing the number of square feet of disturbance area by five hundred, and then multiplying that result times five trees and twenty-five shrubs, and rounding all fractions to the nearest whole number of trees and shrubs; for example, if there will be three hundred thirty square feet of disturbance area, then three hundred thirty divided by five hundred equals .66, and .66 times five equals 3.3, so three trees must be planted, and .66 times twenty-five equals 16.5, so seventeen shrubs must be planted). Bare ground must be planted or seeded with native grasses or herbs. Non-native sterile wheat grass may also be planted or seeded, in equal or lesser proportion to the native grasses or herbs.

The disturbance area is 1,102 SQFT on lot 501. Accordingly, the number of trees and shrubs required using Option #2 is:

Trees = $1,448 \text{ SQFT} / 500 \times 5 = 14.48 = 14 \text{ trees.}$

Shrubs = $1,448 \text{ SQFT} / 500 \times 25 = 72.40 = 72 \text{ shrubs.}$

- b. Option 2 - Plant Size. Plantings may vary in size dependent on whether they are live cuttings, bare root stock or container stock, however, no initial plantings may be shorter than twelve inches in height.
- c. Option 2 - Plant Spacing. Trees shall be planted at average intervals of seven feet on center. Shrubs may be planted in single-species groups of no more than four plants, with clusters planted on average between eight and ten feet on center.

- d. Option 2 — Mulching and Irrigation shall be applied in the amounts necessary to ensure eighty percent survival at the end of the required five-year monitoring period.
- e. Option 2 — Plant Diversity. Shrubs shall consist of at least three different species. If twenty trees or more are planted, no more than one-third of the trees may be of the same genus.

Please see figure 6.

An alternative planting plan using native plants may be approved in order to create a new wetland area, if it is part of a wetlands mitigation plan that has been approved by the DSL or the U.S. Army Corps of Engineers (USACE) in conjunction with a wetland joint removal/fill permit application.

- F. **Monitoring and Maintenance.** The mitigation plan shall provide for a five-year monitoring and maintenance plan with annual reports in a form approved by the director of community development. Monitoring of the mitigation site is the on-going responsibility of the property owner, assign, or designee, who shall submit said annual report to the city's planning division, documenting plant survival rates of shrubs and trees on the mitigation site. Photographs shall accompany the report that indicate the progress of the mitigation. A minimum of eighty percent survival of trees and shrubs of those species planted is required at the end of the five-year maintenance and monitoring period. Any invasive species shall be removed and plants that die shall be replaced in kind. Bare spots and areas of invasive vegetation larger than ten square feet that remain at the end the five-year monitoring period shall be replanted or reseeded with native grasses and ground cover species.
- G. **Covenant or Conservation Easement.** Applicant shall record a restrictive covenant or conservation easement, in a form provided by the city, requiring the owners and assigns of properties subject to this section to comply with the applicable mitigation requirements of this section. Said covenant shall run with the land, and permit the city to complete mitigation work in the event of default by the responsible party. Costs borne by the city for such mitigation shall be borne by the owner.
- H. **Financial Guarantee.** A financial guarantee for establishment of the mitigation area, in a form approved by the city, shall be submitted before development within the NROD disturbance area commences. The city will release the guarantee at the end of the five-year monitoring period, or before, upon it's determination that the mitigation plan has been satisfactorily implemented pursuant to this section.

Please see Figure 5 and 6.

(Ord. No. 08-1014, §§ 1—3(Exhs. 1—3), 7-1-2009; Ord. No. 10-1003, § 1(Exh. 1), 7-7-2010)

PROJECT TIMELINE

Grading and construction of the house are anticipated to start around August 1, 2020, with completion on or before September 1, 2021. The timeline for the mitigation is shown below:

MITIGATION TIMETABLE

Time Frame	Activity
Winter 2020	Chop down blackberries before Spring growth begins. Leave chopped vines on site as mulch.
Spring/Summer 2020	Blackberries will resprout from roots and there will also be a large seed bank that will sprout once light reaches the soil. Spot treat regrowth with approved herbicides bi-monthly starting when regrowth reaches a height of 2' feet and is leafed out.

	Treat bare ground with a pre-emergent spray to suppress the regrowth of blackberry from seed.
November/December 2020	Bring in mulch, prepare area for planting. Install plantings after Fall rains begin.
March 2021	Inspect plantings, replace as needed.
April	Install drip line irrigation system, one emitter per plant. Adjust timer so that each plant gets about ½ gallon of water per watering cycle.
May – September	Adjust watering cycles as needed through summer as needed. Probably start watering with one cycle every 2 days, increasing to twice/day in July & August. Control invasives, particularly blackberry by hand, try not to use herbicides around new plants.
September 2021	Inspect plantings, replace as needed. Discontinue watering once Fall rains begin.
September 2021	Prepare 1 st year as-built report on mitigation, detailing steps taken to control invasives, and survival of plants, and list plants used to replace any that were not successful.
2022	Begin watering in May depending on weather, continue through Fall 2020. Control invasives by hand.
September 2022	Prepare 2nd year report on mitigation, detailing steps taken to control invasives, and survival of plants, and list plants used to replace any that were not successful.
2023	Begin watering in May depending on weather, continue through Fall 2022. Control invasives by hand.
September 2023	Prepare year 3 and final report on mitigation, detailing steps taken to control invasives, and survival of plants, and list plants used to replace any that were not successful.

REQUESTED ACTIONS

1. We ask for a concurrence that the requirements of the NROD have been met.
2. We ask for the single-family residence to be excepted and that the client does onsite mitigation for the removal of the degraded 178 sqft wetland.

APPENDIX A) Figures

Figure 1 – Water Quality Resource Map

Figure 1B - NROD Map

Figure 2 - Existing Conditions

Figure 3 - Delineation Map

Figure 4A - Proposed Development Plan

Figure 4B - Grading Plan X-Section View

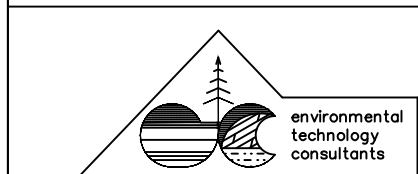
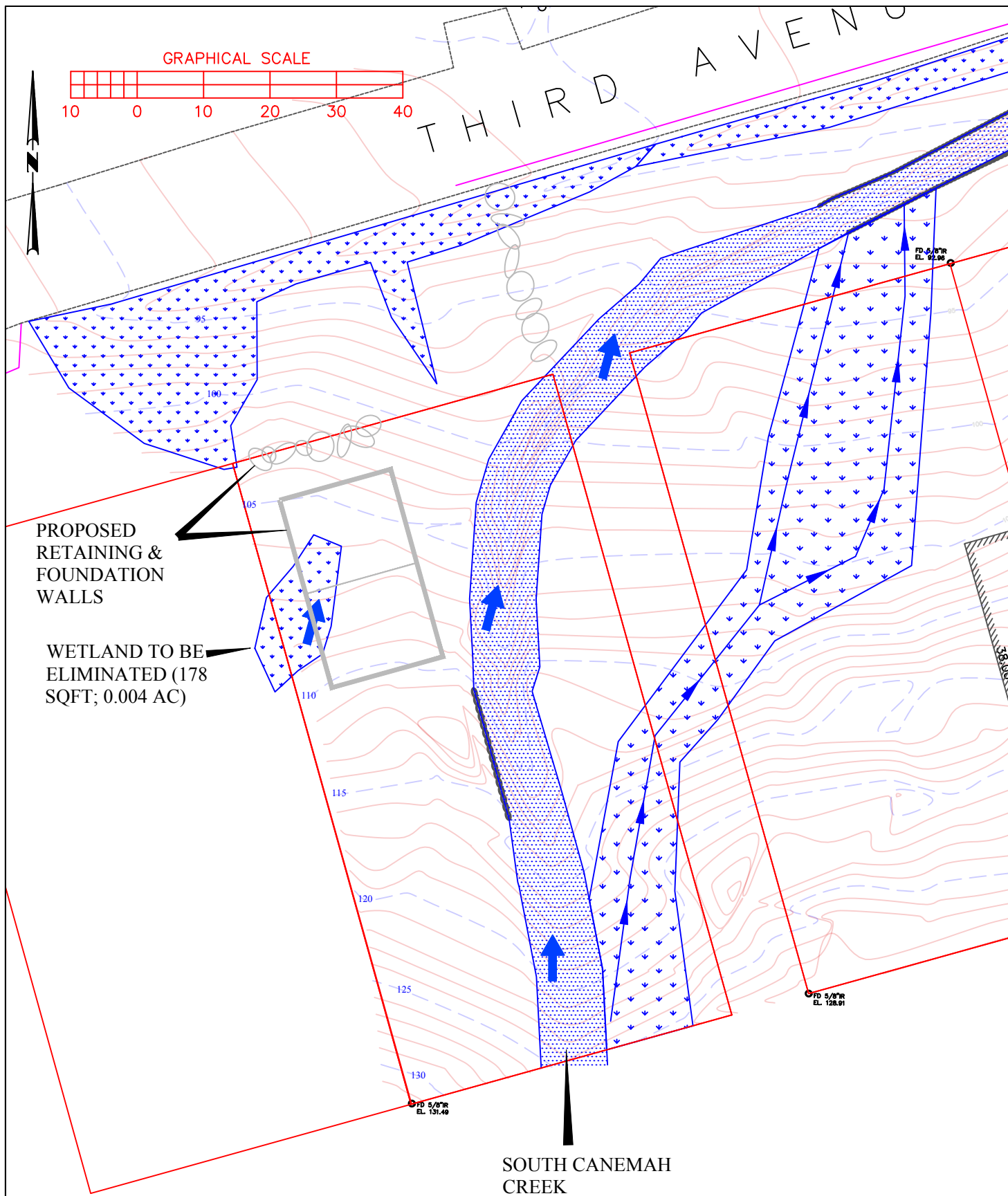
Figure 4C - Proposed Grading Plan Plan View

