

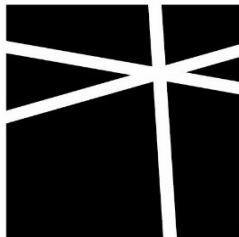
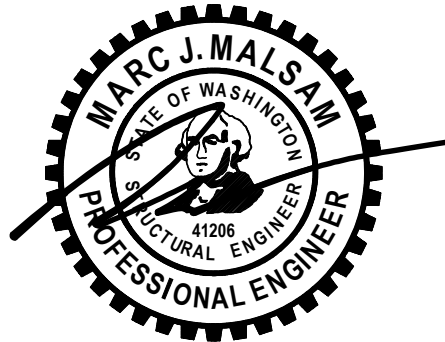
REVISED STRUCTURAL CALCULATIONS FOR:

7929 E MERCER WAY

MERCER ISLAND, WA

ARCHITECT: WARMMODERN LIVING

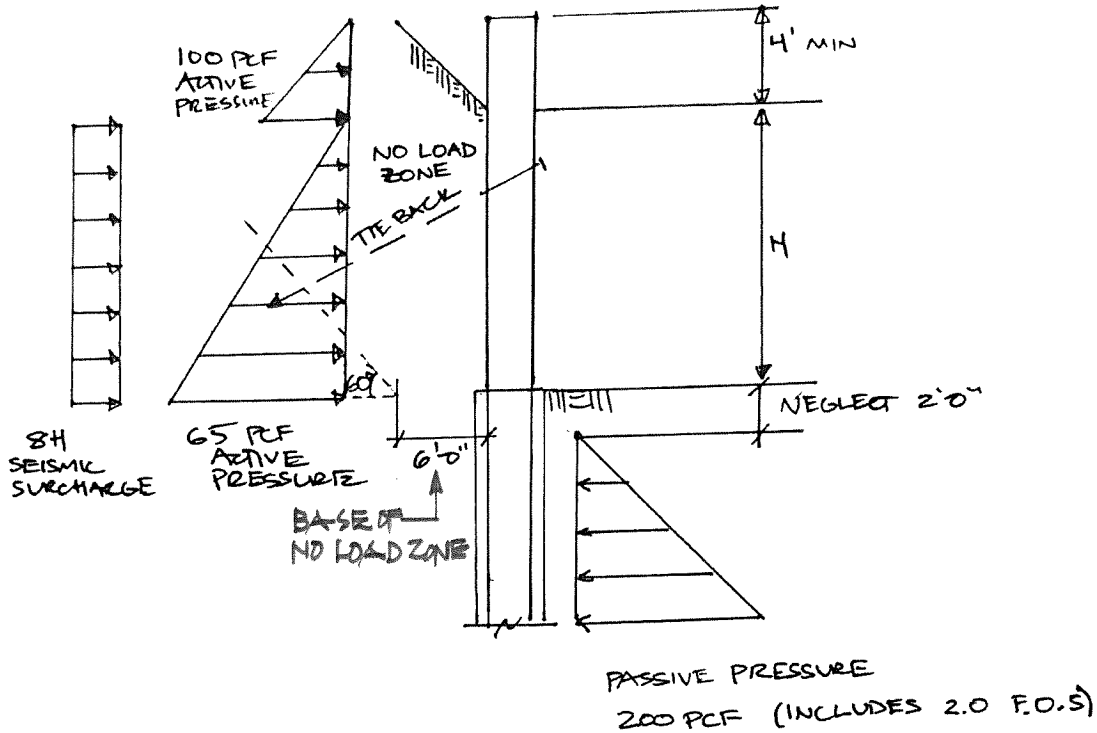
APRIL 23, 2024



**MALSAM
TSANG**
STRUCTURAL
ENGINEERING

SHORING DESIGN

LOADING DIAGRAM



LAGGING DESIGN

-50% ACTIVE PRESSURE FOR LAGGING DESIGN
 DF#2 4x $f_b = 900 \text{ PSI}$
 DF#2 6x $P_o = 875 \text{ PSI}$

$L = 7.65'$
 $W_{EFF} = 65 \text{ PCF} (8+7')/2 \times 50\% = 244 \text{ \#}$

$M_{DEMAND} = 244 (7.65)^2 / 8 = 1785 \text{ \#-ft}$

PT 4x12 DF#2 ; b = 12", d = 3.5"

$M_{CAP} = f_b \times S_x = \frac{900 (12)(3.5)^2}{6 \times 12^3 / 12}$
 $= 1840 \text{ \#-ft} \times C_i \times (F_y / F_u)$
 $= 1781 \text{ \#-ft} \approx M_{DEMAND} \text{ -OK!}$

$L = 7.65'$
 $W_{EFF} = 65 \times (13+12)/2 \times 50\% = 406 \text{ \# PER FT-STRIP}$

$M_{DEMAND} = 2970 \text{ \#-ft}$

PT 6x ; b = 12", d = 5.5"

$M_{CAP} = f_b \times S_x = \frac{875 \text{ PSI} (12)(5.5)^2}{6 \times 12^3 / 12}$
 $= 4411 \text{ \#-ft} \times C_i \approx 1.0 \geq M_{DEMAND}$

OK!



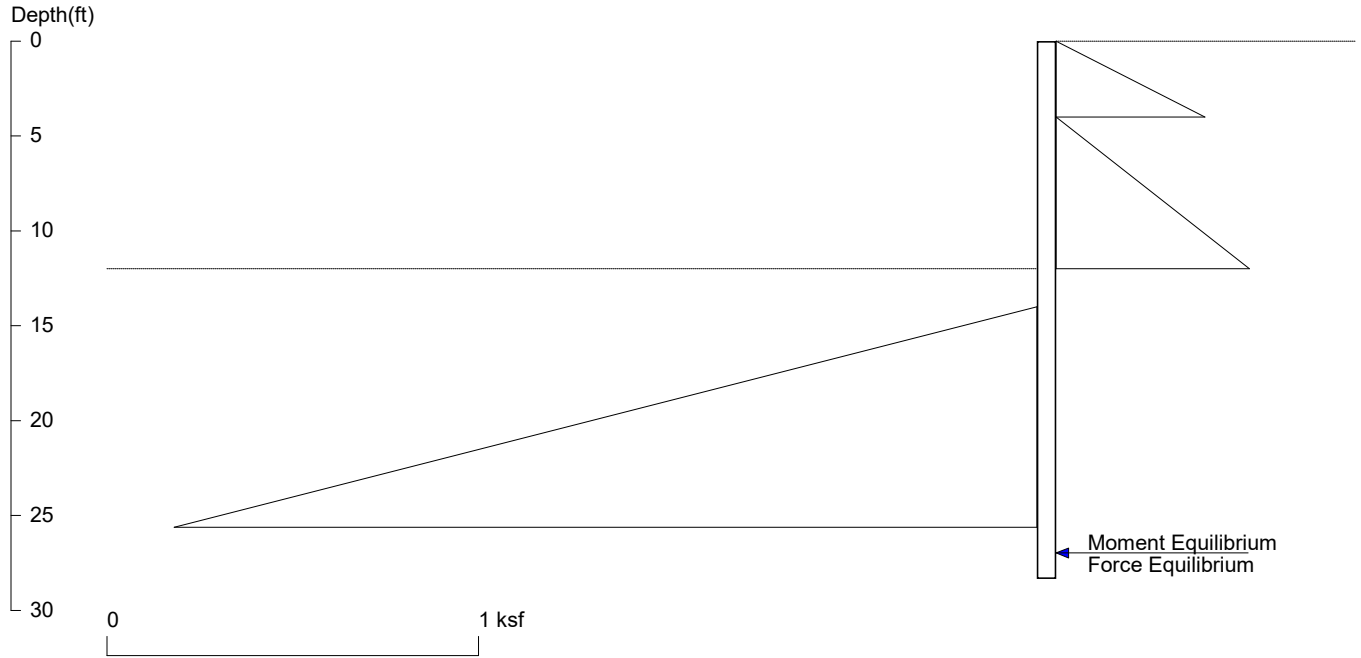
1225 15TH AVENUE SUITE 200
 SEATTLE, WASHINGTON 98108
 TEL: 206.461.8888
 MALSAM.TSANG.COM

7929 E MERCER WAY
 PROJECT
 MERCER ISLAND, WA

DATE
 5438.2022.01.07
 PROJECT NO
 BBR/JCM
 DESIGN
 SHI.O
 SHEET

7929 E Mercer Way

P101 8-ft Cant Shoring & 4-ft catchment wall



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Date: 4/22/2024

File: P:\MT Project Folder\5438-2022-01-01 7929 E Mercer Way\Calculations\24.04.22 - Shoring Revis (TB Shoring with 4-ft

Wall Height=12.0 Pile Diameter=2.0 Pile Spacing=8.0 Wall Type: 2. Soldier Pile, Drilled

PILE LENGTH: Min. Embedment=16.34 Min. Pile Length=28.34

MOMENT IN PILE: Max. Moment=116.31 per Pile Spacing=8.0 at Depth=19.38

VERTICAL BEARING CAPACITY: Vertical Loading=0.0, Resistance=114.0, Vertical Factor of Safety=999.00

PILE SELECTION:

Request Min. Section Modulus = 46.5 in³/pile=762.38 cm³/pile, F_y= 50 ksi = 345 MPa, F_b/F_y=0.6

W14X68 has Section Modulus = 103.0 in³/pile=1687.86 cm³/pile. It is greater than Min. Requirements!

Top Deflection = 0.64(in) based on E (ksi)=29000.00 and I (in⁴)/pile=722.0

DRIVING PRESSURES (ACTIVE, WATER, & SURCHARGE):

Z1	P1	Z2	P2	Slope
0	0	4	0.400	0.10
4	0	12	0.520	.065

PASSIVE PRESSURES:

Z1	P1	Z2	P2	Slope
14	0	100	17.200	0.200

ACTIVE SPACING:

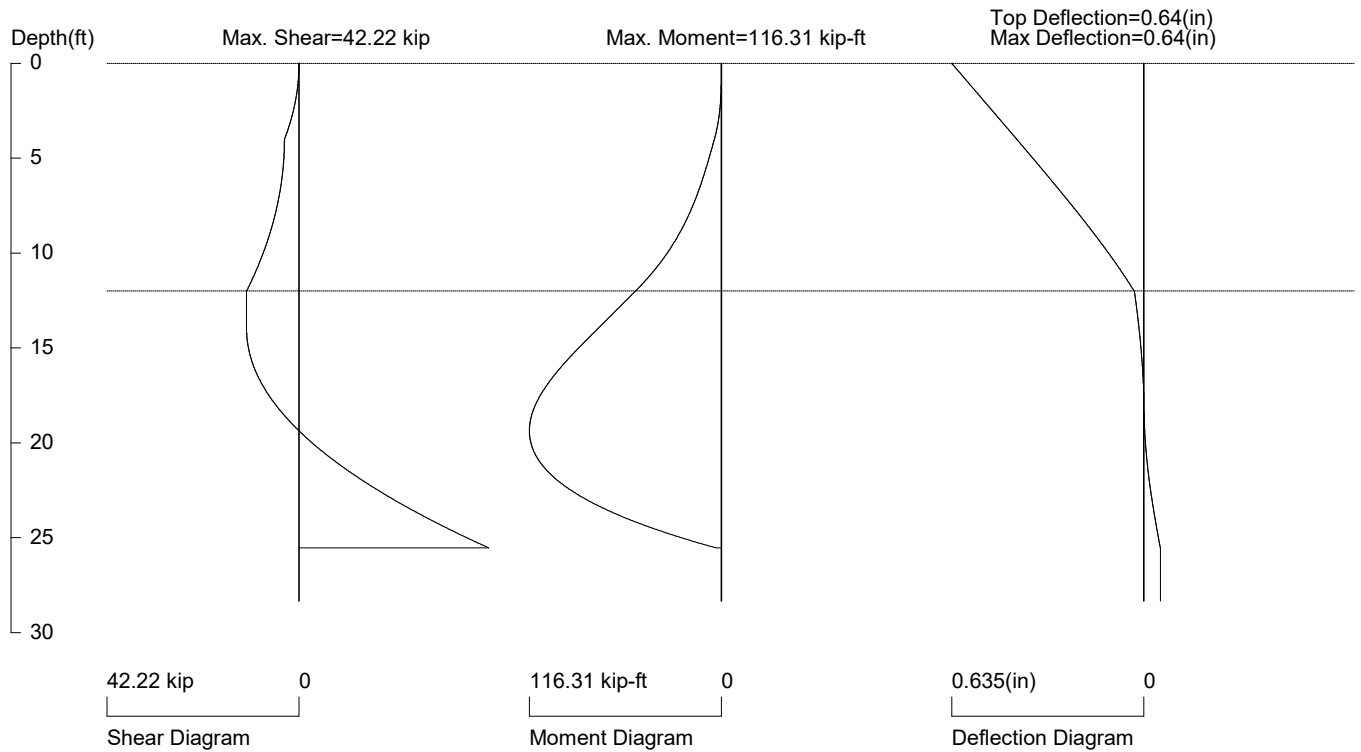
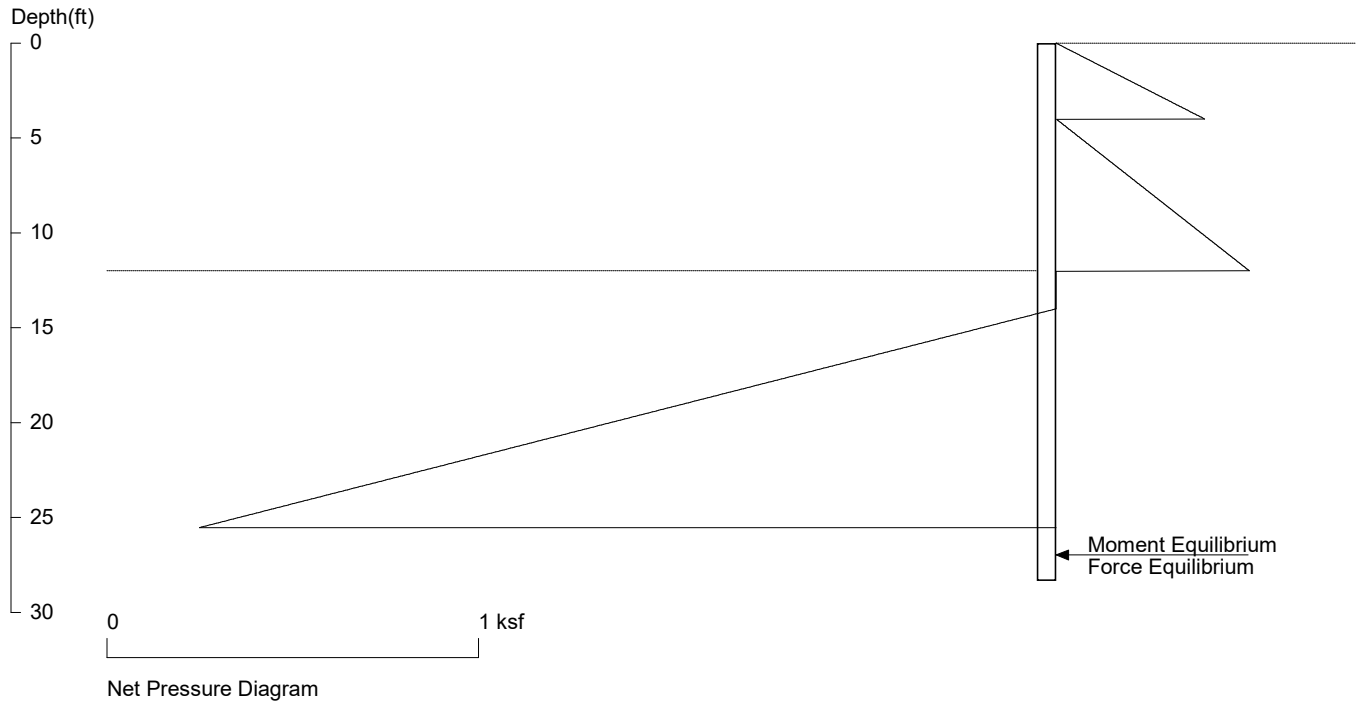
No.	Z depth	Spacing
1	0.00	4.00
2	12.00	2.00

