

REVISED 11/10/20

STRUCTURAL CALCULATIONS
FOR THE

MAPLE GROVE RESIDENCE

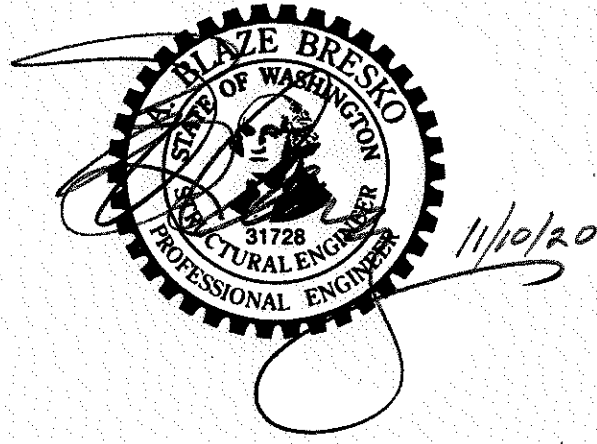
RETAINING WALL DESIGN

4909 E. MERCER WAY

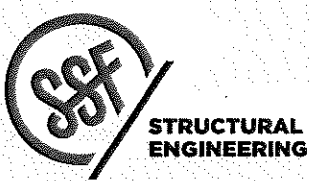
MERCER IS, WA 98040

ARCHITECT:

SCJ STUDIO
LANDSCAPE ARCHITECTURE
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SEATTLE, WA 98107



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TACOMA 934 Broadway, Suite 100, Tacoma, WA 98402 | O 253.284.9470
ssfengineers.com
SWENSON SAY FAGÉT



Maple Grove Residence
PROJECT _____

DATE _____
PROJ.# _____
DESIGNER *Blaze Bresko*
SHEET *Cover*

REVISED SHORING ALONG DIAGONAL S.W. WALL. THE WALL NO LONGER "Jogs", but RATHER NOW IS STRAIGHT. THE RESULT IS THAT THE MAXIMUM HT. IS 485' - 477' = 8'-0" NOTE THAT DOWN SIDE ELEVATION WILL BE RE-GRADED TO ELEV 479'. THIS 2' OF EARTH IS NEGLECTED IN DESIGN

REVISED DESIGN INCORPORATING GEOFOAM BLOCKS AS RECOMMENDED BY GEOTECHNICAL ENGR AS FOLLOWS:

t = GEOFOAM THICKNESS
 h = WALL HT

t/h	P_{ACTIVE}
.05	25 pcf
.1	21
.15	18
.3	16
.5	13

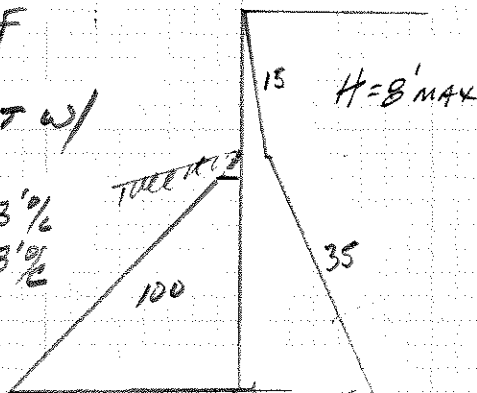
USE $t = 3'$ MINIMUM

$t/h = .39$; $P_A = 15 pcf$

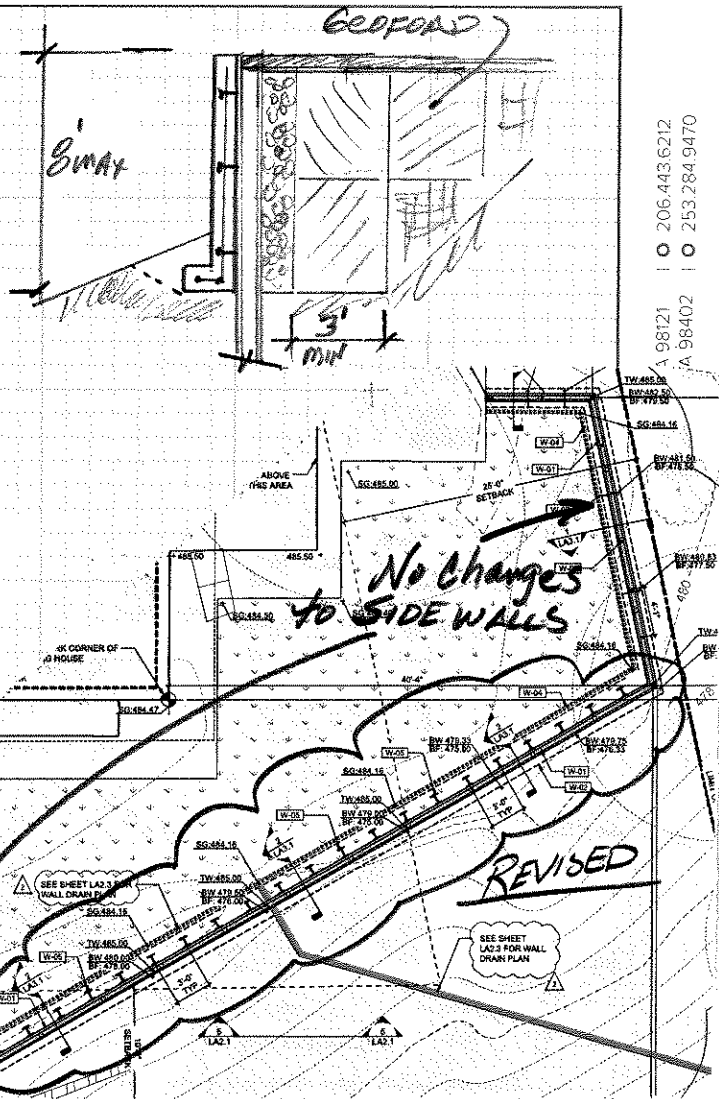
$P_{PASSIVE} = 100 pcf$

COMPUTER PRINT-OUT W/
 (2) OPTIONS

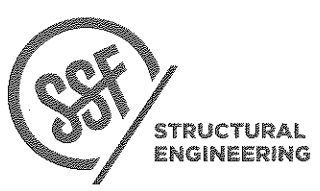
W 12 x 26 x 23' @ 3 1/2%
 OR W 8 x 24 x 23' @ 3 1/2%



IN THE FINAL CONDITION, A CONCRETE FACING WALL IS PLACED W/ W.H.S.'S ATTACHED TO STEEL.