Figure 5 - Mitigation Areas

Figure 6A - Mitigation Planting Plan

Figure 6B - List of Mitigation Plantings

Figures 6C & 6D - Planting Specifications



WATER QUALITY RESOURCE AREA MAP

710 3RD AVENUE (#2)
OREGON CITY, OREGON
APPLICANT: MARK ZAWADZKI

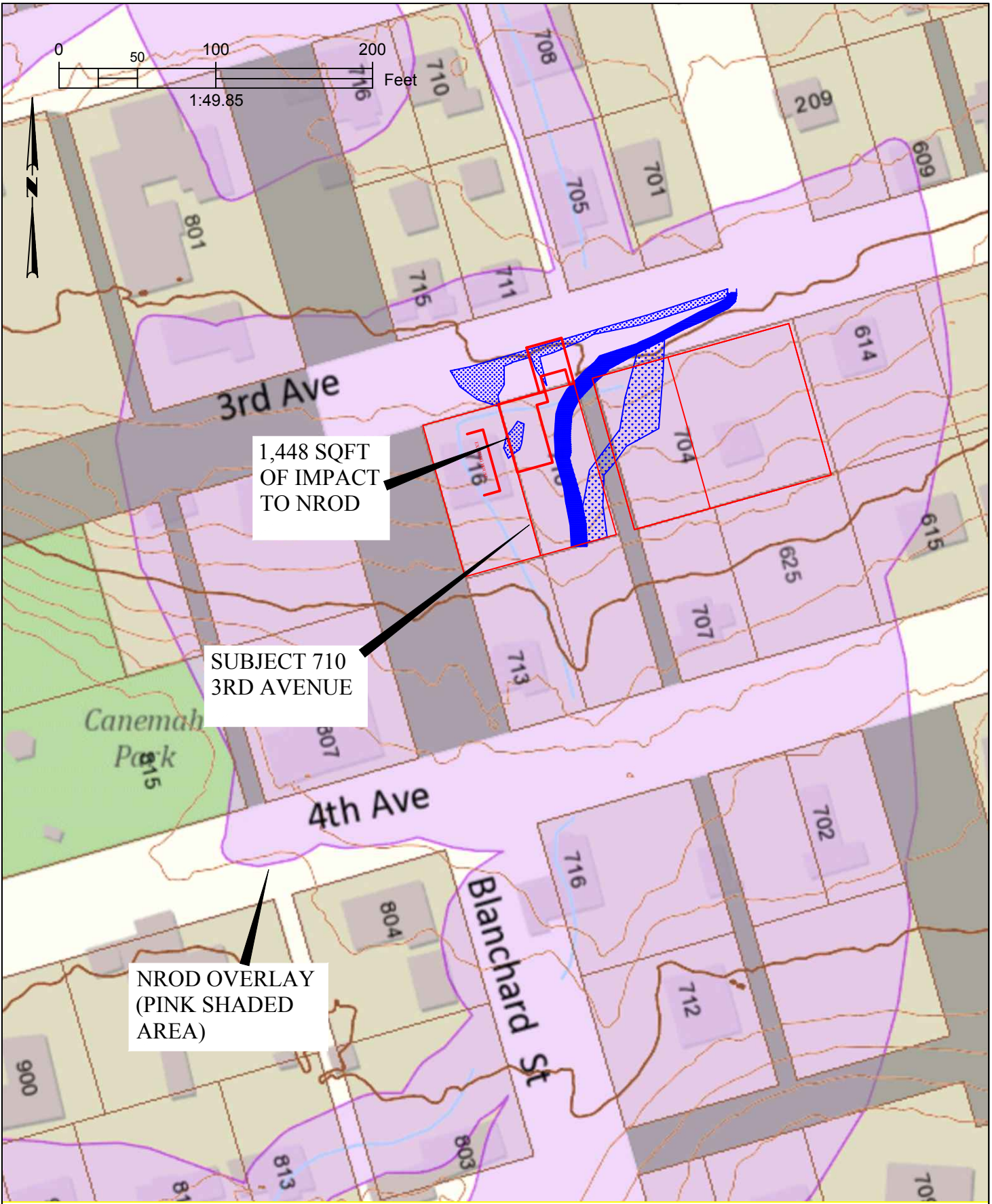
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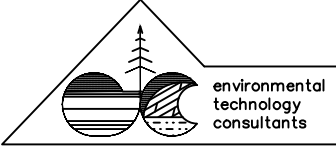
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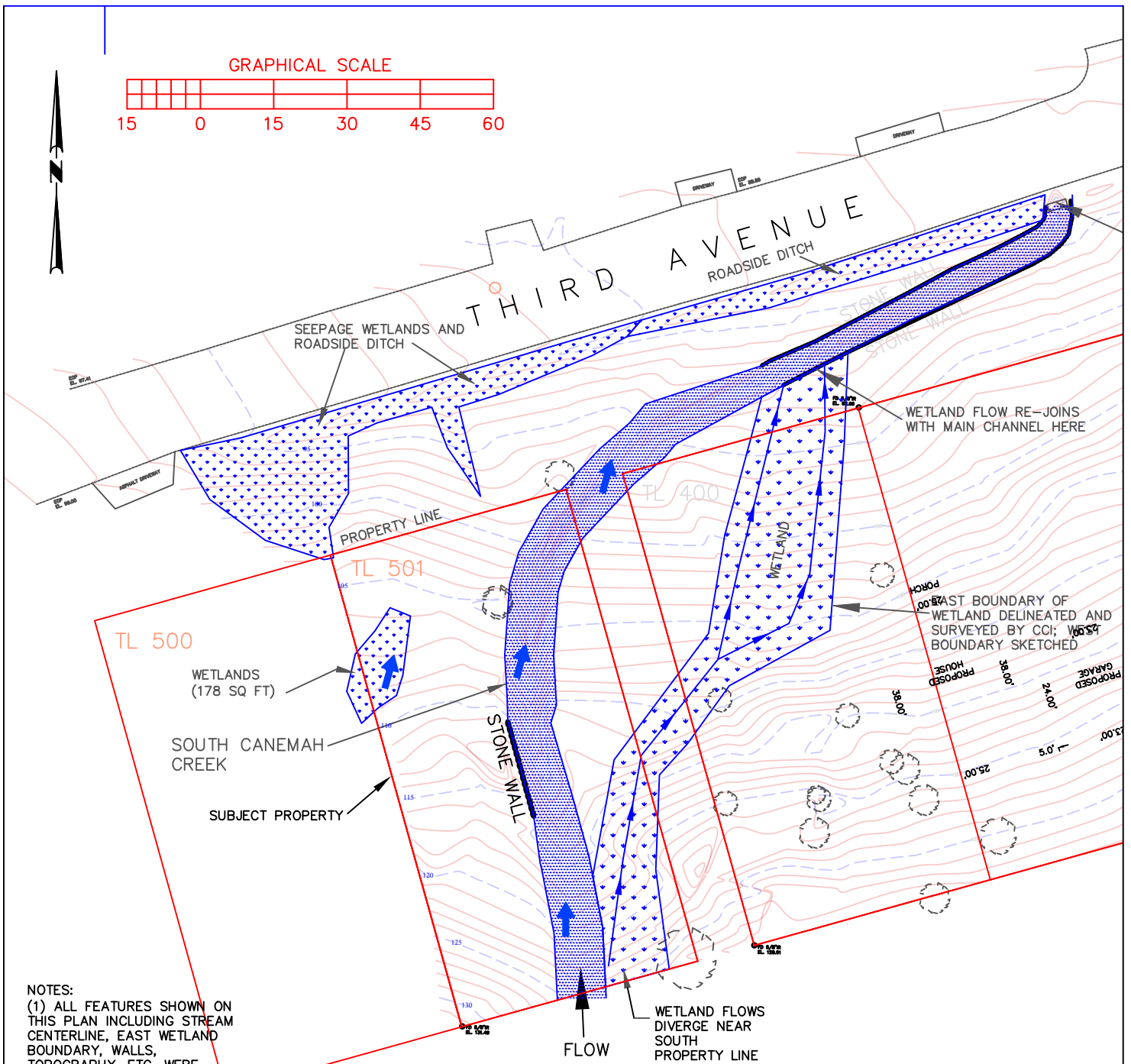
DRAWN BY: AM

DATE: 03/8/19

JOB #: 19002



	NROD Map		FIGURE:	1B
	710 3RD AVENUE (#2)		SCALE:	1"=20'
	OREGON CITY, OREGON		DRAWN BY:	AM
	APPLICANT: MARK ZAWADZKI		DATE:	03/18/19
			JOB #:	19002

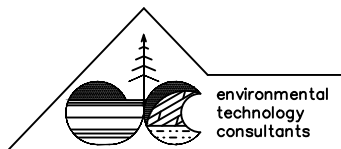


NOTES:

(1) ALL FEATURES SHOWN ON THIS PLAN INCLUDING STREAM CENTERLINE, EAST WETLAND BOUNDARY, WALLS, TOPOGRAPHY, ETC. WERE SURVEYED BY CENTERLINE CONCEPTS, INC. AT LAND SURVEY ACCURACY EXCEPT FOR THE FOLLOWING:

- (A) THE JURISDICTIONAL LIMITS OF SOUTH CANEMAH CREEK WERE ESTABLISHED ON THE MAP BY ETC USING TYPICAL BANK WIDTHS MEASURED IN THE FIELD.
- (B) THE WEST BOUNDARY OF THE WETLAND THAT DIVERGES EAST OF THE CHANNEL WAS NOT FIELD-DELINEATED, BUT IS SKETCHED WHERE INDICATED
- (C) THE MAN-INDUCED WETLANDS, SEEPAGE WETLANDS, AND ROADSIDE DITCH WERE MAPPED BY ETC USING A TRIMBLE GEOXT WITH DIFFERENTIAL CORRECTION IN CONJUNCTION WITH A LASER RANGEFINDER (LASER TECH INC. IMPULSE 200) AND PRISM.

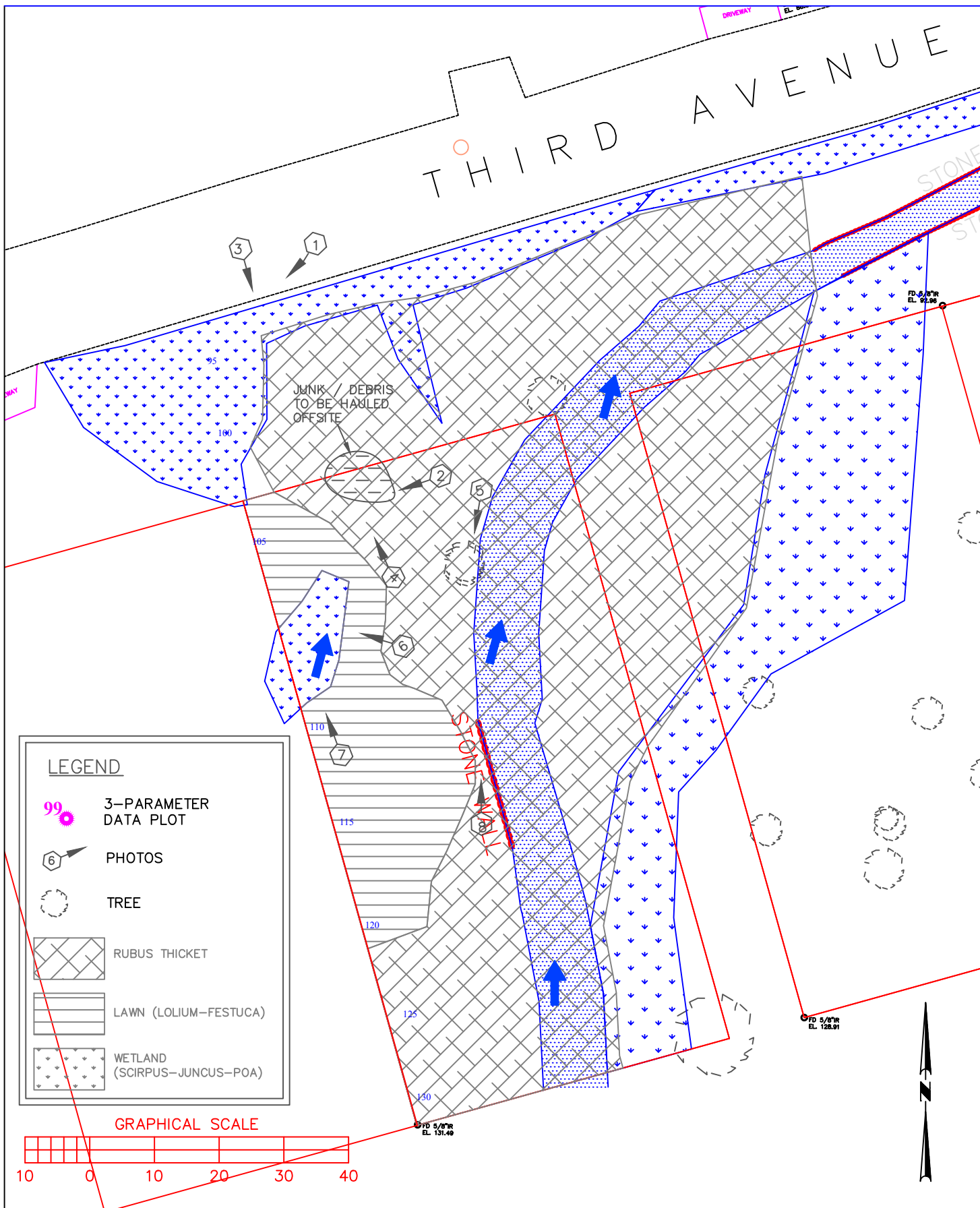
- (i) GPS FILTERS WERE SET TO A MAX PDOP OF 6.0 AND MINIMUM SNR OF 4.0 AND A MINIMUM OF 5 READINGS PER FEATURE AS PER MANUFACTURERS INSTRUCTIONS TO ENSURE ACCURACY <1 METER. ALL FEATURES HAVE A POST-PROCESSING ERROR <1 METER. ALL GPS SHOTS UNDER CANOPY WERE SHOT MULTIPLE TIMES FOR QUALITY CONTROL.
- (ii) THE CENTERLINE CONCEPTS INC. LAND SURVEY WAS OVERLAYED AND ROTATED ONTO THE GPS COORDINATE SYSTEM USING A BEST FIT ABOUT THE 3 GPS-LOCATED REFERENCE POINTS IDENTIFIED ON THIS MAP.

