

### SHORING & UNDERPINNING PLAN

SCALE 1/4" = 1'-0"

HELICAL ANCHOR SHORING SCHEDULE						
SYMBOL	QUANTITY	DESIGN CAPACITY	MIN. LENGTH*	PIER CAP	SHAFT DIA.	NOTES
①	12	30 KIPS	12' (FT)	MAGNUM TIE-BACK CAP W/ WEDGE WASHERS	MIN. Ø 3" WALL 3" HELIX SHAFT (STANDARD DUTY)	CLEAN & OIL THREADS & POST TENSION NUT TO 760 LB-FI (MIN.)
②	15	30 KIPS	9' (FT)	MAGNUM TIE-BACK CAP W/ WEDGE WASHERS	MIN. Ø 3" WALL 3" HELIX SHAFT (STANDARD DUTY)	CLEAN & OIL THREADS & POST TENSION NUT TO 760 LB-FI (MIN.)

\* SEE DETAILS FOR LENGTH REQUIREMENTS

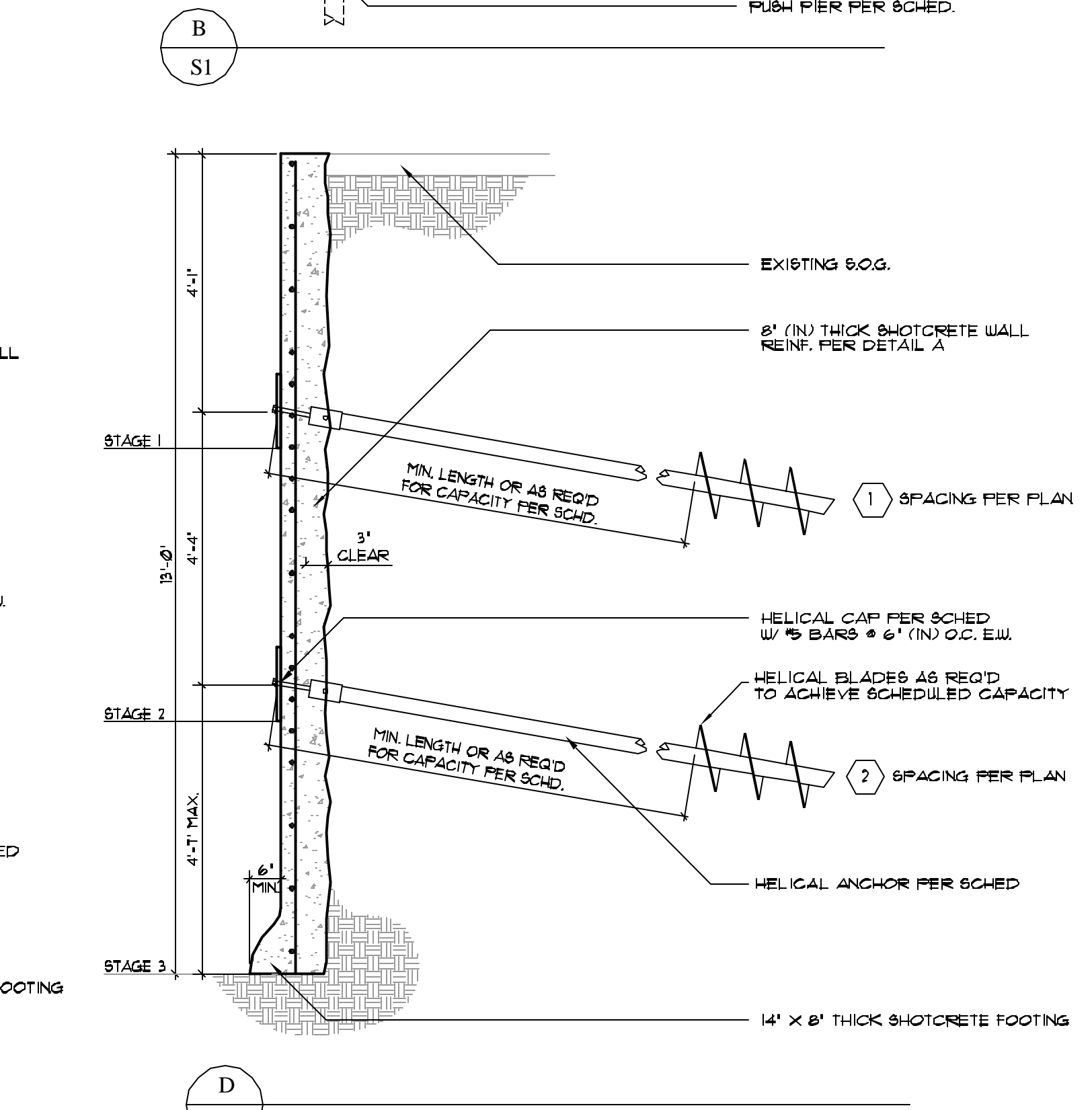
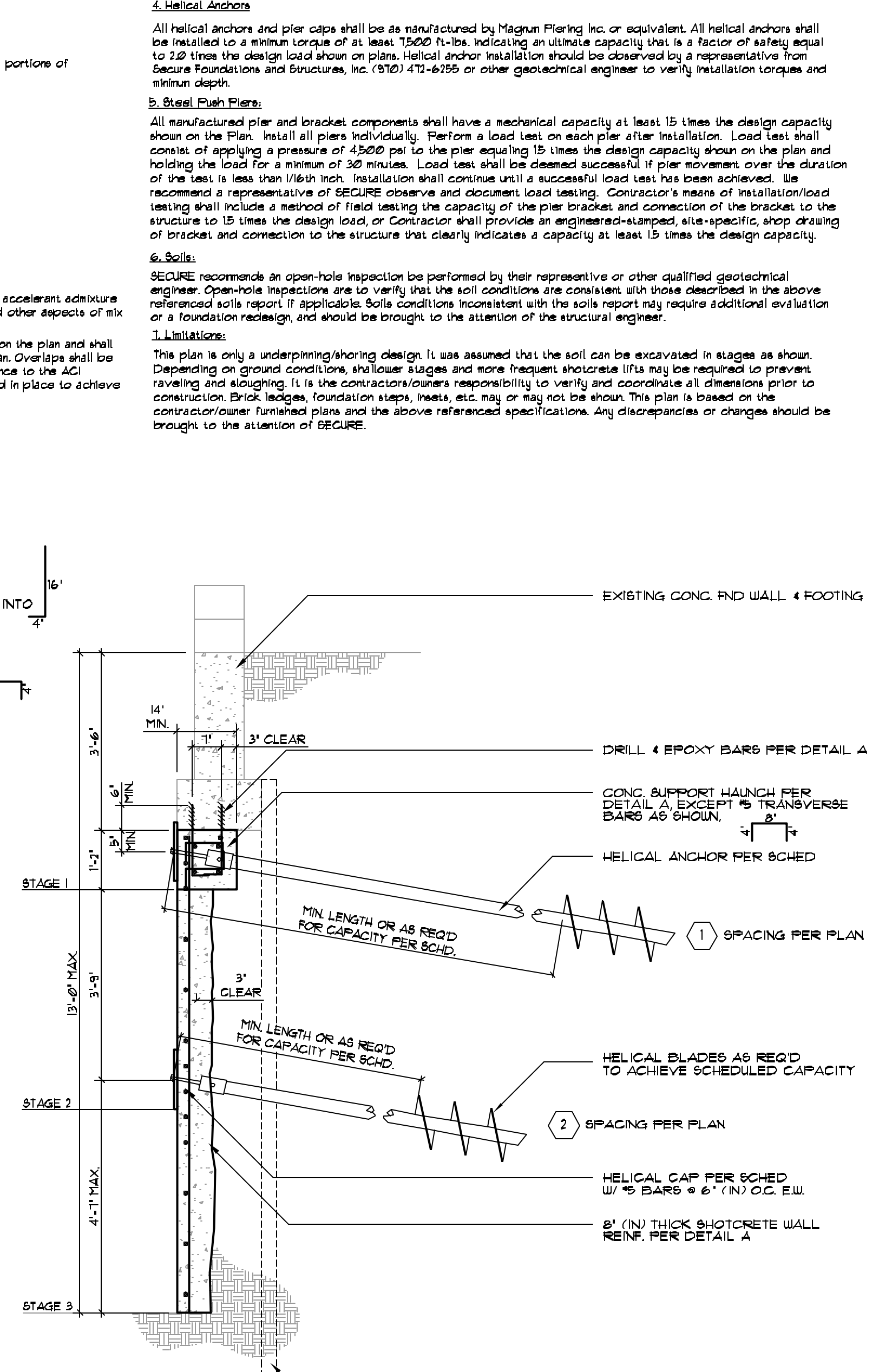
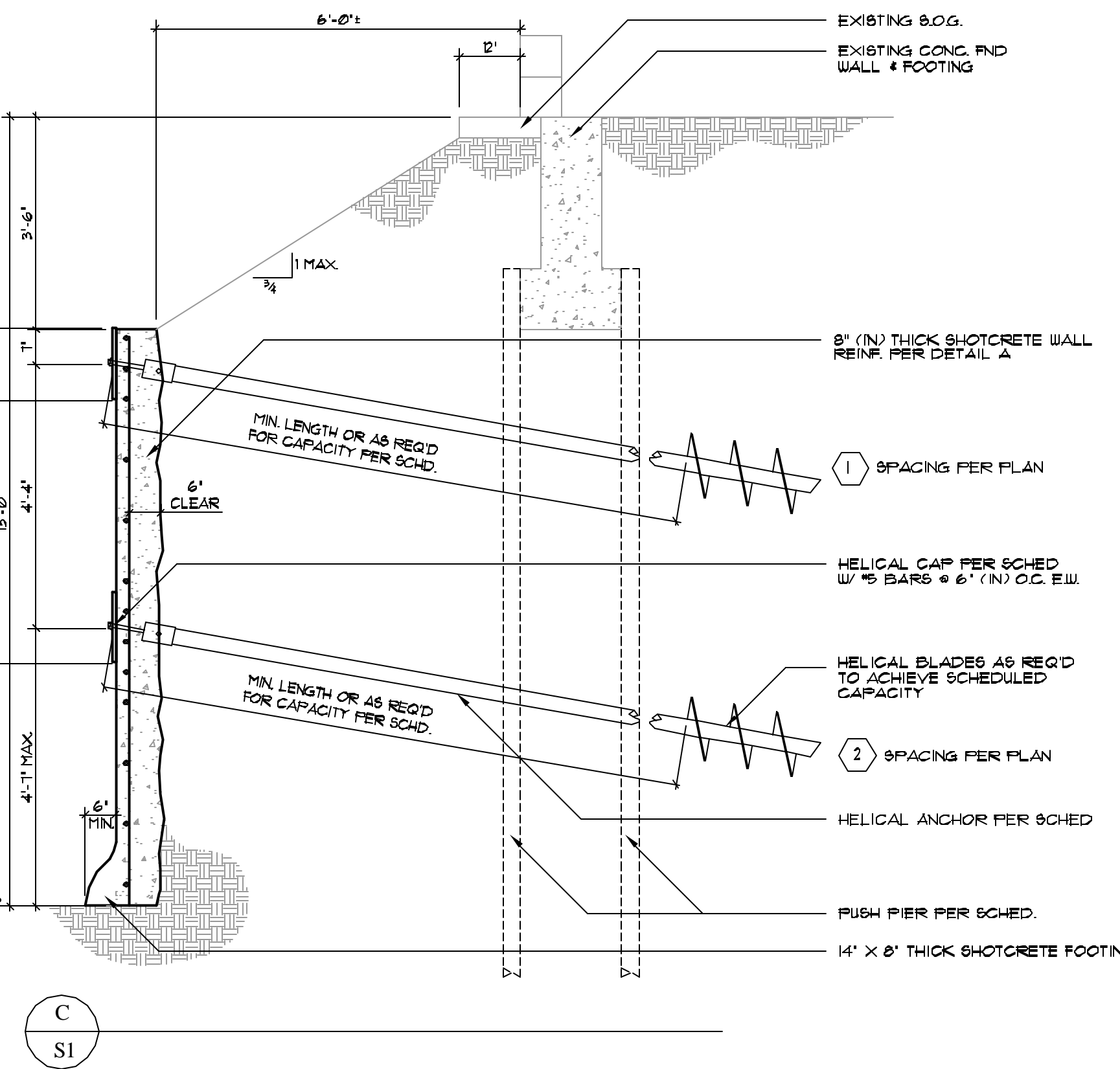
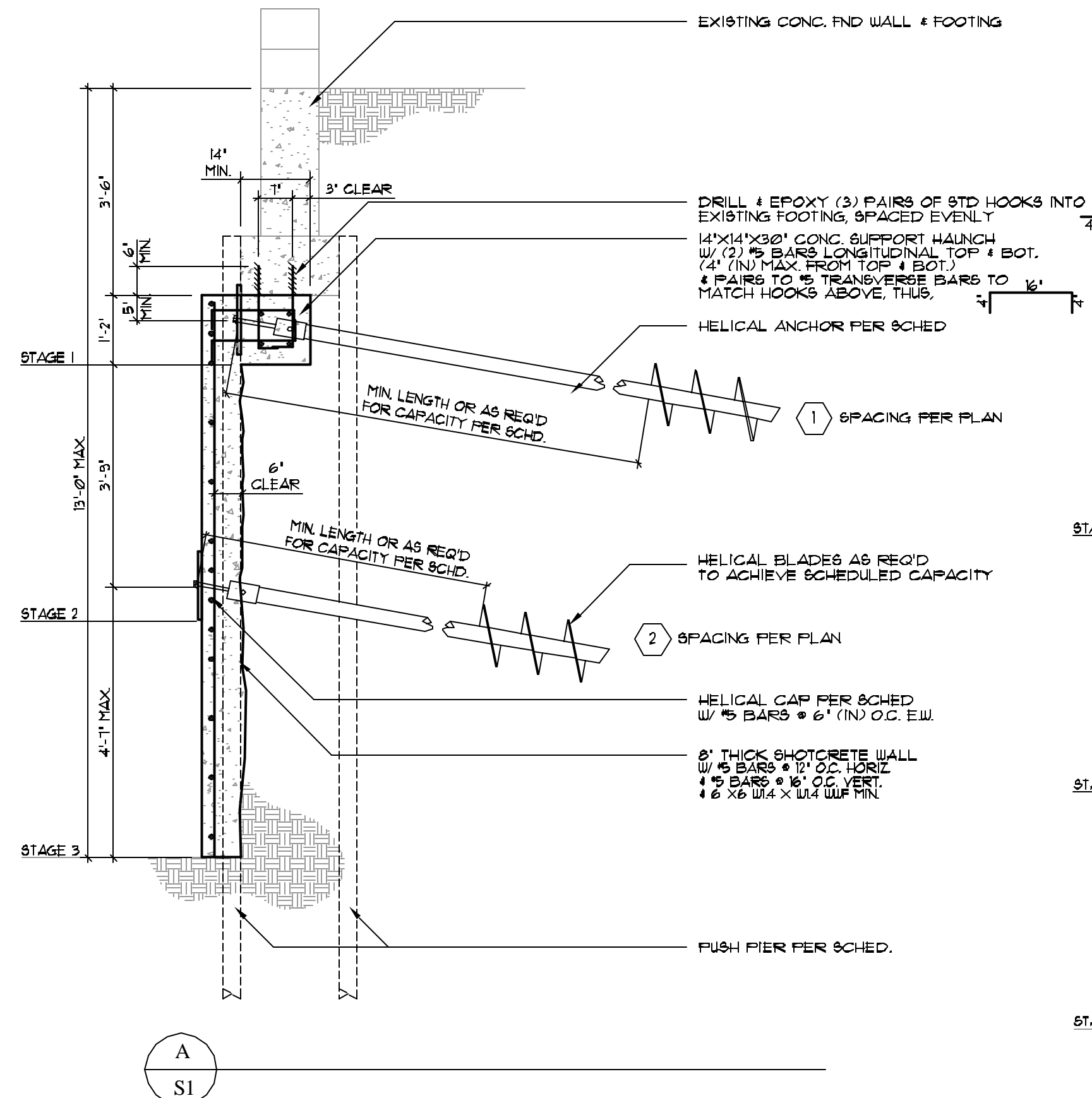
PUSH PIER SCHEDULE					
SYMBOL	QUANTITY	DESIGN CAPACITY	MIN. LENGTH	PIER CAP CONNECTION	NOTES
●	34	22 KIPS	AS REQ'D TO MEET DESIGN CAPACITY	PLATE BRACKET	MIN. Ø 1 1/2" WALL 3" PUSH PIER SHAFT, GROUT SHAFT SOLID (STD DUTY)
○	5	22 KIPS	AS REQ'D TO MEET DESIGN CAPACITY	PLATE BRACKET	MIN. Ø 1 1/2" WALL 3" PUSH PIER SHAFT, GROUT SHAFT SOLID (STD DUTY)