PASSIVE SPACING:

No.	Z depth	Spacing
1	12.00	4.00

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

7929 E Mercer Way
P101 8-ft Cant Shoring & 4-ft catchment wall



PRESSURE, SHEAR, MOMENT, AND DEFLECTION DIAGRAMS

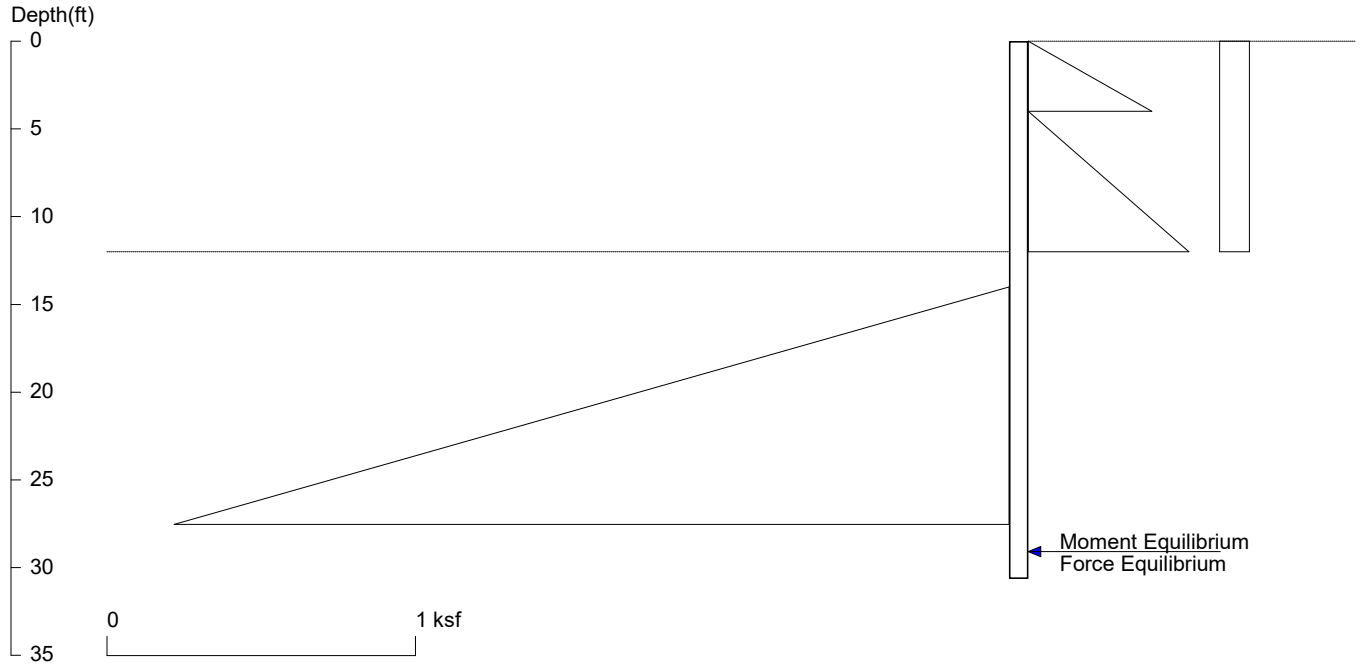
Based on pile spacing: 8.0 foot or meter

User Input Pile, W14X68: E (ksi)=29000.0, I (in⁴)/pile=722.0

ect Folder\5438-2022-01-01 7929 E Mercer Way\Calculations\24.04.22 - Shoring Revis (TB Shoring with 4-ft Catchment Wall)~8-ft max. Cant Shoring and 4-ft catch

7929 E Mercer Way

P101 8-ft Cant Shoring & 4-ft Catchment wall at Perma. Cond.



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Date: 4/22/2024

File: P:\MT Project Folder\5438-2022-01-01 7929 E Mercer Way\Calculations\24.04.22 - Shoring Revis (TB Shoring with 4-ft

Wall Height=12.0 Pile Diameter=2.0 Pile Spacing=8.0 Wall Type: 2. Soldier Pile, Drilled

PILE LENGTH: Min. Embedment=18.63 Min. Pile Length=30.63

MOMENT IN PILE: Max. Moment=180.23 per Pile Spacing=8.0 at Depth=20.34

VERTICAL BEARING CAPACITY: Vertical Loading=0.0, Resistance=124.1, Vertical Factor of Safety=999.00

PILE SELECTION:

Request Min. Section Modulus = 72.1 in³/pile=1181.37 cm³/pile, Fy= 50 ksi = 345 MPa, Fb/Fy=0.6

W14X68 has Section Modulus = 103.0 in³/pile=1687.86 cm³/pile. It is greater than Min. Requirements!

Top Deflection = 1.09(in) based on E (ksi)=29000.00 and I (in⁴)/pile=722.0

DRIVING PRESSURES (ACTIVE, WATER, & SURCHARGE):

Z1	P1	Z2	P2	Slope
0	0	4	0.400	0.10
4	0	12	0.520	0.065
0	0.096	12	0.096	0.00

PASSIVE PRESSURES:

Z1	P1	Z2	P2	Slope
14	0	100	17.200	0.200

ACTIVE SPACING:

No.	Z depth	Spacing
1	0.00	4.00
2	12.00	2.00

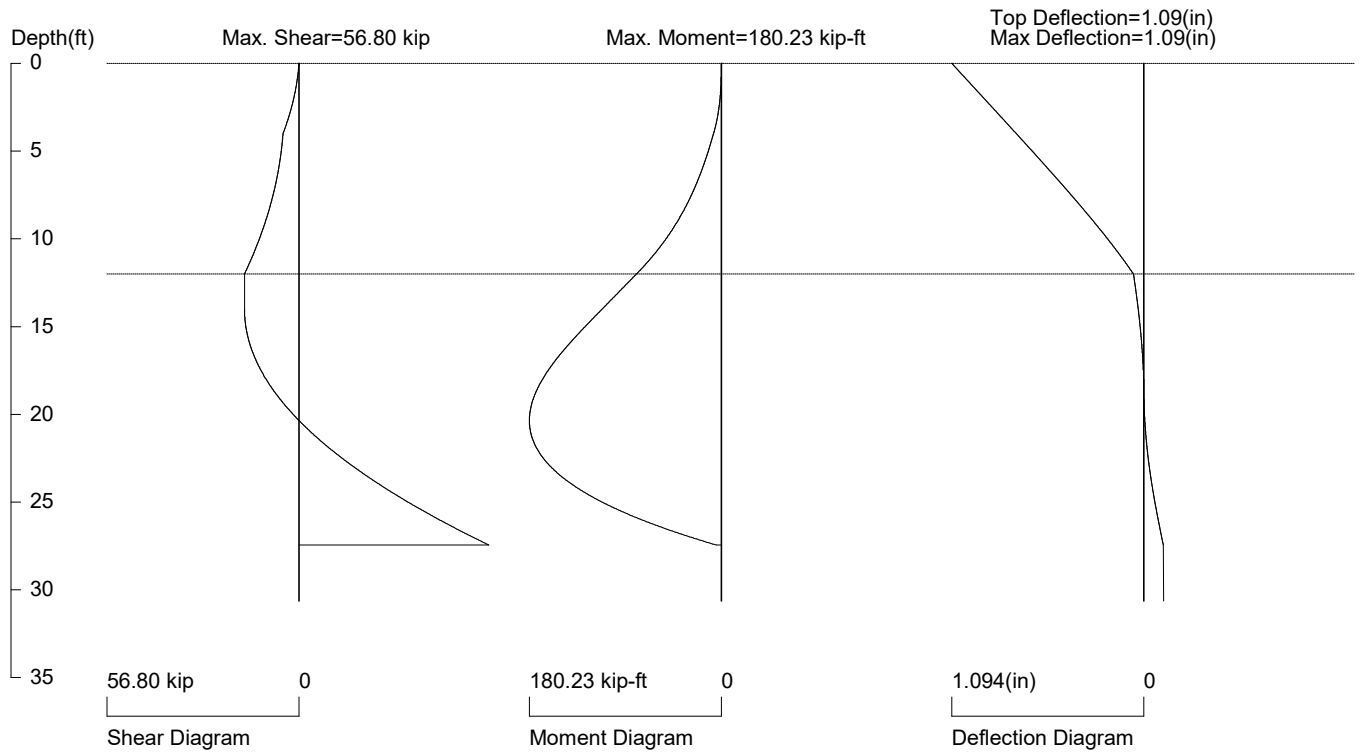
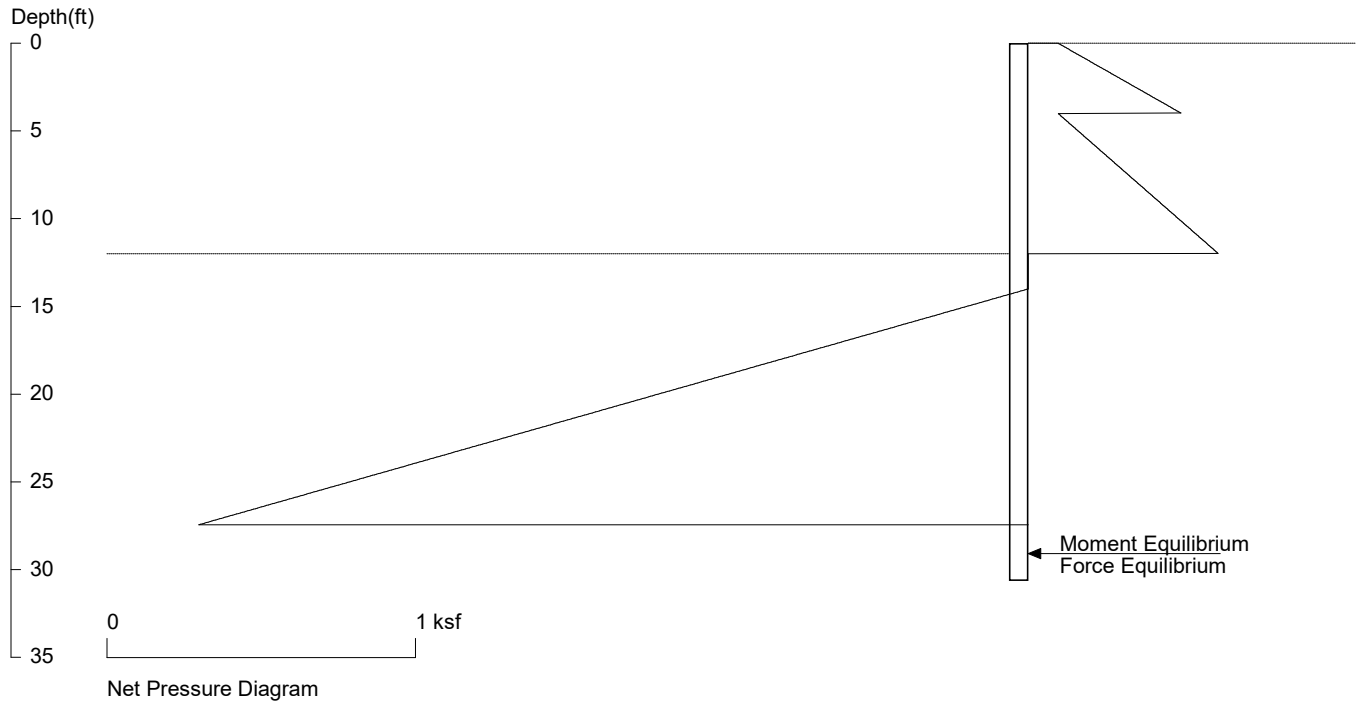
PASSIVE SPACING:

No.	Z depth	Spacing
1	12.00	4.00

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

7929 E Mercer Way

P101 8-ft Cant Shoring & 4-ft Catchment wall at Perma. Cond.



PRESSURE, SHEAR, MOMENT, AND DEFLECTION DIAGRAMS

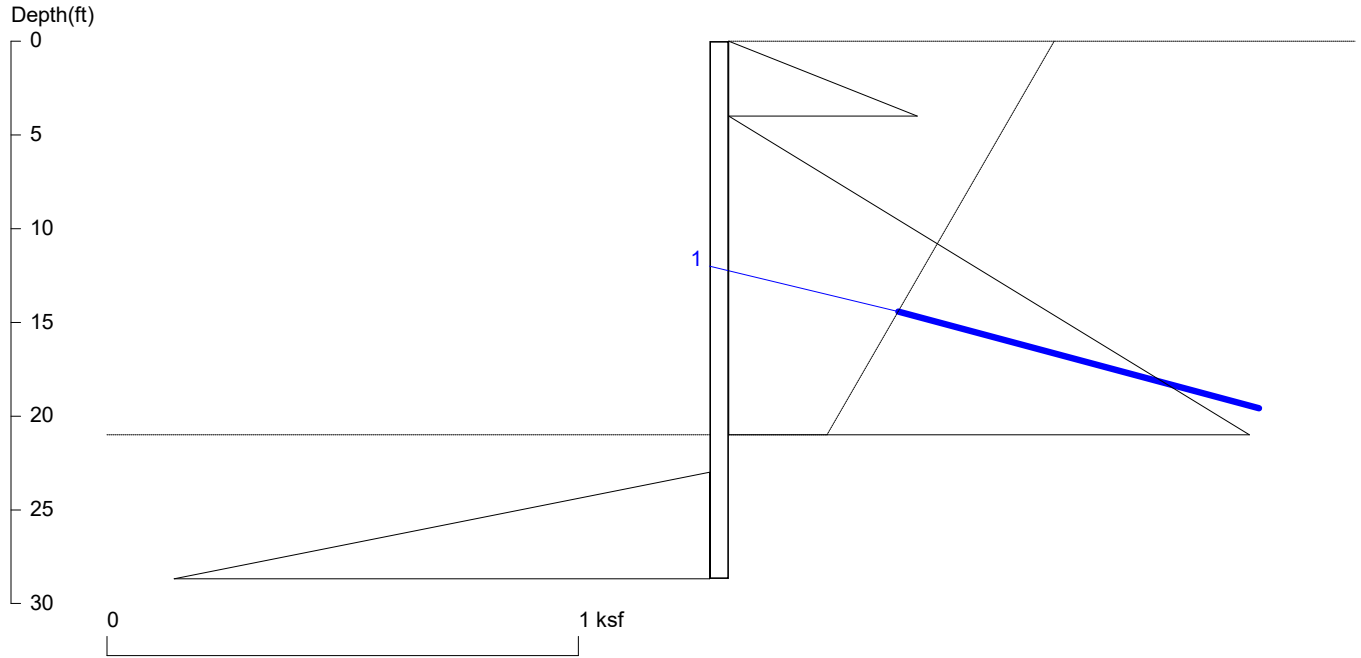
Based on pile spacing: 8.0 foot or meter

User Input Pile, W14X68: E (ksi)=29000.0, I (in4)/pile=722.0

er\5438-2022-01-01 7929 E Mercer Way\Calculations\24.04.22 - Shoring Revis (TB Shoring with 4-ft Catchment Wall)\~8-ft max. Cant Shoring and 4-ft catchment w

7929 E Mercer Way

P102 thru P104 - 17-ft Shoring w/ Tback & 4-ft cat



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Date: 4/22/2024

File: P:\MT Project Folder\5438-2022-01-01 7929 E Mercer Way\Calculations\24.04.22 - Shoring Revis (TB Shoring with 4-ft

Wall Height=21.0

Pile Diameter=2.0

Pile Spacing=8.0

Wall Type: 2. Soldier Pile, Drilled

PILE LENGTH: Min. Embedment=7.68 Min. Pile Length=28.68

MOMENT IN PILE: Max. Moment=104.03 per Pile Spacing=8.0 at Depth=12.00

VERTICAL BEARING CAPACITY: Vertical Loading=18.4, Resistance=95.7, Vertical Factor of Safety=5.20

PILE SELECTION:

Request Min. Section Modulus = 41.6 in³/pile=681.90 cm³/pile, F_y= 50 ksi = 345 MPa, F_b/F_y=0.6

W14X53 has Section Modulus = 77.8 in³/pile=1274.91 cm³/pile. It is greater than Min. Requirements!