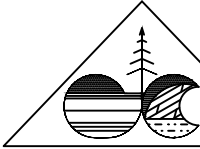


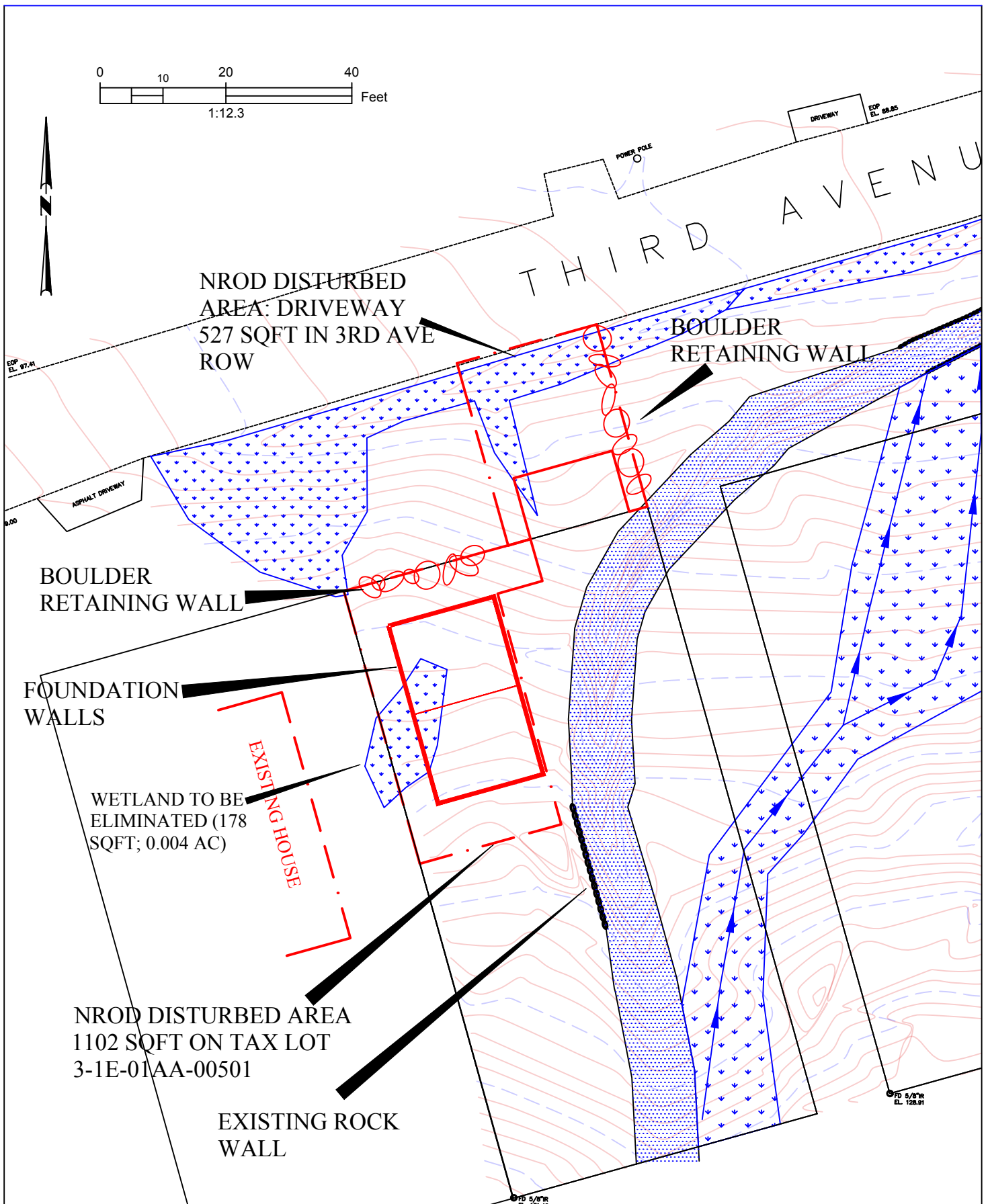
EXISTING CONDITIONS

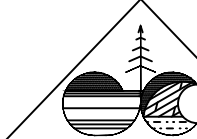
710 3rd AVENUE
OREGON CITY, OREGON
APPLICANT: MARK ZAWADZKI

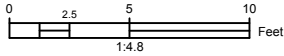
FIGURE: 2
SCALE: 1"=30'
DRAWN BY: AM
DATE: 03/18/19
JOB #: 19002



 environmental technology consultants	DELINEATION MAP		FIGURE:	3
	710 3RD AVENUE (#2)		SCALE:	1"=20'
	OREGON CITY, OREGON		DRAWN BY:	AM
	APPLICANT: MARK ZAWADZKI		DATE:	03/18/19
			JOB #:	19002



 environmental technology consultants	PROPOSED DEVELOPMENT PLAN		FIGURE:	4A
	710 3RD AVENUE (#2)		SCALE:	1"=20'
	OREGON CITY, OREGON		DRAWN BY:	AM
	APPLICANT: MARK ZAWADZKI		DATE:	03/18/19
			JOB #:	19002



CANEMAH HOUSE

GRADING PLAN SHOWING EXISTING AND FINAL PLANNED ELEVATIONS

CUT, NATIVE MATERIAL

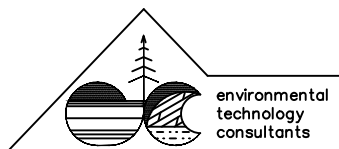
=118 YDS

FILL, NATIVE MATERIAL & BOULDERS

=6 YDS

FILL, CONCRETE & AGREGATE

=16 YDS



GRADING PLAN X-SECTION VIEW

710 3RD AVENUE (#2)

OREGON CITY, OREGON

APPLICANT: MARK ZAWADZKI

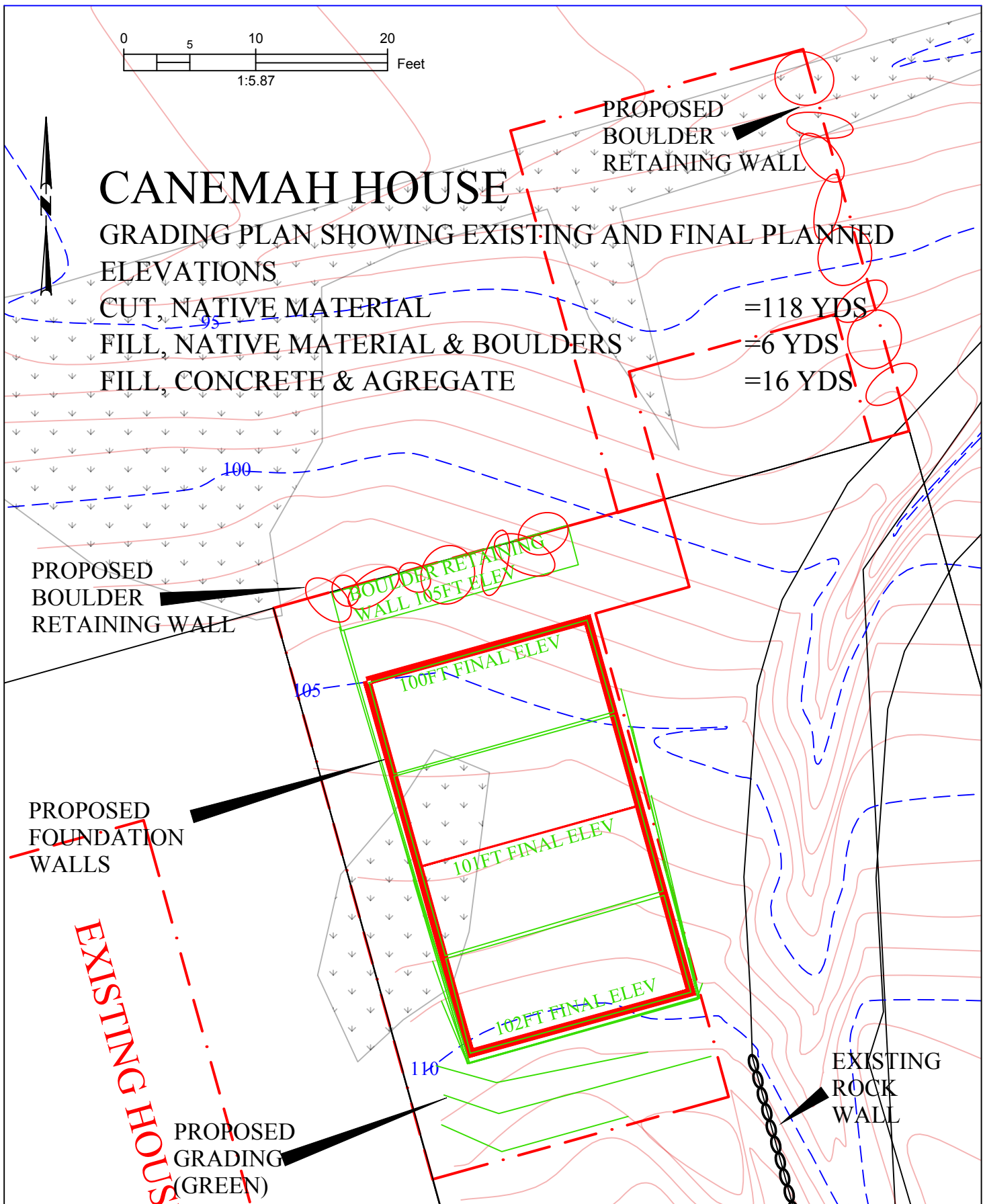
FIGURE: 4B

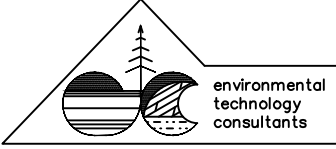
SCALE:

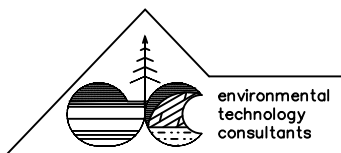
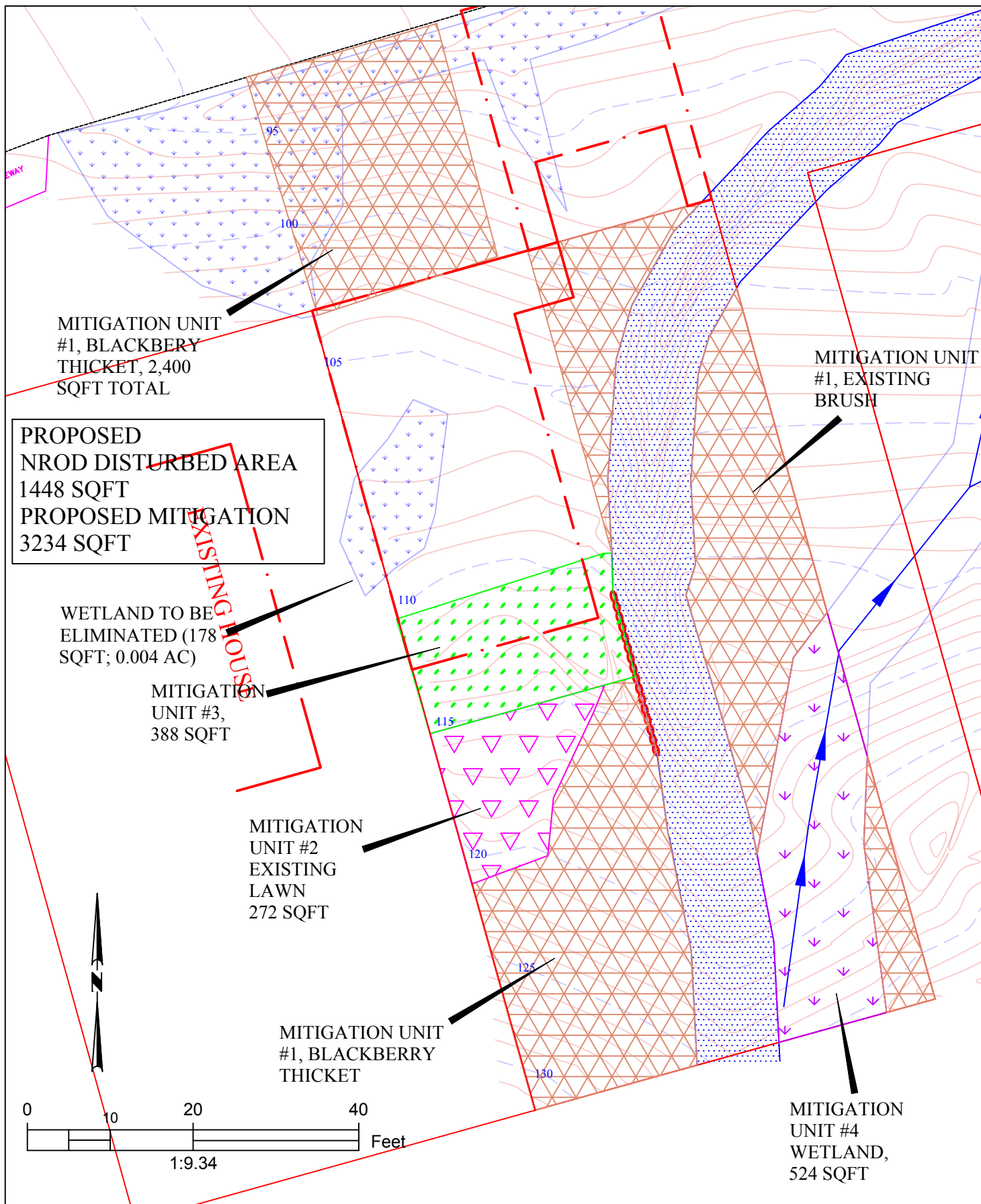
DRAWN BY: AM

