

Calculation cover sheet

**Project Details**

Project Job #	22-143
Project Address	80 S Broadway, Nyack, NY
Client	Tim Murray
Project Engineer	Sarah Murray, PE RA
Project Manager	Gary Feldman PE
Scope of Work	Support of Excavation Pile Design
Design Criteria	
Standards used	
Software used	Excel, Enercalc

**Review and Revision details**

Date	Design criteria review	Analysis review	Plans review	Comments	Revision review	Reason for Revisions
Project Engineer Signature original	<i>Sarah M. Murray</i>		Date of original signature		2/4/26	
Project Engineer Signature Revision			Date of revision			
Review Engineer Signature original	<i>G. Feldman</i>		Date of original Signature		4/29/26	
Review Engineer Signature Revision			Date of revision			
PM Signature original			Date of original Signature			
PM Signature revision			Date of revision			

NO.	DATE	DESCRIPTION

TO THE BEST OF THE SIGNING PROFESSIONAL'S KNOWLEDGE, THE PLANS AND SPECIFICATIONS COMPLY WITH THE APPLICABLE MINIMUM BUILDING CODES.

THE ENTIRE CONTENTS OF THIS DOCUMENT, INCLUDING ALL SKETCHES, PLANS, STUDIES, DRAWINGS, SCHEDULES, AND SPECIFICATIONS, AND ALL COPYRIGHTS THEREIN, ARE AND SHALL REMAIN THE SOLE AND EXCLUSIVE PROPERTY OF DOMINICK R. PILLA ASSOCIATES, P.C. THE DOCUMENTS AND THEIR CONTENTS MAY NOT BE USED, PHOTOCOPIED OR REPRODUCED DIGITALLY, ELECTRONICALLY OR IN ANY OTHER MANNER WITHOUT THE EXPRESS WRITTEN CONSENT OF DOMINICK R. PILLA ASSOCIATES, P.C.

PROJECT:  
**80 S BROADWAY**  
 NYACK, NY

SUPPORT OF EXCAVATION PLAN

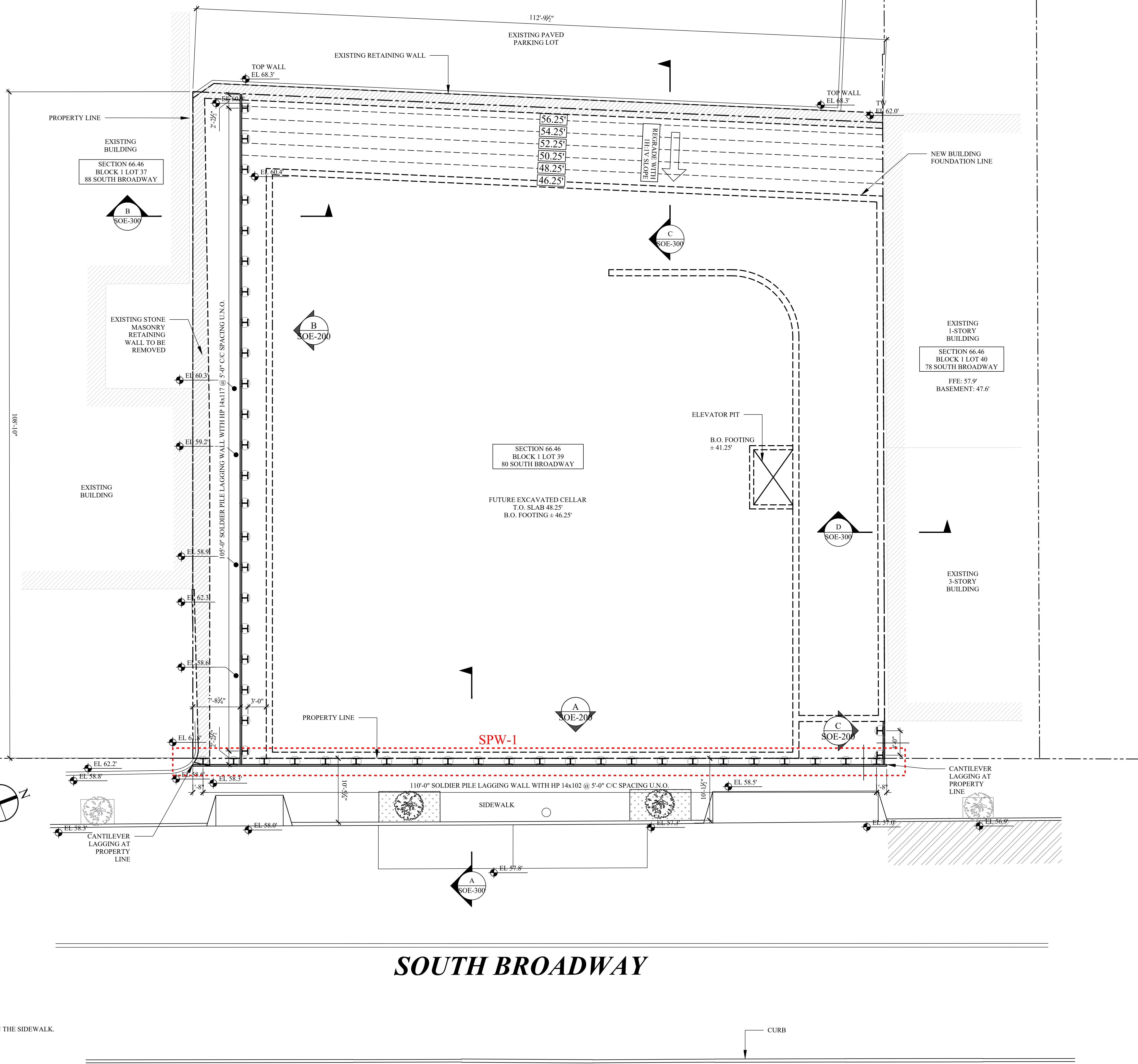
SEAL AND SIGNATURE:

DOMINICK R. PILLA, P.E., R.A.  
 NY P.E. 074213-1 NY R.A. 027028-1

ISSUE: PLANNING BOARD  
 DATE: 01/27/2026  
 PROJECT NO.: 22-143  
 DRAWN/CHK BY: CE/SM  
 SCALE: AS NOTED  
 DWG NO.:

**SOE-100.00**

**CEDAR HILL AVE**



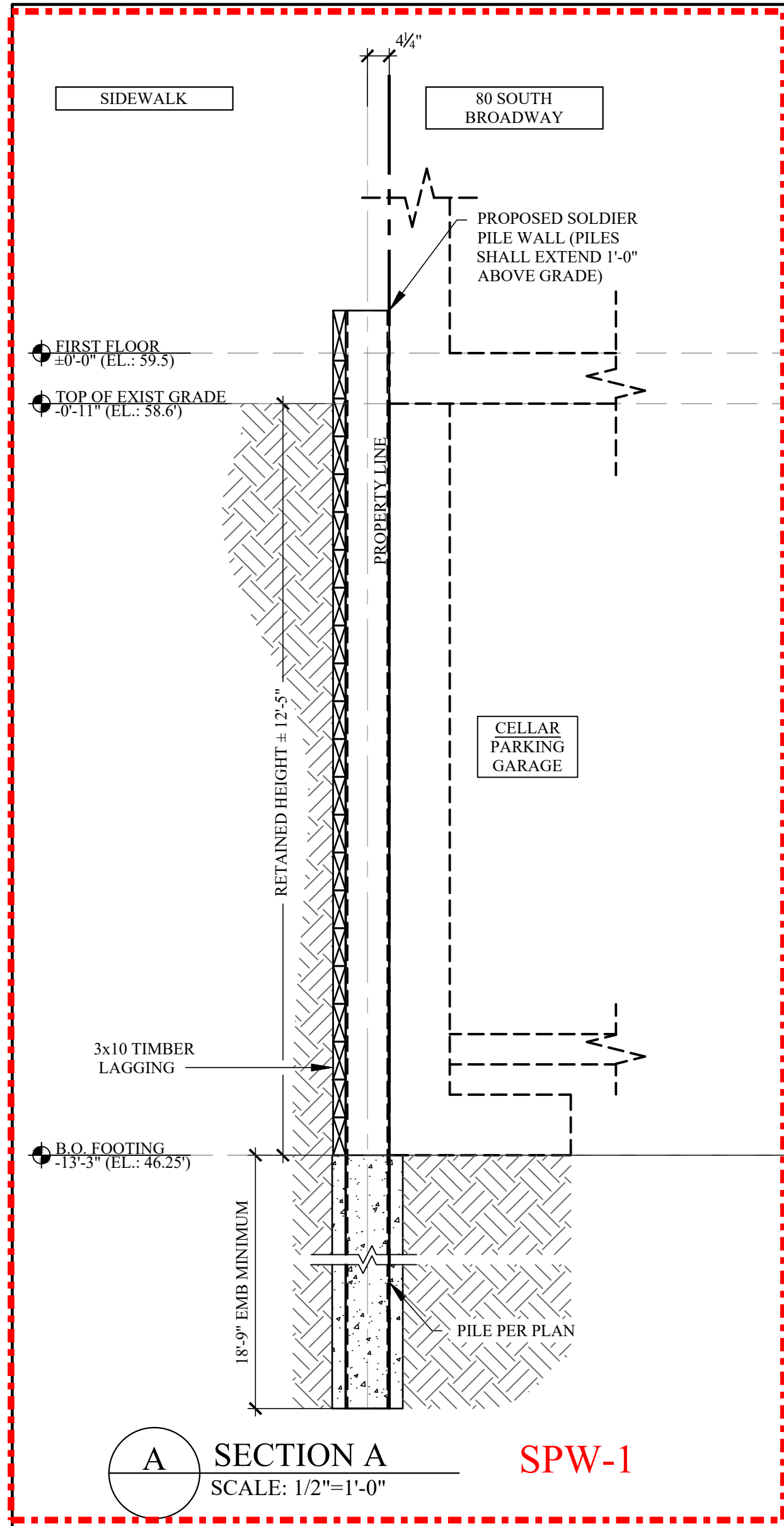
**A OVERALL SUPPORT OF EXCAVATION PLAN**  
 SCALE: 1/8"=1'-0"

**LEGEND**

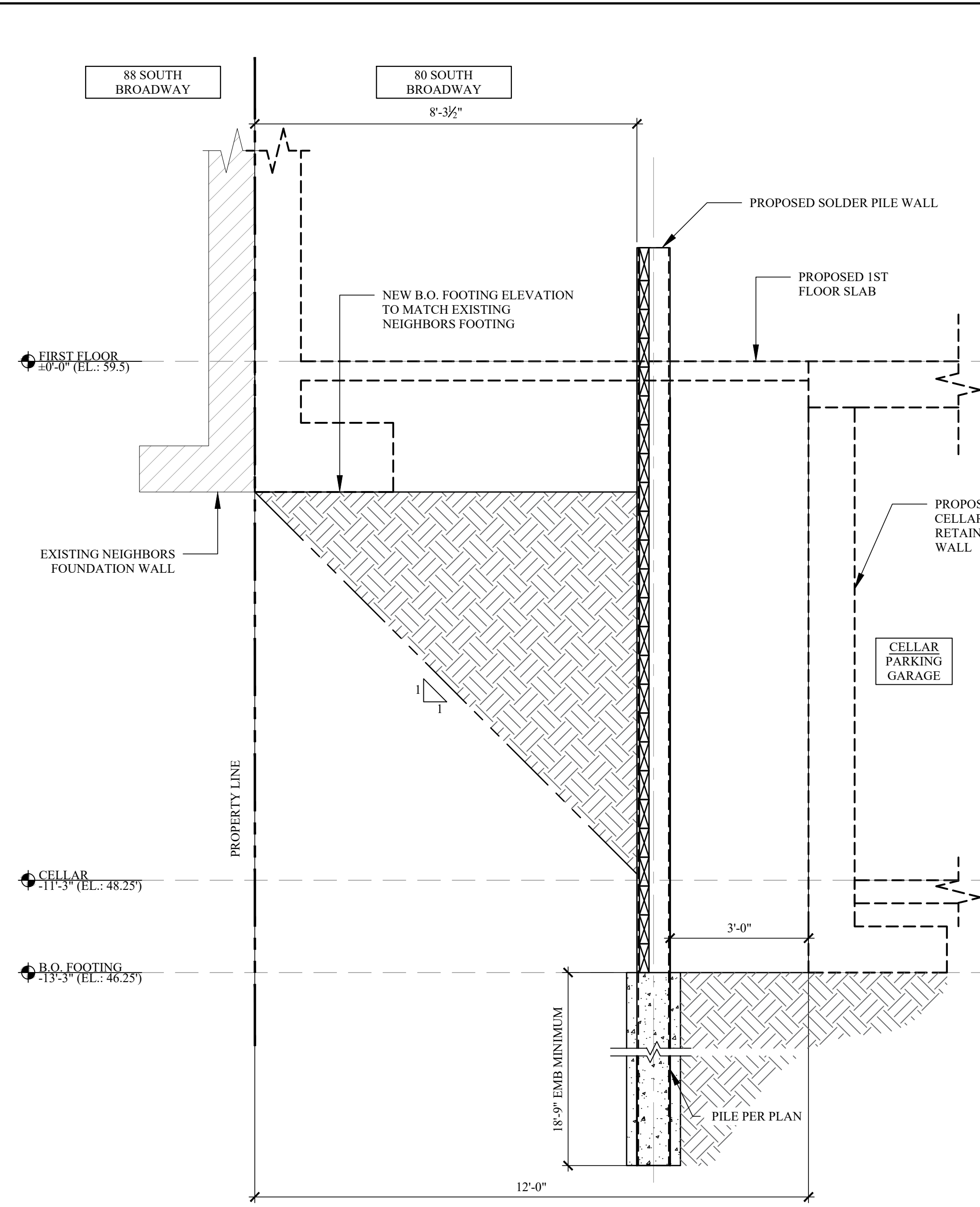
	PROPOSED BUILDING AND EXCAVATION LIMITS
	NEW WALL/FOUNDATION
	WAILER
	SOE PILE
	PROPERTY LINE
	TP-# TEST PIT LOCATION
	B-# BORING LOCATION

- NOTES:**
- CONTRACTOR SHALL OBTAIN NECESSARY PERMITS FOR THE INSTALLATION OF ALL SOLDIER PILES ON THE SIDEWALK.
  - CONTRACTOR SHALL PERFORM FULL UTILITY SCAN PRIOR TO INSTALLATION OF PILES ON SIDEWALK.

