

DESIGN NOTES

- 1. Design is based on the assumption that the methods of construction and quality of materials conform to the requirements of Hilfiker Retaining Walls.
- 2. Soil Characteristics:

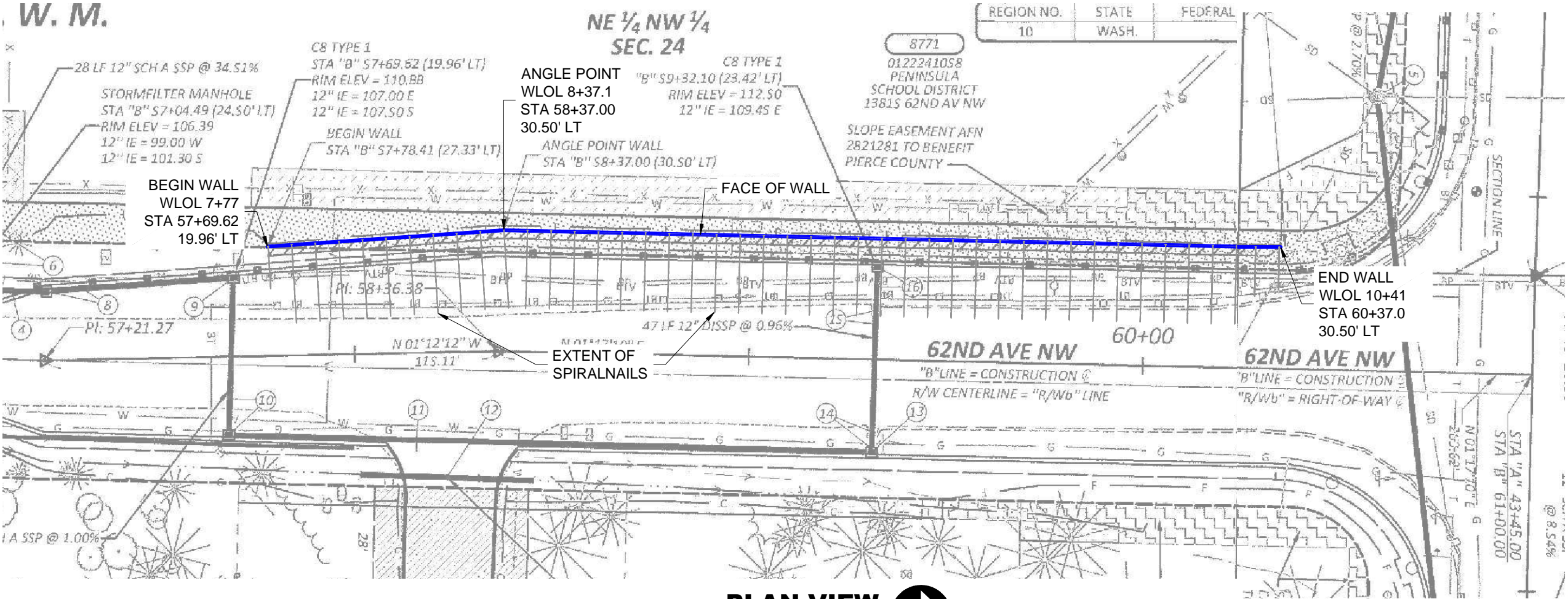
SN - Retained Soils

Unit Weight: 125 pcf  
Internal Friction Angle: 34°  
Cohesion = 75 psf  
Bond Stress = 13.8 psi (per Geo Report)

If actual characteristics, grades or dimensions of soil materials differ from those listed above or shown on the plans, the Spiralnail Engineer shall be notified to evaluate the need to redesign.

- 3. Design Procedure:  
Geotechnical Engineering Circular No. 7 - Soil Nail Walls  
FHWA Report No. FHWA0-IF-03-017.
- 4. Conflicts between the trusswall panels, pillasters or spiralnails and obstructions are resolved in the field by any combination of the following:
  - a) Trimming the vertical truss wall panel wires and or bending vertical & horizontal wires to accommodate the penetration through the facing
  - b) Trimming the bottom part of the pilaster
  - c) Slight Re-orientation of the spiralnail angle or direction. If re-orientation of the pilaster or nails is more than one foot from the planned location, confirmation of the change shall be approved by CES.