#### CONSTRUCTION SEQUENCE

STAGE	DESCRIPTION
STAGE 1	EXCAVATE TO BOTTOM OF PERIMETER FOOTING, INSTALL ALL PUSH PIERS, EXCAVATE HAUNCH AREAS AND INSTALL HELICAL TIE-BACKS, CAST CONCRETE HAUNCH PER DETAIL. ALLOW CONCRETE TO CURE 48hrs, INSTALL HELICAL ANCHOR PLATE & 8NUG TIGHT HEX NUT.
STAGE 2	EXCAVATE TO BOTTOM OF SECOND HELICAL TIE-BACK ANCHOR PLATE, INSTALL HELICAL TIE-BACKS, PLACE REINFORCING AND SHOTCRETE WALL PER DETAILS, ALLOW CONCRETE TO CURE 48hrs, INSTALL HELICAL ANCHOR PLATE & 8NUG TIGHT HEX NUT.
STAGE 3	EXCAVATE TO PLANNED BOTTOM OF EXCAVATION, PLACE REINFORCING & SHOTCRETE WALL PER DETAILS.

### General Notes:

- Codes:** This plan was prepared based on the 2007 Ohio State Building Code with local amendments and portions of the most recent version of ACI 308.
- Loads:** This plan is based upon the following load parameters:  
 Roof: Live Load = 20 psf  
 Floor: Live Load = 40 psf  
 Seismic: Zone 1  
 Soils: report by H.C. Nutting Companies, #1750201, Date: 8-20-2004  
 Recommended allowable bearing pressures:  
 10,000 psf - End Bearing
- Materials:** This plan is based upon the following material properties:  
 Shotcrete: Shotcrete shall have a minimum 28 day compressive strength of 4000 psi. Use acceleration admixture so that shotcrete will attain 3000 psi strength in 48 hrs. Pump air content, and other aspects of mix design shall be at contractor's discretion.  
 Reinforcing: Reinforcing shall be deformed grade 60 steel unless noted otherwise (UNO) on the plan and shall conform to ASTM A635. Minimum concrete cover shall be 2" (min) UNO on the plan. Overlaps shall be 48 bar diameters but not less than 24" (min). Detail reinforcing bars in accordance to the ACI detailing manual and ACI code latest edition. All reinforcement should be used in place to achieve the required cross section location.



EXAMPLE PREPARED BY:

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REVISION/ISSUE: \_\_\_\_\_

RETAINING WALL

EXAMPLE 2

DATE: 12-21-04  
SCALE: AS SHOWN

DATE: 12-21-04  
SCALE: AS SHOWN