DATE: 03/18/19

JOB #: 19002



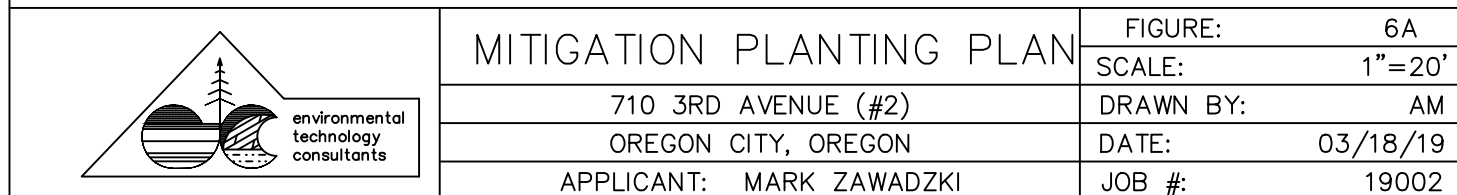
	PROPOSED GRADING PLAN		FIGURE:	4C
	710 3RD AVENUE (#2)		SCALE:	1"=20'
	OREGON CITY, OREGON		DRAWN BY:	AM
	APPLICANT: MARK ZAWADZKI		DATE:	03/18/19
			JOB #:	19002



MITIGATION AREAS

710 3RD AVENUE (#2)
OREGON CITY, OREGON
APPLICANT: MARK ZAWADZKI

FIGURE:	5
SCALE:	1"=20'
DRAWN BY:	AM
DATE:	03/18/19
JOB #:	19002



Stratum	Scientific Name	Common Name	Abbrev.	Size	Per unit planting #s				Total	Special Instructions
					Unit 1	Unit 2	Unit 3	Unit 4		
Tree	<i>Acer macrophyllum</i>	Bigleaf Maple	AM	5-gallon	3	1			4	Plant trees where shown on Figure 7
	<i>Prunus emarginata</i>	Bitter Cherry	PE	5-gallon		2			2	
	<i>Pseudotsuga menziesii</i>	Douglasfir	PM	5-gallon	4				4	
	<i>Salix scoulerana</i>	Scouler's Willow	SSc	5-gallon	2				2	
	<i>Thuja plicata</i>	Western Red Cedar	TP	5-gallon	1				5	
Shrub/ Ground-Cover	<i>Acer circinatum</i>	Vine Maple	AC	2-gallon		3			13	Plant all shrubs in clusters of 3-6 unless otherwise indicated on Figure 7 Where soil is very rocky, landscaper may substitute 36" min live stakes of <i>Cornus stolonifera</i> for 2-gallon <i>Cornus stolonifera</i> specified
	<i>Berberis nervosa</i>	Oregongrape	BN	1-gallon			28		28	
	<i>Corylus cornuta</i>	Hazel	CC	2-gallon	5				15	
	<i>Cornus stolonifera</i>	Red-osier Dogwood	CS	2-gallon	41			12	53	
	<i>Polystichum munitum</i>	Sword Fern		1-gallon			16		16	
	<i>Rosa nutkana</i>	Nootka Rose	RN	2-gallon	14				14	
	<i>Ribes sanguineum</i>	Red Currant	RS	2-gallon	3	2			5	
	<i>Symphoricarpos albus</i>	Snowberry	SA	1 gallon	4	6			10	
	<i>Sambucus racemosa</i>	Red Elderberry	SR	2 gallon	3				3	
	<i>Salix sitchensis</i>	Sitka Willow	SS	36" min live stake	14			7	21	

Table 1: Mitigation Plantings

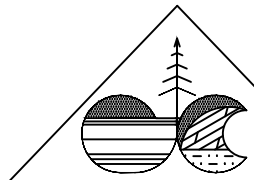
 environmental technology consultants	MITIGATION PLANTING PLAN		FIGURE:	6B
	710 3RD AVENUE (#2)		SCALE:	1"=20'
	OREGON CITY, OREGON		DRAWN BY:	AM
	APPLICANT: MARK ZAWADZKI		DATE:	03/18/19
			JOB #:	19002

FIGURE 6C

ETC Planting Specifications

1. Prior to planting, the site shall be inspected for the presence of invasive species that can pose a risk to the native plant community, (e.g. reed canary grass, Himalayan blackberry, and Japanese knotweed).
2. All invasive weeds shall be chemically controlled with a herbicide approved for vegetation control in environmentally sensitive areas such as a non-surfactant containing glyphosate formulation such as Aquamaster or Rodeo.
3. All chemical applicators shall use plastic or metal hoods over spray-heads to minimize drift and damage to desirable plants in close proximity to weeds targeted to be controlled.
4. Applications of herbicides shall be in accordance with the label directions for control of targeted undesirable plant(s) only. Applicators will also follow any additional limitations by local and state regulations and ordinances for use in environmentally sensitive areas.
5. Mitigation planting area shall have 3" of clean environment-friendly hogfuel placed over entire surface.
6. A temporary irrigation system shall be installed on the site for supplemental watering from June 1st until September 1st as needed.
7. Plants will conform to the American Standard for Nursery Stock (ANSI Z60.1-2004) or the most current version.
8. As stated in the American Standard for Nursery Stock (ANSI Z60.1-2004), "All container grown nursery stock shall be healthy, vigorous, well rooted, and established in the container in which it is growing; shall have a well established root system reaching the sides of the container to maintain a firm ball when the container is removed, but shall not have excessive root growth encircling the inside of the container."
9. Roots will be evenly distributed in the container and no girdling roots or large roots with larger diameter cuts will be acceptable.
10. Plants will be of a typical size and growth habit of the species as would be found naturally and will have no damaged branches or bark or have been subjected to any poor pruning practices such as topping.
11. Plants will be weed, disease, and insect free according to the requirements of the state's Department of Agriculture at time of purchase and/or delivery.
12. Plants sold or designated "Conservation Grade" will not be acceptable for this project.
13. All plants shall be tagged for dormant season identification. Tags to remain on plant material after planting for monitoring purposes.
14. Handling and Care of All Plant Materials
 - i.) Keep roots cool and moist and all times.
 - ii.) Plants not planted in a single work day will be protected from heat and desiccation. Windy days may require irrigation to reduce the likelihood of stress.
 - iii.) Preparing the Planting Hole
 1. Dig planting hole no deeper than 90% of the height of the rootball.
 2. Dig the planting hole at least twice the width of the rootball.
 3. Do not loosen the bottom of the hole in any way. Leave the bottom of the hole undisturbed for the rootball to sit firmly on to make sure no subsiding takes place, which causes root balls to sink.
15. Handling and Care of Containerized Plant Materials
 - i.) Use only existing native backfill soil. Do not use any soil amendments in the hole.
 - ii.) Score the outside of the rootball with four (4) 1"-2" deep slices cut from the top of the rootball to the bottom. Any circling roots that are discovered either circling the sides or circling the bottom of the rootball will be cut through with loppers or hand-pruners. Any circling roots inside the 1" depth slices will be cut through.
 - iii.) Place the rootball in the planting hole on the bottom of the hole.
 - iv.) Make sure approximately 1" of the rootball (e.g. 10% of rootball top is above grade) sits above grade so that the top of the rootball is visible, and the crown of the plant is plainly seen (e.g. Trunk flare visible).
 - v.) Level rootball by propping with backfill soil and fill hole with 1/3 of backfill soil.
 - vi.) Tamp the backfill soil with a sod tamper or hands. Do not tamp with feet in any way that could place any weight on the top of the rootball. Fibrous-rooted plants will tear and separate from the plant from tamping directly on the rootball with feet.
 - vii.) Water in well. Place remaining backfill soil making sure none is placed on top of the rootball. Tamp the backfill soil and water again.
 - viii.) Any excess backfill soil can be used to form a small berm around the rootball, making sure that none ends up on the top of the rootball.
 - ix.) Place 3"-4" of an "environmentally friendly hogfuel", "H&H Recyclers Trailmix", or "Stumpgrindings" with a minimum of bark (e.g. stump grindings), coarse woody mulch in a 6' diameter circle around the plant, making sure it is no less than 2" from trunk. No mulch is to come in contact with the plant stems/trunks.
 - **environmentally friendly hogfuel--(no nails, particle board, pallets, etc.)
16. Handling and Care of Bare Root Plant Materials
 - i.) Use only existing native backfill soil. Do not use any soil amendments in the hole.
 - ii.) Dig planting hole no deeper than the length of the roots.
 - iii.) Dig the planting hole at least twice the width of the roots.
 - iv.) Cut any damaged roots. Roots should only fit to the bottom of the hole.
 - v.) DO NOT FORCE ROOTS INTO THE HOLE IN SUCH A WAY AS TO BEND LONG ROOTS.
 - vi.) Mound and compact soil in the center of the hole and evenly spread the roots over, the mound making sure the crown (area of the trunk or stem that is above the ground) of the plant is above grade.
 - vii.) Center the plant in the planting hole.
 - viii.) Make sure plant crown (below attachment of roots to stem/trunk) is above grade.
 - ix.) Follow steps v through ix in Number 15
17. Handling and Care of Planting Plugs
 - i.) Use only existing native backfill soil or till in layer of organic amendment over whole planting site. Do not use any soil amendments in the hole.
 - ii.) Dig planting hole no deeper than the height of the plug.
 - iii.) Dig the planting hole at least twice the width of the plug.
 - iv.) Roughen exterior of heavily rooted or rootbound plugs to open up rootball.
 - v.) Center the plug in the planting hole.
 - vi.) Backfill soil around plug and tamp soil around plug with fingers and hand.
18. Handling and Care of Whips, Live Stakes and Sprigs
 - i.) Any storage of excess plants not planted in a single work day will be protected from heat and desiccation. Storage shall be wet burlap or water filled containers that cover at least one half (½) of each piece.
 - ii.) Use only existing native backfill soil. Do not use any soil amendments in the hole.
 - iii.) All plants to be planted as whips, stakes, or sprigs shall be planted as follows:
 - iv.) Each piece must be freshly cut with the base cut at a 45 degree taper.
 - v.) Whips and stakes will be 4' to 5' in length and 3/4" to 1 1/2" in diameter.
 - vi.) Optimally, the bottom half of whips and stakes will be immersed in water for 7-10 days.
 - vii.) Keep all plant materials moist in transport. In hot and/or windy days cover with wet burlap.
 - viii.) Plant when soil is moist to facilitate penetration of the sprig into the ground.
 - ix.) For plants that are difficult to root use a rooting hormone as specified on the product container prior to installing
 - x.) Install the base of pieces into the ground at least 2/3 the length of their length.
 - xi.) If soil conditions do not allow easy penetration of pieces into the ground, prepare a small diameter hole using a probe such as a piece of large diameter rebar or similar device prior to installing sprig. The hole diameter must be smaller than the sprig diameter. If hole is too large gently tamp soil around plant.
 - xii.) DO NOT POUND PIECES INTO THE SOIL WITH A HAMMER, Mallet, OR ANY OTHER IMPACT DEVICE!
19. Animal Protection and Fertilization
 - i.) Each plant will have a sturdy planting tube or heavy plastic or metal screening as per manufacturer instructions. If in rolls, cut to size for plant and zip-lock together. Staple or stake plant tube to the ground. Use a minimum of 6" staples. Use longer staples in floodplain areas that have flooding events.
 - ii.) Fertilization shall be done with a slow release fertilizer that provides feeding for at least two (2) years, such as fertilizer tablets with an N-P-K (percentages of nitrogen, phosphorus, and potassium) of 20-10-5.

