

## CERTIFICATION

August 21, 2023

The Building Department  
Stamford Government Center  
888 Washington Boulevard, 7<sup>th</sup> Floor  
Stamford, CT 06901

**RE: RETAINING WALLS INSPECTION  
83 CAMP AVENUE  
STAMFORD, CT**

To whom it may concern,

At the request of Steve Mickels of Mickels Landscape, Risoli Planning and Engineering (RPE) - Division of A.I. Engineers, has inspected the retaining walls at the above the referenced address. Attached is the final inspection report dated September 2, 2022 together with calculations to verify the integrity of the existing retaining walls (see attached). The retaining walls have been designed in accordance with Stamford's Flood Prone Area Regulations (Section 15B of the Zoning Regulations) and is capable of withstanding the flood depths, pressures, velocities, impact and uplift forces and other factors associated with the base flood.

The retaining walls are deemed structurally stable based on the results of the analysis if used solely for the purpose of temporary stockpiling of top soil and mulch. It is the responsibility of Mickels Landscape to ensure that all limits and recommendations are complied with.

Please contact our office for any questions.

Sincerely,



*(Handwritten signature in blue ink over the seal)*

**JOSEPH F. RISOLI, P.E., M.ASCE**

# Risoli Planning and Engineering

Division of  Engineers

406 East Putnam Avenue  
Cos Cob (Greenwich), CT 06807  
(203) 637-8036 phone  
(203) 637-3968 fax  
www.risoliengineering.com  
www.aiengineers.com

---

## Structural Inspection Report

---

Project Name: Mickels Retaining Walls

Inspection Done By: Risoli Engineering

Project Address: 83 Camp Avenue,  
Stamford, CT

Inspection Date: Sept. 2, 2022

Current Weather:  Clear  Cloudy  Rain  Wind  Fog  Snow  Other

Temperature: 80 °F

Purpose of Inspection:  Final Inspection  Foundation/Footing  Framing  Connection  Roofing  
 Other – Retaining Wall Inspection

General Comments:

---

An inspection of the existing retaining wall at 83 Camp Avenue was conducted on September 2, 2022 with the following aspects noted:

1. The retaining walls are made of concrete blocks with the dimensions of 2'x3'x6'.
2. Photo 2 shows the retaining wall in the area use for storage of mulch.
3. Photos 3 and 4 shows the wall by the northwest area with an approximate 6ft height of 6 feet. This area is use for storage of top soil.

Any questions regarding the above should be addressed to Joseph Risoli, P.E. or Jose Villaluz, P.E.

Cc: Steve Mickels  
Anita Mickels



Photo 1. Retaining wall and Railroad Tie Wall



Photo 2. Wall retaining mulch



Photo 3. Wall by the northwest area, soil storage



Photo 4. Wall by the northwest area, soil storage

**Description** Mickels - 83 Camp Ave (Retaining Wall for Top soil)

**Criteria**

Retained Height	=	5.50 ft
Wall height above soil	=	0.50 ft
Slope Behind Wall	=	0.00 : 1
Height of Soil over Toe	=	0.00 in
Soil Density	=	90.00 pcf
Wind on Stem	=	0.0 psf

**Soil Data**

Allow Soil Bearing	=	1,500.0 psf
Equivalent Fluid Pressure Method		
Heel Active Pressure	=	30.0
Toe Active Pressure	=	0.0
Passive Pressure	=	0.0
Water height over heel	=	0.0 ft
Footing  Soil Friction	=	0.300
Soil height to ignore for passive pressure	=	0.00 in

**Footing Strengths & Dimensions**

f'c	=	3,000 psi	Fy	=	60,000 psi
Min. As %	=			=	0.0014
Toe Width	=	0.00 ft			
Heel Width	=	6.00			
Total Footing Width	=	6.00			
Footing Thickness	=	12.00 in			
Key Width	=	0.00 in			
Key Depth	=	0.00 in			
Key Distance from Toe	=	0.00 ft			
Cover @ Top	=	3.00 in	@ Btm.	=	3.00 in