Top Deflection = 0.15(in) based on E (ksi)=29000.00 and I (in⁴)/pile=541.0

BRACE FORCE: Strut, Tieback, Plate Anchor, Deadman, Sheet Pile as Anchor

No. & Type	Depth	Angle	Space	Total F.	Horiz. F.	Vert. F.	L_free	Fixed Length
1. Tieback	12.0	15.0	8.0	71.1	68.6	18.4	9.4	30.2

UNITS: Width,Diameter,Spacing,Length,Depth,and Height - ft; Force - kip; Bond Strength and Pressure - ksf

DRIVING PRESSURES (ACTIVE, WATER, & SURCHARGE):

Z1	P1	Z2	P2	Slope
0	0	4	0.400	0.10
4	0	21	1.105	.065

PASSIVE PRESSURES:

Z1	P1	Z2	P2	Slope
23	0	100	15.40	0.200

ACTIVE SPACING:

No.	Z depth	Spacing
1	0.00	8.00
2	21.00	2.00

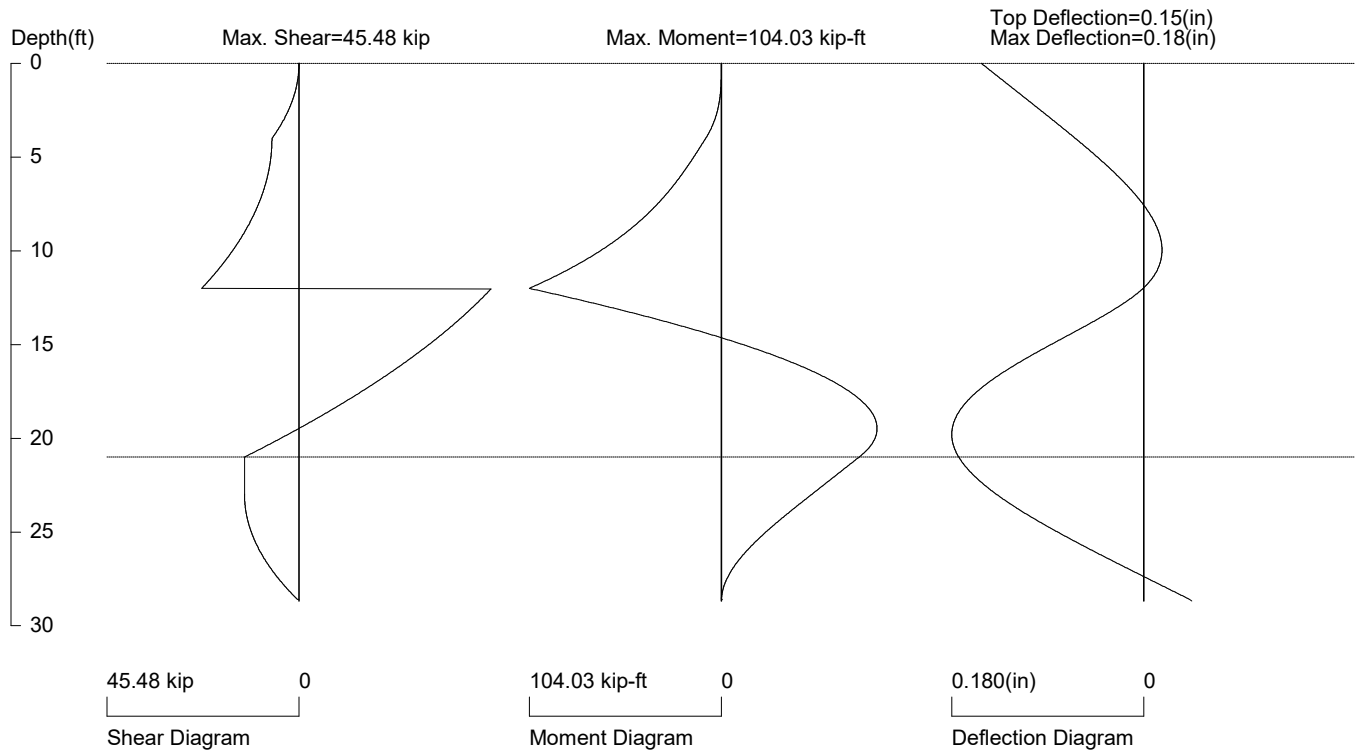
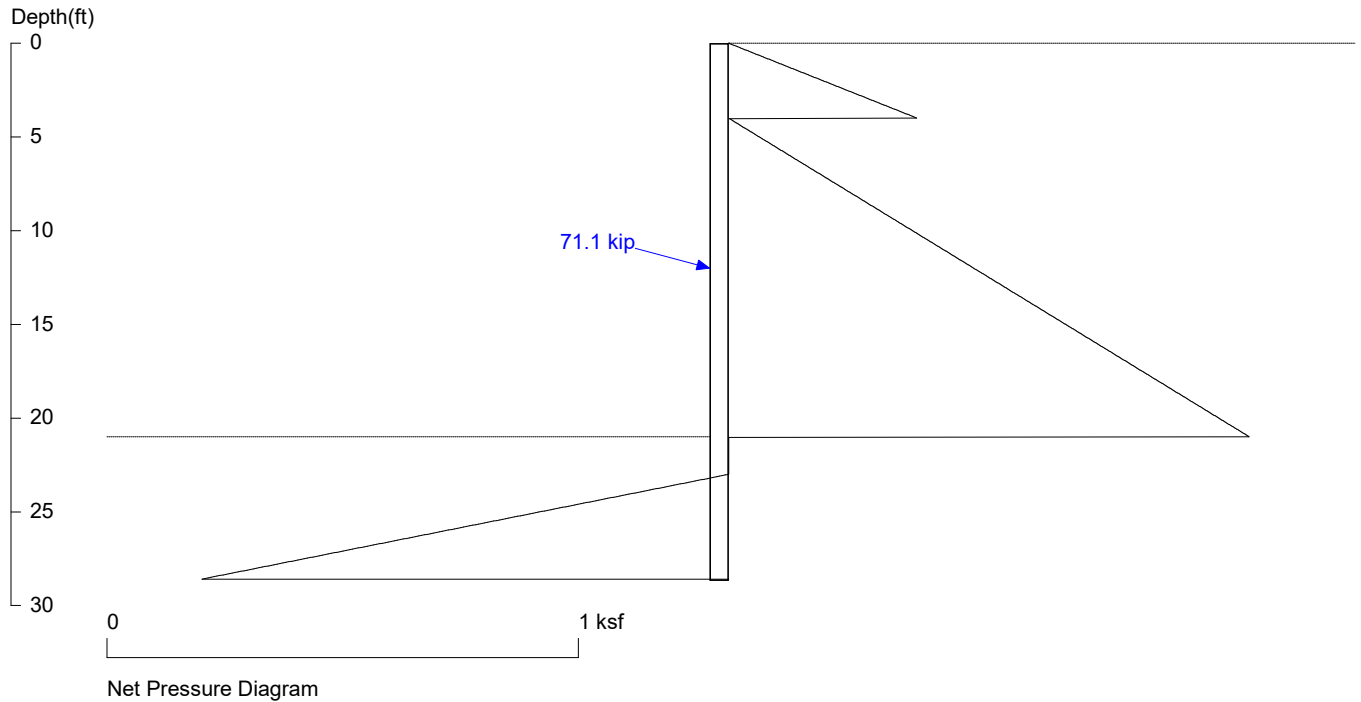
PASSIVE SPACING:

No.	Z depth	Spacing
1	21.00	4.00

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

7929 E Mercer Way

P102 thru P104 - 17-ft Shoring w/ Tback & 4-ft cat



PRESSURE, SHEAR, MOMENT, AND DEFLECTION DIAGRAMS

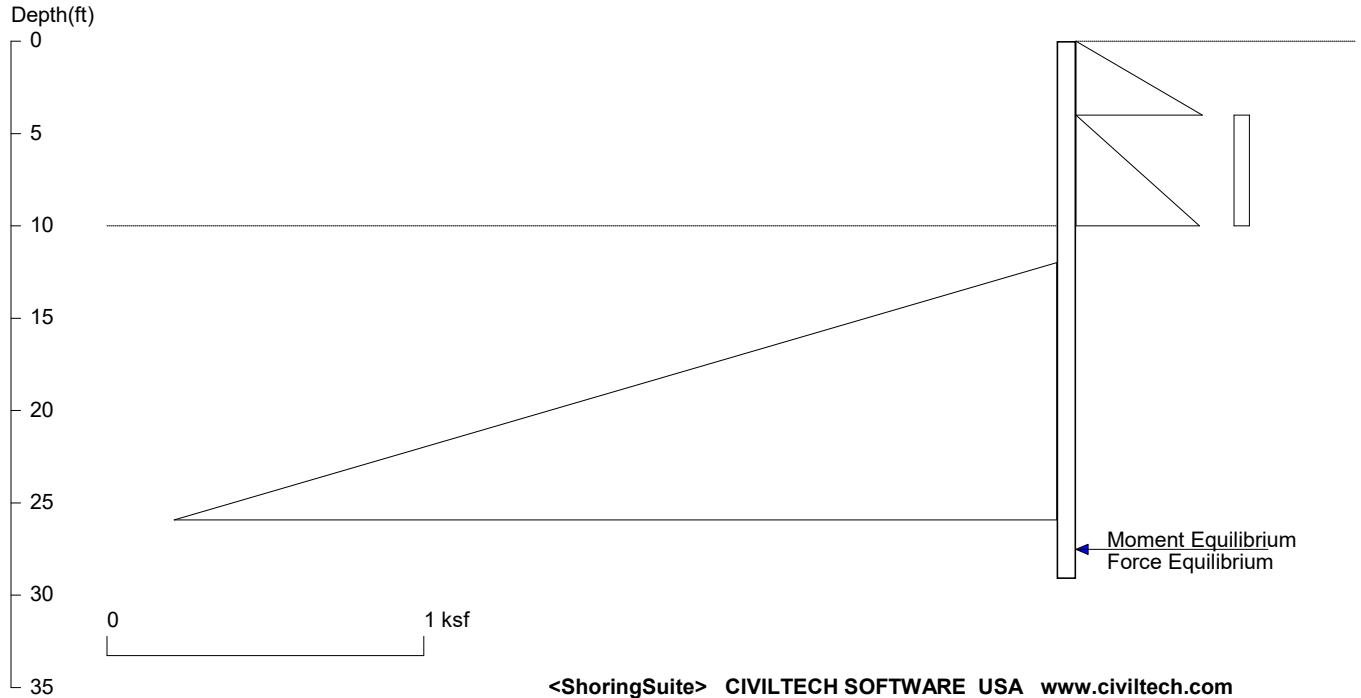
Based on pile spacing: 8.0 foot or meter

User Input Pile, W14X53: E (ksi)=29000.0, I (in⁴)/pile=541.0

ct Folder\5438-2022-01-01 7929 E Mercer Way\Calculations\24.04.22 - Shoring Revis (TB Shoring with 4-ft Catchment Wall)\17-ft Shoring with Tback and 4-ft catch

7929 E Mercer Way

P101-P104 6-ft Cant Shoring & 4-ft catchment wall at Perma.



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Date: 4/22/2024

File: P:\MT Project Folder\5438-2022-01-01 7929 E Mercer Way\Calculations\24.04.22 - Shoring Revis (TB Shoring with 4-ft

Wall Height=10.0 Pile Diameter=2.0 Pile Spacing=8.0 Wall Type: 2. Soldier Pile, Drilled

PILE LENGTH: Min. Embedment=19.11 Min. Pile Length=29.11

MOMENT IN PILE: Max. Moment=189.62 per Pile Spacing=8.0 at Depth=18.72

VERTICAL BEARING CAPACITY: Vertical Loading=0.0, Resistance=121.8, Vertical Factor of Safety=999.00

PILE SELECTION:

Request Min. Section Modulus = 75.8 in³/pile=1242.93 cm³/pile, F_y= 50 ksi = 345 MPa, F_b/F_y=0.6

W14X53 has Section Modulus = 77.8 in³/pile=1274.91 cm³/pile. It is greater than Min. Requirements!