**SOUTH BROADWAY**



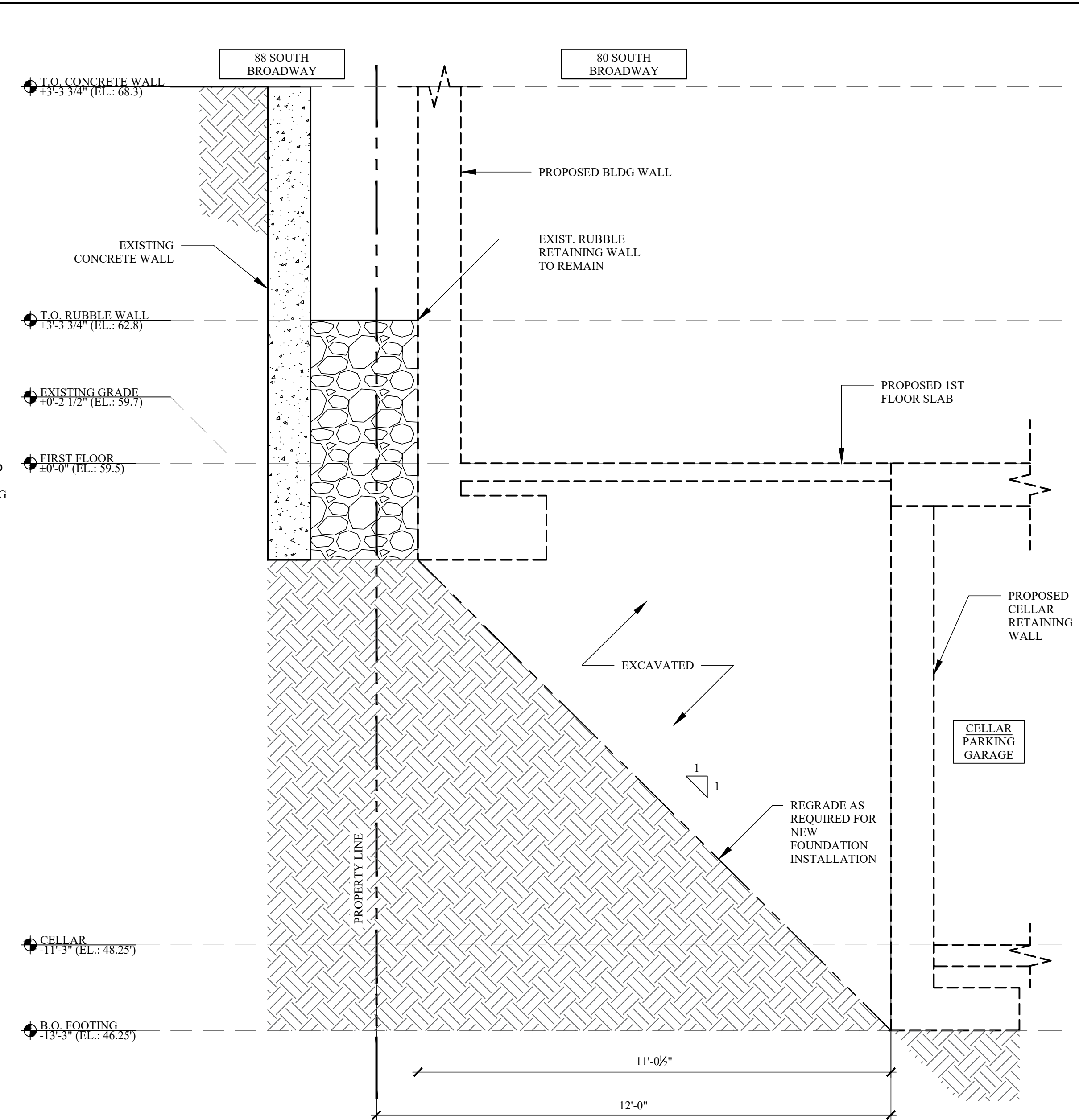
**A SECTION A**  
SCALE: 1/2"=1'-0"  
**SPW-1**



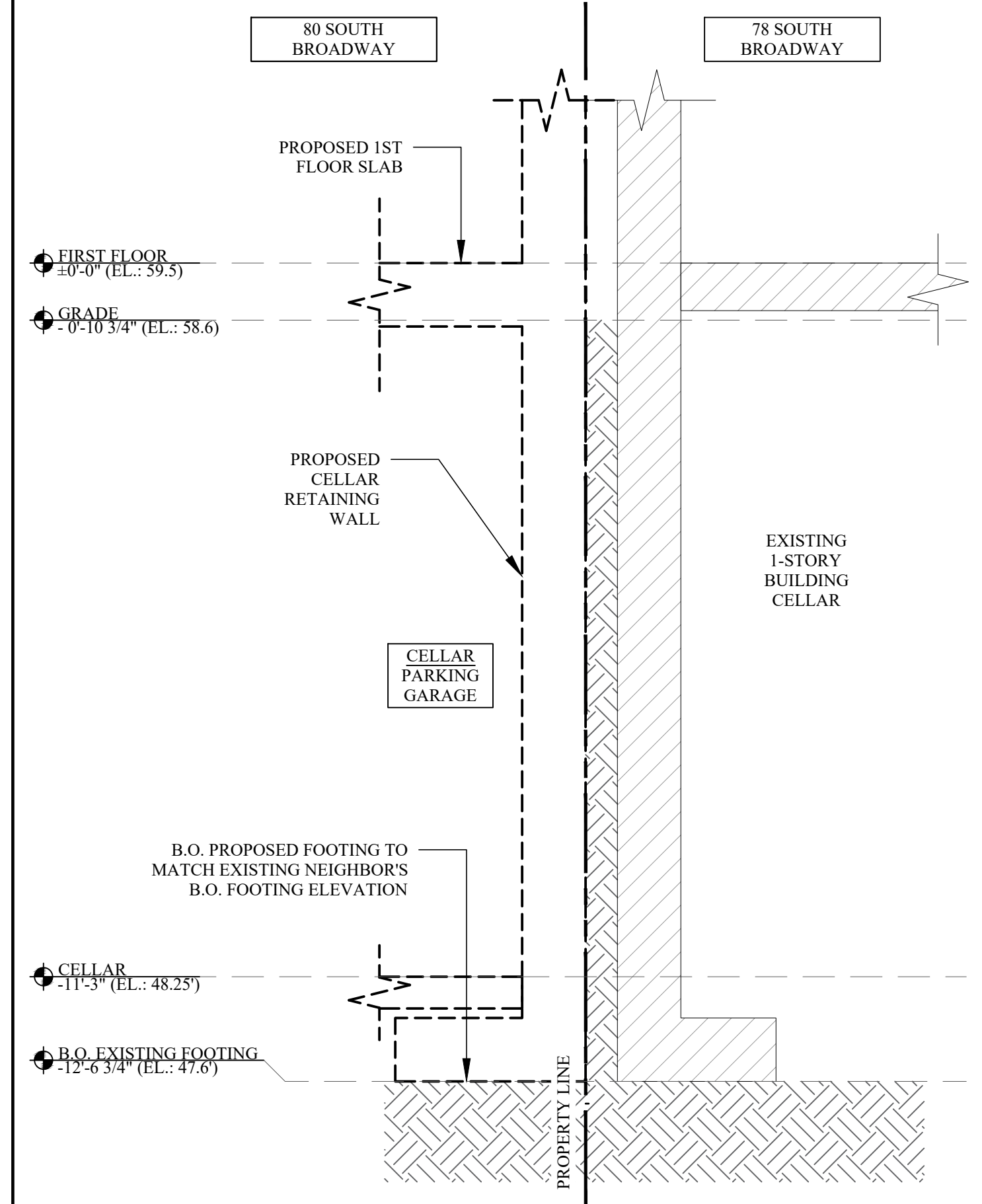
**B SECTION B**  
SCALE: 1/2"=1'-0"