**Design Summary**

Total Bearing Load	=	6,290 lbs
...resultant ecc.	=	1.65 in
Soil Pressure @ Toe	=	1,192 psf OK
Soil Pressure @ Heel	=	904 psf OK
Allowable	=	1,500 psf
Soil Pressure Less Than Allowable		
ACI Factored @ Toe	=	1,624 psf
ACI Factored @ Heel	=	1,232 psf
Footing Shear @ Toe	=	0.0 psi OK
Footing Shear @ Heel	=	0.0 psi OK
Allowable	=	93.1 psi

**Wall Stability Ratios**

Overturning	=	14.11 OK
Sliding	=	2.98 OK

**Sliding Calcs** (Vertical Component Used)

Lateral Sliding Force	=	633.8 lbs
less 100% Passive Force	=	- 0.0 lbs
less 100% Friction Force	=	- 1,886.9 lbs
Added Force Req'd	=	0.0 lbs OK
....for 1.5 : 1 Stability	=	0.0 lbs OK

**Footing Design Results**

	<u>Toe</u>	<u>Heel</u>
Factored Pressure	=	1,624 1,232 psf
Mu' : Upward	=	0 0 ft-#
Mu' : Downward	=	0 0 ft-#
Mu: Design	=	0 0 ft-#
Actual 1-Way Shear	=	0.00 0.00 psi
Allow 1-Way Shear	=	0.00 0.00 psi
Toe Reinforcing	=	None Spec'd
Heel Reinforcing	=	None Spec'd
Key Reinforcing	=	None Spec'd

**Stem Construction**

<b>Design height</b>	ft =	0.00
Wall Material Above "Ht"	=	Concrete
Thickness	=	72.00
Rebar Size	=	# 3
Rebar Spacing	=	16.00
Rebar Placed at	=	Edge

**Design Data**

fb/FB + fa/Fa	=	<b>0.053</b>
Total Force @ Section	lbs =	771.4
Moment....Actual	ft-# =	1,414.2
Moment.....Allowable	=	26,699.9
Shear.....Actual	psi =	0.9
Shear.....Allowable	psi =	93.1
Bar Develop ABOVE Ht.	in =	12.82
Bar Lap/Hook BELOW Ht.	in =	6.00
Wall Weight	=	870.0
Rebar Depth 'd'	in =	72.00

**Masonry Data**

f'm	psi =	
Fs	psi =	
Solid Grouting	=	
Special Inspection	=	
Modular Ratio 'n'	=	
Short Term Factor	=	
Equiv. Solid Thick.	=	
Masonry Block Type	=	Normal Weight

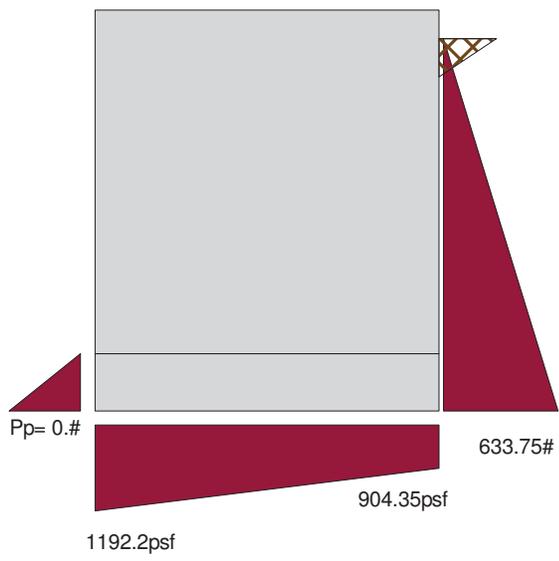
**Concrete Data**

f'c	psi =	3,000.0
Fy	psi =	60,000.0

**Other Acceptable Sizes & Spacings**

Toe:	Not req'd, Mu < S * Fr
Heel:	Not req'd, Mu < S * Fr
Key:	No key defined





**Description** Mickels - 83 Camp Ave (Retaining Wall for Mulch)

**Criteria**

Retained Height	=	5.50 ft
Wall height above soil	=	0.50 ft
Slope Behind Wall	=	0.00 : 1
Height of Soil over Toe	=	0.00 in
Soil Density	=	60.00 pcf
Wind on Stem	=	0.0 psf

