

SITE ADDRESS:

**#37
LEXINGTON
ROAD**

Concord, Massachusetts 01742

PREPARED FOR:

**Concord Art
Association**

37 Lexington Road
Concord, MA 01742

**HANCOCK
ASSOCIATES**

Civil Engineers
Land Surveyors
Landscape Architects
Environmental
Consultants

34 CHELMSFORD STREET, CHELMSFORD, MA 01824
VOICE (978) 244-0110, FAX (978) 244-1133
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OWNER OF RECORD:
CONCORD ART ASSOCIATION
37 LEXINGTON ROAD
CONCORD, MA 01742

ASSESSOR'S MAP 9H LOT 15

DEED REFERENCE:
NO DEED RECORD AT ASSESSOR'S OFFICE

PLAN REFERENCE:

ZONING REFERENCE:
RESIDENCE C
SETBACKS:
FRONT = 20'
SIDE = 15'
REAR = LESSER OF: 30' OR 25% OF LOT DEPTH

CAN REDUCE ONE SIDE LINE 3' BUT HAVE TO INCREASE OTHER SIDE LINE BY 3'

ACCESSORY STRUCTURES MUST BE GREATER THAN 5' FROM SIDELINE.

SITE LOCATED WITHIN CONCORD HISTORIC DISTRICT AMERICAN MILE

NOTES:

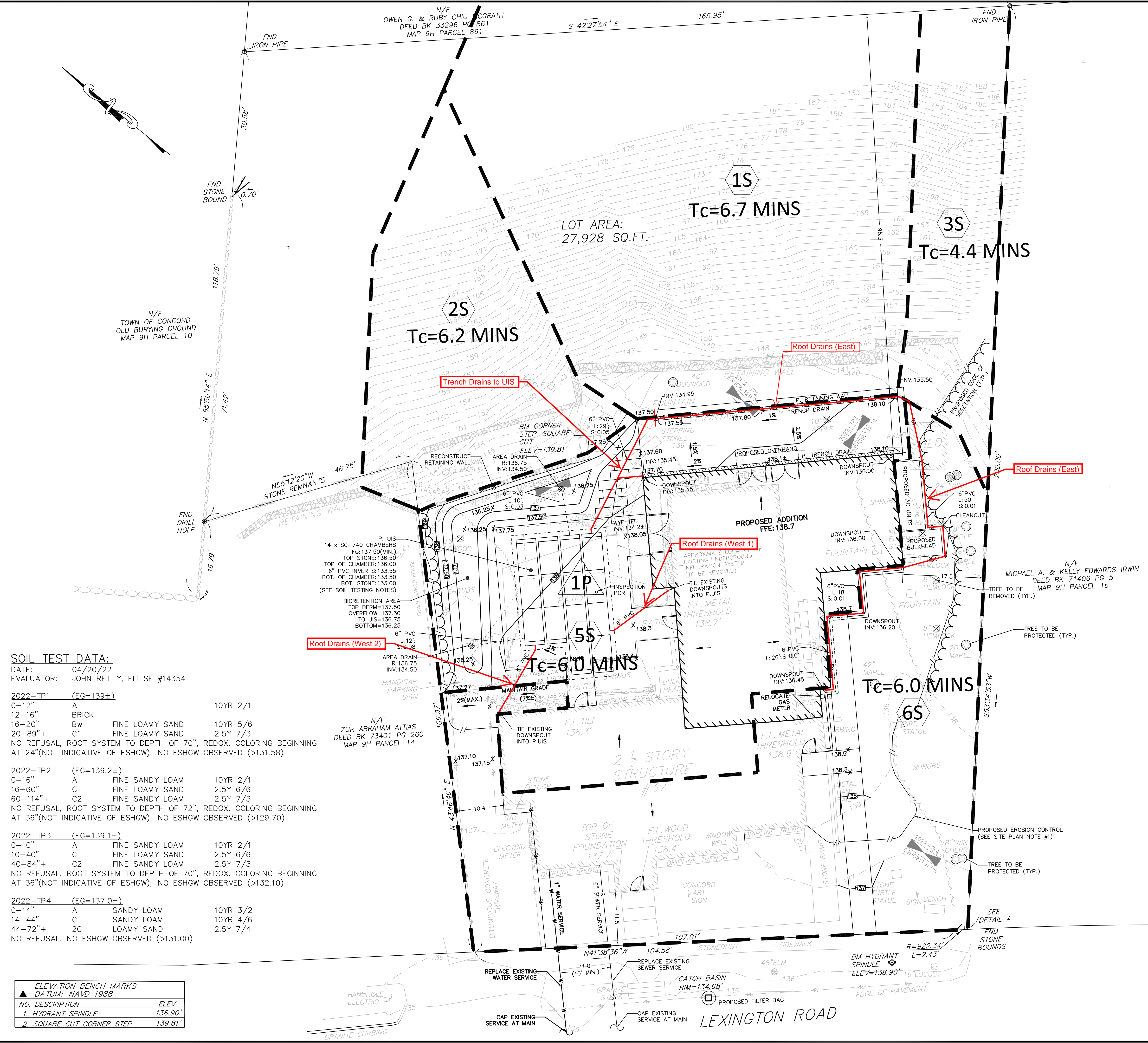
1) THE VERTICAL DATUM FOR THIS SURVEY IS THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88). SAID DATUM WAS ESTABLISHED VIA GPS OBSERVATIONS

