



WASTEWATER FEASIBILITY REPORT

FOR THE

**FAUST HOUSE
USE PERMIT APPLICATION**

LOCATED AT

2031 COOMBSVILLE ROAD
NAPA, CA 94558

COUNTY: NAPA
APN: 045-250-030

INITIAL SUBMITTAL: FEBRUARY 22, 2011
REVISED:

PREPARED FOR REVIEW BY:

NAPA COUNTY DEPARTMENT OF
ENVIRONMENTAL MANAGEMENT
1195 THIRD STREE, SUITE 101
NAPA, CA 94558



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ATTACHEMENTS

1. Site Evaluation Report



I. INTRODUCTION

The applicant is applying to the County of Napa for a Use Permit to operate a 10,000 gallon per year winery on the subject parcel. This report has been prepared to estimate the wastewater flows generated by the operation of the winery and to evaluate the feasibility of constructing a wastewater disposal system to serve the domestic and winery wastewater generated by the proposed project and the domestic from the existing residence.

The winery will consist of a production building, tasting room, offices and lab. It will be a full crushing, fermenting, and barrel aging facility. Bottling will be performed via mobile bottling vendors. The maximum staffing level will be four employees during crushing or bottling days only. A typical day will consist of one full-time employee. Two part-time employees will be needed as the season requires. The winery marketing plan calls for fifteen visitors per day, with a maximum of 100 per week.

In addition, there is an existing residence that shall remain in use on the parcel. The existing residential wastewater will be combined with the winery wastewater and shall be treated and distributed via the same system. The existing residence has two (2) bedrooms.

The distribution field will be installed in a field located in the back of the parcel, a cross and existing creek. The piping to cross the creek shall be sleeved for additional protection and shall meet all County standards.

All plumbing fixtures in the proposed winery shall be low flow, water-saving fixtures per the Uniform Plumbing Code as adopted by the Napa County Building Department.

II. ESTIMATED WASTEWATER FLOW

A. Winery Sanitary Wastewater Flow

Peak daily domestic wastewater flows for the tasting room are based on fifteen (15) visitors and three (3) employees during harvest or bottling. The values used for the projected wastewater are based on the Napa County Department of Environmental Management guidelines.

$$(15 \text{ visitors / day})(3 \text{ gallons / visitor}) = 45 \text{ gpd}$$
$$(3 \text{ employees / day})(15 \text{ gallons / employee}) = 45 \text{ gpd}$$

The anticipated peak domestic flow is 120 gallons per day.

B. Residential Sanitary Wastewater Flow

The existing two (2) bedroom residence's wastewater flows shall be combined with the winery domestic flows into a new treatment system. Using the Napa County method for determining the daily domestic effluent from a residence, the flow is estimated to be:

$$\text{Residence wastewater flows} = (120 \text{ gpd / bedroom})(2 \text{ bedrooms}) = 240 \text{ gpd}$$

The combined domestic flows from the winery (120 gpd) and the residence (240 gpd) total 360 gpd for design purposes.

C. Winery Process Wastewater Flow

1. Peak Flow:

Using the Napa County method for determining the peak process effluent from a winery, the peak flow is estimated to be:

$$\text{Harvest Peak Flow} = \frac{(10,000 \text{ gallons wine / year})(1.5)}{30 \text{ days crush / year}} = 500 \text{ gpd}$$



2. Average Daily Flow:

Depending on the winery, the amount of wastewater generated per gallon of wine produced typically ranges from 3-10 gallons per gallon of wine produced. This variation is based on the individual winery water conservation practices. We have estimated, for this project, that six gallons of process effluent shall be produced for each gallon of wine produced. Using this method, it is estimated that 60,000 gallons of process wastewater shall be produced annually. This averages to an estimate of 165 gallons of process wastewater production per day as follows:

Average daily winery process wastewater flow:

$$\text{Average daily PW} = \frac{(10,000 \text{ gal wine / year})(6 \text{ gal water / gal wine})}{365 \text{ days / year}} = 165 \text{ gpd}$$

The peak flow during harvest is estimated to be 500 gpd and the average daily process wastewater production is estimated to be 165 gpd.

III. SITE EVALUATION

This feasibility study is based on the site evaluation performed by Delta Consulting and Engineering and field review by a member of the staff from Napa County Department of Environmental Management.

On November 12th, 2010, nine test pits were excavated. Four of the test pits (pits #1 through #4) were located across the creek from the existing residence and sheds. Five of the test pits (pits #5 through #9) were located near an existing shed. The soil texture for each horizon was determined in the field by the Feel Method, but to verify the findings, a hydrometer test was performed on the soils of select test pits. Tests pits #1 through #4 shall be used for the purpose of this report.

The gravel content in all pits was less than 10%. The site evaluation report was forwarded to the County Environmental Management department for approval (see copy attached) describes the pits in greater detail. Based on the soil types encountered and the available in-situ soil depth, Napa County design guidelines dictate the type of distribution system along with the design wastewater application rate.

IV. WASTEWATER DISPOSAL RECOMMENDATIONS & OPTIONS

A. Wastewater Treatment System Design Overview

The effluent from the residence and winery shall be combined and treated via standard septic tank (primary treatment) and final disposal through pressure distribution to the disposal field. No secondary treatment is required. The primary treatment system will treat and remove settleable solids to acceptable concentration levels. The septic tank shall be equipped with an effluent filter. The disposal field shall use chambers or gravel trenches which allow 3 square feet per foot of sidewall disposal area.