Top Deflection = 1.20(in) based on E (ksi)=29000.00 and I (in⁴)/pile=541.0

DRIVING PRESSURES (ACTIVE, WATER, & SURCHARGE):

Z1	P1	Z2	P2	Slope
0	0	4	0.400	0.10
4	0	10	0.390	0.065
4	0.048	10	0.048	0.00

PASSIVE PRESSURES:

Z1	P1	Z2	P2	Slope
12	0	100	17.60	0.200

ACTIVE SPACING:

No.	Z depth	Spacing
1	0.00	8.00
2	10.00	2.00

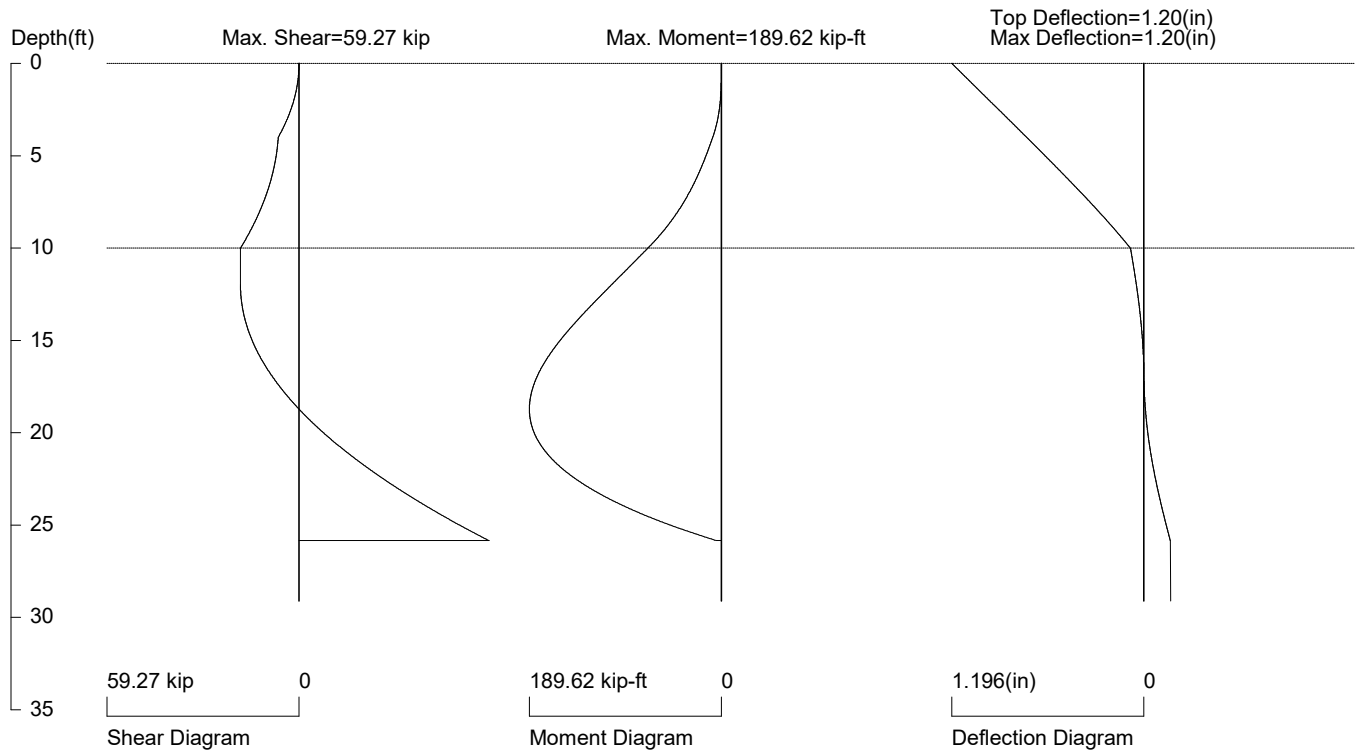
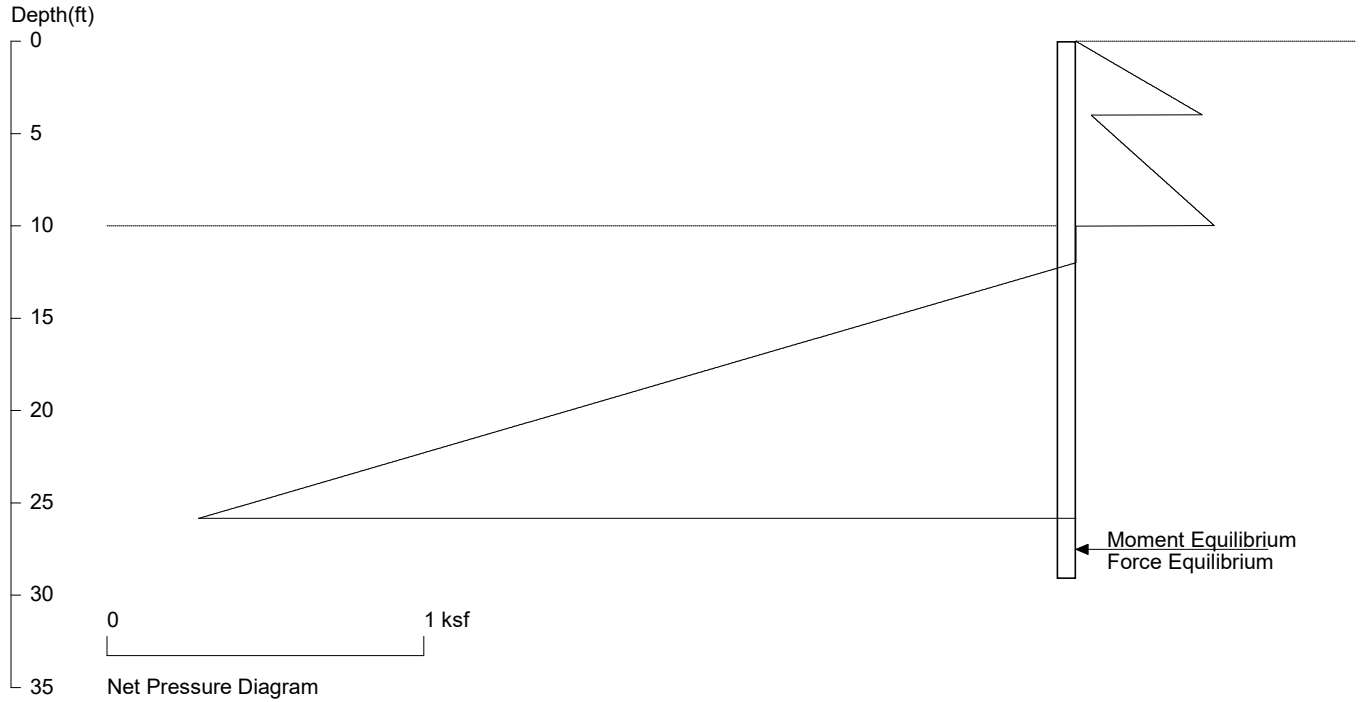
PASSIVE SPACING:

No.	Z depth	Spacing
1	10.00	4.00

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

7929 E Mercer Way

P101-P104 6-ft Cant Shoring & 4-ft catchment wall at Perma.



PRESSURE, SHEAR, MOMENT, AND DEFLECTION DIAGRAMS

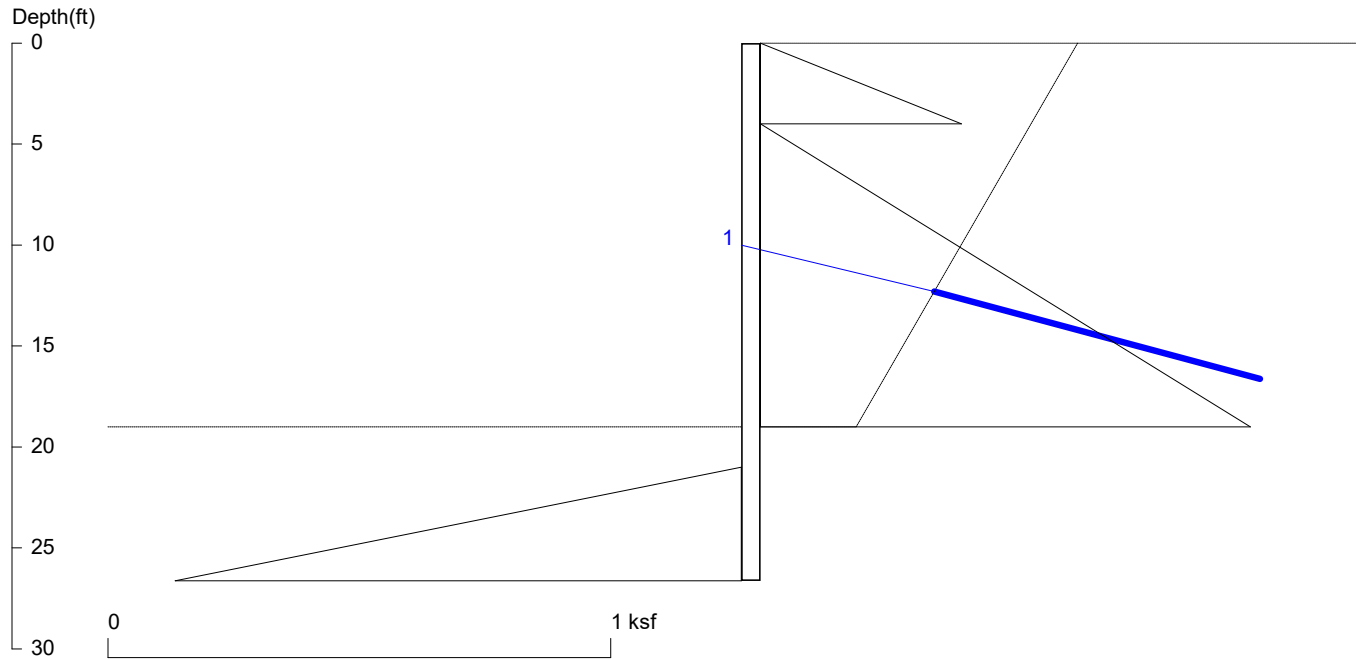
Based on pile spacing: 8.0 foot or meter

User Input Pile, W14X53: E (ksi)=29000.0, I (in⁴)/pile=541.0

8-2022-01-01 7929 E Mercer Way\Calculations\24.04.22 - Shoring Revis (TB Shoring with 4-ft Catchment Wall)\~6-ft max. Cant Shoring and 4-ft catchment wall - P

7929 E Mercer Way

P105 thru P108 - 15-ft Shoring w/ Tback & 4-ft cat



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Date: 4/22/2024

File: P:\MT Project Folder\5438-2022-01-01 7929 E Mercer Way\Calculations\24.04.22 - Shoring Revis (TB Shoring with 4-ft

Wall Height=19.0

Pile Diameter=2.0

Pile Spacing=8.0

Wall Type: 2. Soldier Pile, Drilled

PILE LENGTH: Min. Embedment=7.63 Min. Pile Length=26.63

MOMENT IN PILE: Max. Moment=83.66 per Pile Spacing=8.0 at Depth=17.27

VERTICAL BEARING CAPACITY: Vertical Loading=14.0, Resistance=91.0, Vertical Factor of Safety=6.51

PILE SELECTION:

Request Min. Section Modulus = 33.5 in³/pile=548.40 cm³/pile, F_y= 50 ksi = 345 MPa, F_b/F_y=0.6

W12X40 has Section Modulus = 51.5 in³/pile=843.93 cm³/pile. It is greater than Min. Requirements!

Top Deflection = -0.19(in) based on E (ksi)=29000.00 and I (in⁴)/pile=307.0

BRACE FORCE: Strut, Tieback, Plate Anchor, Deadman, Sheet Pile as Anchor

No. & Type	Depth	Angle	Space	Total F.	Horiz. F.	Vert. F.	L_free	Fixed Length
1. Tieback	10.0	15.0	8.0	54.1	52.2	14.0	8.9	22.9

UNITS: Width,Diameter,Spacing,Length,Depth,and Height - ft; Force - kip; Bond Strength and Pressure - ksf

DRIVING PRESSURES (ACTIVE, WATER, & SURCHARGE):

Z1	P1	Z2	P2	Slope
0	0	4	0.400	0.10
4	0	19	0.975	.065

PASSIVE PRESSURES:

Z1	P1	Z2	P2	Slope
21	0	100	15.80	0.200

ACTIVE SPACING:

No.	Z depth	Spacing
1	0.00	8.00
2	19.00	2.00

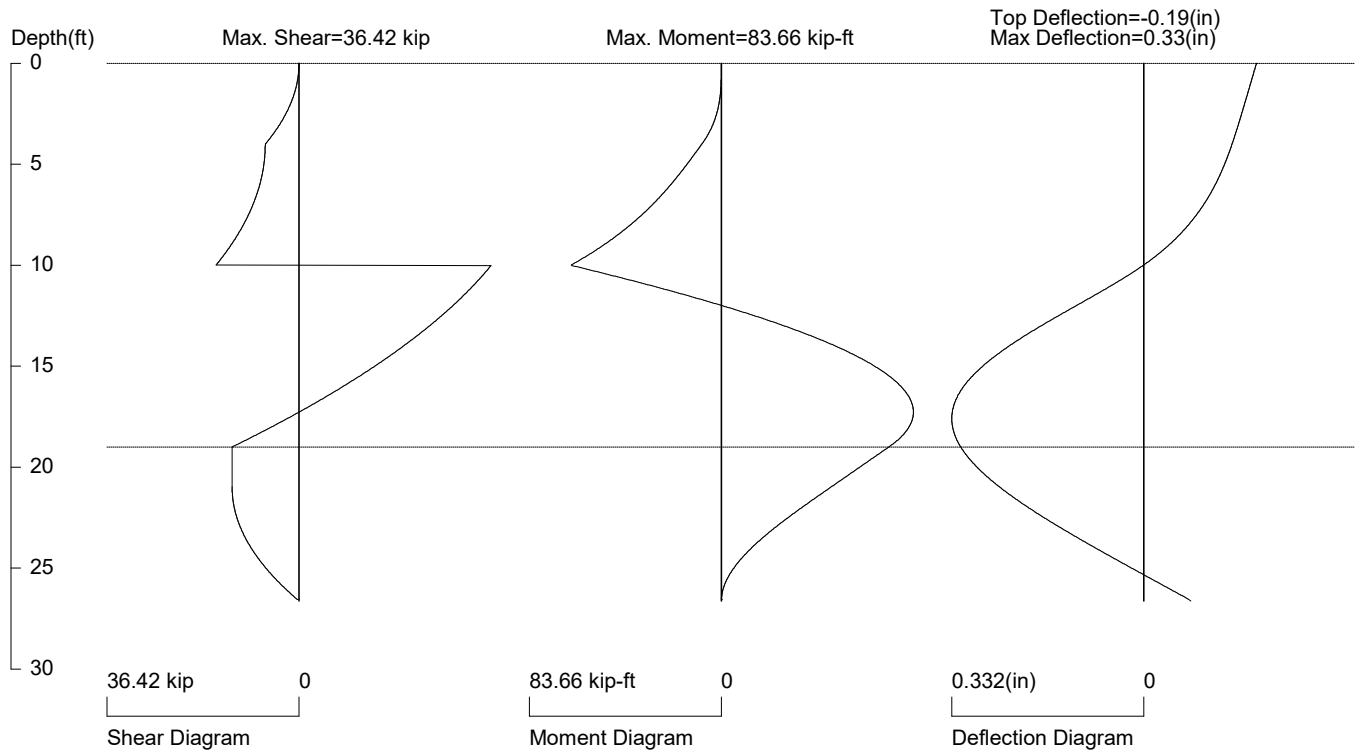
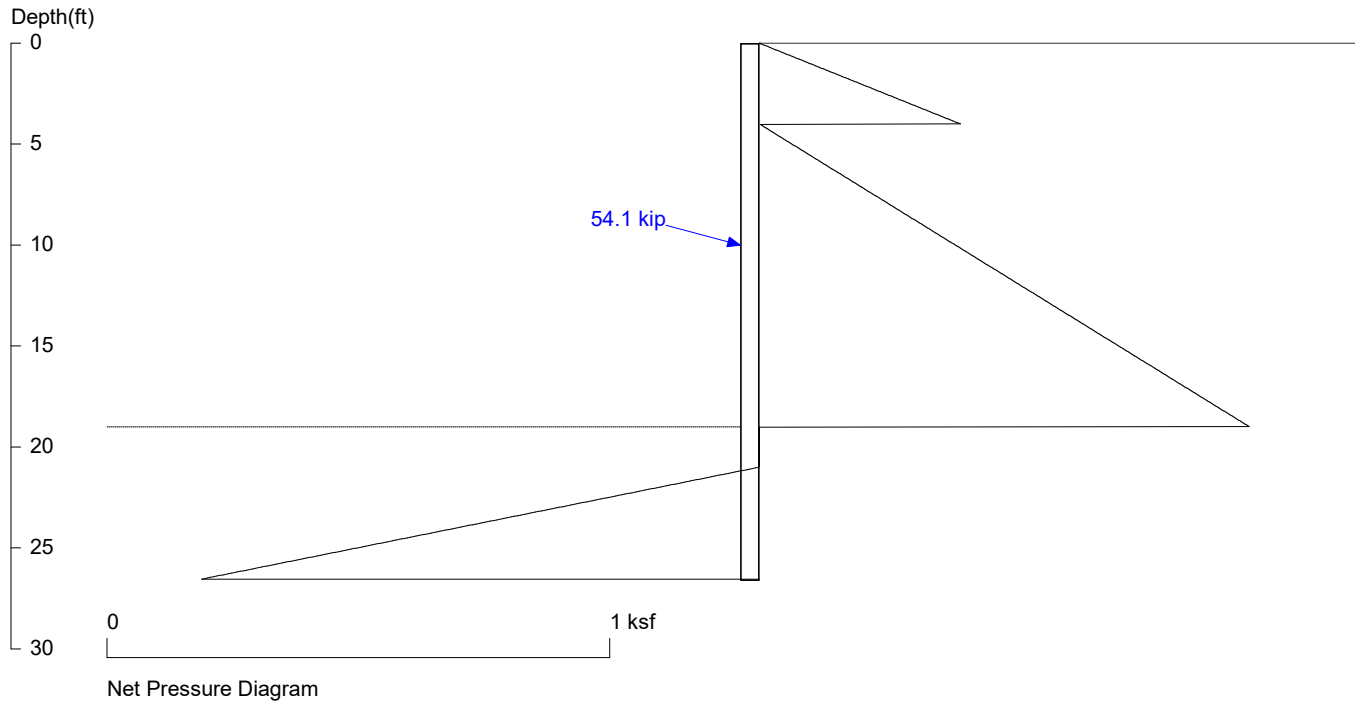
PASSIVE SPACING:

No.	Z depth	Spacing
1	19.00	4.00

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

7929 E Mercer Way

P105 thru P108 - 15-ft Shoring w/ Tback & 4-ft cat



PRESSURE, SHEAR, MOMENT, AND DEFLECTION DIAGRAMS

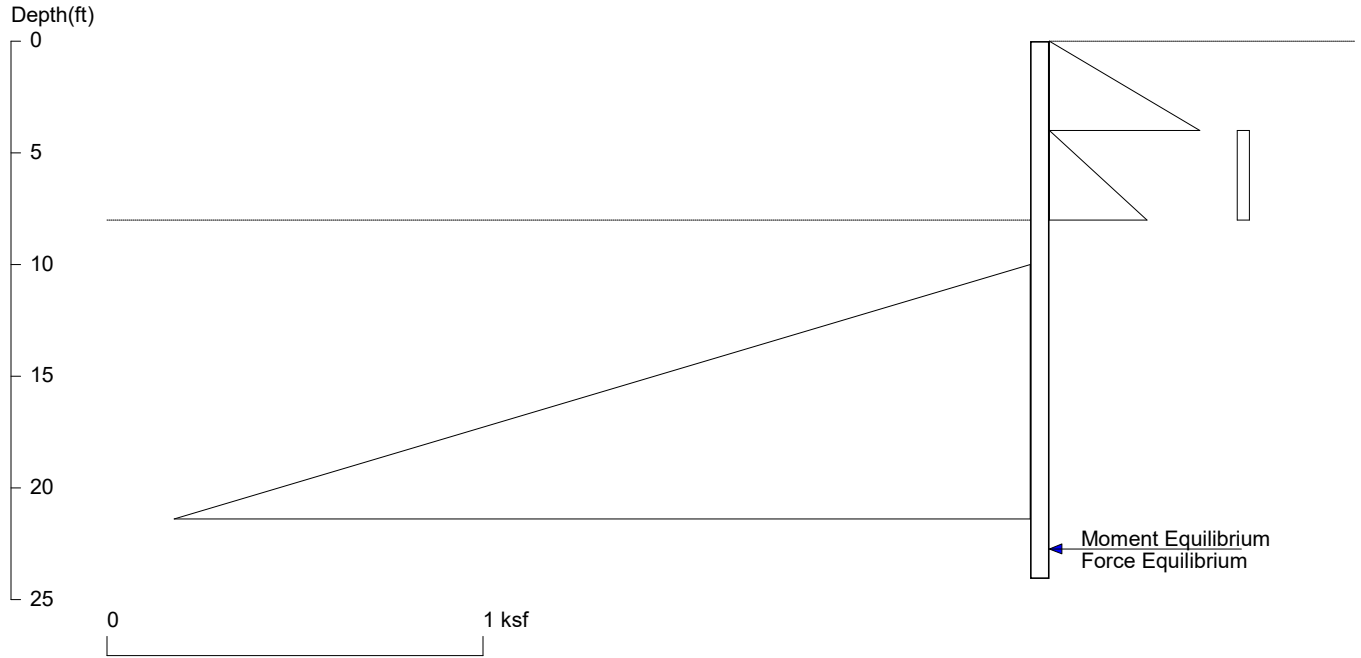
Based on pile spacing: 8.0 foot or meter

User Input Pile, W12X40: E (ksi)=29000.0, I (in⁴)/pile=307.0

Folder\5438-2022-01-01 7929 E Mercer Way\Calculations\24.04.22 - Shoring Revis (TB Shoring with 4-ft Catchment Wall)\15-ft Shoring with Tback and 4-ft catch

7929 E Mercer Way

P105-P108 4-ft Cant Shoring & 4-ft catchment wall at Perma.



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Date: 4/22/2024

File: P:\MT Project Folder\5438-2022-01-01 7929 E Mercer Way\Calculations\24.04.22 - Shoring Revis (TB Shoring with 4-ft

Wall Height=8.0 Pile Diameter=2.0 Pile Spacing=8.0 Wall Type: 2. Soldier Pile, Drilled

PILE LENGTH: Min. Embedment=16.06 Min. Pile Length=24.06

MOMENT IN PILE: Max. Moment=106.45 per Pile Spacing=8.0 at Depth=15.37

VERTICAL BEARING CAPACITY: Vertical Loading=0.0, Resistance=103.9, Vertical Factor of Safety=999.00

PILE SELECTION:

Request Min. Section Modulus = 42.6 in³/pile=697.79 cm³/pile, F_y= 50 ksi = 345 MPa, F_b/F_y=0.6

W12X40 has Section Modulus = 51.5 in³/pile=843.93 cm³/pile. It is greater than Min. Requirements!

Top Deflection = 0.81(in) based on E (ksi)=29000.00 and I (in⁴)/pile=307.0

DRIVING PRESSURES (ACTIVE, WATER, & SURCHARGE):

Z1	P1	Z2	P2	Slope
0	0	4	0.400	0.10
4	0	8	0.260	0.065
4	0.032	8	0.032	0.00

PASSIVE PRESSURES:

Z1	P1	Z2	P2	Slope
10	0	100	18.00	0.200

ACTIVE SPACING:

No.	Z depth	Spacing
1	0.00	8.00
2	8.00	2.00

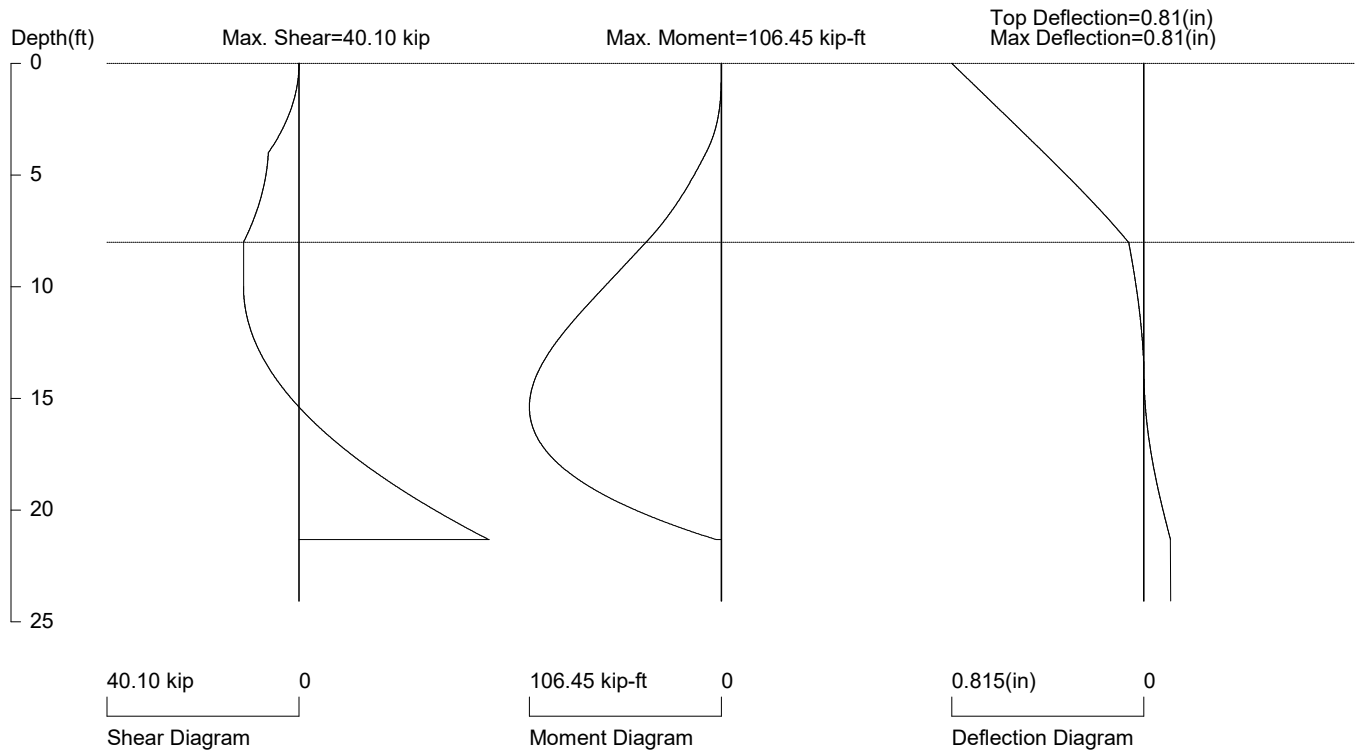
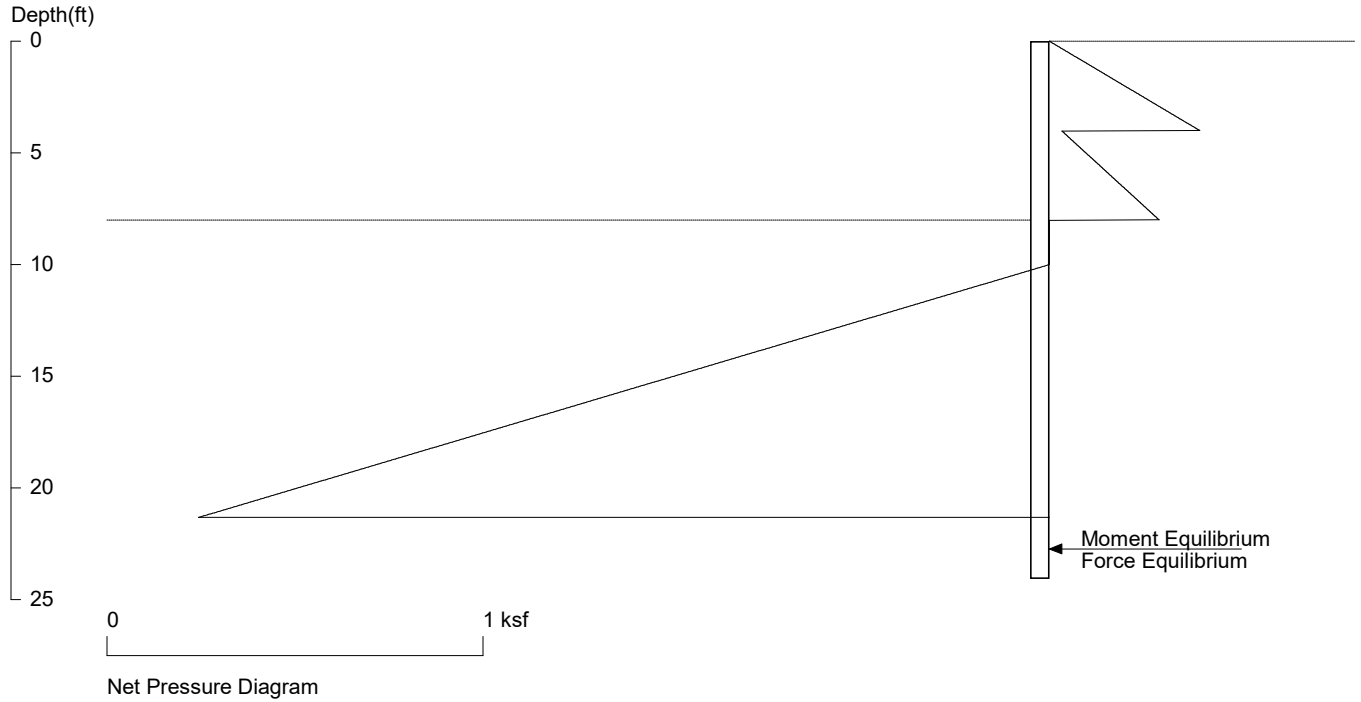
PASSIVE SPACING:

No.	Z depth	Spacing
1	8.00	4.00

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

7929 E Mercer Way

P105-P108 4-ft Cant Shoring & 4-ft catchment wall at Perma.