2) SITE IS NOT LOCATED IN A FEMA FLOOD PLAIN ZONE PER FEMA MAP 25017C0378F DATED JULY 7, 2014.

DIMENSIONAL REQUIREMENTS:

	REQUIRED	PROPOSED
LOT AREA	10,000 SF	27,928 SF
LOT FRONTAGE	80 FT	107 FT
LOT WIDTH	64 FT	108.4 FT
FRONT YARD	20 FT	11.5 FT*
SIDE YARD	15 FT	10.4 FT*
REAR YARD	30 FT	95.3 FT
MAXIMUM BUILDING HEIGHT	35 FT	<35 FT

*EXISTING NONCONFORMITY



SOIL TEST DATA:

DATE: 04/20/22
EVALUATOR: JOHN REILLY, EIT SE #14354

2022-TP1 (EG=139±)		10YR 2/1
0-12"	A	10YR 2/1
12-16"	BRICK	
16-20"	Bw FINE LOAMY SAND	10YR 5/6
20-89"+	C1 FINE LOAMY SAND	2.5Y 7/3
NO REFUSAL, ROOT SYSTEM TO DEPTH OF 70", REDOX. COLORING BEGINNING AT 24"(NOT INDICATIVE OF ESHGW); NO ESHGW OBSERVED (>131.58)		
2022-TP2 (EG=139.2±)		10YR 2/1
0-16"	A FINE SANDY LOAM	10YR 2/1
16-60"	C FINE LOAMY SAND	2.5Y 6/6
60-114"+	C2 FINE SANDY LOAM	2.5Y 7/3
NO REFUSAL, ROOT SYSTEM TO DEPTH OF 72", REDOX. COLORING BEGINNING AT 36"(NOT INDICATIVE OF ESHGW); NO ESHGW OBSERVED (>129.70)		
2022-TP3 (EG=139.1±)		10YR 2/1
0-10"	A FINE SANDY LOAM	10YR 2/1
10-40"	C FINE LOAMY SAND	2.5Y 6/6
40-84"+	C2 FINE SANDY LOAM	2.5Y 7/3
NO REFUSAL, ROOT SYSTEM TO DEPTH OF 70", REDOX. COLORING BEGINNING AT 36"(NOT INDICATIVE OF ESHGW); NO ESHGW OBSERVED (>132.10)		
2022-TP4 (EG=137.0±)		10YR 3/2
0-14"	A SANDY LOAM	10YR 3/2
14-44"	C SANDY LOAM	10YR 4/6
44-72"+	2C LOAMY SAND	2.5Y 7/4
NO REFUSAL, NO ESHGW OBSERVED (>131.00)		