- 5. This design is intended to be responsible for the internal stability of the retaining wall only, and not for global stability or foundation bearing capacity. CES is not responsible for job site drainage, safety and fall protection provisions including compliance with OSHA regulations, nor the Competent Person designated for daily inspection.



PLAN VIEW

SCALE: 1" = 30'



THE DESIGN CONTAINED ON THESE DRAWINGS IS BASED ON INFORMATION PROVIDED BY THE OWNER. ON THE BASIS OF THIS INFORMATION, THE HILFIKER COMPANY HAS DESIGNED, AND IS RESPONSIBLE FOR THE INTERNAL STABILITY OF THE STRUCTURE ONLY. EXTERNAL STABILITY, INCLUDING FOUNDATION AND SLOPE STABILITY, IS THE RESPONSIBILITY OF THE OWNER.

HW 190118EN

REV. NO.	DATE	BY	DESCRIPTION
	6-5-19	KLC	Initial .pdf Release

**HILFIKER RETAINING WALLS**



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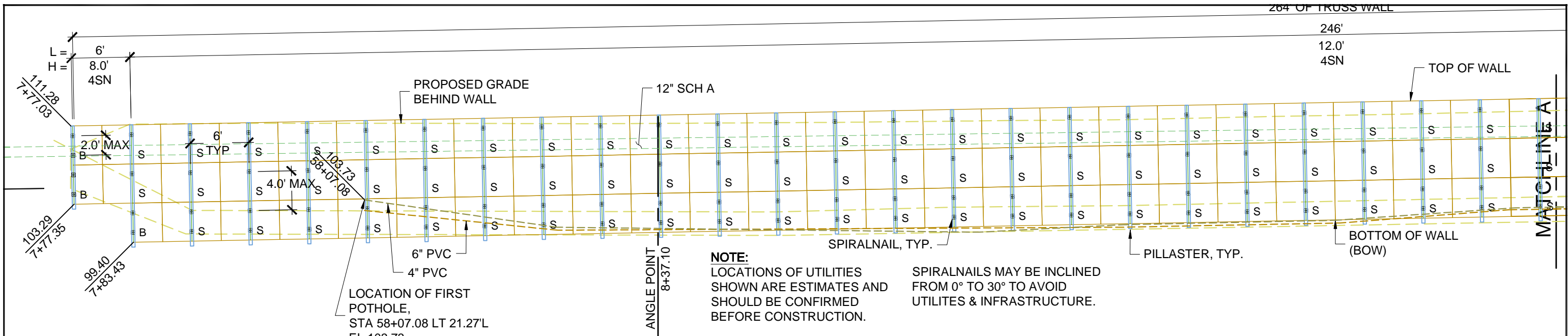
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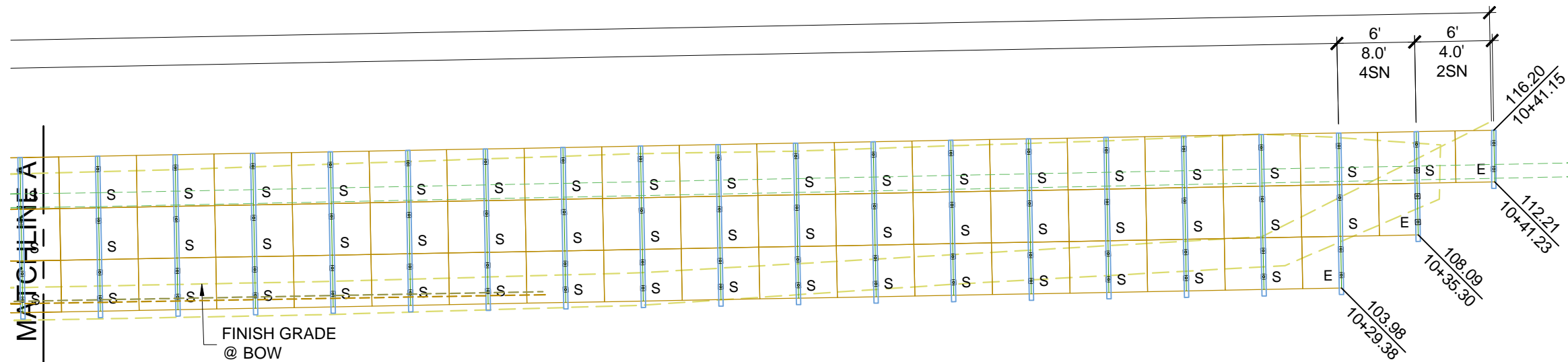
62nd Ave NW  
SPIRALNAIL TRUSS WALL  
  