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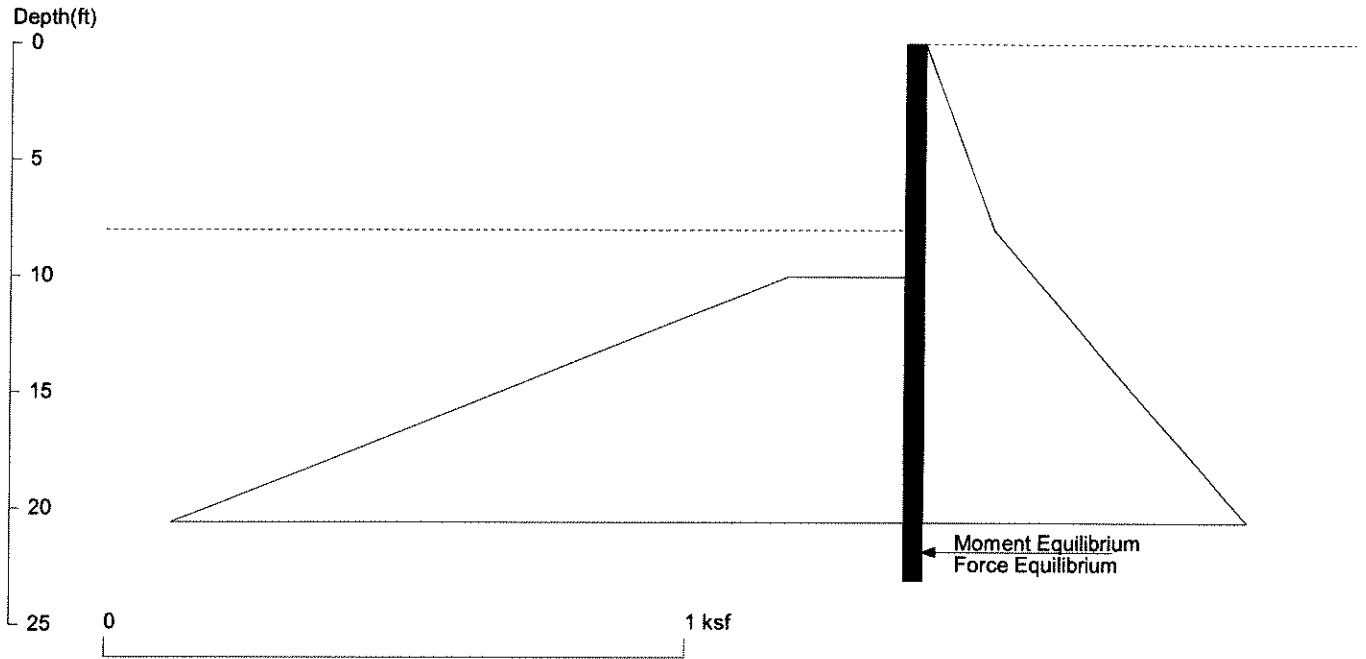
Maple Grove
 PROJECT

11-10-20
 DATE

Blay
 DESIGN
 SHEET REV-1

Maple Grove Shoring

8 ft design ht



<ShoringSuite> CIVILTECH SOFTWARE USA www.civiltech.com

Licensed to 4324324234 3424343 Date: 9/22/2020
File: UNTITLED

Wall Height=8.0 Pile Diameter=0.5 Pile Spacing=3.0 Wall Type: 2. Soldier Pile, Drilled

PILE LENGTH: Min. Embedment=15.08 Min. Pile Length=23.08
MOMENT IN PILE: Max. Moment=11.64 per Pile Spacing=3.0 at Depth=14.88

PILE SELECTION:

Min.

Request Min. Section Modulus = 4.2 in³/pile=69.38 cm³/pile, F_y= 50 ksi = 345 MPa, F_b/F_y=0.66
W8X24 has Section Modulus = 20.9 in³/pile=342.49 cm³/pile. It is greater than Min. Requirements!
Top Deflection = 1.09(in) based on E (ksi)=29000.00 and I (in⁴)/pile=82.7

DRIVING PRESSURES (ACTIVE, WATER, & SURCHARGE):

Z1	P1	Z2	P2	Slope
0	0	8	0.120	.015
8	0.120	25	0.715	.035

PASSIVE PRESSURES:

Z1	P1	Z2	P2	Slope
10	.2	25	1.700	.1

ACTIVE SPACING:

No.	Z depth	Spacing
1	0.00	3.00
2	8.00	0.54

PASSIVE SPACING:

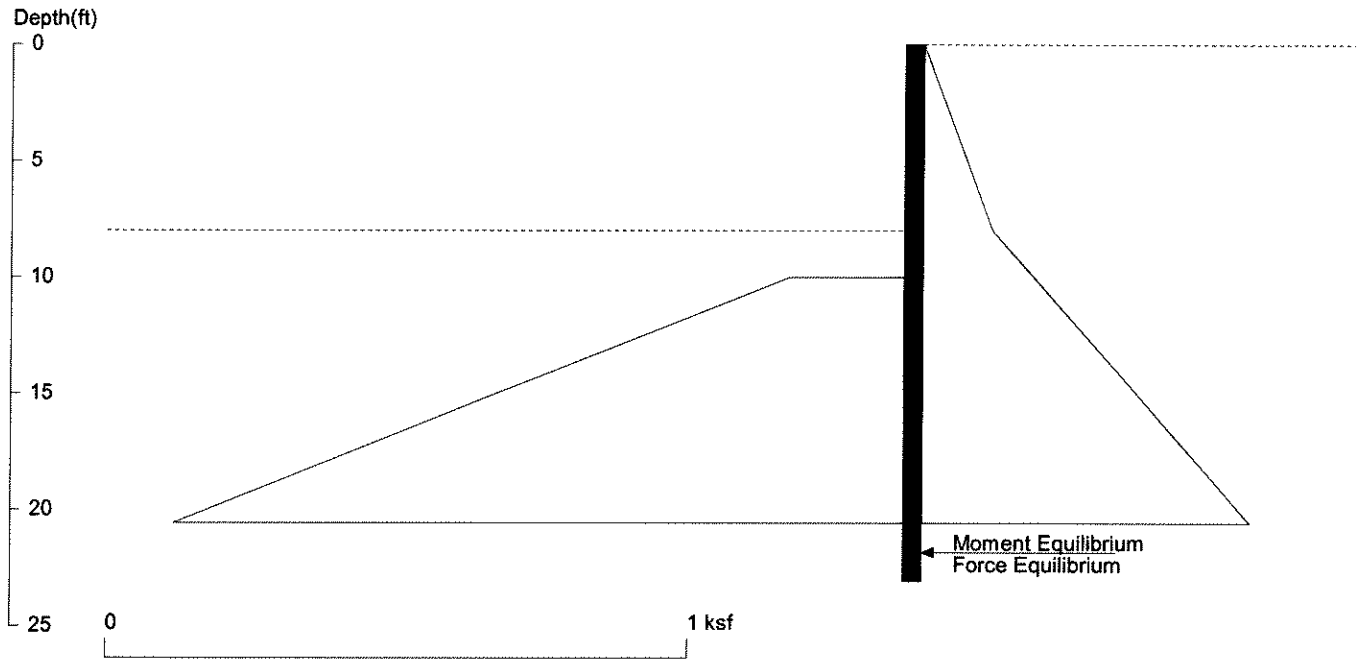
No.	Z depth	Spacing
1	8.00	1.08

UNITS: Width, Spacing, Diameter, Length, and Depth - ft; Force - kip; Moment - kip-ft
Friction, Bearing, and Pressure - ksf; Pres. Slope - kip/ft³; Deflection - in

[Signature] 11-10-20
REV - 2

Maple Grove Shoring

8 ft design ht



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Date: 9/22/2020

File: UNTITLED

Wall Height=8.0

Pile Diameter=0.5

Pile Spacing=3.0

Wall Type: 2. Soldier Pile, Drilled

PILE LENGTH: Min. Embedment=15.08 Min. Pile Length=23.08

MOMENT IN PILE: Max. Moment=11.64 per Pile Spacing=3.0 at Depth=14.88

PILE SELECTION:

Request Min. Section Modulus = 4.2 in³/pile=69.38 cm³/pile, F_y= 50 ksi = 345 MPa, F_b/F_y=0.66

W12X26 has Section Modulus = 33.4 in³/pile=547.33 cm³/pile. It is greater than Min. Requirements!

Top Deflection = 0.44(in) based on E (ksi)=29000.00 and I (in⁴)/pile=204.0

DRIVING PRESSURES (ACTIVE, WATER, & SURCHARGE):

Z1	P1	Z2	P2	Slope
0	0	8	0.120	.015
8	0.120	25	0.715	.035

PASSIVE PRESSURES:

Z1	P1	Z2	P2	Slope
10	.2	25	1.700	.1

ACTIVE SPACING:

No.	Z depth	Spacing
1	0.00	3.00
2	8.00	0.54

PASSIVE SPACING:

No.	Z depth	Spacing
1	8.00	1.08

UNITS: Width, Spacing, Diameter, Length, and Depth - ft; Force - kip; Moment - kip-ft
Friction, Bearing, and Pressure - ksf; Pres. Slope - kip/ft³; Deflection - in

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11-10-20

REV - 3