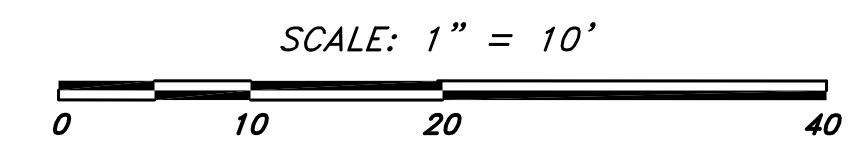
ELEVATION BENCH MARKS	
DATUM: NAVD 1988	
NO.	DESCRIPTION
1.	HYDRANT SPINDLE
2.	SQUARE CUT CORNER STEP

NO.	BY	APP	DATE	ISSUE/REVISION	DESCRIPTION
DATE:	12/12/22	DESIGN BY:	JR		
SCALE:	AS SHOWN	DRAWN BY:	JR		
APPRVD. BY:	BG	CHECK BY:	JP		

**PERMIT
SITE
PLAN**

DWG: 25987eng.dwg
LAYOUT: SP
SHEET: 1 OF 1
JOB NO.: 25987

1



Pipe Calculations

Project: 37 Lexington Road (HAS: 25987)

Location: 37 Lexington Road, Concord, MA

Design Storm (Years): 100Y

Designed By: JR

Date: 1/24/2023

Checked BY: BG

Revised:

LOCATION		DRAINAGE AREA				FLOW TIME		RUNOFF		FLOW								IN			PIPE		RIM		INVERT			
		(Acres)				(min)		(cfs)		PIPE				FULL FLOW		DESIGN FLOW		Upper	Upper	Lower	Angle	Hydraulic Radius	PIPE	% FULL				
From	To	Area Ac	Runoff Coeff., C	Increment CA	Sum CA	Tc	Time In Section	Intensity (In/Hr)	Design Flow	Diam (In.)	Length (Ft.)	Slope (Ft./Ft.)	Manning Coeff.	Capacity (Cfs)	Velocity (Fps)	Depth (Ft.)	Velocity (Fps.)	Upper	Upper	Lower	Angle	Hydraulic Radius	PIPE	% FULL				
Trench Drains to UIS		0.31	0.41	0.13		6.7	0.0	8.6	1.1	6	29	0.0483	0.009	1.8	9.0	0.29	9.7		134.95	133.55	2.82	0.14	61					

LOCATION		DRAINAGE AREA				FLOW TIME		RUNOFF		FLOW								IN			PIPE		RIM		INVERT			
		(Acres)				(min)		(cfs)		PIPE				FULL FLOW		DESIGN FLOW		Upper	Upper	Lower	Angle	Hydraulic Radius	PIPE	% FULL				
From	To	Area Ac	Runoff Coeff., C	Increment CA	Sum CA	Tc	Time In Section	Intensity (In/Hr)	Design Flow	Diam (In.)	Length (Ft.)	Slope (Ft./Ft.)	Manning Coeff.	Capacity (Cfs)	Velocity (Fps)	Depth (Ft.)	Velocity (Fps.)	Upper	Upper	Lower	Angle	Hydraulic Radius	PIPE	% FULL				
Roof Drains (East)		0.02	0.89	0.02		6.0	0.8	8.6	0.2	6	147	0.0065	0.009	0.7	3.3	0.18	2.9		136.45	135.50	2.57	0.10	29					