Required Length of Disposal Line:

$$\text{linear feet of disposal line} = \frac{830 \text{ gpd}}{0.2 \text{ gal / ft}^2 - \text{day} \times 3 \text{ ft}^2} = 1,383 \text{ ft}^2$$

The primary disposal area will consist of (14) 100 foot long, 1 foot wide trenches spaced 5 feet apart which yields 8,400 ft² of disposal area. A 100% reserve area will be located adjacent to the primary field.



The dosing pump shall be programmed to dose the field at regular intervals as specified by the Napa County design guidelines.

Following is a schematic of the proposed wastewater treatment system:

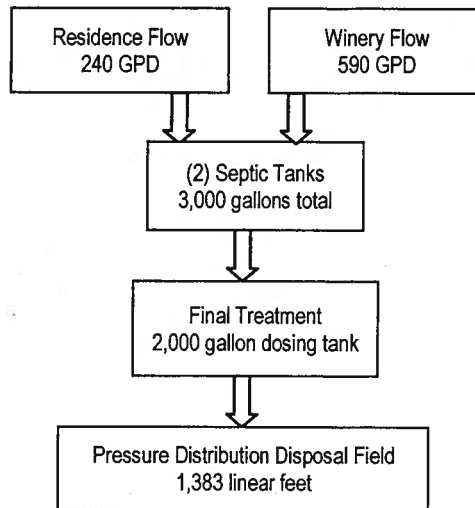


FIGURE 1: WWTs SCHEMATIC

V. SUMMARY

Based on the previous narrative and calculations, the parcel where Faust House will be able to handle the wastewater flow from the proposed project and existing residence. Detailed calculations and construction plans will be submitted to the Napa County Department of Environmental Management for permit approval prior to the construction of the final disposal systems.

**Napa County Department of
Environmental Management**

SITE EVALUATION REPORT

Page 1 of

Please attach an 8.5" x 11" plot map showing the locations of all test pits triangulated from permanent landmarks or known property corners. The map must be drawn to scale and include a North arrow, surrounding geographic and topographic features, direction and % slope, distance to drainages, water bodies, potential areas for flooding, unstable landforms, existing or proposed roads, structures, utilities, domestic water supplies, wells, ponds, existing wastewater treatment systems and facilities.

Permit #: E10-00508

APN: 045-250-030

(County Use Only)

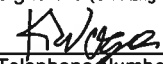
Reviewed by:

Date:

PLEASE PRINT OR TYPE ALL INFORMATION

Property Owner Faust House, LLC			<input checked="" type="checkbox"/> New Construction <input type="checkbox"/> Addition <input checked="" type="checkbox"/> Remodel <input type="checkbox"/> Relocation <input type="checkbox"/> Other:	
Property Owner Mailing Address PO Box 505			<input type="checkbox"/> Residential - # of Bedrooms: Design Flow : gpd	
City Rutherford	State CA	Zip 94573	<input checked="" type="checkbox"/> Commercial – Type: Winery (total 1100 gpd) Sanitary Waste: 400 gpd Process Waste: 700 gpd	
Site Address/Location 2031 Coombsville Road Napa, CA			<input type="checkbox"/> Other: Sanitary Waste: gpd Process Waste: gpd	

Evaluation Conducted By:

Company Name Delta Consulting & Engineering		Evaluator's Name Kristi Wagner	Signature (Civil Engineer, R.E.H.S., Geologist, Soil Scientist) 
Mailing Address: 1104 Adams Street, Suite 203			Telephone Number 707-963-8456
City St. Helena	State CA	Zip 94574	Date Evaluation Conducted 11/12/2010

Primary Area	Expansion Area
Acceptable Soil Depth: 66 in. Test pit #'s: 1 & 2	Acceptable Soil Depth: 66 in. Test pit #'s: ³ & 4
Soil Application Rate (gal. /sq. ft. /day): 0.2	Soil Application Rate (gal. /sq. ft. /day): 0.2
System Type(s) Recommended: pressure distribution	System Type(s) Recommended: pressure distribution
Slope: <5 %. Distance to nearest water source: >100 ft.	Slope: <5 %. Distance to nearest water source: >100 ft.
Hydrometer test performed? No <input type="checkbox"/> Yes <input checked="" type="checkbox"/> (attach results)	Hydrometer test performed? No <input checked="" type="checkbox"/> Yes <input type="checkbox"/> (attach results)
Bulk Density test performed? No <input checked="" type="checkbox"/> Yes <input type="checkbox"/> (attach results)	Bulk Density test performed? No <input checked="" type="checkbox"/> Yes <input type="checkbox"/> (attach results)
Percolation test performed? No <input checked="" type="checkbox"/> Yes <input type="checkbox"/> (attach results)	Percolation test performed? No <input checked="" type="checkbox"/> Yes <input type="checkbox"/> (attach results)
Groundwater Monitoring Performed? No <input checked="" type="checkbox"/> Yes <input type="checkbox"/> (attach results)	Groundwater Monitoring Performed? No <input checked="" type="checkbox"/> Yes <input type="checkbox"/> (attach results)
Site constraints/Recommendations: Pressure distribution system recommended and no pre-treatment is required. Due to the proximity to the nearby creek, it is recommended to place the system in the south-east corner of the open field.	