WALL PLAN VIEW  
& GENERAL NOTES

PROJECT	19-007
DATE	06-05-19
DESIGN	KLC
DRAWN	KLC
SHT	1 OF 4



### ELEVATION VIEW

SCALE: 1" = 10'



### ELEVATION VIEW (CONT'D)

SCALE: 1" = 10'

SPIRALNAIL LENGTH & INCLINATION ANGLE	
Wall Section	Spiralnail Quantity- Length & Inclination Angle (Top to Bottom)
<b>2 SN SECTION</b> 4' Wall Height	1 - 10' @ 15° (6' o.c.)
<b>4 SN SECTION</b> 8' Wall Height	4 - 15' @ 15° (6' o.c.)
<b>4 SN SECTION</b> 12' Wall Height	4 - 20' @ 15° (6' o.c.)

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#### SPIRALNAIL LOCATION

SPIRALNAILS ARE ARRANGED ON A VARIABLE VERTICAL PATTERN & HORIZONTAL (6' TYP) PATTERN, VARIATIONS OCCUR AS THE SHORING SLOPES UP OR DOWN.

#### EXISTING INFRASTRUCTURE

PIPING, UTILITIES, OR ANY OTHER UNDERGROUND ITEMS OR INFRASTRUCTURES MAY OR MAY NOT BE SHOWN. SPIRALNAILS WERE LOCATED ON THESE PLANS AS COULD BE BEST DETERMINED WITH THE INFORMATION PROVIDED. PRECISE LOCATIONS SHALL BE ASCERTAINED IN THE FIELD PRIOR TO DRAWING APPROVAL AND CONFIRMED BY OTHERS. DESIGN APPROVAL WARRANTS NEITHER HILFIKER NOR CES WILL BE LIABLE FOR ANY DAMAGE CAUSED BY SPIRALNAIL INSTALLATIONS PERFORMED IN ACCORDANCE WITH THESE PLANS. CALL USA PRIOR TO ANY EXCAVATION OR NAIL INSTALLATION.



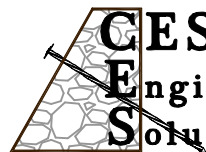
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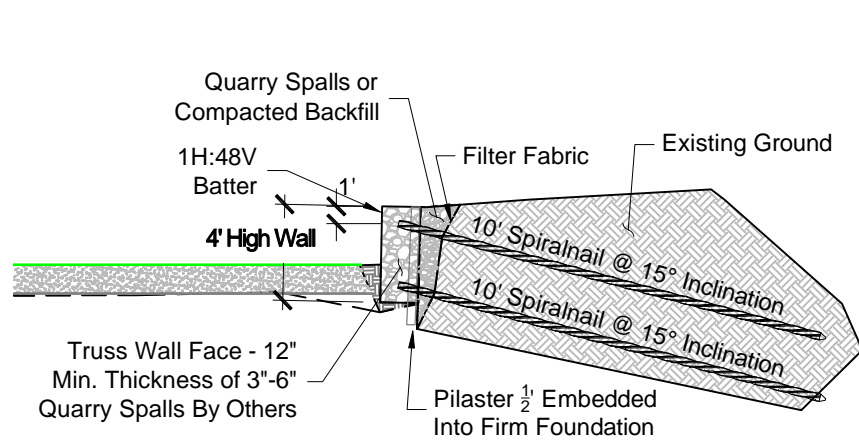
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62nd Ave NW  
SPIRALNAIL TRUSS WALL  
WALL ELEVATION VIEW