MITIGATION INSTALLATION PROCEDURES

Site preparation, including *Rubus* and pasture grass control will be required prior to planting. The following outlines the prescribed treatment:

- a) Initial *Rubus* control will consist of a summer / fall treatment as per Clark County, WA weed management department guidelines.
 - i) September-October- When the berries are set (berries have ripened but not before a killing freeze) apply: "Rodeo" using a foliar application. Tank-mix compatibility as directed on label. Rainfast within two hours.
 - ii) Apply above mix with 4-6 oz./100 gallons spray Nu-Film P Extender-Sticker-Spreader
- b) In approximately 2 weeks after herbicide application, physically cut down dead Blackberry parts; mulch with mower.
- c) Import clean hog-fuel (available from H&H Wood Recycler) consisting of waste wood products ground to 3" particle size and less; spread hog fuel in a 3" layer over entire mitigation area.
- d) Install plantings.
- e) Broadcast seed onto the hog-fuel over the entire mitigation area.
- f) All site preparation and mitigation installation activities should be completed within 1 month.

It is recommended that all plantings be marked with fluorescent flagging or other visible means so that future *Rubus* treatments will be sure to avoid the plantings.

MAINTENANCE NOTES:

Following the initial treatment of *Rubus* and the planting, further maintenance will consist of a bi-annual treatment of the *Rubus discolor*. The first annual treatment will take place during the spring, and will consist of spot herbicide application. It will take place in May when the *Rubus* has begun to leaf and growth and nutrient transport are at its greatest level. A licensed herbicide applicator able to distinguish this species from the desirable species will be required, or otherwise a qualified individual who can make the distinction will be required to supervise. The second treatment will take place in the late summer to early fall (late August to October) in the same manner, but the herbicide used in this application shall be as per the MITIGATION INSTALLATION PROCEDURES for fall application.

The bi-annual treatment will be required throughout the monitoring period.

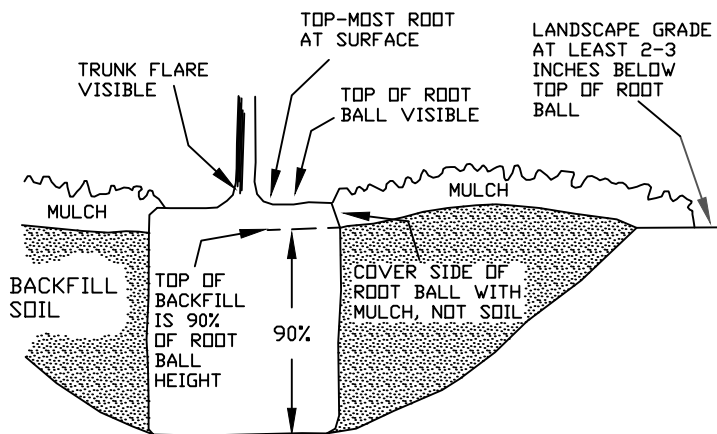


FIGURE 6D

Fertilizer specs:

Fertilizer shall consist of tightly compressed slow release (2 years) planting tablets available in weights of 5, 10, or 21 grams with an N-P-K analysis of 20-10-5 derived from sources listed in the guaranteed analysis.

When plants have been installed in planting holes and ½ of backfill placed and firmed around the rootball, the tablet(s) shall be positioned on top of the backfill one inch away from the rootball or root tips (in the case of bare root plants). Complete backfill, tamp and water.

DO NOT PLACE THE TABLETS IN THE BOTTOM OF THE HOLE.

Suggested Application Rates:

For 1-2 gallon containers	1	21 gram tablet per container
For 3-5 gallon containers	2	21 gram tablets per container
For bare root	1	10 gram tablet per plant

The minimum Guaranteed Analysis will be:

Total Nitrogen (N)	20.00%
2.4% urea nitrogen	
4.0% water soluble organic nitrogen	
13.6% water insoluble nitrogen (present as ureaformaldehyde)	
Available phosphate (P2O 5).....	10.00%
Soluble potash (K2O).....	5.00%
Calcium (Ca).....	2.80%
Magnesium (Mg).....	0.50%
Sulfur (S) (Total).....	2.00%
2.0% Combined Sulfur (S)	
Boron (B).....	0.02%
Copper (Cu).....	0.05%
0.50% Water Soluble Iron (Fe)	
Manganese (Mn) (Total).....	0.05%
0.05% Water Soluble Manganese (Mn)	
Zinc (Zn) (Total).....	0.050%
0.05% Water Soluble Zinc (Zn)	

FIGURE 6D

APPENDIX B) Ground Level Color Photographs



Photo 1. Looking south along the roadside ditch at 3rd Avenue. The house in the photo is 716 3rd Ave. ETC Photo 1/29/2019



Photo 2. A photo of Wetland “A” hydrology and wetland vegetation. ETC Photo 1/29/2019



Photo 3. Looking south up Lot 501 from 3rd Avenue toward the degraded Wetland “A”. ETC 1/29/2019



Photo 4. A view looking northeast into part of the Wetland “A” area. ETC 1/29/2019



Photo 5. Looking south at South Canemah Creek. ETC 1/29/2019



Photo 6. Sloped wetland area, Wetland "A". ETC 1/29/2019



Photo 7. Looking north on the lot where the proposed house will be. Sloped wetland man induced from neighboring property. ETC 1/29/2019



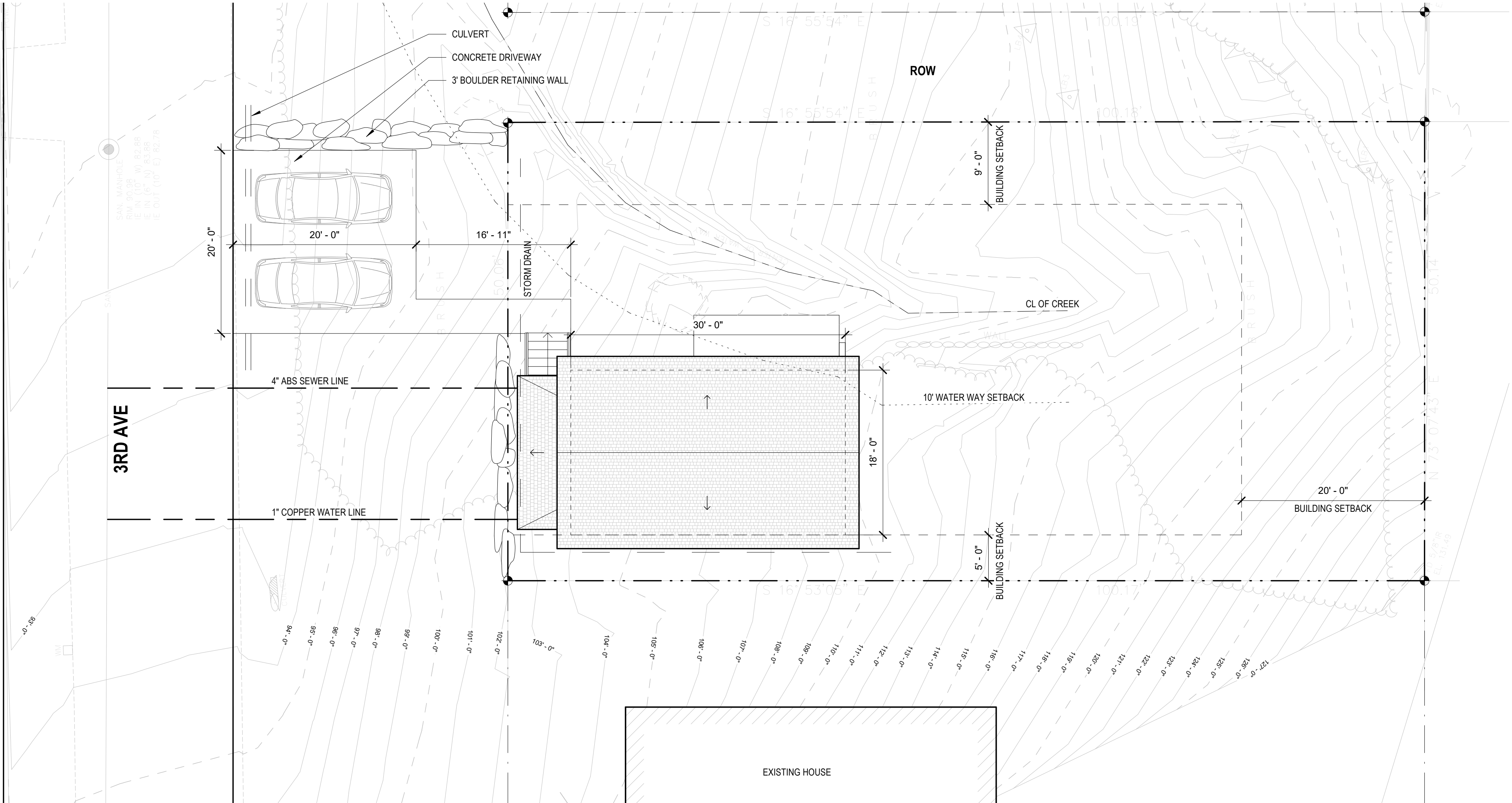
Photo 8. South Canemah Creek. ETC Photo 1/29/2019

APPENDIX C) Canemah House Plans

(4 pages).

NOT FOR
CONSTRUCTION

CANEMAH HOUSE 3
3RD AVE
OREGON CITY, OR, 97045



LOT COVERAGE:
LOT AREA: 5,000 SQ. FT.
HOUSE AREA: 939 SQ. FT.
(INCL. OVERHANG)
DRIVEWAY: 400 SQ. FT.
WALK: 64 SQ. FT.
STAIR: 28 SQ. FT.
DECK: 96 SQ. FT.
STORM DRAIN: 42 SQ. FT.
1569 SQ. FT. / 5,000 SQ. FT. = **31.38%**

LEGAL DESCRIPTION:
TAX LOT 501
--- THIRD AVE.
OREGON CITY, OR 97045
CLACKAMAS COUNTY
WR-01-23
MAP 3S-1E-1AA

BUILDER:
MARK ZAWADZKI
(503) 806-0807

NOTES:
1. DISPOSE OF STORMWATER
PER OREGON CITY DIRECTION.

1 SITE PLAN
1/8" = 1'-0"



Revisions:		
No.	Date	Description

PERMIT SET

Project # 19009

SITE PLAN

A1.0

Date: 03.04.2019

FLOOR PLAN NOTES

1. SEE A0.0 FOR ALL WALL, FLOOR AND ROOF ASSEMBLY INFORMATION
2. DIMESNIONS SHOWN FROM GRID LINES AND CENTERLINE OF WALL, WINDOW AND DOOR UNLESS NOTED OTHERWISE.
3. MECHANICAL, ELECTRICAL AND PLUMBING SHOWN IN GENERAL CONCEPT ONLY, FINAL EXECUTION BY DESIGN-BUILD CONTRACTOR.
4. CASEWORK SHOWN TO BE FULLY DETAILED BY DESIGN-BUILD INSTALLER.