**SHORING INSTALLATION PROCEDURE:**

1. INSTALL SOLDIER PILES PER PLAN.
2. EXCAVATE 2'-0" OF SOIL + INSTALL WOOD LAGGING. IMMEDIATELY BACK PACK VOIDS BEHIND WOOD LAGGING AS REQUIRED.
3. CONTINUE PROCESS IN 2'-0" INCREMENTS UNTIL DESIRED ELEVATION IS REACHED.



**C SECTION C**  
SCALE: 1/2"=1'-0"



**D SECTION D**  
SCALE: 1/2"=1'-0"

REVISIONS:		
NO.	DATE	DESCRIPTION

TO THE BEST OF THE SIGNING PROFESSIONAL'S KNOWLEDGE, THE PLANS AND SPECIFICATIONS COMPLY WITH THE APPLICABLE MINIMUM BUILDING CODES.  
THE ENTIRE CONTENTS OF THIS DOCUMENT, INCLUDING ALL SCHEDULES, PLANS, STUDIES, DRAWINGS, SPECIFICATIONS, AND SPECIFICATIONS, AND ALL COPYRIGHTS THEREIN, ARE AND SHALL REMAIN THE SOLE AND EXCLUSIVE PROPERTY OF DOMINICK R. PILLA ASSOCIATES, P.C. THE DOCUMENTS AND THEIR CONTENTS MAY NOT BE USED, PHOTOCOPIED OR REPRODUCED DIGITALLY, ELECTRONICALLY OR IN ANY OTHER MANNER WITHOUT THE EXPRESS WRITTEN CONSENT OF DOMINICK R. PILLA ASSOCIATES, P.C.

PROJECT:  
**80 S BROADWAY**  
NYACK, NY

SECTIONS

SEAL AND SIGNATURE:

DOMINICK R. PILLA, P.E., R.A.  
NY P.E. 074213-1 NY R.A. 027028-1  
ISSUE: PLANNING BOARD  
DATE: 01/27/2026  
PROJECT NO.: 22-143  
DRAWN/CHK BY: CE/SM  
SCALE: AS NOTED  
DWG NO.:

**SOE-300.00**

## Soldier Pile Retaining Wall

Project File: 22-143\_80 S Broadway.ec6

LIC# : KW-06019651, Build:20.23.11.13

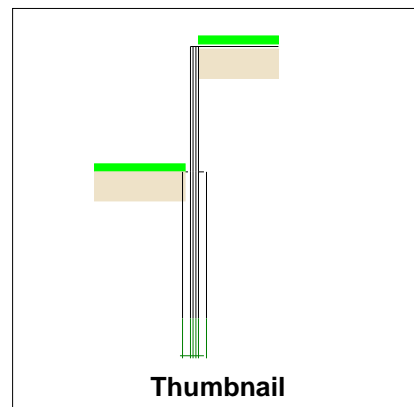
Dominick R Pilla Engineering + Architecture

(c) ENERCALC INC 1983-2023

### DESCRIPTION: SPW-1 (SOUTH WALL)

#### Design Parameters

Wall height (retained height)	12.50 ft
Backfill slope	deg
Soil Density	125.0 pcf
Soil Phi angle	30 deg
Ka (horizontal)	0.33
Kp (Rankine):	3.0
Surcharge top of soil @ retained	300.0 psf
Allow. Passive	375.00 psf / ft
Apply S.F. to Passive	1.0
Pile Spacing	5.0 ft
Drilled Diameter, in.	28.00 in
Multiplier to Passive Wedge	2.5
Required Embedment	ft
Total Pile Embedment	18.750 ft
Soldier Beam Selection	HP14x102
<b>Steel Design Method</b>	<b>ASD</b>
Lateral Pressure Method	Rankine
Passive Pressure to Neglect	12 in
Number of Tiebacks	-1
Tieback Location	None
Steel Fy	50.0 ksi



#### Lagging

Lagging Depth	12.50 ft
Lagging Pressure @ Depth	620.83 psf
Lagging Mom. @ Depth	1,552.08 ft-lbs
Lagging Shear @ Depth	1,552.08 lbs/vert. ft
Lagging Selection	

#### Design Results

Required embedment	14.66 ft	14.66ft = 13.66 + 1 ft neglecte
	18.750 ft	
Deflection at top of pile	0.21 in	

Pile Pa	16,276.0 lb
Pile Pw	6,250.0 lb
Pile Total Lateral	22,526.0 lb

#### Status Checks

					Ratio	Status
Depth to Max M	3.985 ft					
Mmax in Pile (Service)	166,346 ft-lbs	Ma	166,346 ft-lbs	Mn/Omega	407,275 ft-lbs	0.41 OK
Vmax in Pile (Service)	22,526 lb	Va	22,526 lb	Vn/Omega	197,400 lb	0.11 OK
		Embedment Required				OK