PROJECT	19-007
DATE	06-05-19
DESIGN	KLC
DRAWN	KLC

SHT 2 OF 4



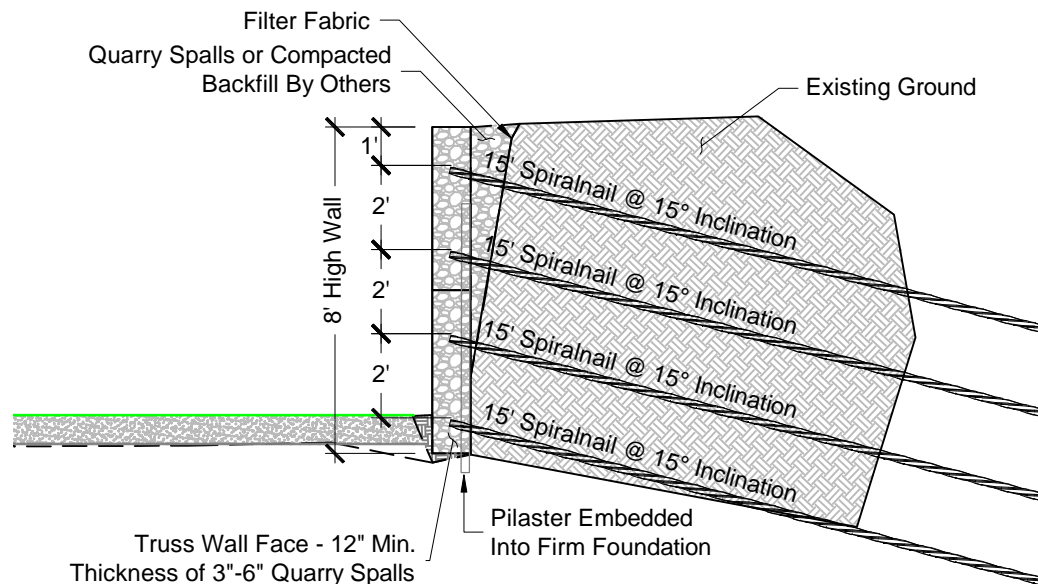


## 2 SN (4'H MAX) SECTION

SCALE: 1" = 5'

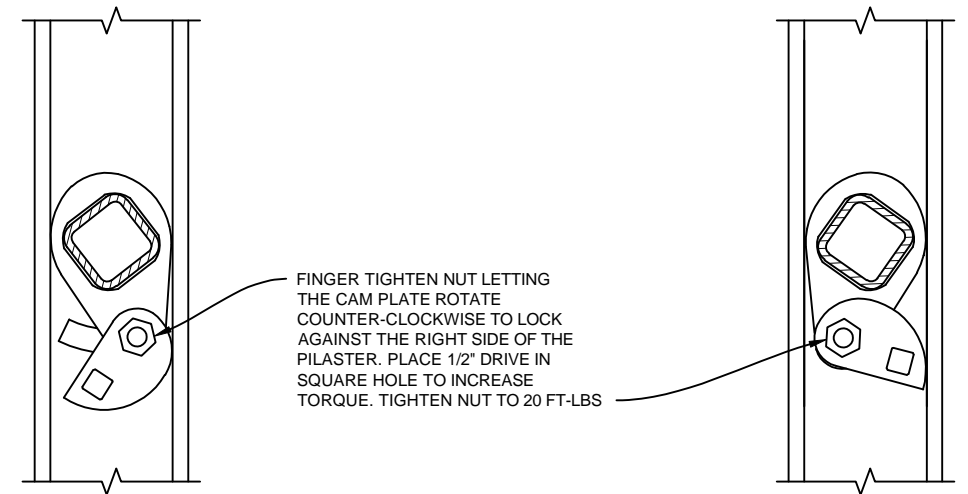
### SPIRALNAIL INCLINATION

SPIRALNAILS MAYBE DRIVEN FROM 0° TO 30° TO AVOID UTILITIES OR INFRASTRUCTURE.