Test Pit # 1

PLEASE PRINT OR TYPE ALL INFORMATION

Horizon Depth (Inches)	Boundary	%Rock	Texture	Structure	Consistence			Pores	Roots	Mottling
					Side Wall	Ped	Wet			
0-36		<5	CL	M/SB	S	FRB	SS	M/F-M	F/F	NONE
36-70	D	<10	C	M/SB	SH	FRB	SS	C/F	NONE	NONE

Test Pit # 2

Horizon Depth (Inches)	Boundary	%Rock	Texture	Structure	Consistence			Pores	Roots	Mottling
					Side Wall	Ped	Wet			
0-36	SAME AS TEST	PIT 1								
36-70	SAME AS TEST	PIT 1								

Test Pit # 3

Horizon Depth (Inches)	Boundary	%Rock	Texture	Structure	Consistence			Pores	Roots	Mottling
					Side Wall	Ped	Wet			
0-36	SAME AS TEST	PIT 1								
36-70	SAME AS TEST	PIT 1								

4

Test Pit #

PLEASE PRINT OR TYPE ALL INFORMATION

Horizon Depth (Inches)	Boundary	%Rock	Texture	Structure	Consistence			Pores	Roots	Mottling
					Side Wall	Ped	Wet			
0-36	SAME AS TEST	PIT 1								
36-70	SAME AS TEST	PIT 1								

5

Test Pit #

Horizon Depth (Inches)	Boundary	%Rock	Texture	Structure	Consistence			Pores	Roots	Mottling
					Side Wall	Ped	Wet			
0-24		<10	SCL	M/SB	S	FRB	NS	C/F-M	F/F	NONE
24-60	C	>50	LIMITING LAYER							

6

Test Pit #

Horizon Depth (Inches)	Boundary	%Rock	Texture	Structure	Consistence			Pores	Roots	Mottling
					Side Wall	Ped	Wet			
0-26	SAME AS TEST	PIT 5								
26-60	SAME AS TEST	PIT 5								

Test Pit #

7

PLEASE PRINT OR TYPE ALL INFORMATION

Horizon Depth (Inches)	Boundary	%Rock	Texture	Structure	Consistence			Pores	Roots	Mottling
					Side Wall	Ped	Wet			
0-24	SAME AS TEST	PIT 5								
24-60	SAME AS TEST	PIT 5								

Test Pit #

8

Horizon Depth (Inches)	Boundary	%Rock	Texture	Structure	Consistence			Pores	Roots	Mottling
					Side Wall	Ped	Wet			
0-28	SAME AS TEST PIT 5									
28-60	SAME AS TEST PIT 5									

Test Pit #

9

Horizon Depth (Inches)	Boundary	%Rock	Texture	Structure	Consistence			Pores	Roots	Mottling
					Side Wall	Ped	Wet			
0-8		>50	LIMITING LAYER							
8-55	C	25	SC	M/SB	SH	FRB	SS	C/F	NONE	NONE

Oakley Laboratory & Field Services

1645 Chapman Way • Santa Rosa, CA 95403 • Telephone 707-576-1376

November 18, 2010

Job No. 10-136.27

Delta Consulting & Engineering
1104 Adams Street, Suite 203
ST. Helena, Calif. 95574

Attention: Ms. Kristi Wagner

Re: Results of Soil Texture Analysis
By Bouyoucos Hydrometry Method

Client & Number: Faust House Winery

The results of the soil texture analysis on sample received on November 16, 2010 are as follows:

Sample Location	TP 2 @ Stratum 1
% Plus No. 10 (WT)	2.5
% Sand	15.4
% Clay	46.4
% Silt	38.2
D ₆ g/cc	--

We are pleased to provide laboratory services for you and look forward to your continued work. If you have any questions, please call.

Oakley Laboratory and Field Services

By: 

Wayne G. Oakley
Laboratory Director

Oakley Laboratory & Field Services
1845 Chapman Way • Santa Rosa, CA 95403 • Telephone 707-575-1075

November 18, 2010
Job No. 10-136.27

Delta Consulting & Engineering
1104 Adams Street, Suite 203
ST. Helena, Calif. 95574

Attention: Ms. Kristi Wagner

Re: Results of Soil Texture Analysis
By Bouyoucos Hydrometry Method

Client & Number: Faust House Winery

The results of the soil texture analysis on sample received on November 16, 2010 are as follows:

Sample Location	TP 2 @ Stratum 2
% Plus No. 10 (W/F)	2.2
% Sand	10.4
% Clay	57.4
% Silt	32.2
D _h g/cc	--

We are pleased to provide laboratory services for you and look forward to your continued work. If you have any questions, please call.

Oakley Laboratory and Field Services

By: 
Wayne G. Oakley
Laboratory Director

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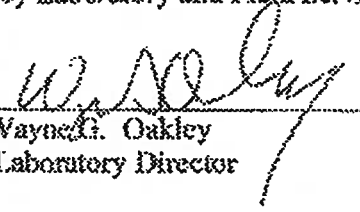
The results of the soil texture analysis on sample received on November 16, 2010 are as follows:

Sample Location	TP 5 @ Stratum I
% Plus No. 10 (WT)	19.9
% Sand	41.4
% Clay	24.4
% Silt	34.2
Db g/cc	—