**Soldier Pile Retaining Wall**

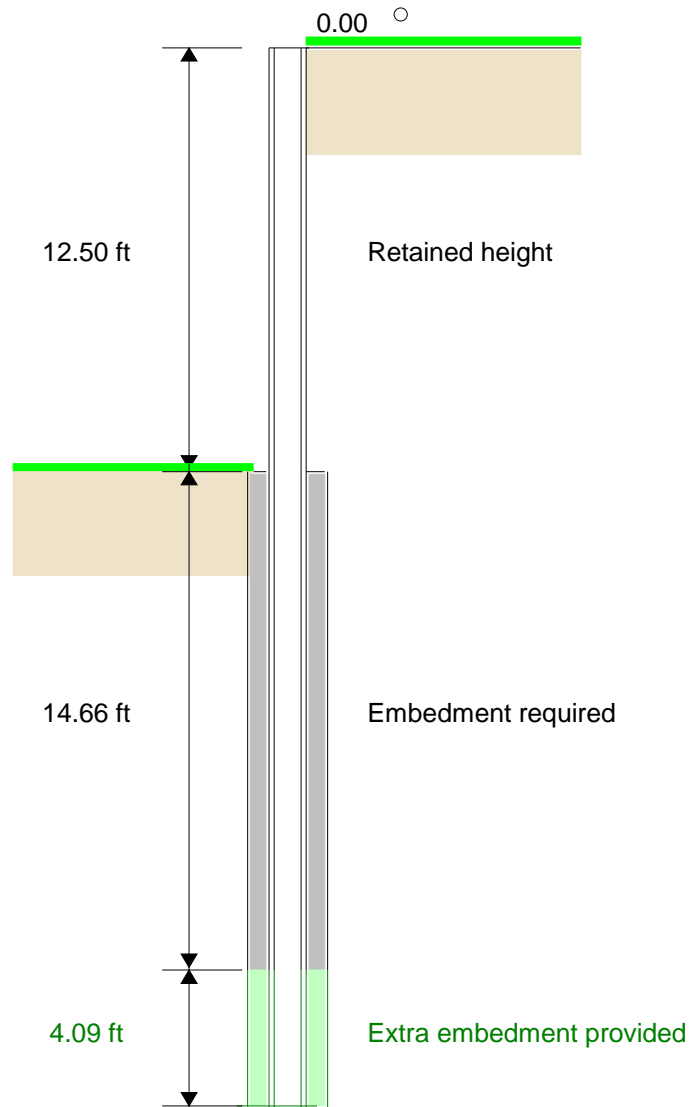
Project File: 22-143\_80 S Broadway.ec6

LIC# : KW-06019651, Build:20.23.11.13

Dominick R Pilla Engineering + Architecture

(c) ENERCALC INC 1983-2023

**DESCRIPTION: SPW-1 (SOUTH WALL)**



**Soldier Pile Retaining Wall**

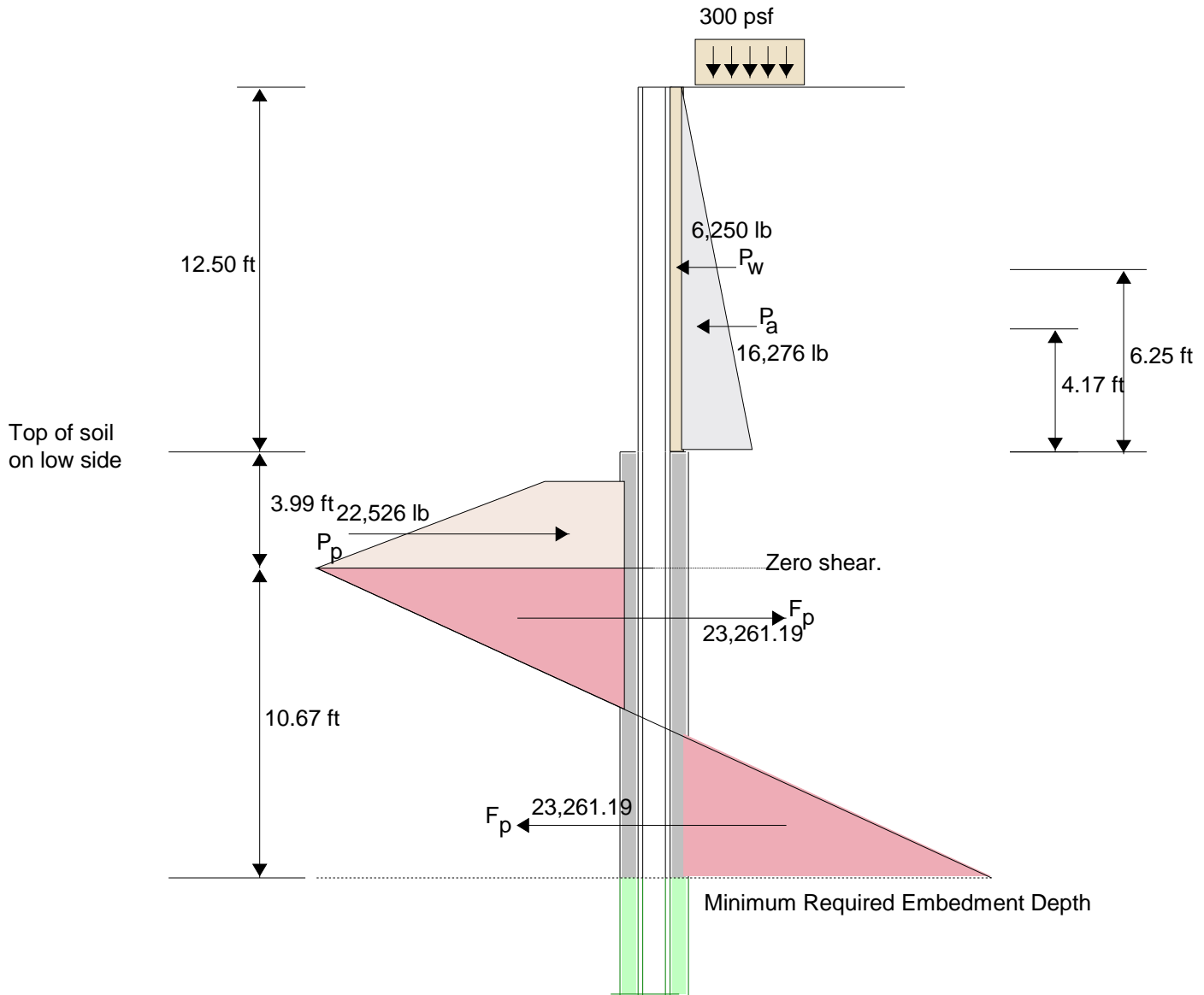
Project File: 22-143\_80 S Broadway.ec6

LIC# : KW-06019651, Build:20.23.11.13

Dominick R Pilla Engineering + Architecture

(c) ENERCALC INC 1983-2023

**DESCRIPTION: SPW-1 (SOUTH WALL)**



Job	<b>80 S BROADWAY REDEVELOPMENT</b>	Project No.	<b>22-143</b>		
Description	<b>80 s roadway</b>	Computed By	<b>SM</b>	Date	<b>2/4/2026</b> Sheet
	SPW-1-(South wall)	Checked By	<b>GF</b>	Date	

**6.0 Lagging design**

Soil pressure=  lb/ft<sup>2</sup>  
 Surcharge pressure  lb/ft<sup>2</sup>  
 Use AASHTO Recommendation

Note per AASHTO Active pressure may be limited to 400 PSF (not accounting for surcharge)	YES NO
--	-----------

Pressure at the bottom  psf  
 Moment on lagging  lbin  
 Required section modulus=  in<sup>3</sup>  
 Gap between lagging  in

1.5 in max

Allowable Bending Stress  psi  
 Arching effect on lagging   
 Horizontal Lagging Dimension (D)  in  
 Vertical Lagging Dimension (B)  in  
 Section modulus  in<sup>3</sup>

Note apply flat use factor as necessary

Use 0.6 if in front flange and 1.0 if at back flange

Note Lagging Sizes Are True Dimensions

**\*\*OK\*\***

NO.	DATE	DESCRIPTION

TO THE BEST OF THE SIGNING PROFESSIONAL'S KNOWLEDGE, THE PLANS AND SPECIFICATIONS COMPLY WITH THE APPLICABLE MINIMUM BUILDING CODES.

THE ENTIRE CONTENTS OF THIS DOCUMENT, INCLUDING ALL SKETCHES, PLANS, STUDIES, DRAWINGS, SCHEDULES AND SPECIFICATIONS, AND ALL COPYRIGHTS THEREIN, ARE AND SHALL REMAIN THE SOLE AND EXCLUSIVE PROPERTY OF DOMINICK R. PILLA ASSOCIATES, P.C. THE DOCUMENTS AND THEIR CONTENTS MAY NOT BE USED, PHOTOCOPIED OR REPRODUCED DIGITALLY, ELECTRONICALLY OR IN ANY OTHER MANNER WITHOUT THE EXPRESS WRITTEN CONSENT OF DOMINICK R. PILLA ASSOCIATES, P.C.