PRESSURE, SHEAR, MOMENT, AND DEFLECTION DIAGRAMS

Based on pile spacing: 8.0 foot or meter

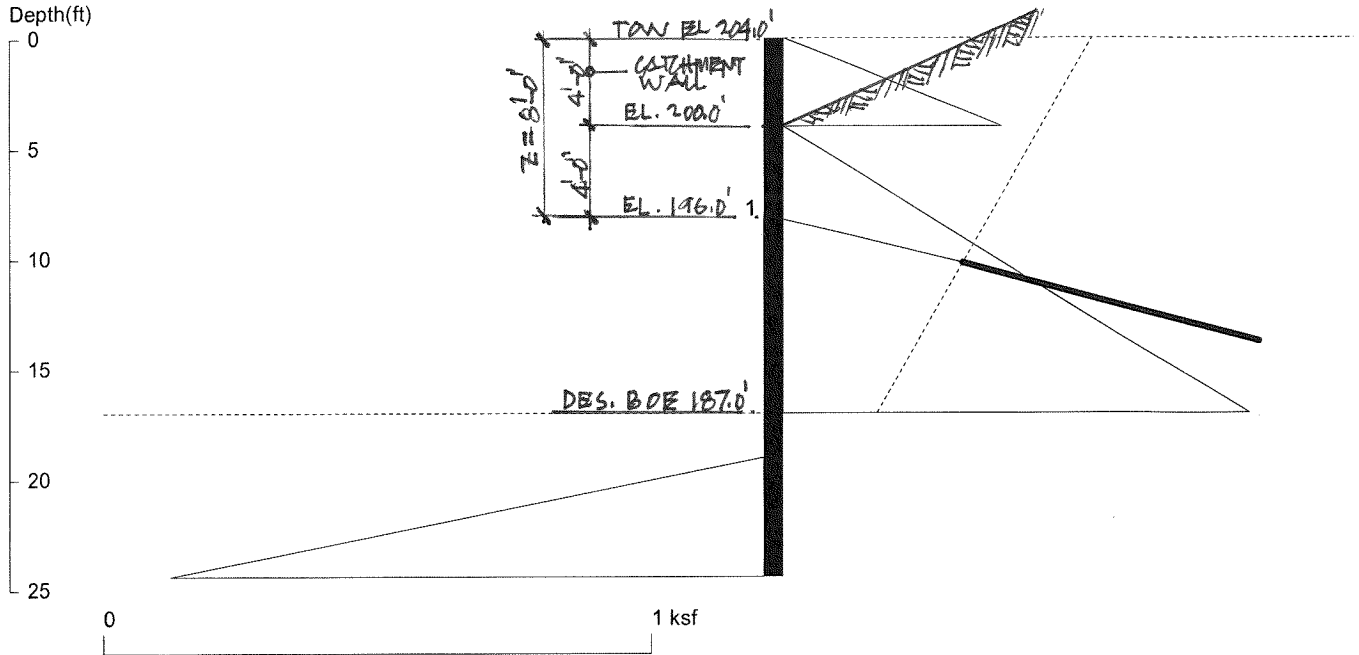
User Input Pile, W12X40: E (ksi)=29000.0, I (in⁴)/pile=307.0

8-2022-01-01 7929 E Mercer Way\Calculations\24.04.22 - Shoring Revis (TB Shoring with 4-ft Catchment Wall)\4-ft max. Cant Shoring and 4-ft catchment wall - P

7929 E Mercer Way

P106-P11

- 13-ft Shoring w/ Tback & 4-ft catchment wall at Tempo. cond.



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Date: 11/13/2023

File: P:\MT Project Folder\5438-2022-01-01 7929 E Mercer Way\Calculations\23.11.09 - Shoring Revis (TB Shoring with

Wall Height=17.0 ✓ Pile Diameter=2.0 ✓ Pile Spacing=8.0 ✓ Wall Type: 2. Soldier Pile, Drilled ✓

PILE LENGTH: Min. Embedment=7.41 ^{15.0} Min. Pile Length=24.41

MOMENT IN PILE: Max. Moment=76.23 per Pile Spacing=8.0 at Depth=15.13

VERTICAL BEARING CAPACITY: Vertical Loading=10.4, Resistance=85.7, Vertical Factor of Safety=8.28

PILE SELECTION:

Request Min. Section Modulus = 30.5 in³/pile=499.68 cm³/pile, Fy= 50 ksi = 345 MPa, Fb/Fy=0.6

✓ W10X39 has Section Modulus = 42.1 in³/pile=689.89 cm³/pile. It is greater than Min. Requirements!

Top Deflection = -0.45(in) based on E (ksi)=29000.00 and I (in⁴)/pile=209.0

BRACE FORCE: Strut, Tieback, Plate Anchor, Deadman, Sheet Pile as Anchor

No. & Type	Depth, Z	Angle	Space	Total F.	Horiz. F.	Vert. F.	L _{free}	Fixed Length
1. Tieback	8.0 ✓	15.0 ✓	8.0 ✓	40.0 ✓	38.6	10.4	8.5 9.0	17.0 ✓

UNITS: Width, Diameter, Spacing, Length, Depth, and Height - ft; Force - kip; Bond Strength and Pressure - ksf

DRIVING PRESSURES (ACTIVE, WATER, & SURCHARGE):

Z1	P1	Z2	P2	Slope
0	0	4 ✓	0.400	0.10 ✓
4 ✓	0	17 ✓	0.845	.065 ✓

PASSIVE PRESSURES:

Z1	P1	Z2	P2	Slope
19 ✓	0	100	16.200	0.200 ✓

ACTIVE SPACING:

No.	Z depth	Spacing
1	0.00	8.00
2	17.00 ✓	2.00 ✓

PASSIVE SPACING:

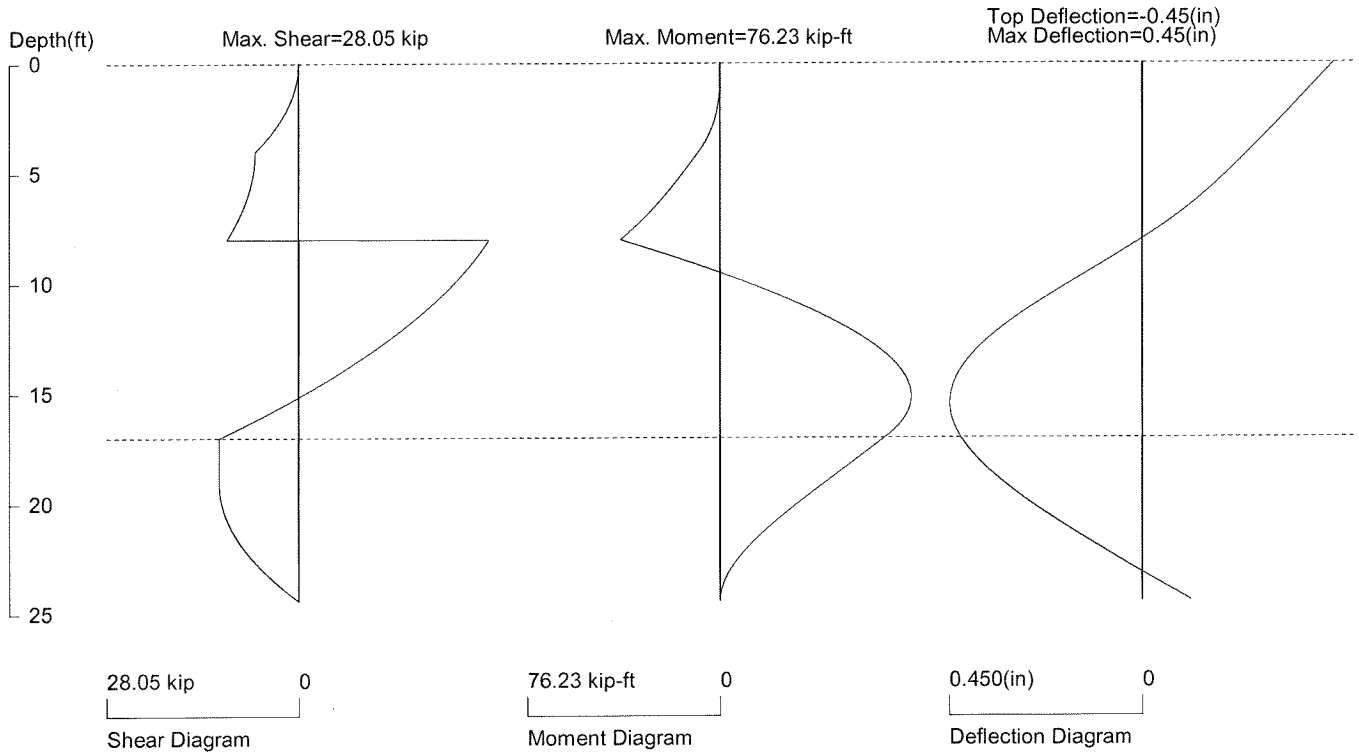
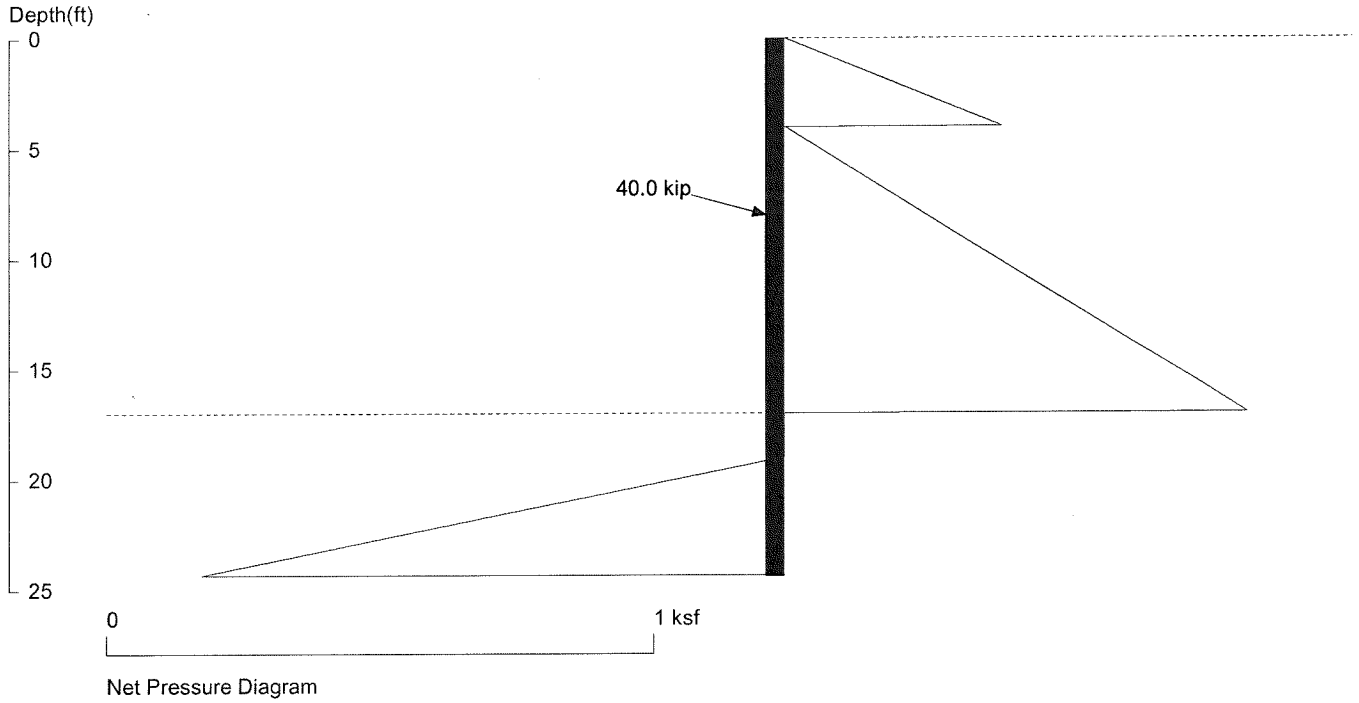
No.	Z depth	Spacing
1	17.00	4.00

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

7929 E Mercer Way

P109-P11

- 13-ft Shoring w/ Tback & 4-ft catchment wall at Tempo. cond.



PRESSURE, SHEAR, MOMENT, AND DEFLECTION DIAGRAMS

Based on pile spacing: 8.0 foot or meter

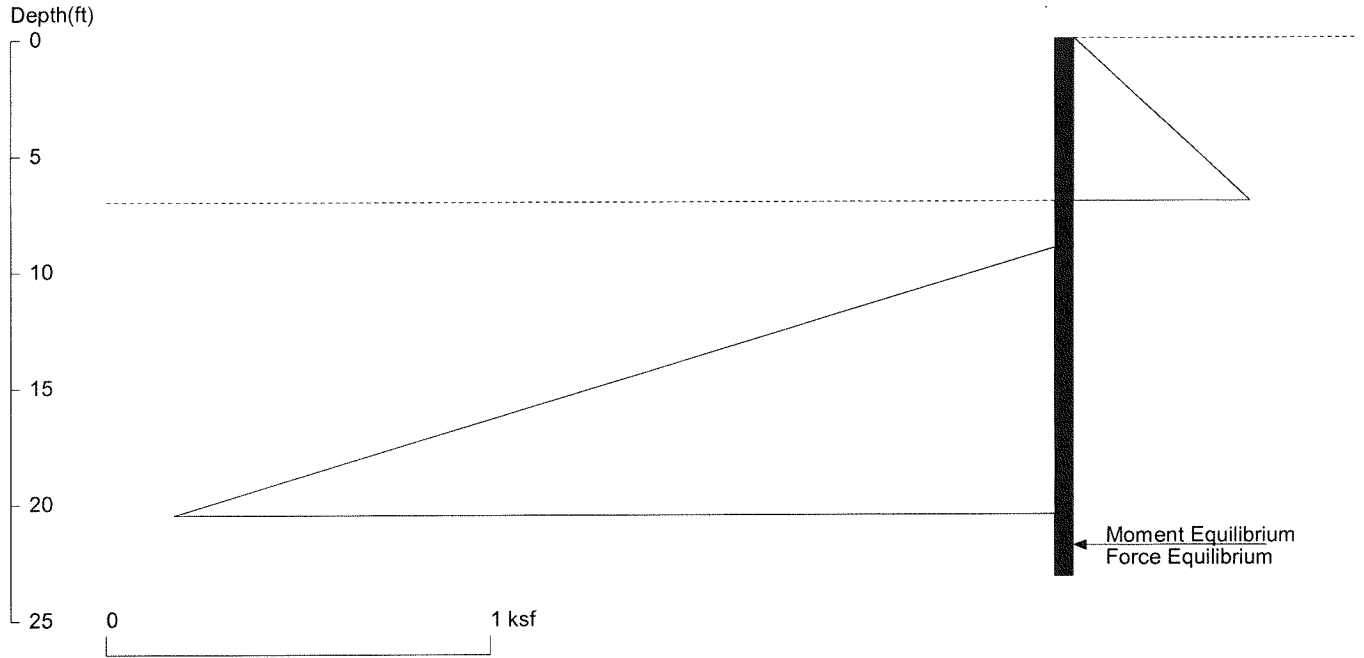
User Input Pile, W10X39: E (ksi)=29000.0, I (in⁴)/pile=209.0

Folder\5438-2022-01-01 7929 E Mercer Way\Calculations\23.11.09 - Shoring Revis (TB Shoring with 4-ft Catchment Wall)\13-ft Shoring with Tback and 4-ft c

7929 E Mercer Way

P109-P11

- Check prior to Tieback Install - at Tempo Condi.



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Date: 11/13/2023

File: P:\MT Project Folder\5438-2022-01-01 7929 E Mercer Way\Calculations\23.11.09 - Shoring Revis (TB Shoring with

Wall Height=7.0

Pile Diameter=2.0

Pile Spacing=8.0

Wall Type: 2. Soldier Pile, Drilled

PILE LENGTH: Min. Embedment=16.17 Min. Pile Length=23.17

MOMENT IN PILE: Max. Moment=103.14 per Pile Spacing=8.0 at Depth=14.65

VERTICAL BEARING CAPACITY: Vertical Loading=0.0, Resistance=102.2, Vertical Factor of Safety=999.00

PILE SELECTION:

Request Min. Section Modulus = 41.3 in³/pile=676.06 cm³/pile, Fy= 50 ksi = 345 MPa, Fb/Fy=0.6

W10X39 has Section Modulus = 42.1 in³/pile=689.89 cm³/pile. It is greater than Min. Requirements!