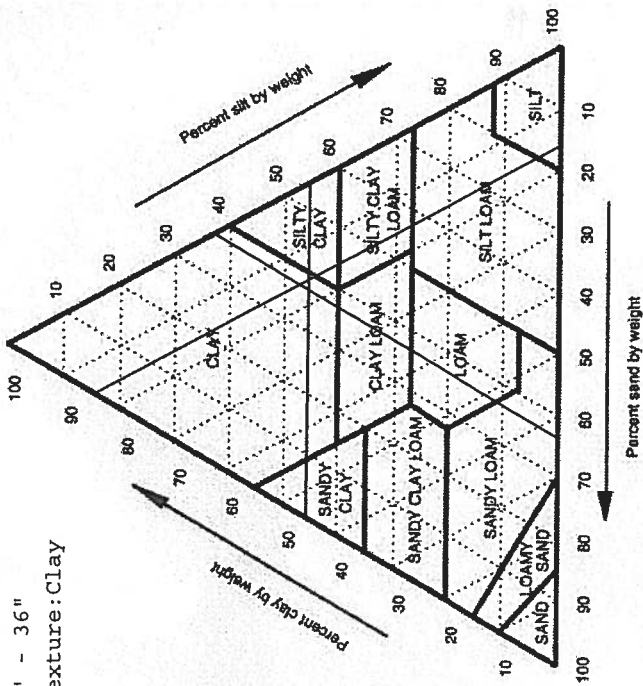
We are pleased to provide laboratory services for you and look forward to your continued work. If you have any questions, please call.

Oakley Laboratory and Field Services

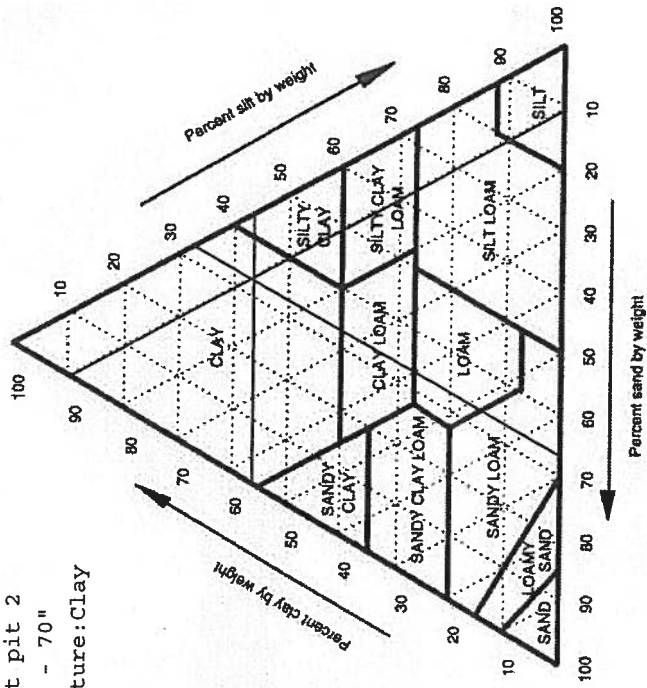
By:


Wayne G. Oakley
Laboratory Director

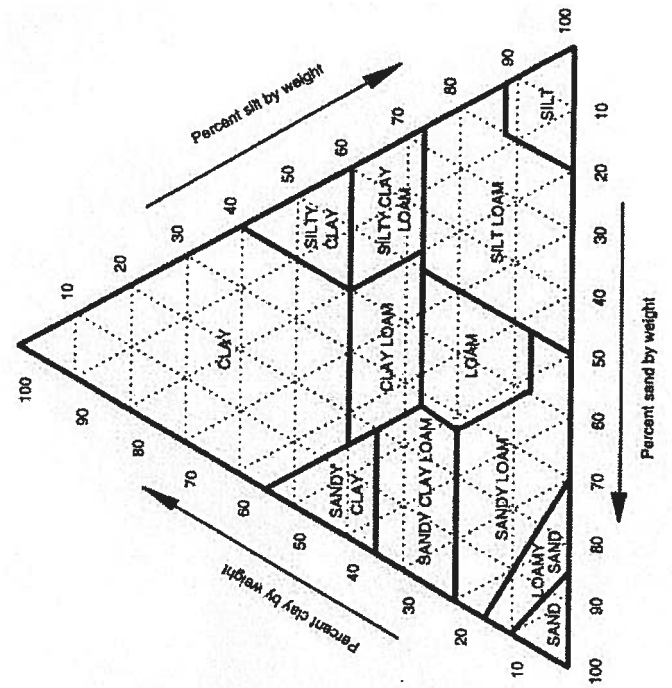
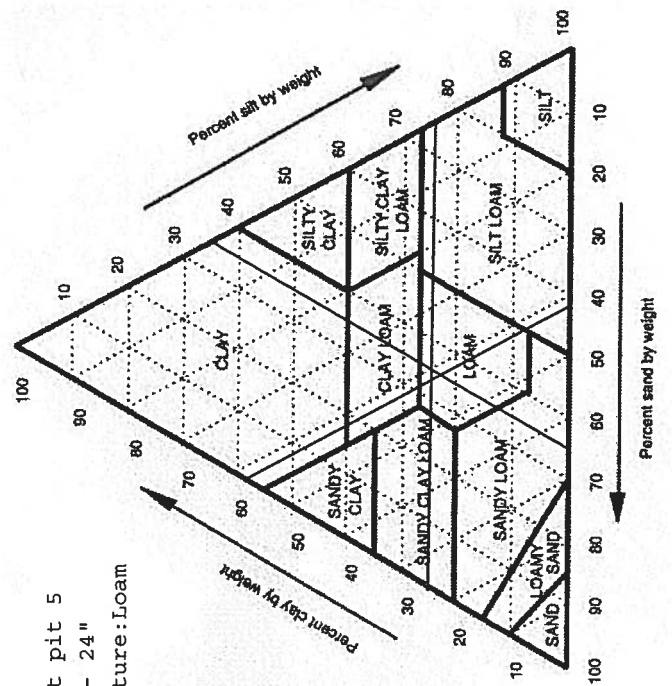
Test pit 2
0" - 36"
Texture: Clay