PROJECT:  
**80 S BROADWAY**  
 NYACK, NY

SUPPORT OF EXCAVATION PLAN

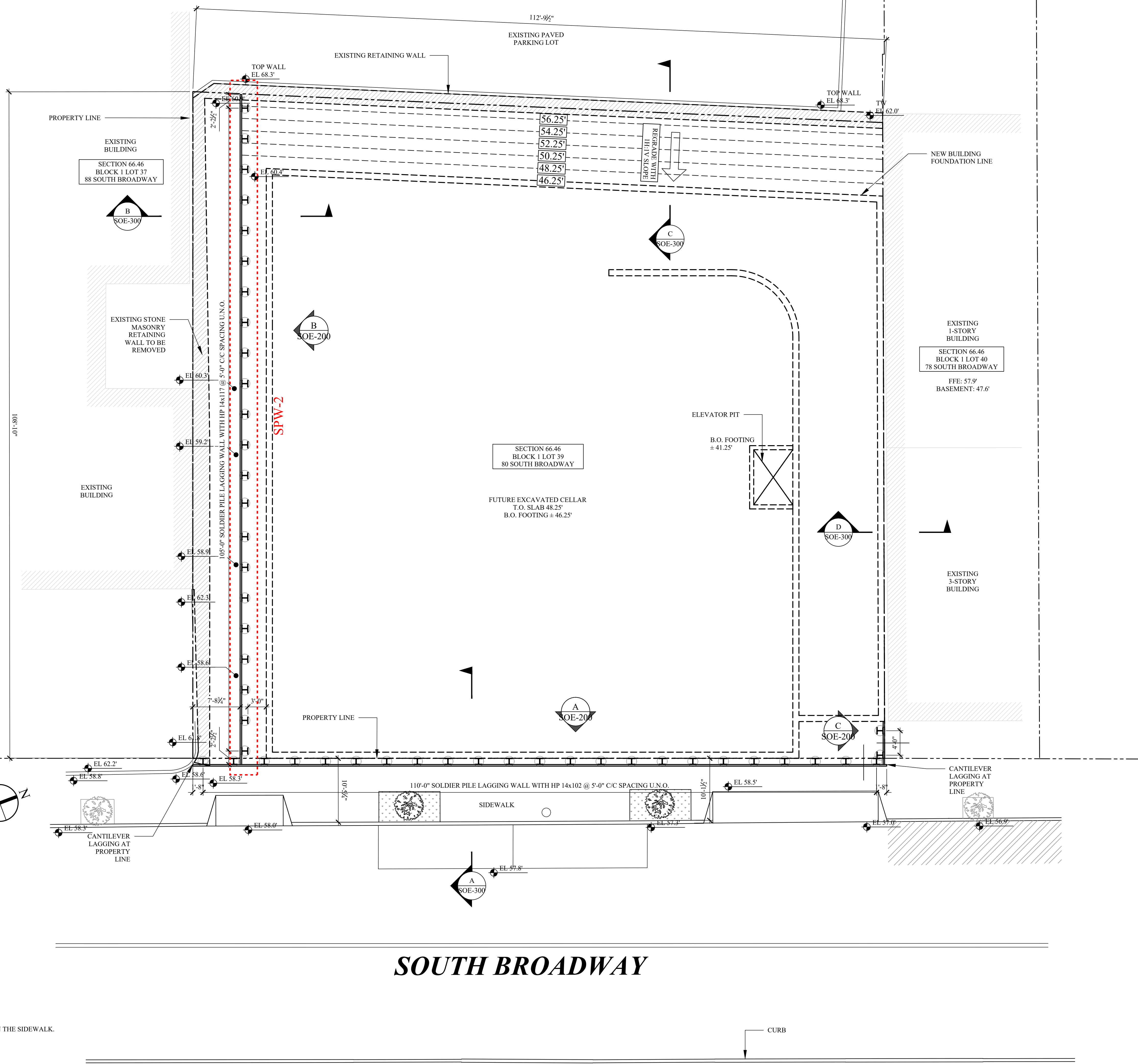
SEAL AND SIGNATURE:

DOMINICK R. PILLA, P.E., R.A.  
 NY P.E. 074213-1 NY R.A. 027028-1

ISSUE: PLANNING BOARD  
 DATE: 01/27/2026  
 PROJECT NO.: 22-143  
 DRAWN/CHK BY: CE/SM  
 SCALE: AS NOTED  
 DWG NO.:

**SOE-100.00**

**CEDAR HILL AVE**



**A OVERALL SUPPORT OF EXCAVATION PLAN**  
 SCALE: 1/8"=1'-0"

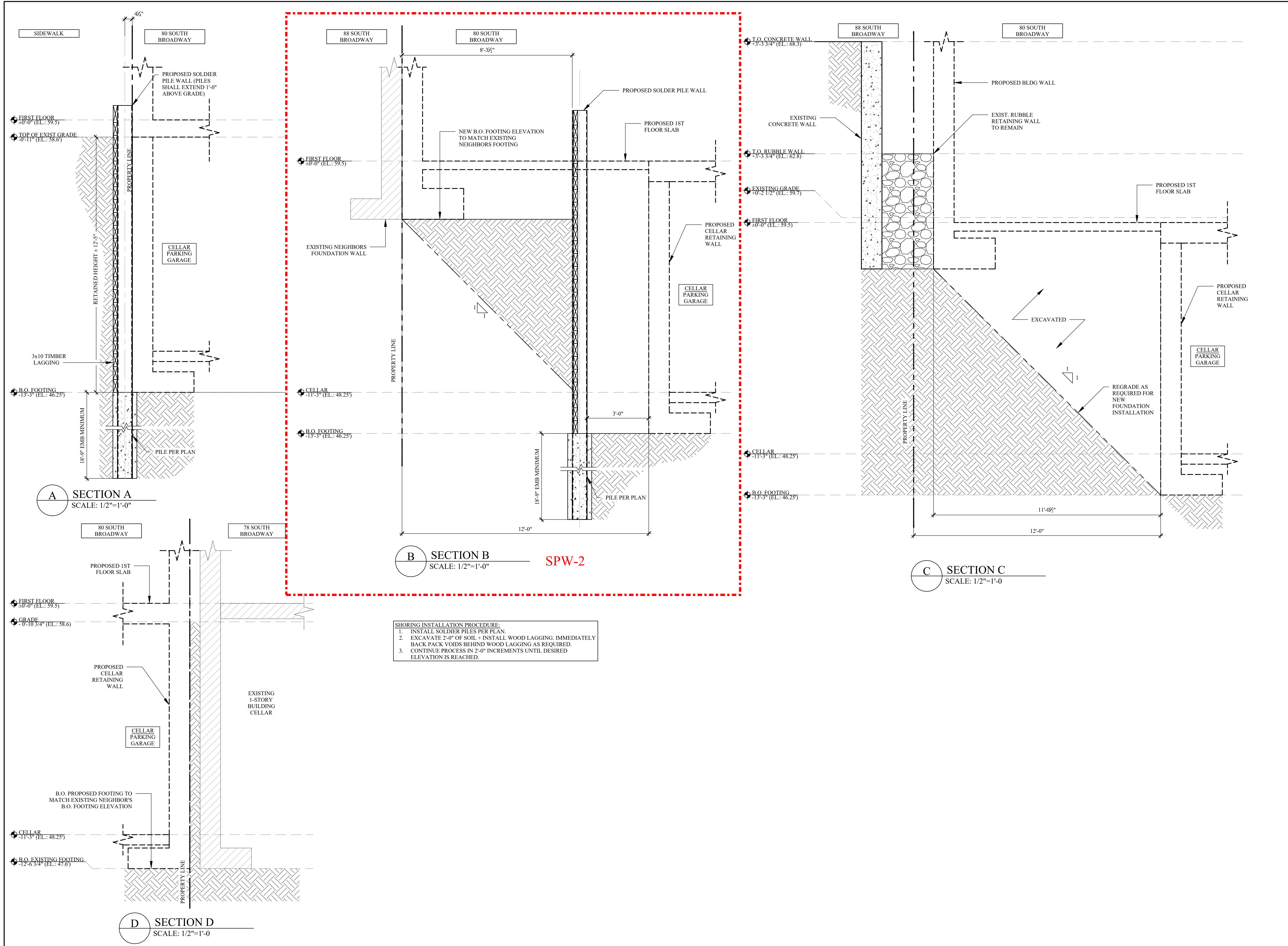
**LEGEND**

	PROPOSED BUILDING AND EXCAVATION LIMITS
	NEW WALL/FOUNDATION
	WAILER
	SOE PILE
	PROPERTY LINE
	TP-# TEST PIT LOCATION
	B-# BORING LOCATION

- NOTES:**
- CONTRACTOR SHALL OBTAIN NECESSARY PERMITS FOR THE INSTALLATION OF ALL SOLDIER PILES ON THE SIDEWALK.
  - CONTRACTOR SHALL PERFORM FULL UTILITY SCAN PRIOR TO INSTALLATION OF PILES ON SIDEWALK.

**SOUTH BROADWAY**

CURB



**SHORING INSTALLATION PROCEDURE:**

1. INSTALL SOLDIER PILES PER PLAN.
2. EXCAVATE 2'-0" OF SOIL + INSTALL WOOD LAGGING. IMMEDIATELY BACK PACK VOIDS BEHIND WOOD LAGGING AS REQUIRED.
3. CONTINUE PROCESS IN 2'-0" INCREMENTS UNTIL DESIRED ELEVATION IS REACHED.

REVISIONS:		
NO.	DATE	DESCRIPTION

TO THE BEST OF THE SIGNING PROFESSIONAL'S KNOWLEDGE, THE PLANS AND SPECIFICATIONS COMPLY WITH THE APPLICABLE MINIMUM BUILDING CODES.

THE ENTIRE CONTENTS OF THIS DOCUMENT, INCLUDING ALL SCHEDULES, PLANS, STUDIES, DRAWINGS, SPECIFICATIONS, AND SPECIFICATIONS, AND ALL COPYRIGHTS THEREIN, ARE AND SHALL REMAIN THE SOLE AND EXCLUSIVE PROPERTY OF DOMINICK R. PILLA ASSOCIATES, P.C. THE DOCUMENTS AND THEIR CONTENTS MAY NOT BE USED, PHOTOCOPIED OR REPRODUCED DIGITALLY, ELECTRONICALLY OR IN ANY OTHER MANNER WITHOUT THE EXPRESS WRITTEN CONSENT OF DOMINICK R. PILLA ASSOCIATES, P.C.

PROJECT:  
**80 S BROADWAY**  
 NYACK, NY

SECTIONS

SEAL AND SIGNATURE:

DOMINICK R. PILLA, P.E., R.A.  
 NY P.E. 074213-1 NY R.A. 027028-1

ISSUE: PLANNING BOARD  
 DATE: 01/27/2026  
 PROJECT NO.: 22-143  
 DRAWN/CHK BY: CE/SM  
 SCALE: AS NOTED  
 DWG NO.:

**SOE-300.00**

## Soldier Pile Retaining Wall

Project File: 22-143\_80 S Broadway.ec6

LIC# : KW-06019651, Build:20.23.11.13

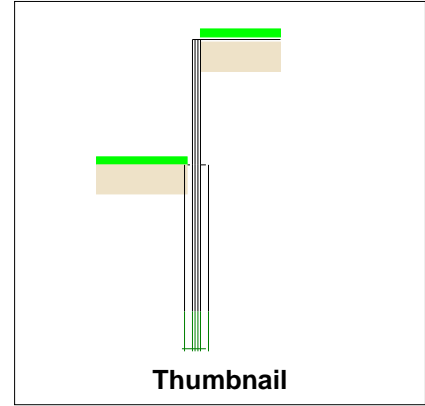
Dominick R Pilla Engineering + Architecture

(c) ENERCALC INC 1983-2023

### DESCRIPTION: SPW-2 (EAST WALL)

#### Design Parameters

Wall height (retained height)	12.50 ft
Backfill slope	deg
Soil Density	125.0 pcf
Soil Phi angle	30 deg
Ka (horizontal)	0.333
Kp (Rankine):	3.0
Surcharge top of soil @ retained	300.0 psf
Allow. Passive	375.00 psf / ft
Apply S.F. to Passive	1.0
Pile Spacing	5.0 ft
Drilled Diameter, in.	28.00 in
Multiplier to Passive Wedge	2.5
Required Embedment	ft
Total Pile Embedment	18.750 ft
Soldier Beam Selection	HP14x117
<b>Steel Design Method</b>	<b>ASD</b>
Lateral Pressure Method	Rankine
Passive Pressure to Neglect	12 in
Number of Tiebacks	-1
Tieback Location	None
Steel Fy	50.0 ksi



#### Lagging

Lagging Depth	11.250 ft
Lagging Pressure @ Depth	568.75 psf
Lagging Mom. @ Depth	1,421.88 ft-lbs
Lagging Shear @ Depth	1,421.88 lbs/vert. ft
Lagging Selection	

#### Design Results

Required embedment	14.66 ft	14.66ft = 13.66 + 1 ft neglecte
	18.750 ft	
Deflection at top of pile	0.18 in	

Pile Pa	16,276.0 lb
Pile Pw	6,250.0 lb
Pile Total Lateral	22,526.0 lb

Depth to Max M	3.985 ft
Mmax in Pile (Service)	166,346 ft-lbs
Vmax in Pile (Service)	22,526 lb

#### Status Checks

				Ratio	Status
Ma	166,346 ft-lbs	Mn/Omega	482,765 ft-lbs	0.34	OK
Va	22,526 lb	Vn/Omega	228,620 lb	0.10	OK
Embedment Required					OK