Top Deflection = 0.90(in) based on E (ksi)=29000.00 and I (in⁴)/pile=209.0

DRIVING PRESSURES (ACTIVE, WATER, & SURCHARGE):

Z1	P1	Z2	P2	Slope
0	0	7	0.455	0.065

PASSIVE PRESSURES:

Z1	P1	Z2	P2	Slope
9	0	100	18.200	0.200

ACTIVE SPACING:

No.	Z depth	Spacing
1	0.00	8.00
2	7.00	2.00

PASSIVE SPACING:

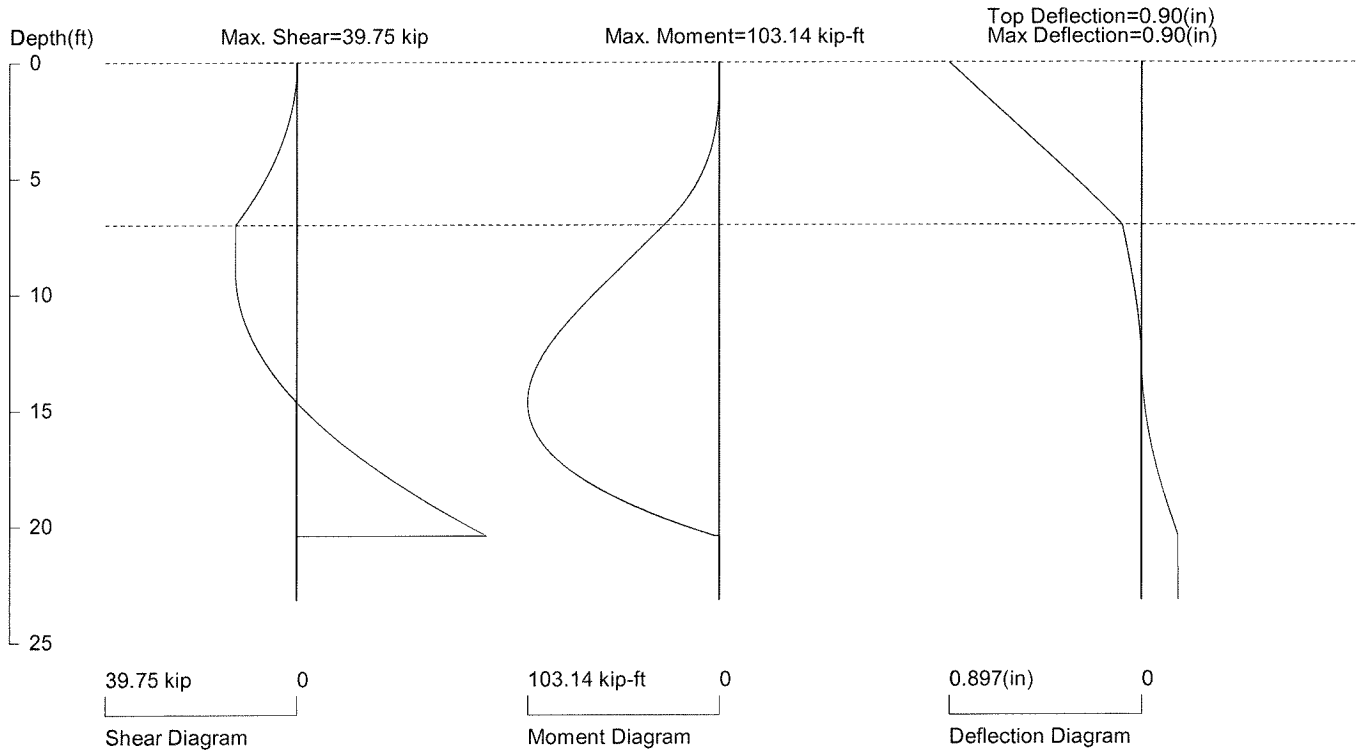
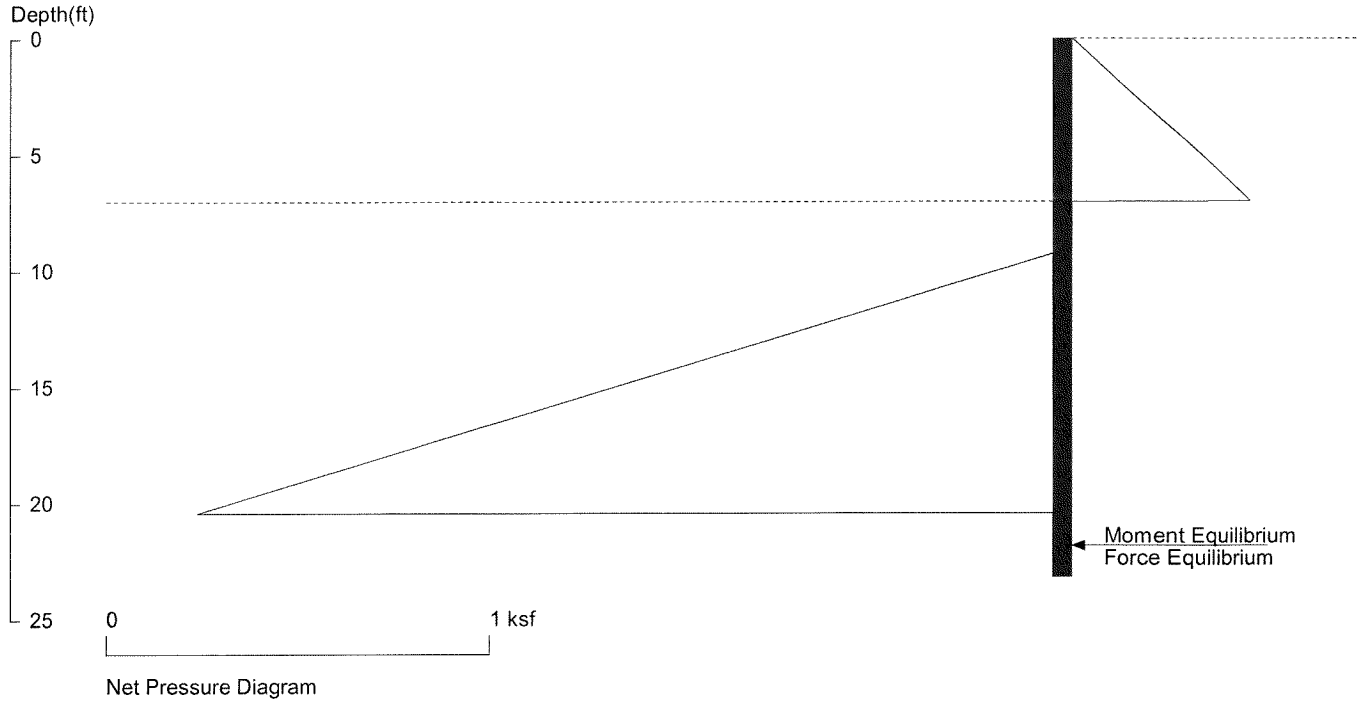
No.	Z depth	Spacing
1	7.00	4.00

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

7929 E Mercer Way

P109-P11

- Check prior to Tieback Install - at Tempo Condi.



PRESSURE, SHEAR, MOMENT, AND DEFLECTION DIAGRAMS

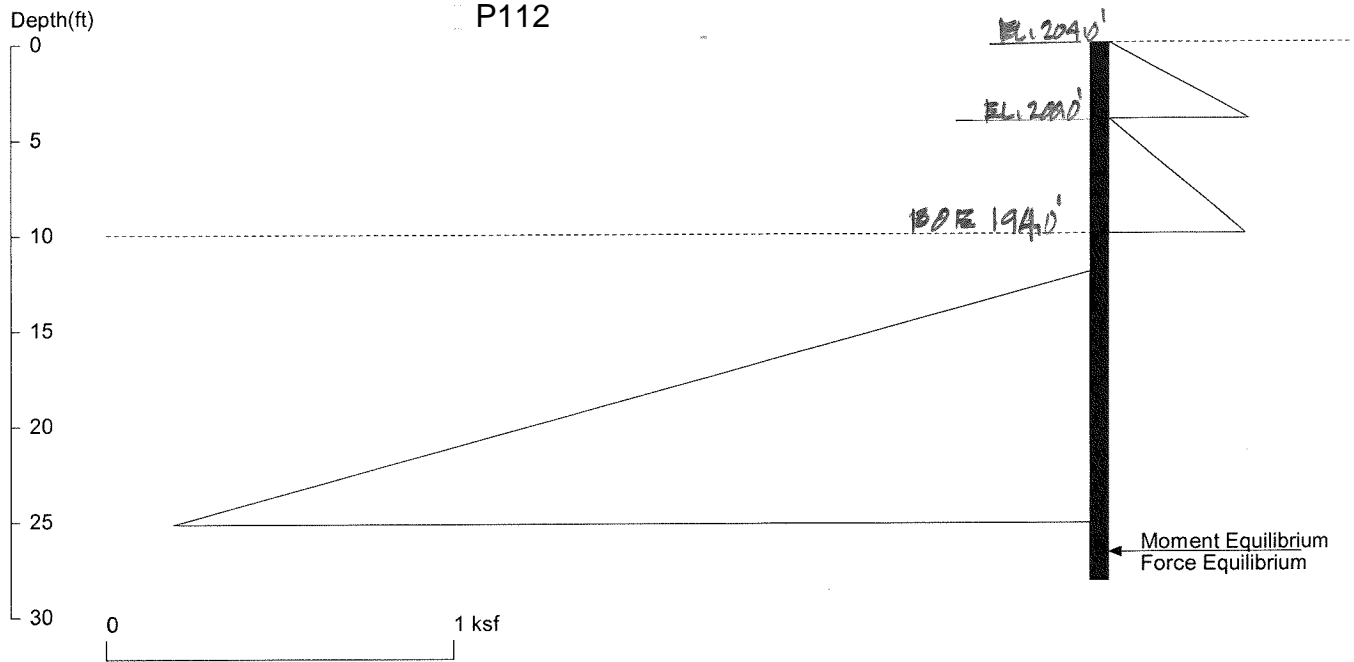
Based on pile spacing: 8.0 foot or meter

User Input Pile, W10X39: E (ksi)=29000.0, I (in⁴)/pile=209.0

ler\5438-2022-01-01 7929 E Mercer Way\Calculations\23.11.09 - Shoring Revis (TB Shoring with 4-ft Catchment Wall)\7-ft Cant Shoring prior to Tback install

7929 E Mercer Way

6-ft Cant Shoring & 4-ft catchment wall - *AT TEMP. COND.*



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Date: 11/10/2023

File: P:\MT Project Folder\5438-2022-01-01 7929 E Mercer Way\Calculations\23.11.09 - Shoring Revis (TB Shoring with

Wall Height=10.0 Pile Diameter=2.0 Pile Spacing=8.0 Wall Type: 2. Soldier Pile, Drilled

PILE LENGTH: Min. Embedment=~~18.21~~ ^{18.5} Min. Pile Length=28.21

MOMENT IN PILE: Max. Moment=163.12 per Pile Spacing=8.0 at Depth=18.29

VERTICAL BEARING CAPACITY: Vertical Loading=0.0, Resistance=117.8, Vertical Factor of Safety=999.00

PILE SELECTION:

Request Min. Section Modulus = 65.2 in³/pile=1069.24 cm³/pile, Fy= 50 ksi = 345 MPa, Fb/Fy=0.6

W14X68 has Section Modulus = 103.0 in³/pile=1687.86 cm³/pile. It is greater than Min. Requirements!

Top Deflection = 0.76(in) based on E (ksi)=29000.00 and I (in⁴)/pile=722.0

DRIVING PRESSURES (ACTIVE, WATER, & SURCHARGE):

Z1	P1	Z2	P2	Slope
0	0	4	0.400	0.10
4	0	10	0.390	.065

PASSIVE PRESSURES:

Z1	P1	Z2	P2	Slope
12	0	100	17.600	0.200

ACTIVE SPACING:

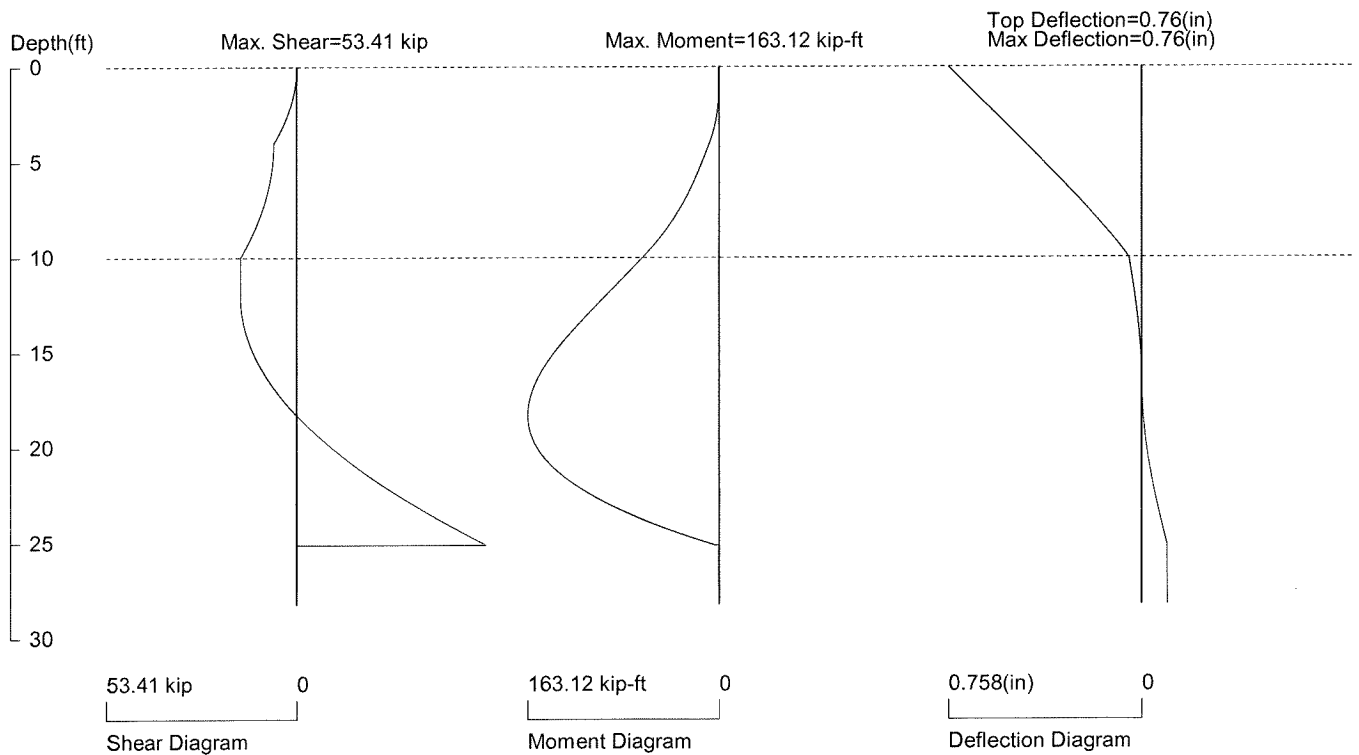
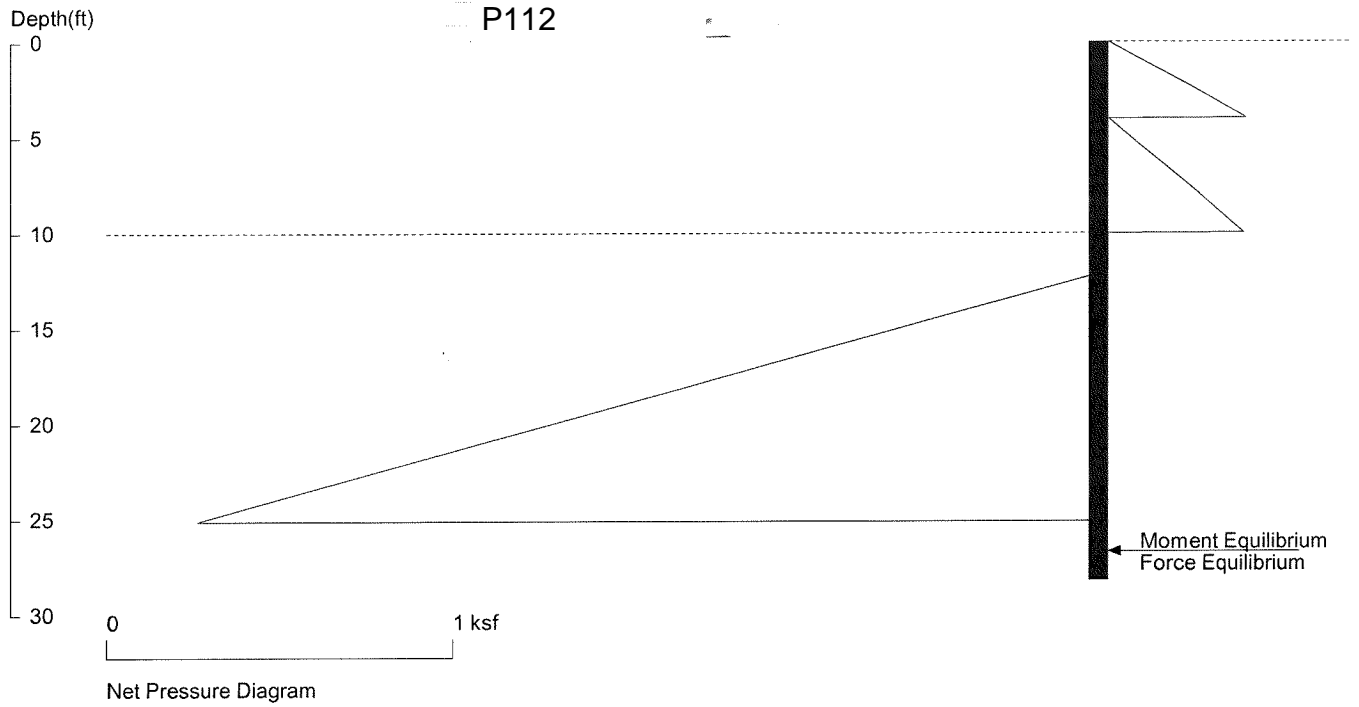
No.	Z depth	Spacing
1	0.00	8.00
2	10.00	2.00