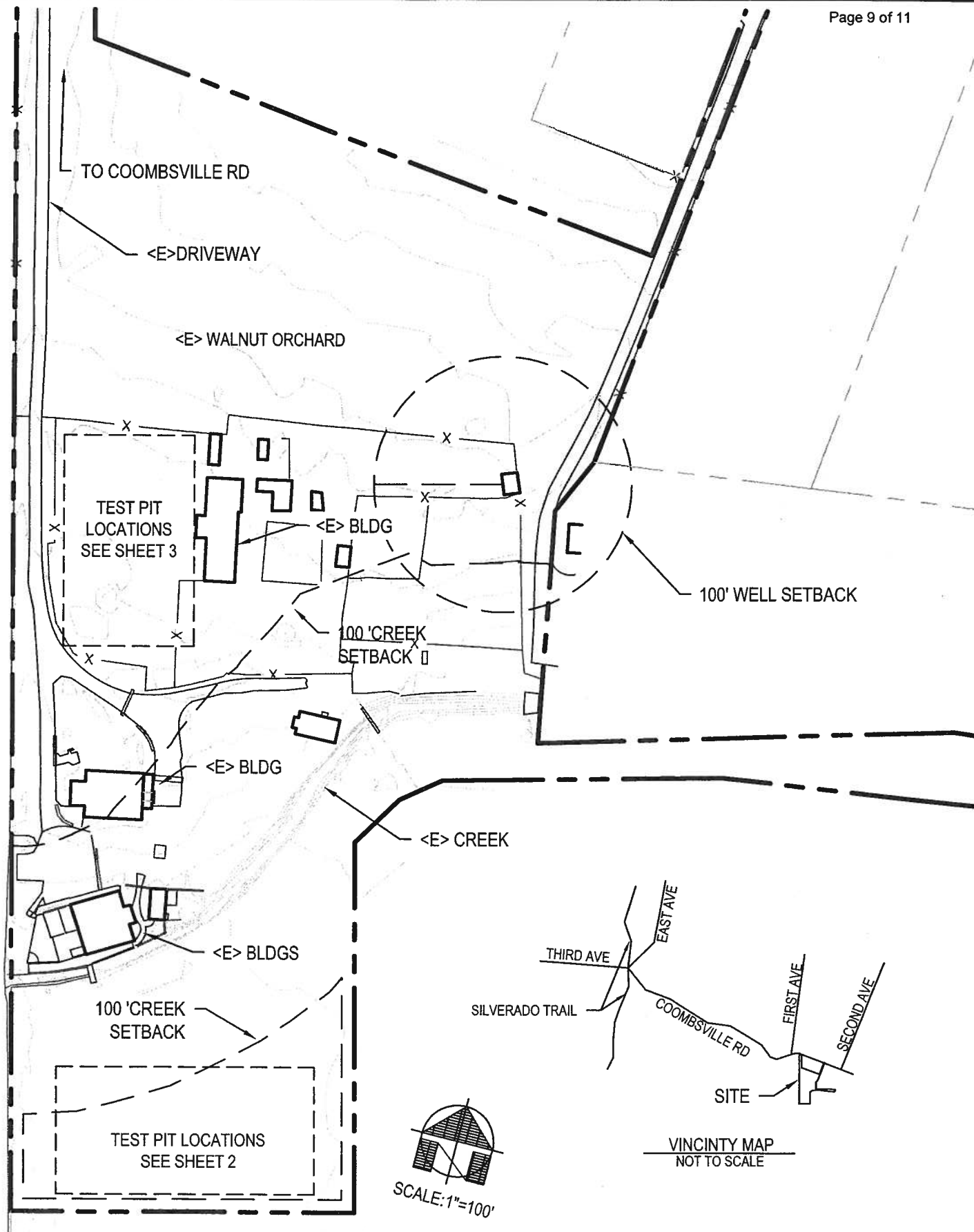


Test pit 2
36" - 70"
Texture: Clay



Test pit 5
0" - 24"
Texture: Loam

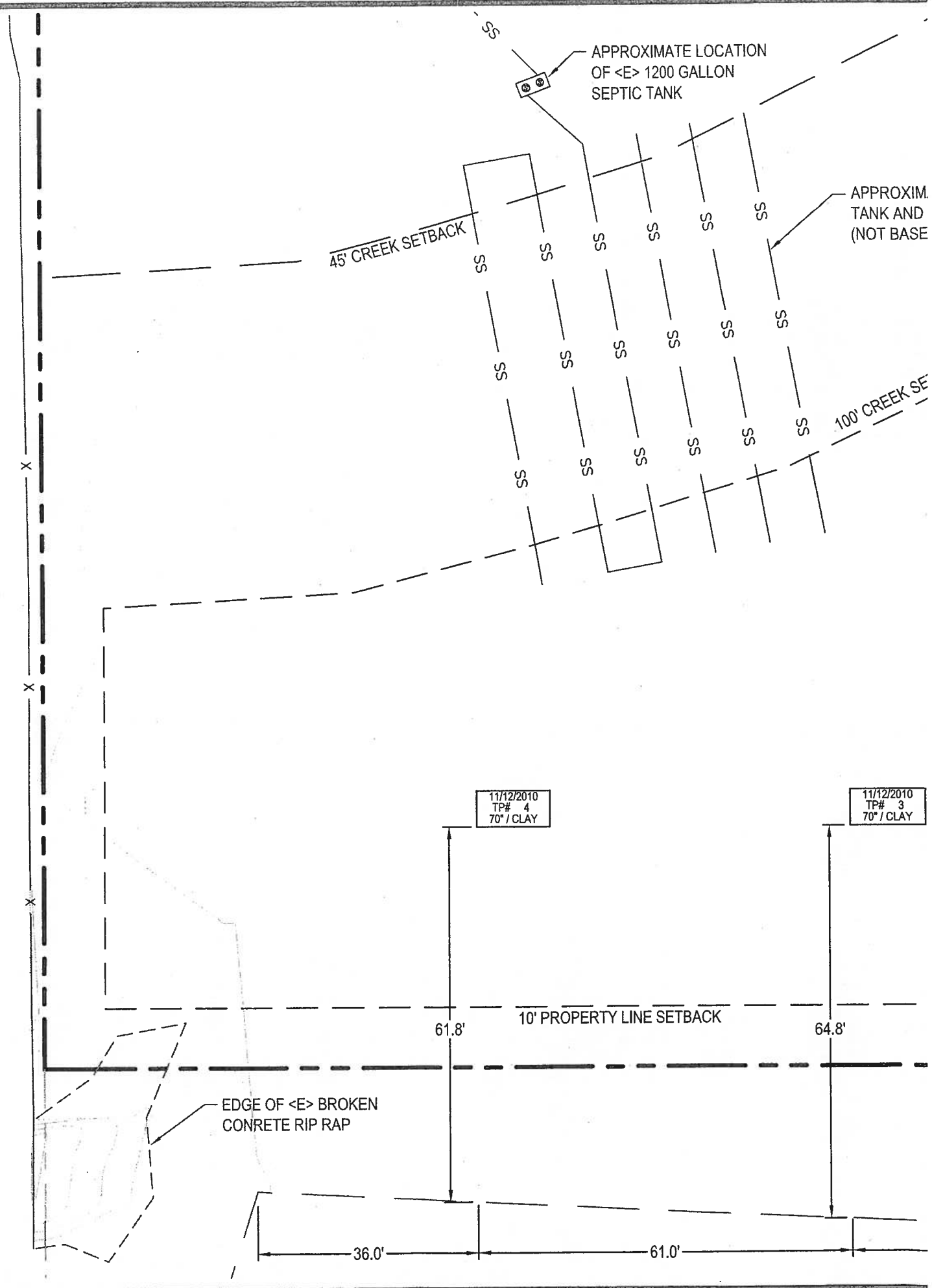




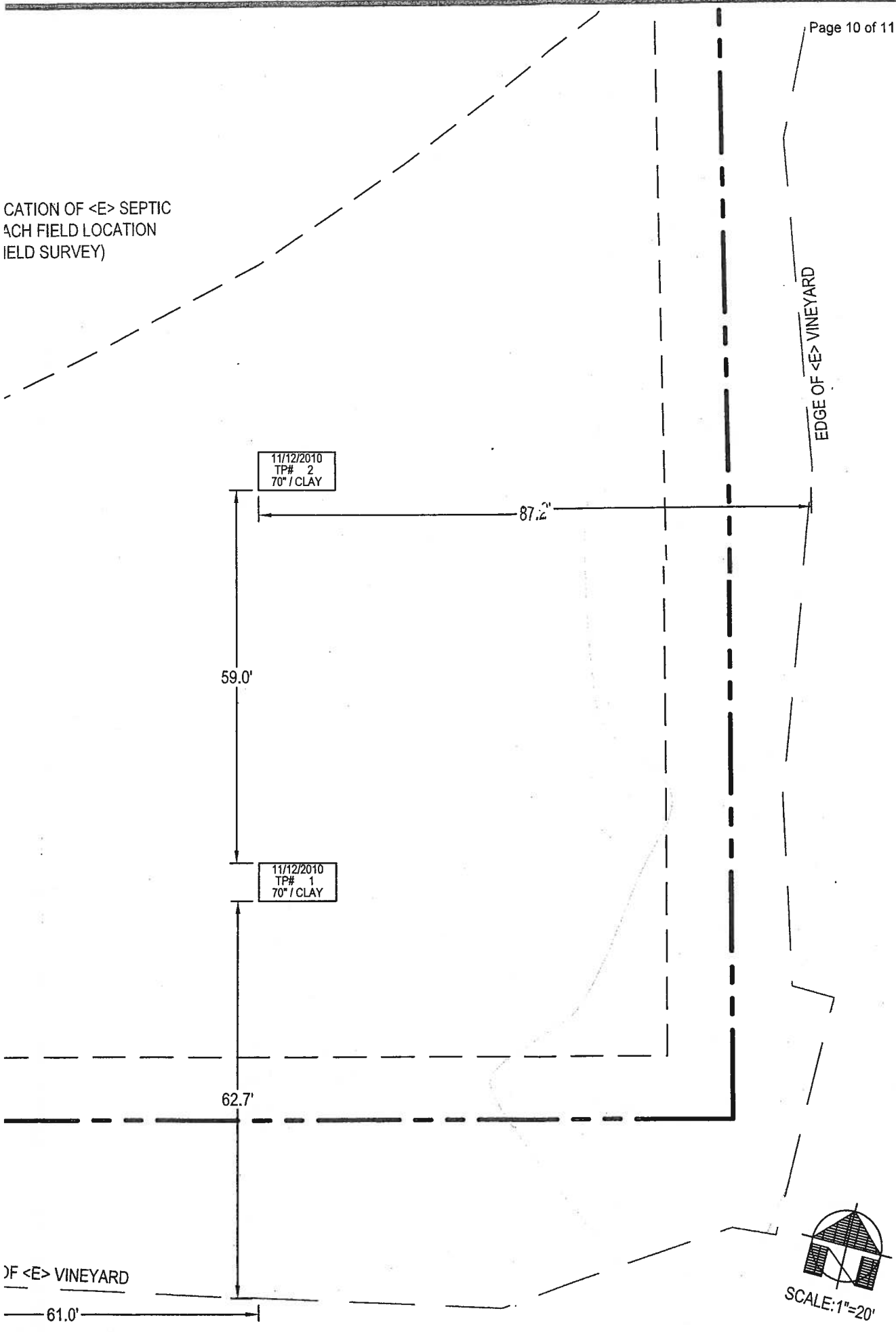
FAUST HOUSE WINERY SITE LOCATION

DELTA CONSULTING & ENGINEERING <small>OF ST. HELENA</small> 1104 ADAMS STREET, SUITE 203 - ST. HELENA, CALIFORNIA 94574 707-963-8456 + 707-963-8528 FAX	
DATE: 11/12/10	JOB #: J-126
SCALE: AS NOTED	APN: 045-250-030

SHEET
1
OF
3



CATION OF <E> SEPTIC
ACH FIELD LOCATION
IELD SURVEY)