NOT FOR
CONSTRUCTION

CANEMAH HOUSE 3
3RD AVE
OREGON CITY, OR, 97045

Revisions:		
No.	Date	Description

PERMIT SET

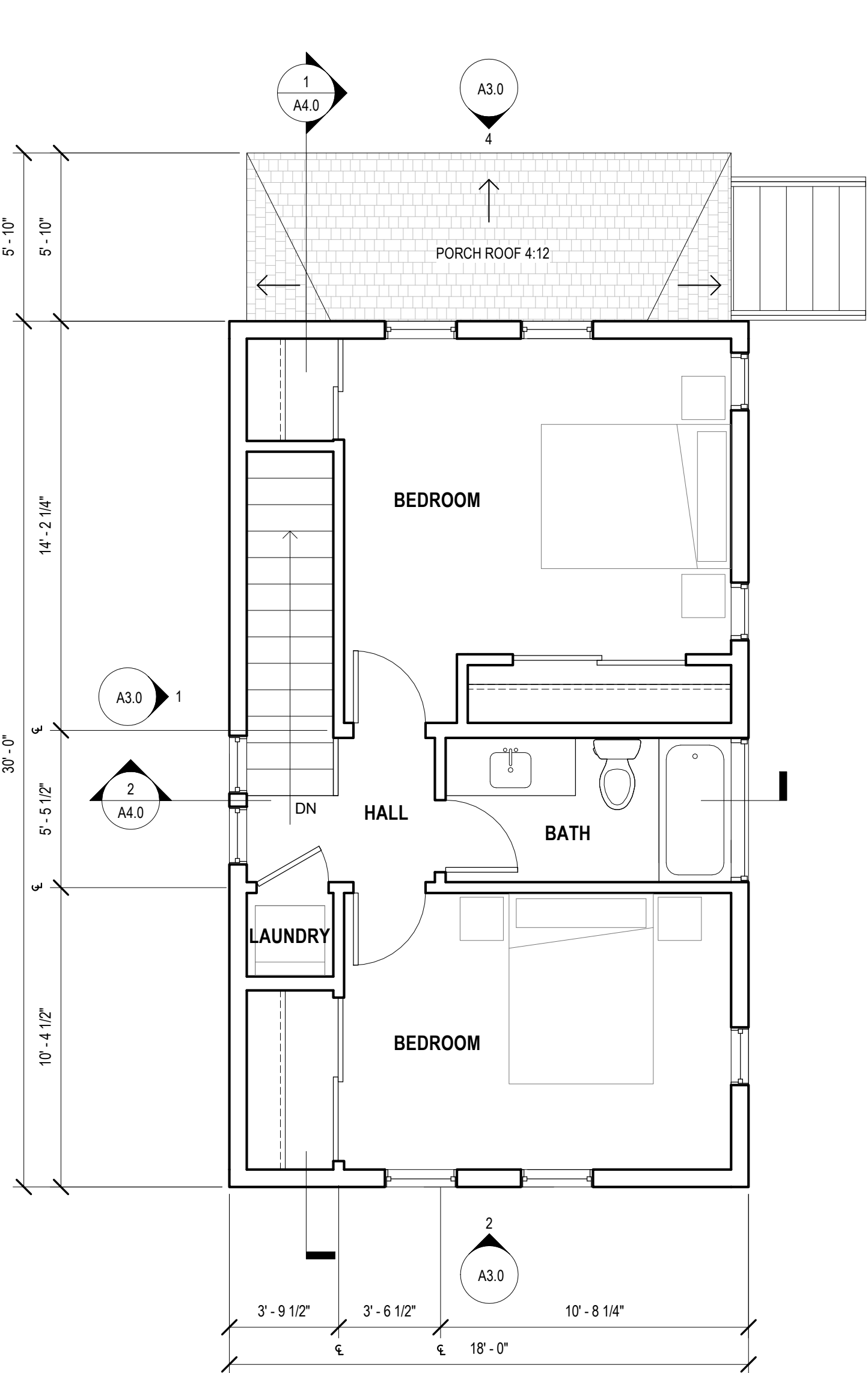
Project # 19009

FLOOR PLANS

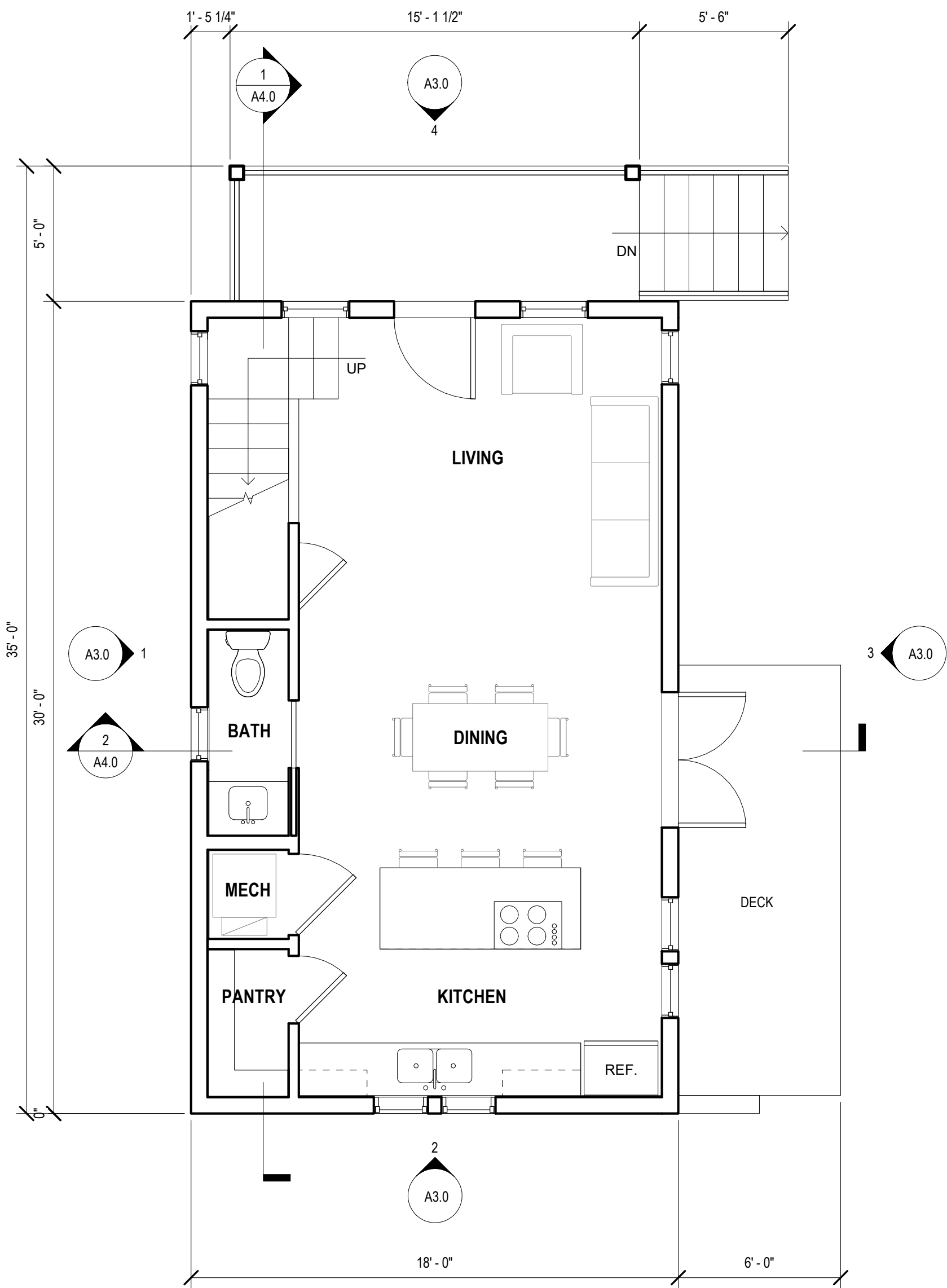
A2.0

Date: 03.04.2019

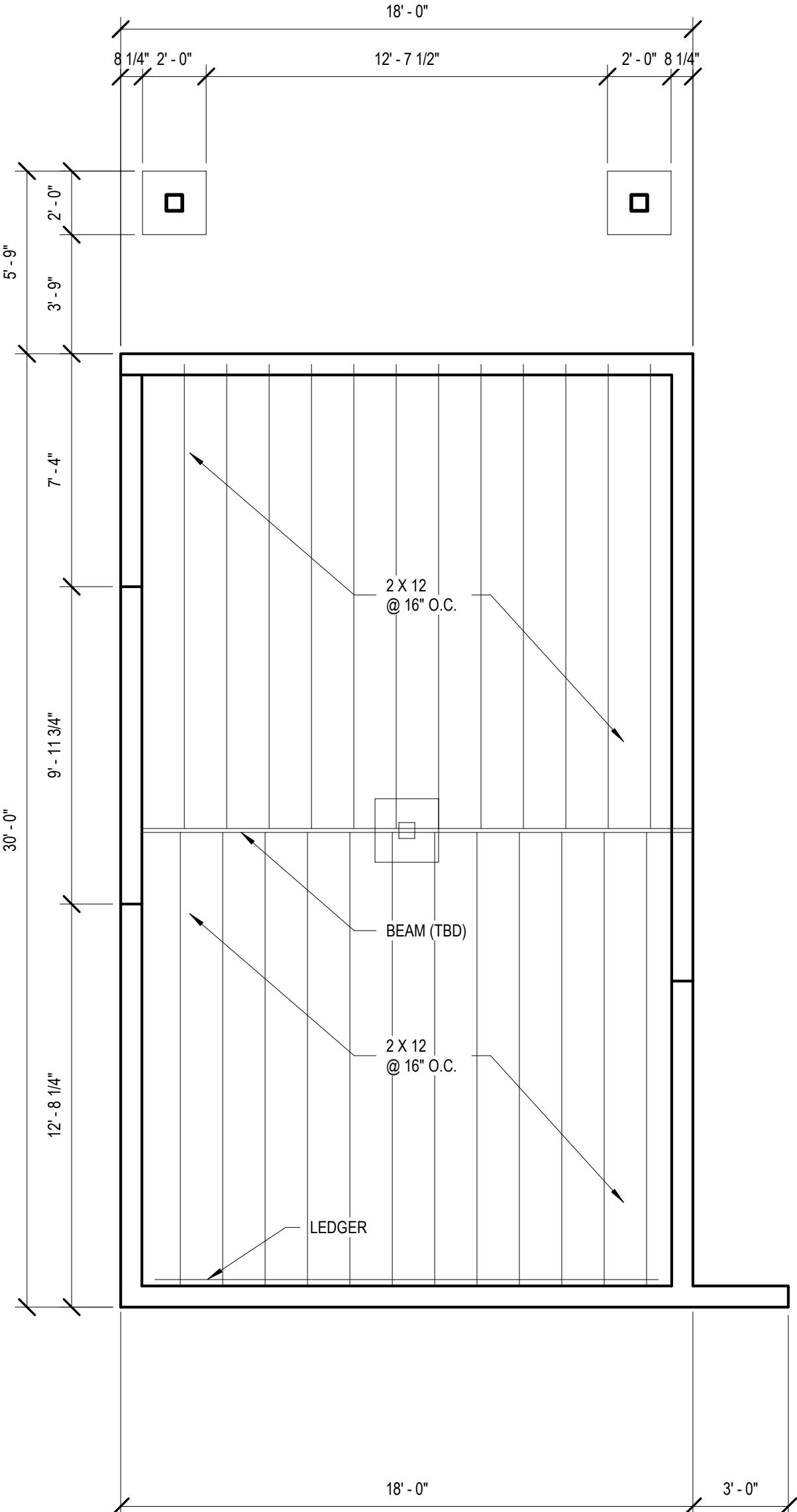