**Soldier Pile Retaining Wall**

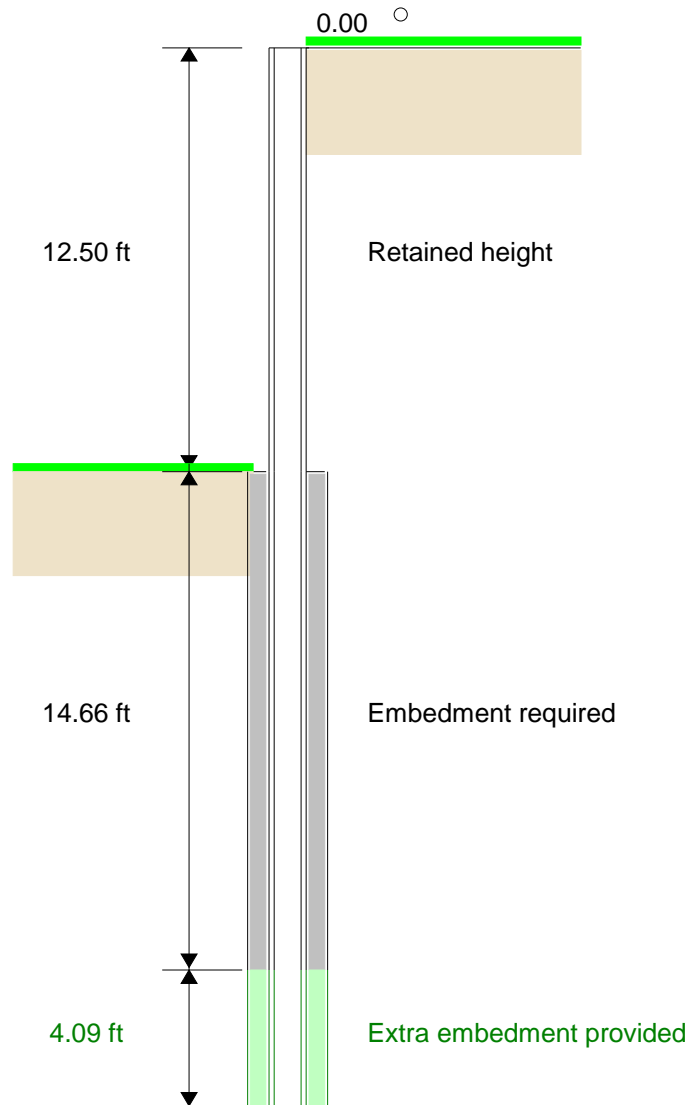
Project File: 22-143\_80 S Broadway.ec6

LIC# : KW-06019651, Build:20.23.11.13

Dominick R Pilla Engineering + Architecture

(c) ENERCALC INC 1983-2023

**DESCRIPTION: SPW-2 (EAST WALL)**



**Soldier Pile Retaining Wall**

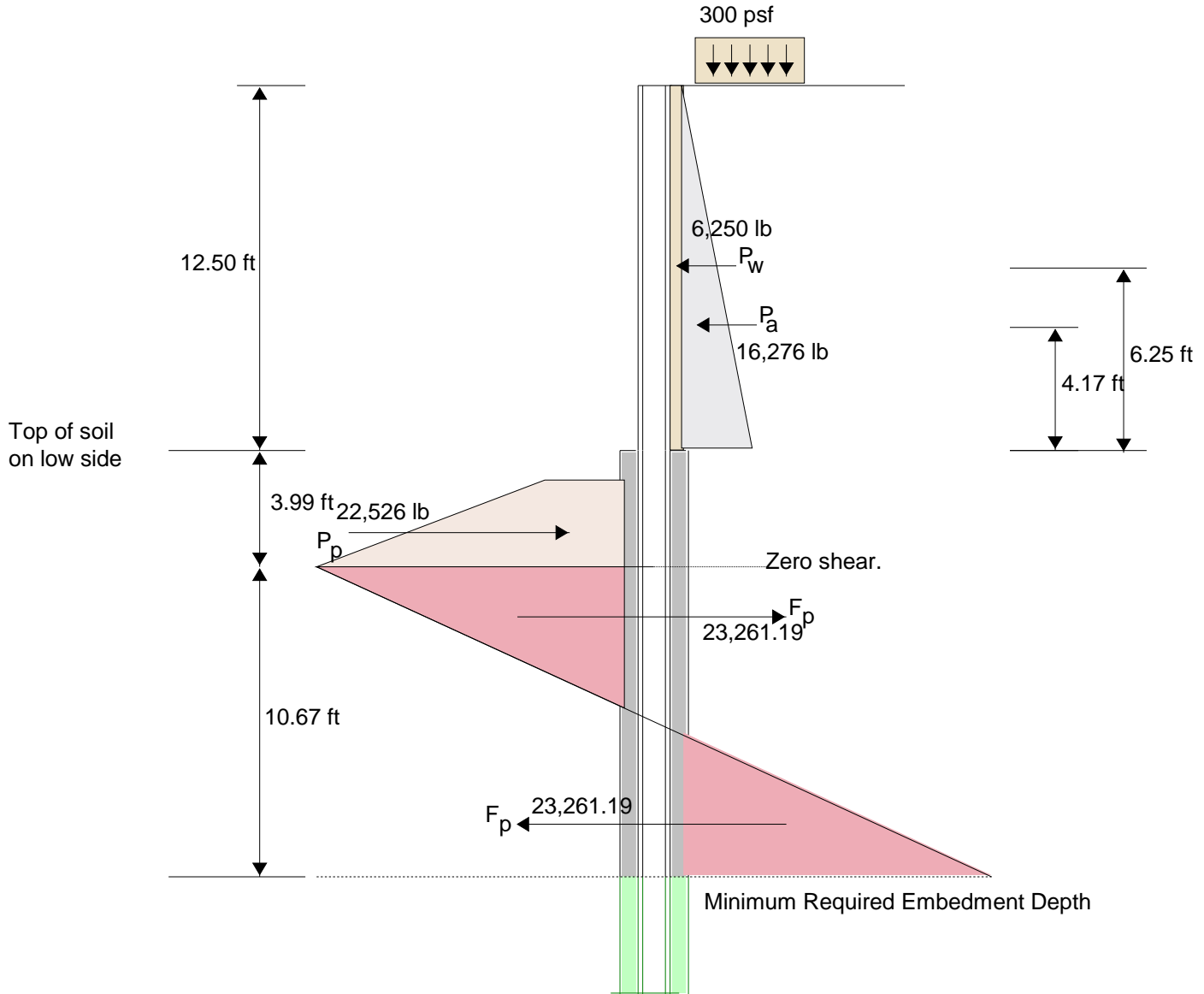
Project File: 22-143\_80 S Broadway.ec6

LIC# : KW-06019651, Build:20.23.11.13

Dominick R Pilla Engineering + Architecture

(c) ENERCALC INC 1983-2023

**DESCRIPTION: SPW-2 (EAST WALL)**



Job	<b>80 S BROADWAY REDEVELOPMENT</b>	Project No.	<b>22-143</b>		
Description	<b>80 s roadway</b>	Computed By	<b>SM</b>	Date	<b>2/4/2026</b>
	SPW-2-(EAST wall)	Checked By	<b>GF</b>	Date	

**6.0 Lagging design**

Soil pressure=  lb/ft<sup>2</sup>

Surcharge pressure  lb/ft<sup>2</sup>

Use AASHTO Recommendation

Note per AASHTO Active pressure may be limited to 400 PSF (not accounting for surcharge)

YES  
NO

Pressure at the bottom  psf

Moment on lagging  lbin

Required section modulus=  in<sup>3</sup>

Gap between lagging  in

1.5 in max

Allowable Bending Stress  psi

Arching effect on lagging

Horizontal Lagging Dimension (D)  in

Vertical Lagging Dimension (B)  in

Section modulus  in<sup>3</sup>

Note apply flat use factor as necessary

Use 0.6 if in front flange and 1.0 if at back flange

Note Lagging Sizes Are True Dimensions

**\*\*OK\*\***