FAUST HOUSE WINERY TEST PIT LOCATIONS

CALIFORNIA

NAPA

DELTA CONSULTING & ENGINEERING
OF ST. HELENA

1104 ADAMS STREET, SUITE 203 • ST. HELENA, CALIFORNIA 94574
707-963-8456 + 707-963-8528 FAX

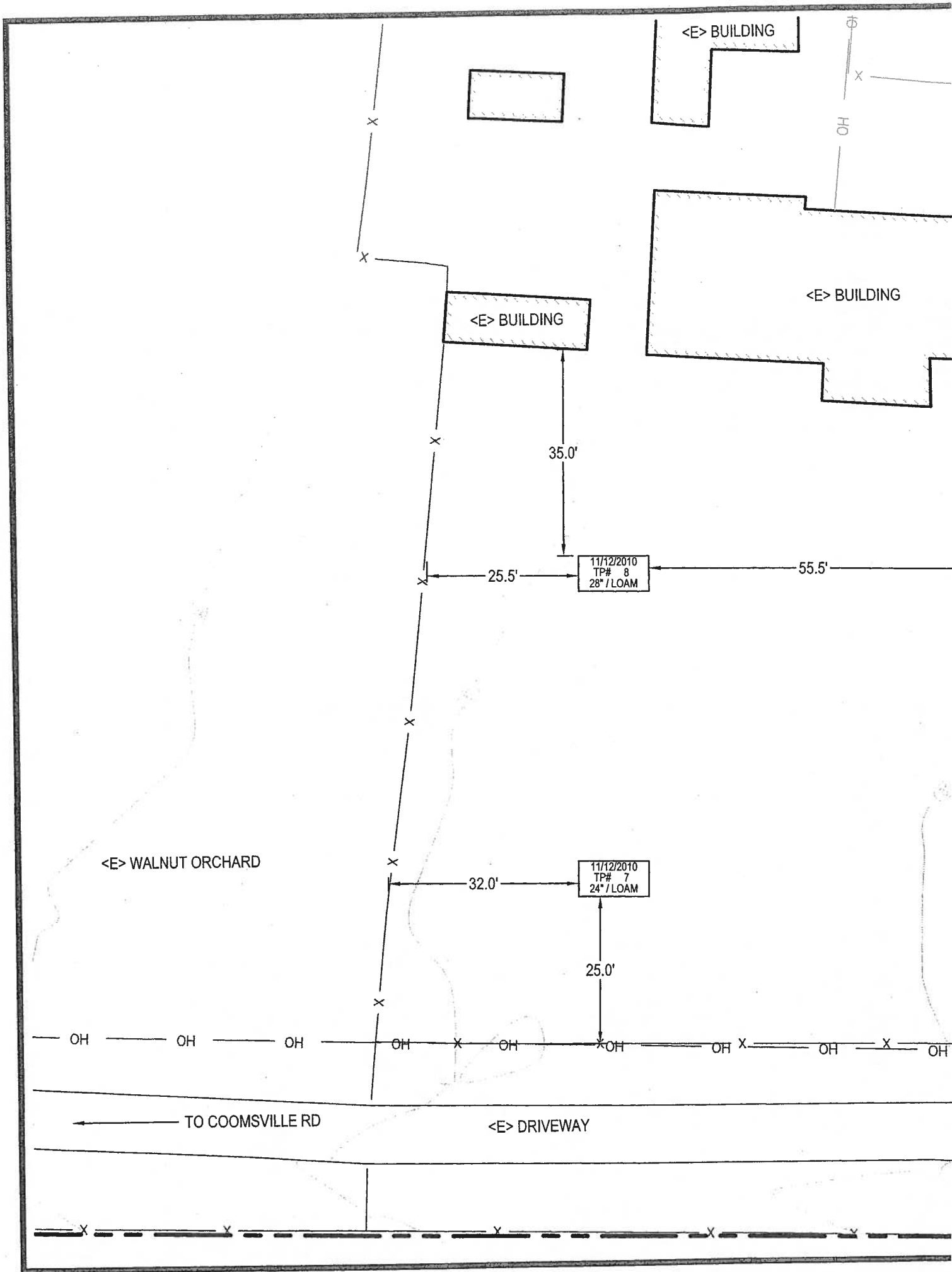
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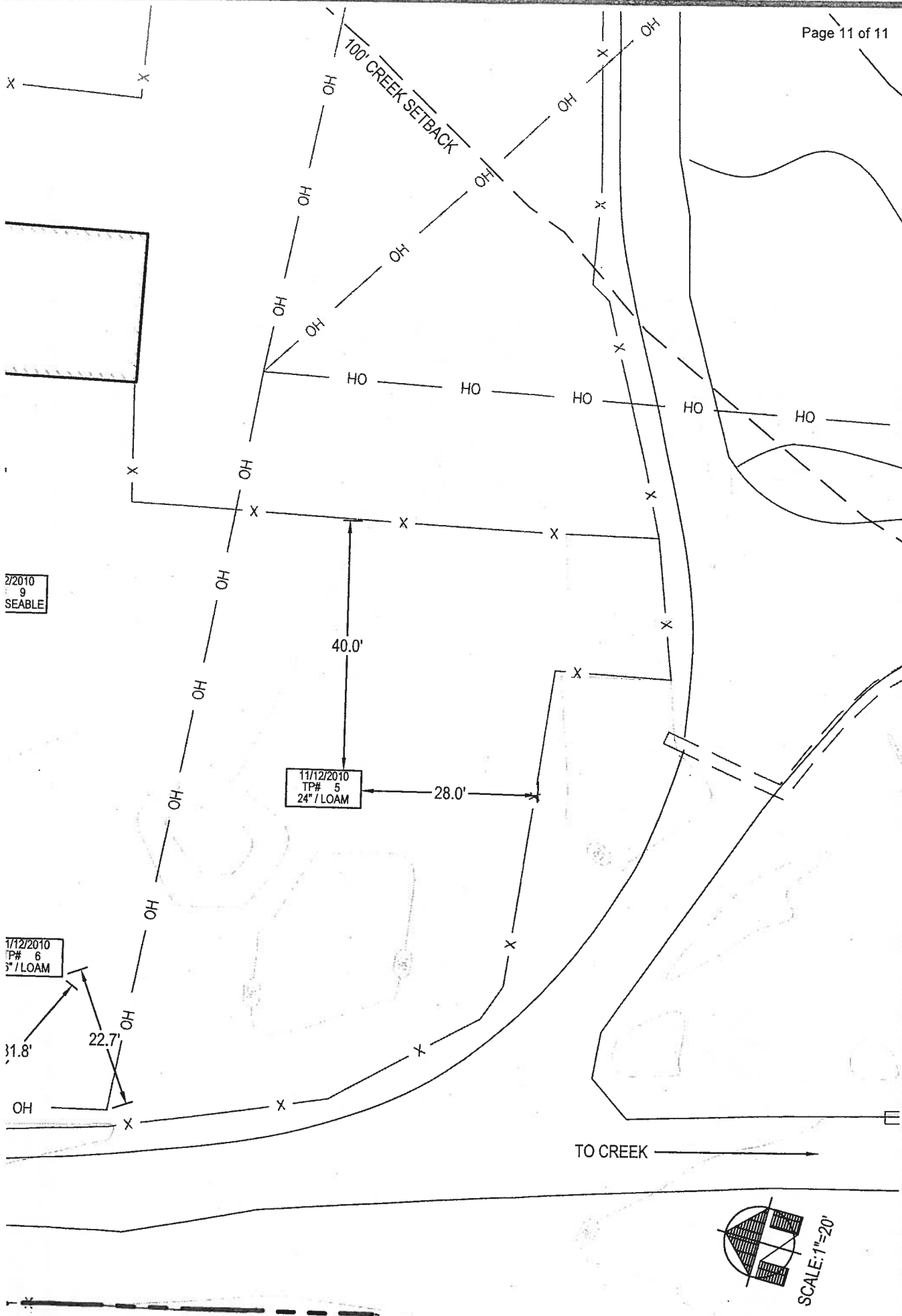
SCALE: AS NOTED

JOB #: J-126

APN: 045-250-030

2 OF 3





2/2010
9
SEABLE

11/12/2010
TP# 6
3" / LOAM

11/12/2010
TP# 5
24" / LOAM

FAUST HOUSE WINERY TEST PIT LOCATIONS

CALIFORNIA

NAPA

DELTA CONSULTING & ENGINEERING
OF ST. HELENA

1104 ADAMS STREET, SUITE 203 - ST. HELENA, CALIFORNIA 94574
707-963-8456 + 707-963-8528 FAX

DATE: 11/12/2010
SCALE: AS NOTED
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3
OF
3