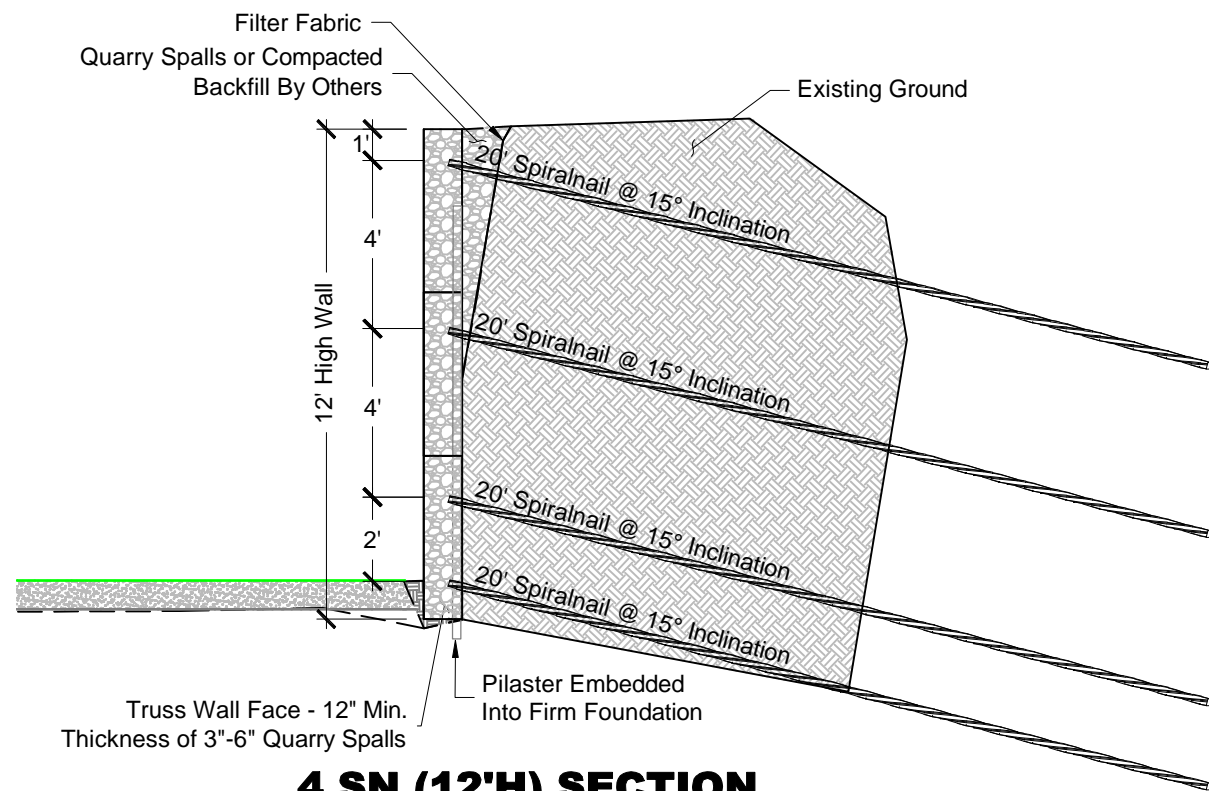
## 4 SN (8'H) SECTION

SCALE: 1" = 5'