PASSIVE SPACING:

No.	Z depth	Spacing
1	10.00	4.00

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

7929 E Mercer Way
6-ft Cant Shoring & 4-ft catchment wall - AT TEMPOR. COND.



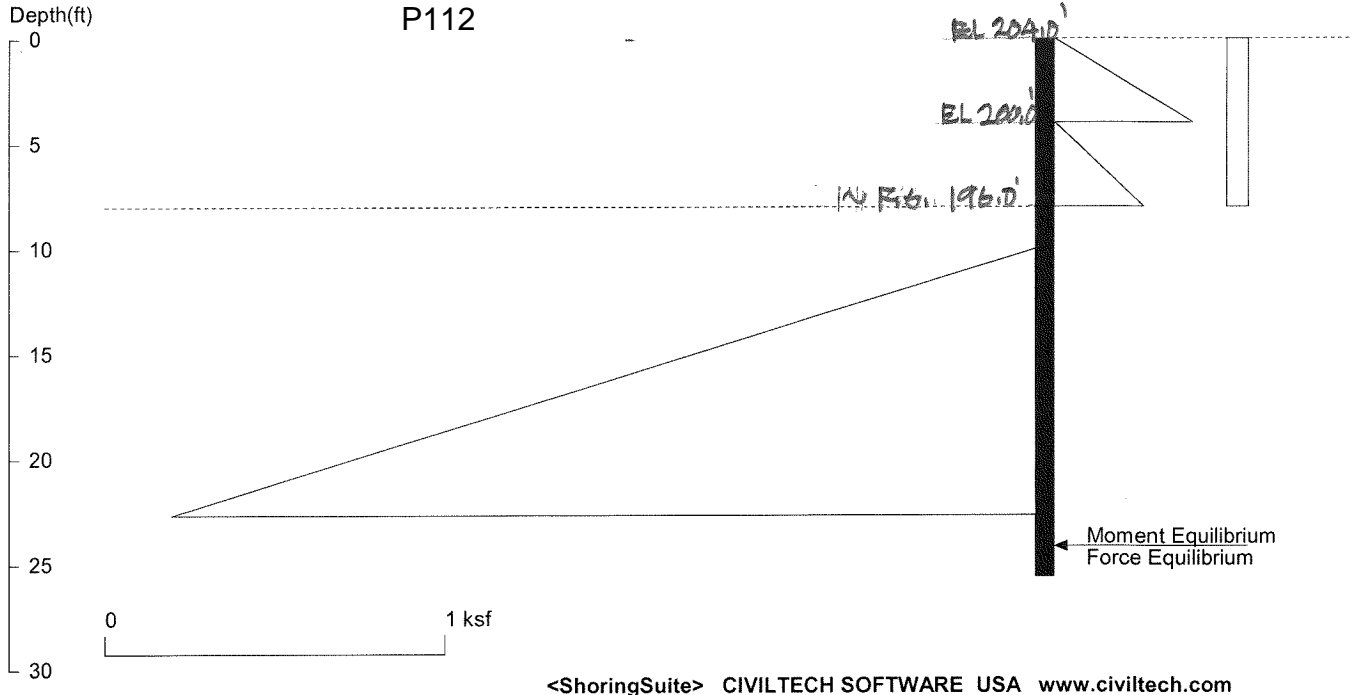
PRESSURE, SHEAR, MOMENT, AND DEFLECTION DIAGRAMS

Based on pile spacing: 8.0 foot or meter

User Input Pile, W14X68: E (ksi)=29000.0, I (in⁴)/pile=722.0

Folder\5438-2022-01-01 7929 E Mercer Way\Calculations\23.11.09 - Shoring Revis (TB Shoring with 4-ft Catchment Wall)\~6-ft max. Cant Shoring and 4-ft ca

7929 E Mercer Way
4-ft Cant Shoring & 4-ft catchment wall at Perma. Cond.



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File: P:\MT Project Folder\5438-2022-01-01 7929 E Mercer Way\Calculations\23.11.09 - Shoring Revis (TB Shoring with

Wall Height=8.0 Pile Diameter=2.0 Pile Spacing=8.0 Wall Type: 2. Soldier Pile, Drilled

PILE LENGTH: Min. Embedment=17.60 Min. Pile Length=25.60
 MOMENT IN PILE: Max. Moment=144.52 per Pile Spacing=8.0 at Depth=16.07

VERTICAL BEARING CAPACITY: Vertical Loading=0.0, Resistance=110.7, Vertical Factor of Safety=999.00

PILE SELECTION:

Request Min. Section Modulus = 57.8 in³/pile=947.29 cm³/pile, Fy= 50 ksi = 345 MPa, Fb/Fy=0.6
 W14X68 has Section Modulus = 103.0 in³/pile=1687.86 cm³/pile. It is greater than Min. Requirements!
 Top Deflection = 0.51(in) based on E (ksi)=29000.00 and I (in⁴)/pile=722.0

DRIVING PRESSURES (ACTIVE, WATER, & SURCHARGE):

Z1	P1	Z2	P2	Slope
0	0	4	0.400	0.10
4	0	8	0.260	0.065
0	0.064	8	0.064	0.00

PASSIVE PRESSURES:

Z1	P1	Z2	P2	Slope
10	0	100	18.000	0.200

ACTIVE SPACING:

No.	Z depth	Spacing
1	0.00	8.00
2	8.00	2.00

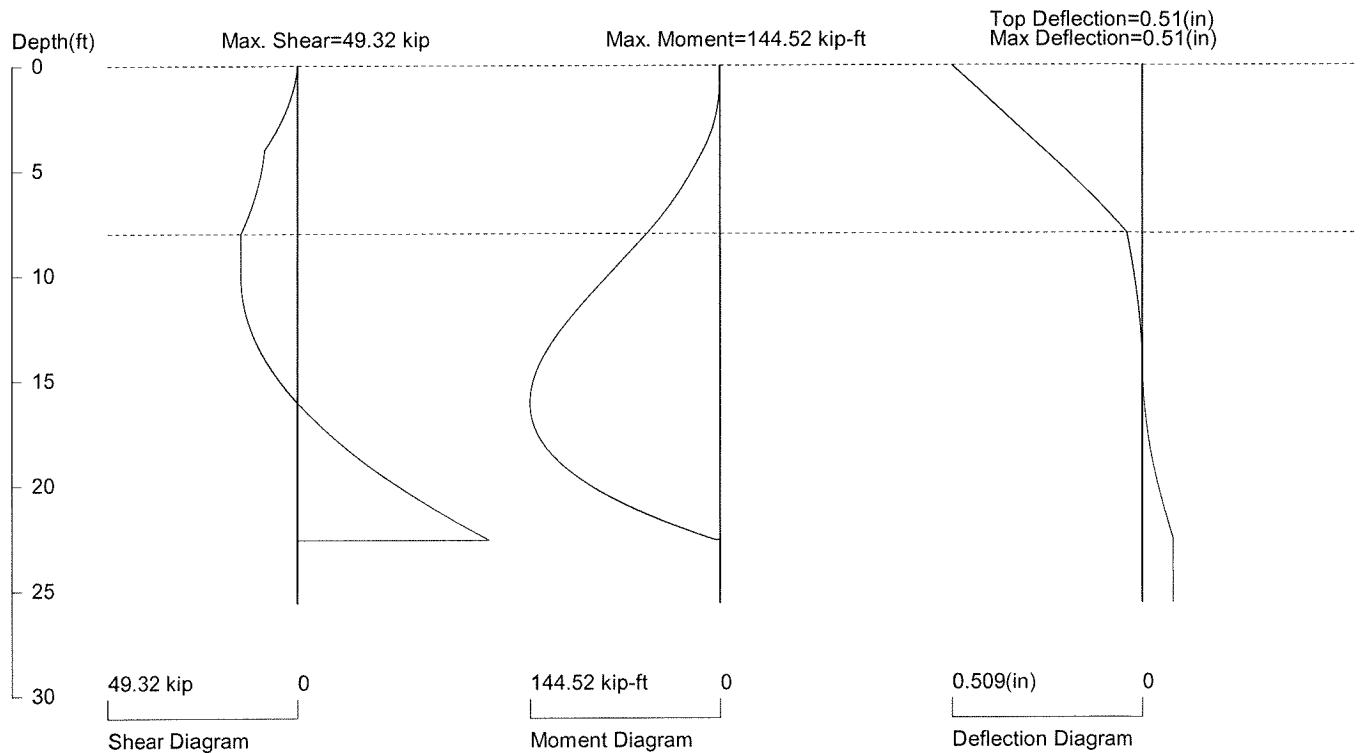
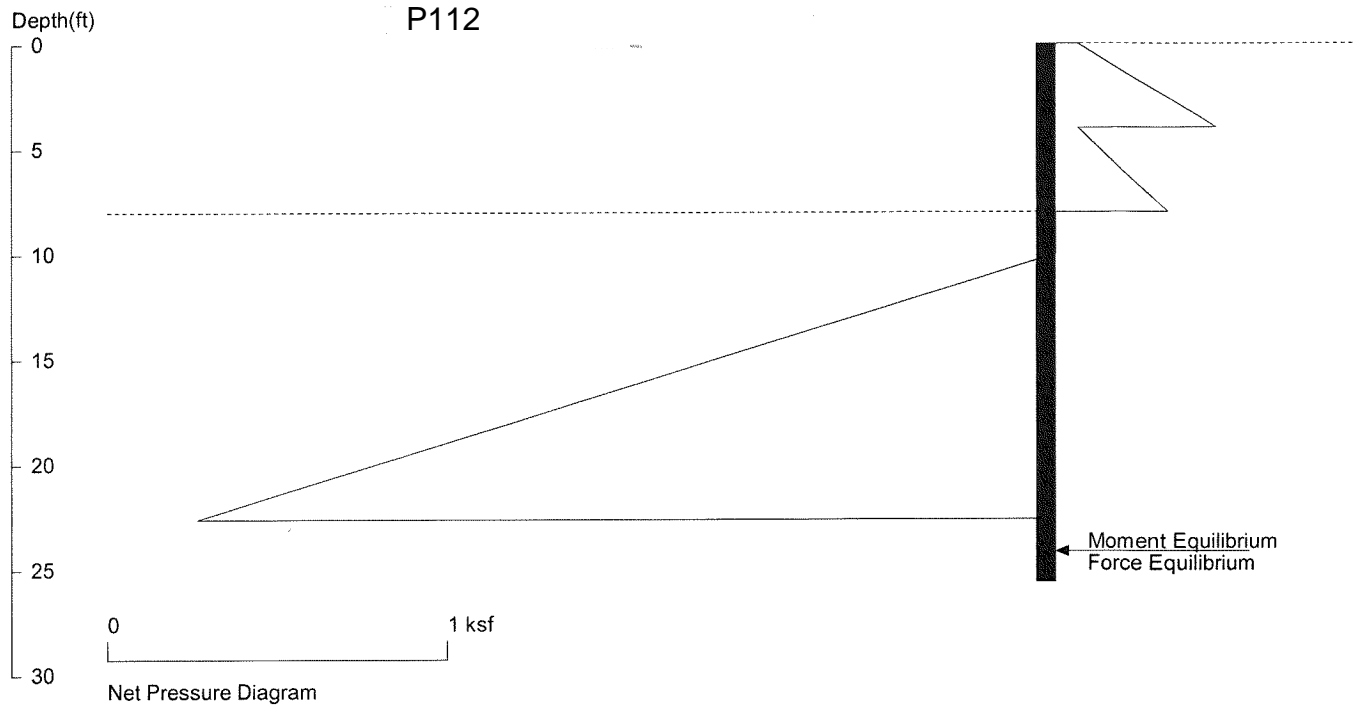
PASSIVE SPACING:

No.	Z depth	Spacing
1	8.00	4.00

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

7929 E Mercer Way

4-ft Cant Shoring & 4-ft catchment wall at Perma. Cond.



PRESSURE, SHEAR, MOMENT, AND DEFLECTION DIAGRAMS

Based on pile spacing: 8.0 foot or meter

User Input Pile, W14X68: E (ksi)=29000.0, I (in⁴)/pile=722.0

5438-2022-01-01 7929 E Mercer Way\Calculations\23.11.09 - Shoring Revis (TB Shoring with 4-ft Catchment Wall)\~4-ft max. Cant Shoring and 4-ft catchmen