LOCATION		DRAINAGE AREA				FLOW TIME		RUNOFF		FLOW								IN			PIPE		RIM		INVERT			
		(Acres)				(min)		(cfs)		PIPE				FULL FLOW		DESIGN FLOW		Upper	Upper	Lower	Angle	Hydraulic Radius	PIPE	% FULL				
From	To	Area Ac	Runoff Coeff., C	Increment CA	Sum CA	Tc	Time In Section	Intensity (In/Hr)	Design Flow	Diam (In.)	Length (Ft.)	Slope (Ft./Ft.)	Manning Coeff.	Capacity (Cfs)	Velocity (Fps)	Depth (Ft.)	Velocity (Fps.)	Upper	Upper	Lower	Angle	Hydraulic Radius	PIPE	% FULL				
Roof Drains (West 1)		0.01	0.89	0.01		6.0	0.1	8.6	0.1	6	16	0.0100	0.009	0.8	4.1	0.13	3.0		133.71	133.55	2.14	0.08	13					

LOCATION		DRAINAGE AREA				FLOW TIME		RUNOFF		FLOW								IN			PIPE		RIM		INVERT			
		(Acres)				(min)		(cfs)		PIPE				FULL FLOW		DESIGN FLOW		Upper	Upper	Lower	Angle	Hydraulic Radius	PIPE	% FULL				
From	To	Area Ac	Runoff Coeff., C	Increment CA	Sum CA	Tc	Time In Section	Intensity (In/Hr)	Design Flow	Diam (In.)	Length (Ft.)	Slope (Ft./Ft.)	Manning Coeff.	Capacity (Cfs)	Velocity (Fps)	Depth (Ft.)	Velocity (Fps.)	Upper	Upper	Lower	Angle	Hydraulic Radius	PIPE	% FULL				
Roof Drains (West 2)		0.02	0.89	0.02		6.0	0.1	8.6	0.2	6	17	0.0118	0.009	0.9	4.5	0.16	3.6		133.75	133.55	2.41	0.09	22					

Runoff Coefficients (C)

Project: 25987
Location: #37 Lexington Road, Concord, MA
Design Storm (Years): 100Y
Designed By: JR
Checked BY: BG
Date: 1/24/2023
Revised:

DRAINAGE AREA (D.A.)	IMPERVIOUS AREA in sf (C=0.90)	IMPERVIOUS AREA in acres (C=0.90)	LANDSCAPE AREA in sf (C=0.3)	LANDSCAPE AREA in acres (C=0.3)	TOTAL AREA (sf)	TOTAL AREA (acres)	WEIGHTED COEFFICIENT (C)
P. Trench Drains	2501.8	0.06	10984	0.25	13485.8	0.31	0.41

DRAINAGE AREA (D.A.)	IMPERVIOUS AREA in sf (C=0.90)	IMPERVIOUS AREA in acres (C=0.90)	LANDSCAPE AREA in sf (C=0.3)	LANDSCAPE AREA in acres (C=0.3)	TOTAL AREA (sf)	TOTAL AREA (acres)	WEIGHTED COEFFICIENT (C)
P. Roof Drains (East)	1013.8	0.02	0	0.00	1013.8	0.02	0.89

DRAINAGE AREA (D.A.)	IMPERVIOUS AREA in sf (C=0.90)	IMPERVIOUS AREA in acres (C=0.90)	LANDSCAPE AREA in sf (C=0.3)	LANDSCAPE AREA in acres (C=0.3)	TOTAL AREA (sf)	TOTAL AREA (acres)	WEIGHTED COEFFICIENT (C)
P. Roof Drains (West 1)	582.83	0.01	0	0.00	582.83	0.01	0.89

DRAINAGE AREA (D.A.)	IMPERVIOUS AREA in sf (C=0.90)	IMPERVIOUS AREA in acres (C=0.90)	LANDSCAPE AREA in sf (C=0.3)	LANDSCAPE AREA in acres (C=0.3)	TOTAL AREA (sf)	TOTAL AREA (acres)	WEIGHTED COEFFICIENT (C)
P. Roof Drains (West 2)	960.98	0.02	0	0.00	960.98	0.02	0.89

Minimum Slopes of pipe

Dia in	Min Slope ft/ft
8	0.004
9	0.0033
10	0.0028
12	0.0022
14	0.0017
15	0.0015
16	0.0014
18	0.0012
21	0.001
24	0.0008
27	0.00067
30	0.00058
36	0.00046