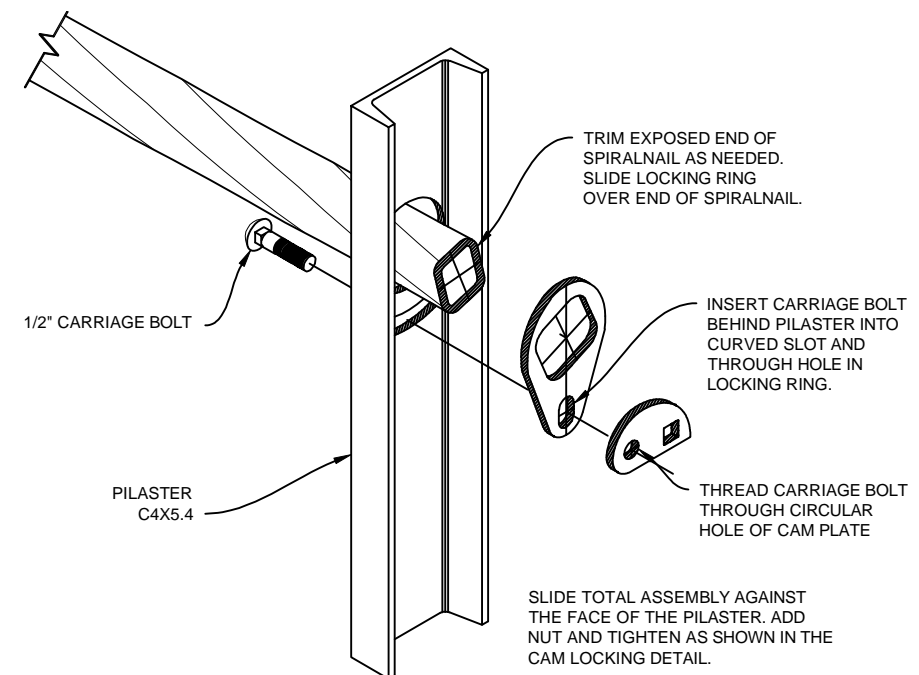
## CAM LOCK LOCKING DETAIL

NOT TO SCALE



## 4 SN (12'H) SECTION

SCALE: 1" = 5'



## CAM LOCK ASSEMBLY

NOT TO SCALE

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62nd Ave NW / 144th St NW  
SPIRALNAIL SHORING & TRUSS WALL

CROSS SECTIONS & DETAILS

HW 190118EN

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SHT 3 OF 4



IF PREPARED SOIL WILL SUPPORT PILASTERS, POSITION PILASTERS EVERY SIX FEET ALONG WALL LAYOUT LINE AND SET BOTTOM OF PILASTER INTO GROUND PER PROJECT PLANS.

IF PILASTERS CANNOT BE PRE-POSITIONED, PLACE START/END TRUSS ON PREPARED SLOPE FIRST THEN POSITION THE PILASTER CHANNEL AGAINST THE EDGE OF THE TRUSS AND SET BOTTOM OF PILASTER INTO GROUND PER PROJECT PLANS. DRIVE SPIRALNAILS THROUGH THE PILASTER INTO THE SOIL. PLACE CAM LOCK ON EACH SPIRALNAIL AND TIGHTEN TO TORQUE SPECIFICATIONS.

IF PILASTERS HAVE NOT BEEN PRE-POSITIONED, POSITION NEXT PILASTER AND SET INTO GROUND. PLACE THE STANDARD TRUSS BEHIND PILASTER AND OVERLAP PANEL AGAINST THE START/END TRUSS USING ZIP TIES OR TIE WIRE TO SECURE TRUSS IN PLACE. DRIVE IN SPIRALNAILS AND LOCK WITH CAM LOCKS.

CONTINUE ADDING STANDARD TRUSSES ALONG WALL ENDING AT FINAL PILASTER WITH A START/END TRUSS

POSITION START/END TRUSS, ADD PILASTER IF NEEDED, DRIVE IN SPIRALNAILS AND LOCK IN PLACE WITH CAM LOCKS.