© copyright OUTSIDE ARCHITECTURE, LLC



3 UPPER LEVEL PLAN
1/4" = 1'-0"



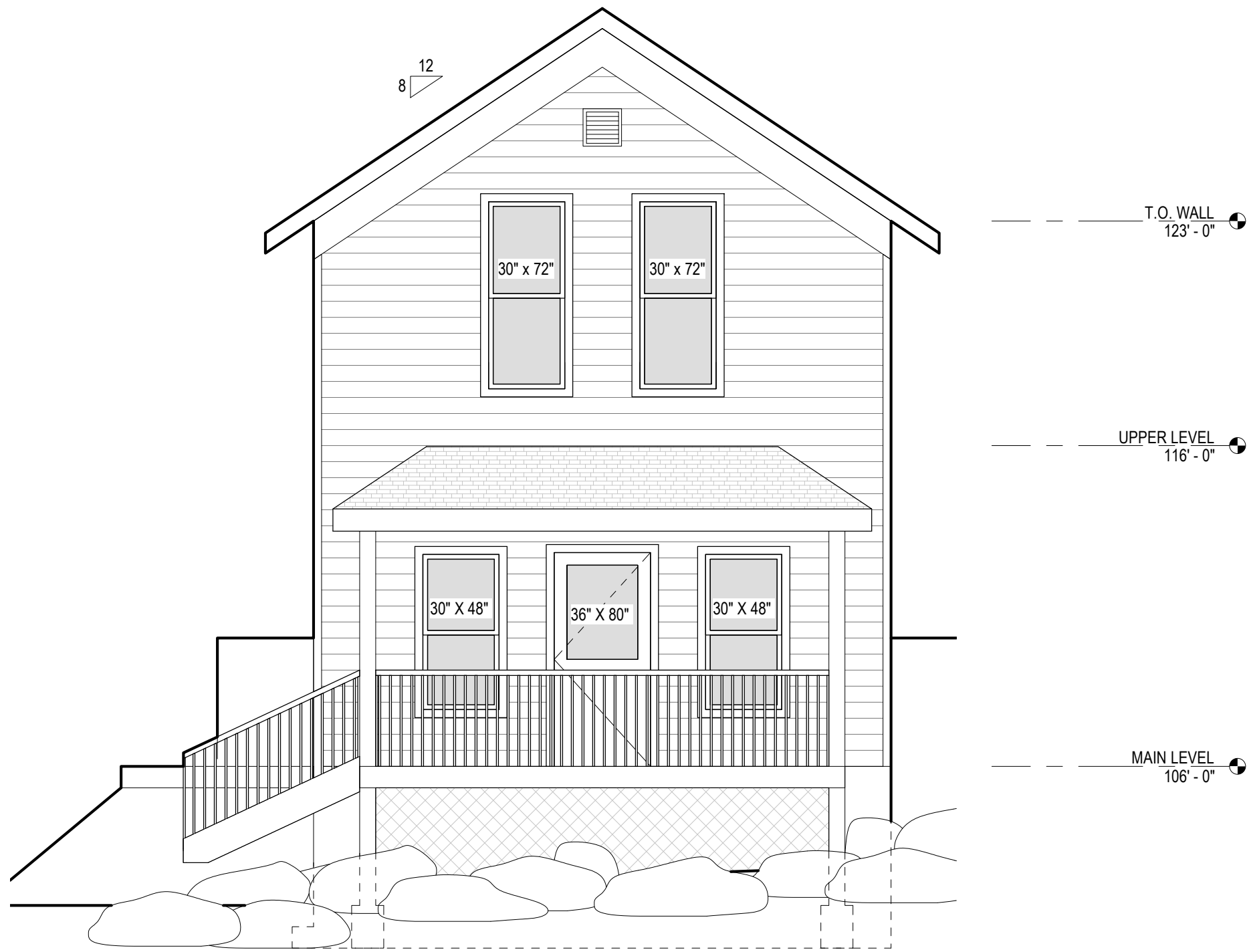
2 MAIN LEVEL PLAN
1/4" = 1'-0"



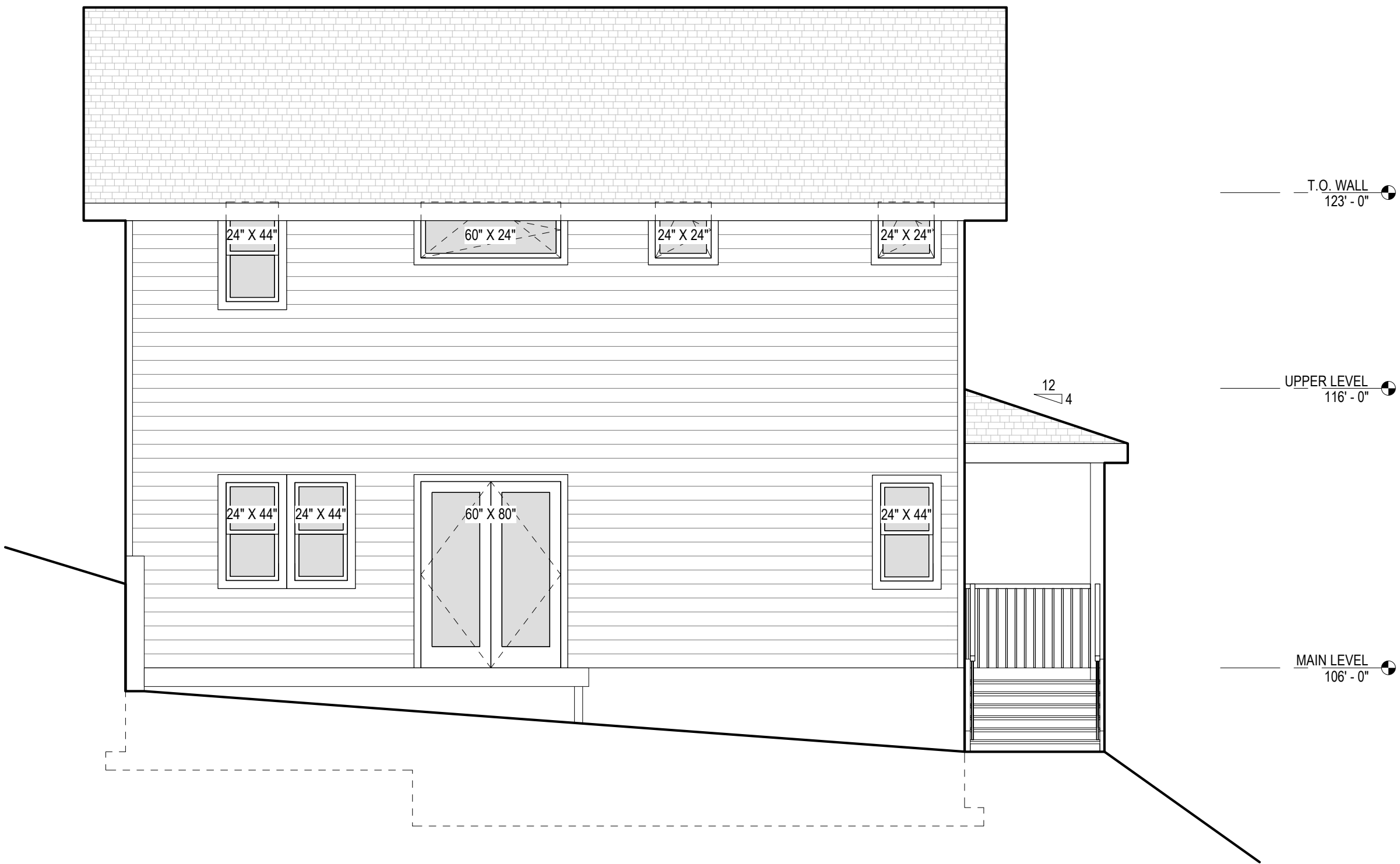
1 FRAMING PLAN
1/4" = 1'-0"

NOT FOR
CONSTRUCTION

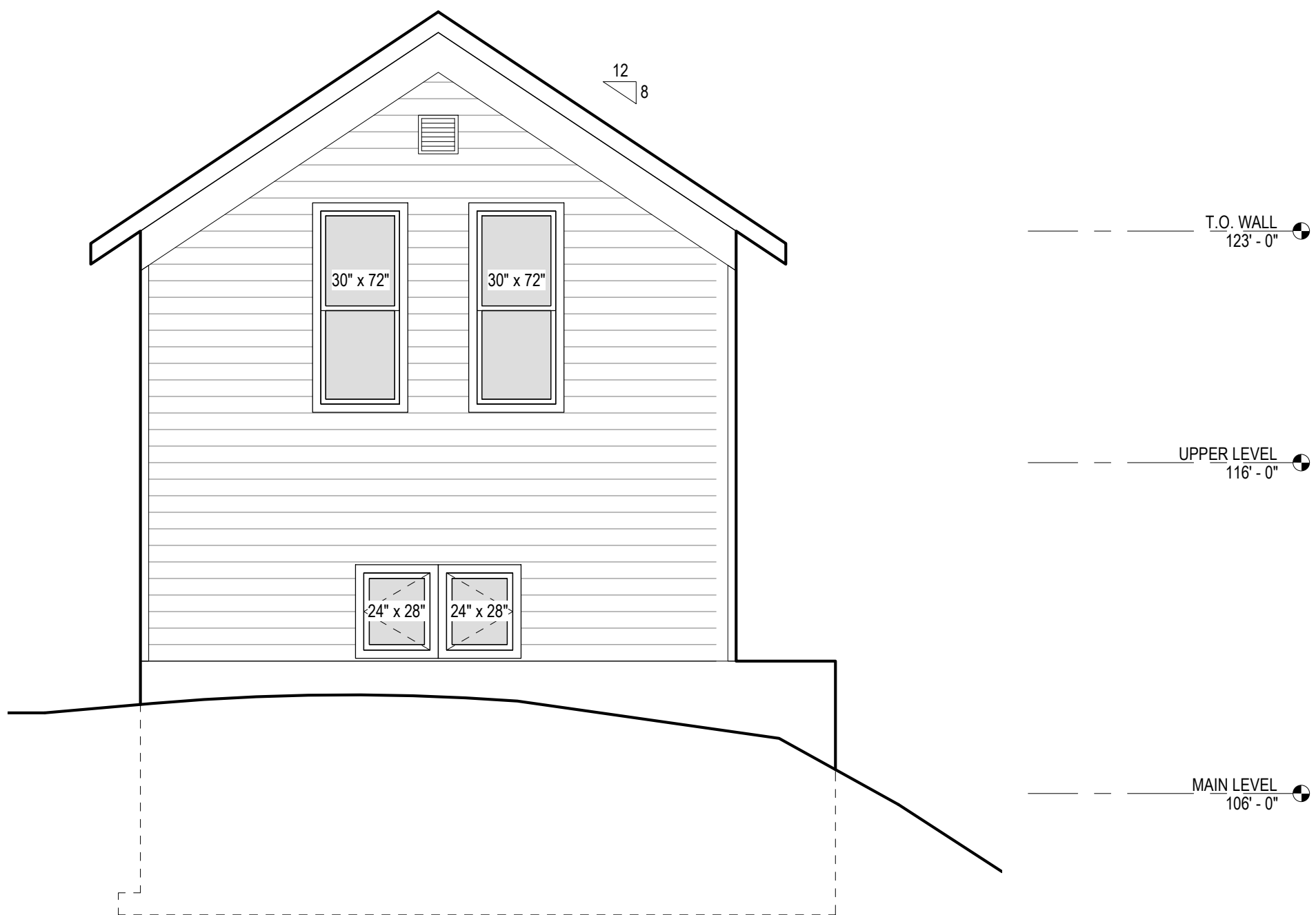
CANEMAH HOUSE 3
3RD AVE
OREGON CITY, OR, 97045