**Soil Data**

Allow Soil Bearing	=	1,500.0 psf
Equivalent Fluid Pressure Method		
Heel Active Pressure	=	15.0
Toe Active Pressure	=	0.0
Passive Pressure	=	0.0
Water height over heel	=	0.0 ft
Footing  Soil Friction	=	0.300
Soil height to ignore for passive pressure	=	0.00 in

**Footing Strengths & Dimensions**

f'c	=	3,000 psi	Fy	=	60,000 psi
Min. As %	=			=	0.0014
Toe Width	=	0.00 ft			
Heel Width	=	3.00			
Total Footing Width	=	3.00			
Footing Thickness	=	12.00 in			
Key Width	=	0.00 in			
Key Depth	=	0.00 in			
Key Distance from Toe	=	0.00 ft			
Cover @ Top	=	3.00 in	@ Btm.	=	3.00 in

**Design Summary**

Total Bearing Load	=	3,166 lbs
...resultant ecc.	=	2.00 in
Soil Pressure @ Toe	=	1,407 psf OK
Soil Pressure @ Heel	=	703 psf OK
Allowable	=	1,500 psf
Soil Pressure Less Than Allowable		
ACI Factored @ Toe	=	1,904 psf
ACI Factored @ Heel	=	952 psf
Footing Shear @ Toe	=	0.0 psi OK
Footing Shear @ Heel	=	0.0 psi OK
Allowable	=	93.1 psi

**Wall Stability Ratios**

Overturning	=	7.15 OK
Sliding	=	3.00 OK

**Sliding Calcs** (Vertical Component Used)

Lateral Sliding Force	=	316.9 lbs
less 100% Passive Force	=	- 0.0 lbs
less 100% Friction Force	=	- 949.7 lbs
Added Force Req'd	=	0.0 lbs OK
....for 1.5 : 1 Stability	=	0.0 lbs OK

**Footing Design Results**

	<u>Toe</u>	<u>Heel</u>
Factored Pressure	=	1,904 952 psf
Mu' : Upward	=	0 0 ft-#
Mu' : Downward	=	0 0 ft-#
Mu: Design	=	0 0 ft-#
Actual 1-Way Shear	=	0.00 0.00 psi
Allow 1-Way Shear	=	0.00 0.00 psi
Toe Reinforcing	=	None Spec'd
Heel Reinforcing	=	None Spec'd
Key Reinforcing	=	None Spec'd

**Stem Construction**

<b>Design height</b>	ft =	0.00
Wall Material Above "Ht"	=	Concrete
Thickness	=	36.00
Rebar Size	=	# 3
Rebar Spacing	=	16.00
Rebar Placed at	=	Edge

**Top Stem**

<b>Design Data</b>		
fb/FB + fa/Fa	=	0.053
Total Force @ Section	lbs =	385.7
Moment....Actual	ft-# =	707.1
Moment.....Allowable	=	13,334.9
Shear.....Actual	psi =	0.9
Shear.....Allowable	psi =	93.1
Bar Develop ABOVE Ht.	in =	12.82
Bar Lap/Hook BELOW Ht.	in =	6.00
Wall Weight	=	435.0
Rebar Depth 'd'	in =	36.00

**Masonry Data**

f'm	psi =	
Fs	psi =	
Solid Grouting	=	
Special Inspection	=	
Modular Ratio 'n'	=	
Short Term Factor	=	
Equiv. Solid Thick.	=	
Masonry Block Type	=	Normal Weight

**Concrete Data**

f'c	psi =	3,000.0
Fy	psi =	60,000.0

**Other Acceptable Sizes & Spacings**

Toe:	Not req'd, Mu < S * Fr
Heel:	Not req'd, Mu < S * Fr
Key:	No key defined