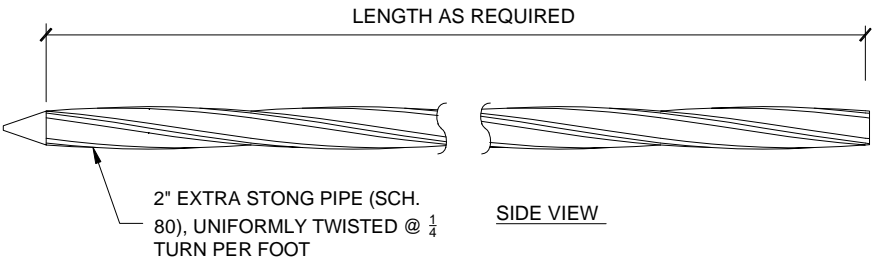
SPIRAL TIE THE STIFFENERS ONTO THE STANDARD TRUSSES AT WIRE ON RIGHT SIDE OF PILASTER.

TO BEGIN FACING THE WALL, CENTER EDGES OF A FACING PANEL ON TRUSS OVERLAP. SPIRAL THE ENDS OF OVERLAP AND THE STIFFENER TO FACE PANEL.

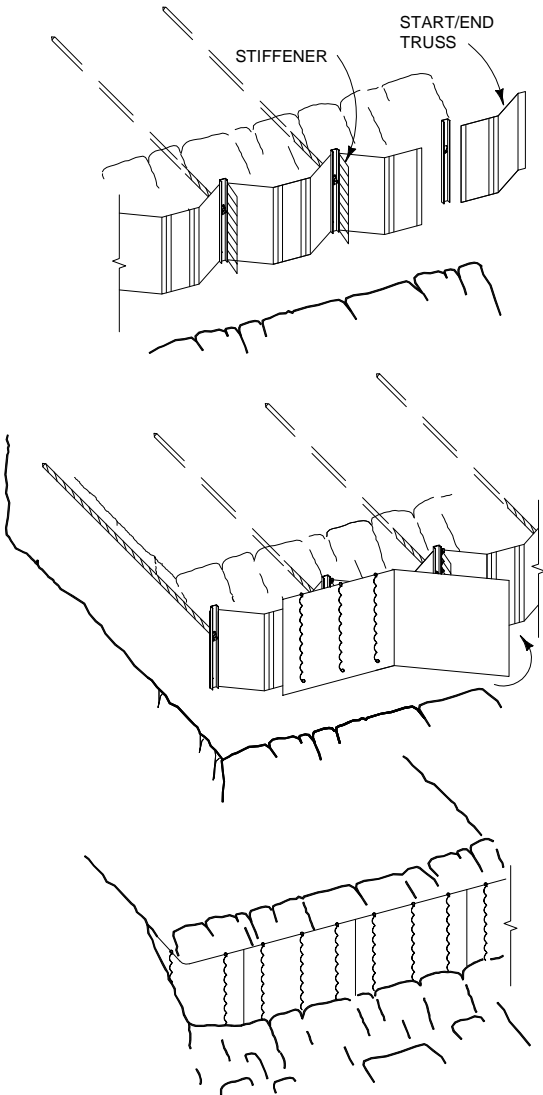
INSERT PRONGS OF SUBSEQUENT FACE PANELS BEHIND FINAL TRANSVERSE WIRE ON PREVIOUS FACING AND ROTATE INTO PLACE TO FORM INTERLOCKING CONNECTION. SEE ENLARGED DETAIL.

FOR CLOSURE FACING AT EACH END OF WALL, BEND FACING PANEL PER PROJECT PLANS AND INSERT END OF PANEL AGAINST PREVIOUS FACING. FIELD FIT OPPOSITE END AND TRIM AS NEEDED AGAINST SLOPE. SPIRAL FACING TO START/END TRUSS PANEL AND TO STIFFENER. SEE END OF WALL TREATMENT DETAIL, THIS SHEET.

FILL AREA BEHIND WALL WITH BACKFILL PER PROJECT PLANS. COMPACT SOIL AGAINST FACE OF WALL FOR TOE BURY.