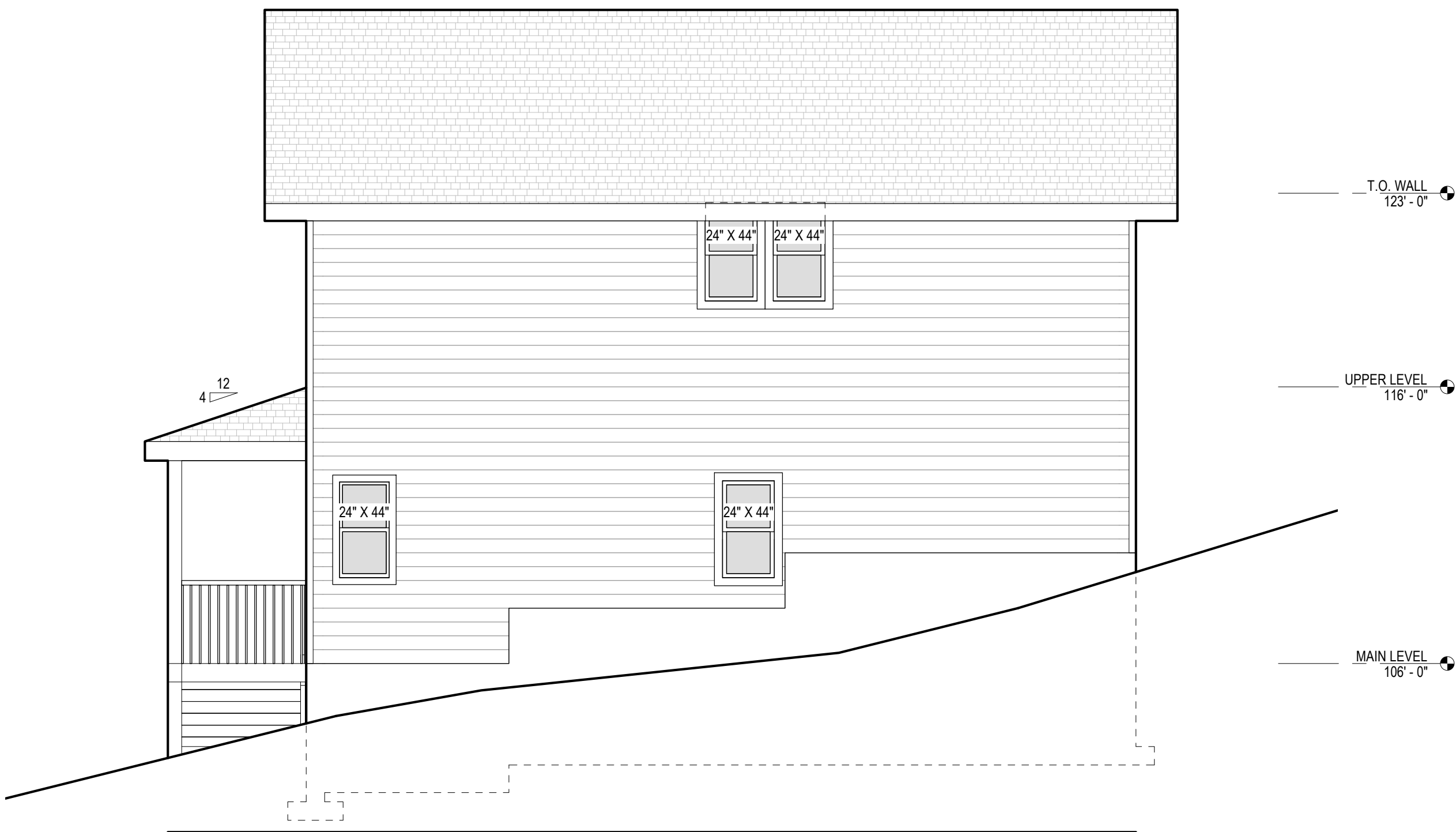
4 NORTH ELEVATION
1/4" = 1'-0"



3 WEST ELEVATION
1/4" = 1'-0"



2 SOUTH ELEVATION
1/4" = 1'-0"



1 EAST ELEVATION
1/4" = 1'-0"

Revisions:		
No.	Date	Description

PERMIT SET

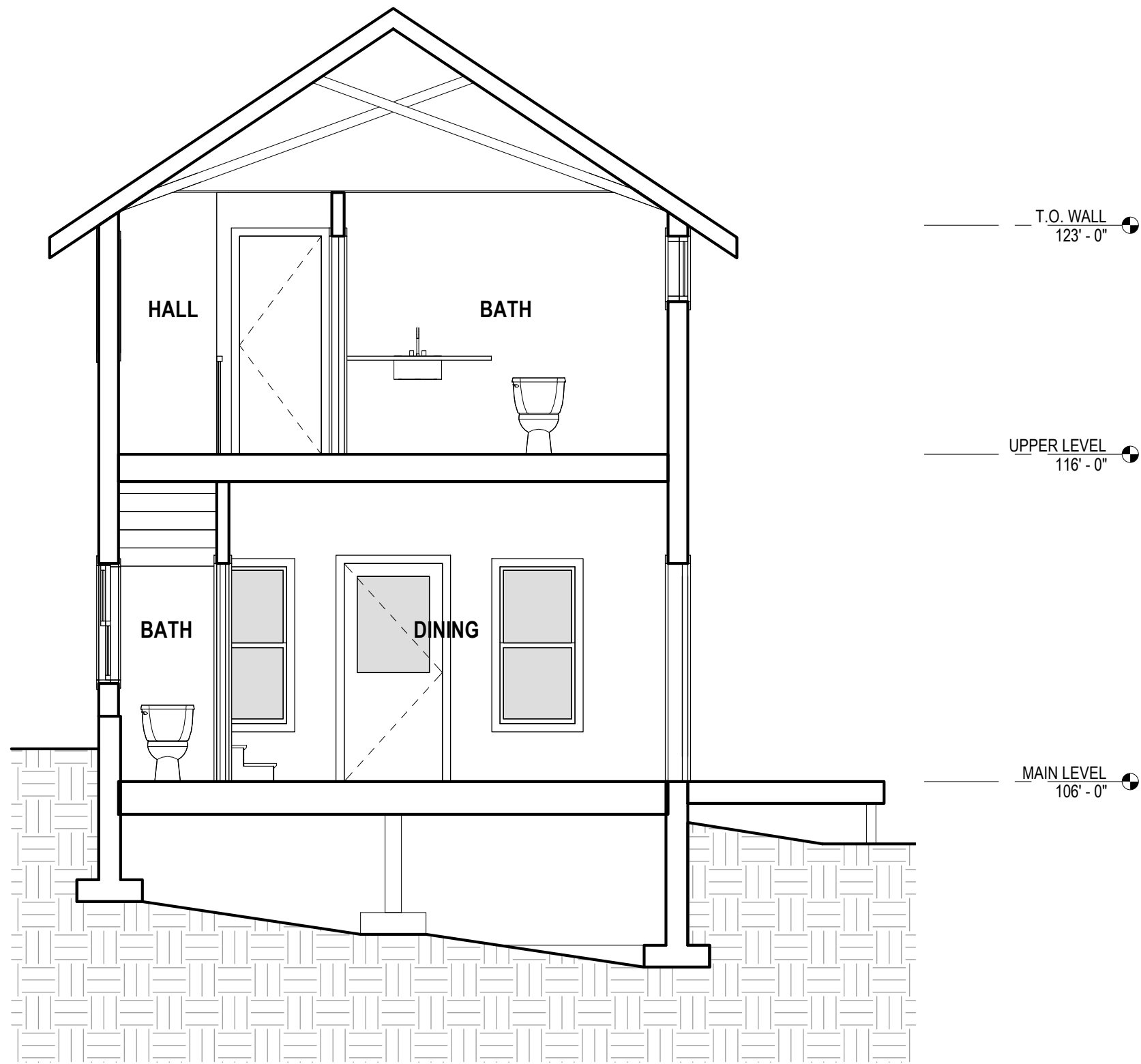
Project # 19009

EXTERIOR
ELEVATIONS
A3.0

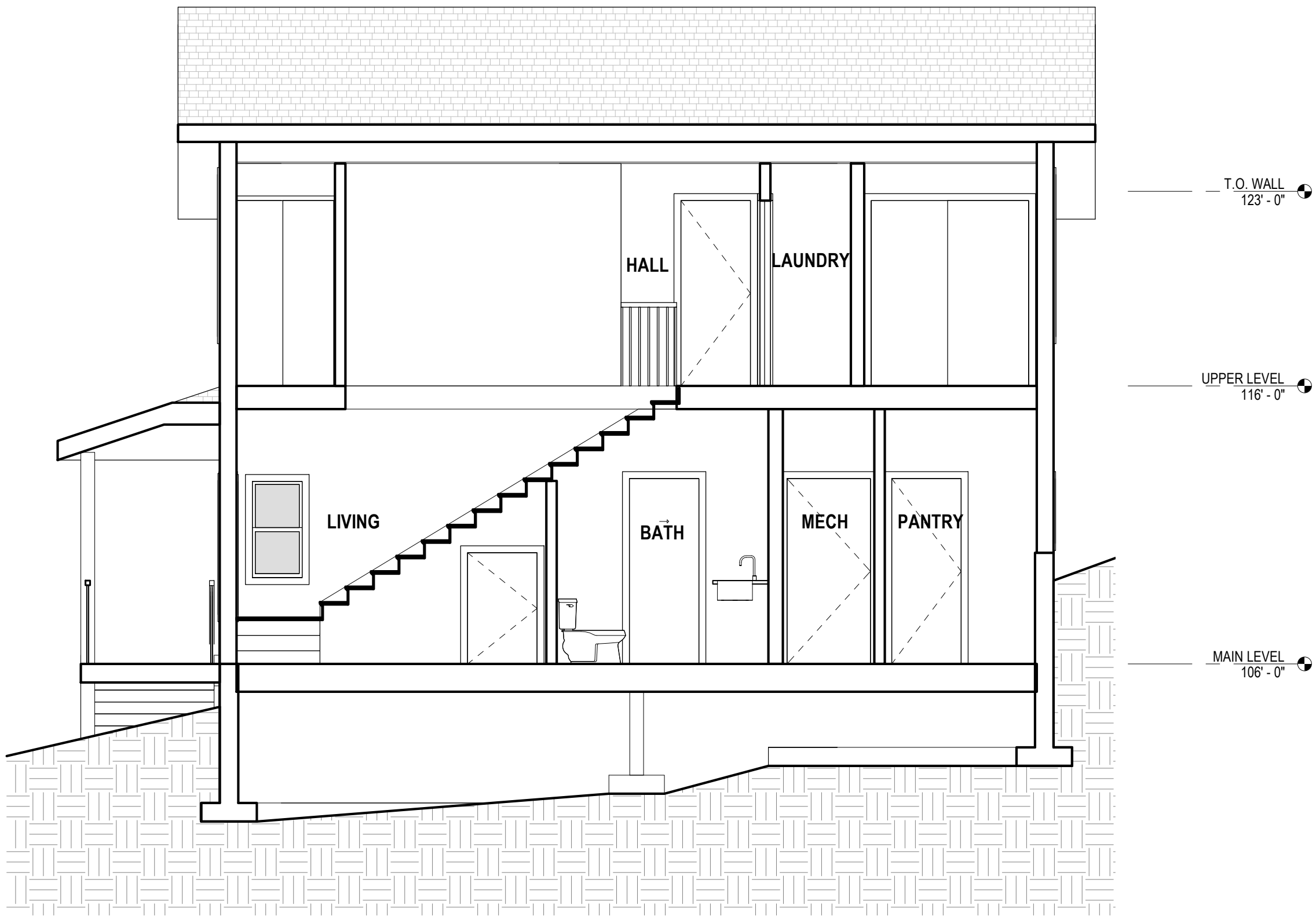
Date: 03.04.2019

NOT FOR
CONSTRUCTION

CANEMAH HOUSE 3
3RD AVE
OREGON CITY, OR, 97045



2 | SOUTH SECTION
1/4" = 1'-0"



1 | EAST SECTION
1/4" = 1'-0"

Revisions:		
No.	Date	Description

PERMIT SET

Project # 19009

BUILDING
SECTIONS
A4.0

Date: 03.04.2019