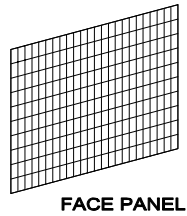


**TRUSS WALL SPIRALNAIL**  
NOT TO SCALE

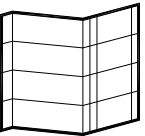


**CONSTRUCTION SEQUENCE**

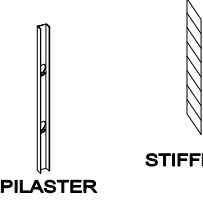
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**FACE PANEL**



**1st/END/CAP TRUSS**



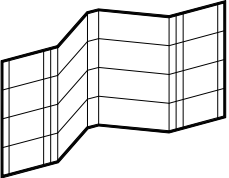
**PILASTER**



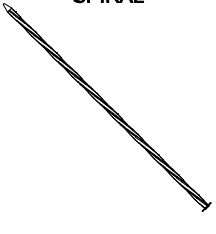
**STIFFENER**



**SPIRAL**



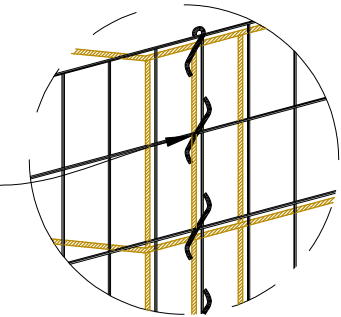
**STANDARD (S/2nd) TRUSS**



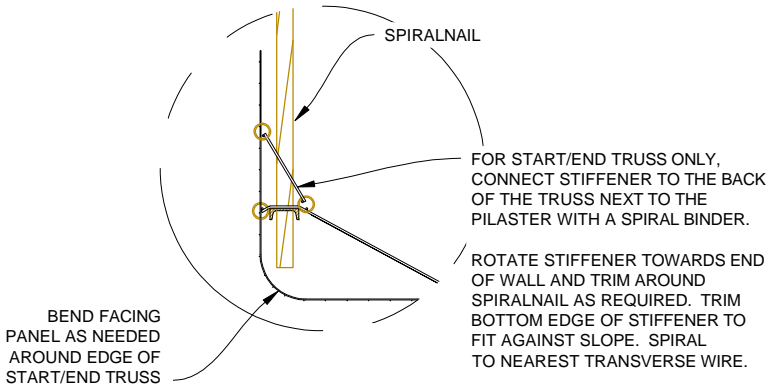
**SPIRALNAIL**

**WALL COMPONENTS**  
NOT TO SCALE

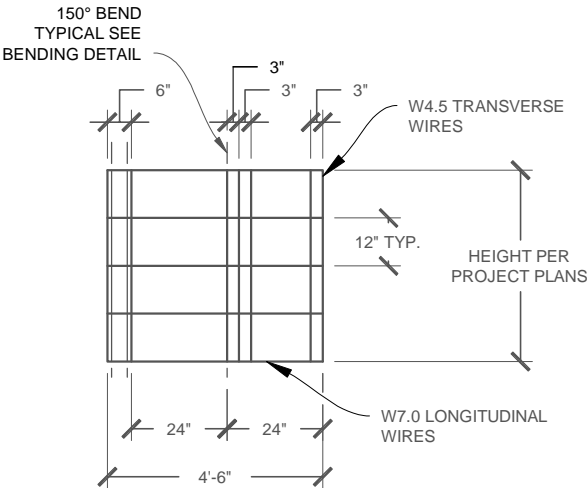
GENERIC COMPONENTS SHOWN FOR ILLUSTRATION PURPOSES ONLY



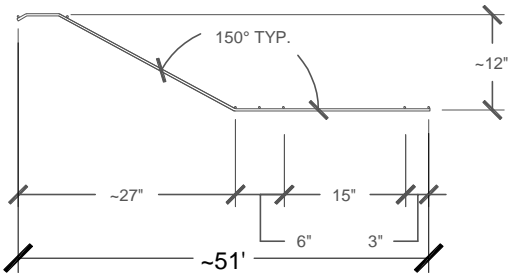
**SPIRAL BINDER ATTACHMENT**  
NOT TO SCALE



**END OF WALL TREATMENT**  
NOT TO SCALE



**WIRE MAT SIZE AND SPACING**  
NOT TO SCALE



**BENDING DETAILS**  
SCALE: 1/2"=1'

**START/END TRUSS**

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SHT **4** OF 4