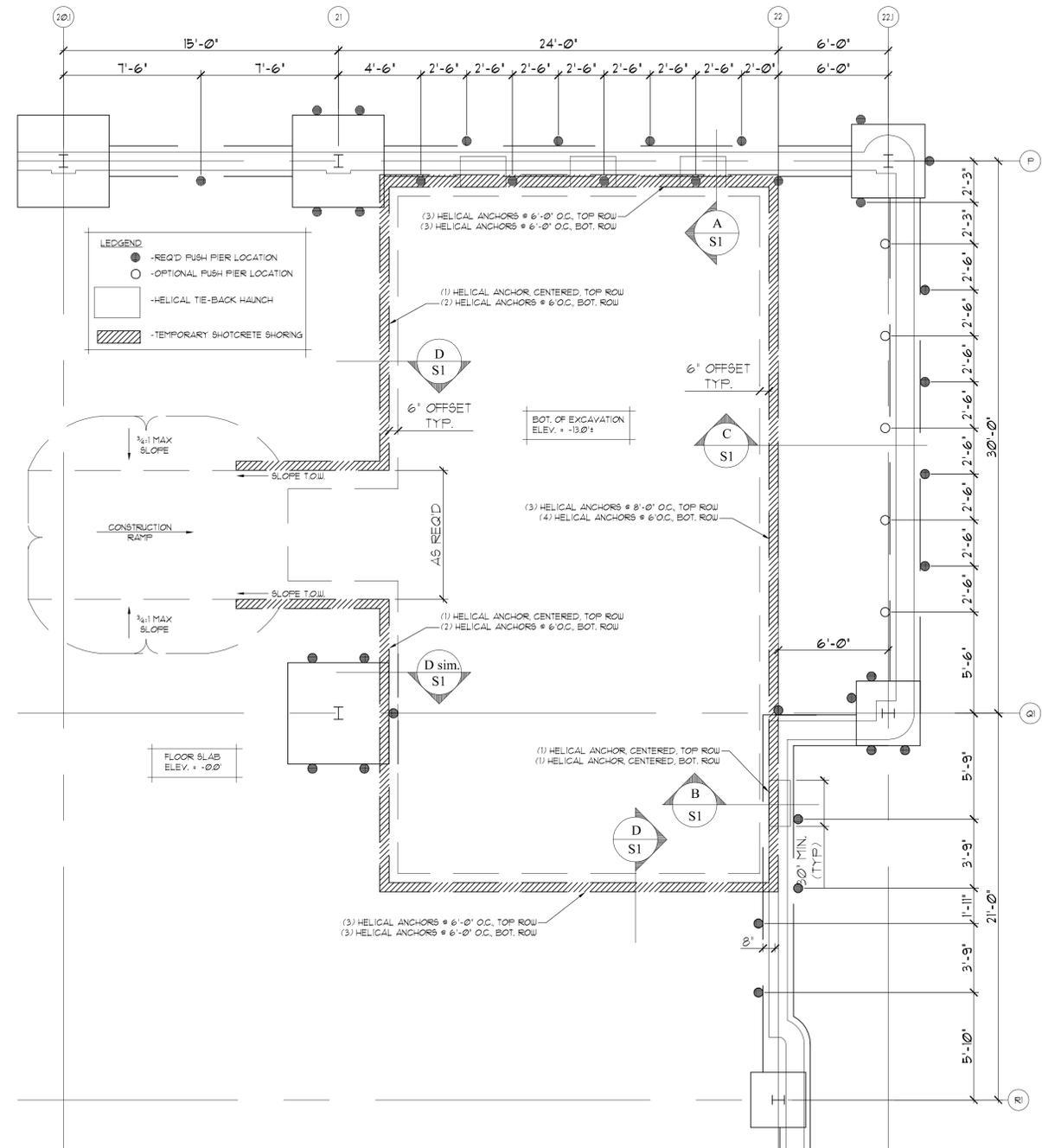


**General Notes:**

- Codes:**  
This plan was prepared based on the 2002 Ohio State Building Code with local amendments and portions of the most recent version of ACI 318.
- 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: Soils Engineering Firm, Date:  
Recommended allowable bearing pressure:  
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 accelerant admixture so that shotcrete will attain 3000 psi strength in 48 hrs. Slump, 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" (UNO) on the plan. Overlaps shall be 40 bar diameters but not less than 24" (in). Detail reinforcing bars in accordance to the ACI detailing manual and ACI code, latest edition. All reinforcing should be wired in place to achieve the required cross section location.
- Helical Anchors:**  
All helical anchors and pier caps shall be as manufactured by Magnum Piering Inc. or equivalent. All helical anchors shall be installed to a minimum torque of at least 1500 ft-lbs, indicating an ultimate capacity that is a factor of safety equal to 2.0 times the design load shown on plans. Helical anchor installation should be observed by a representative from Secure Foundations and Structures, Inc. (970) 472-6255 or other geotechnical engineer to verify installation torques and minimum depth.
- Steel Push Piers:**  
All manufactured pier and bracket components shall have a mechanical capacity at least 1.5 times the design capacity shown on the plan. Install all piers individually. Perform a load test on each pier after installation. Load test shall consist of applying a pressure of 4500 psi to the pier equaling 1.5 times the design capacity shown on the plan and holding the load for a minimum of 30 minutes. Load test shall be deemed successful if pier movement over the duration of the test is less than 1/16th inch. Installation shall continue until a successful load test has been achieved. We recommend a representative of Magnum observe and document load testing. Contractor's means of installation/load testing shall include a method of field testing the capacity of the pier bracket and connection of the bracket to the structure to 1.5 times the design load or Contractor shall provide an engineered-stamped, site-specific, shop drawing of bracket and connection to the structure that clearly indicates a capacity at least 1.5 times the design capacity.
- Soils:**  
Magnum recommends an open-hole inspection be performed by their representative or other qualified geotechnical engineer. Open-hole inspections are to verify that the soil conditions are consistent with those described in the above referenced soils report. If applicable, soils conditions inconsistent with the soils report may require additional evaluation or a foundation redesign and should be brought to the attention of the structural engineer.
- Limitations:**  
This plan is only an underpinning/hoisting design. It was assumed that the soil can be excavated in stages as shown. Depending on ground conditions, shallower stages and more frequent shotcrete lifts may be required to prevent raveling and sloughing. It is the contractor's/owner's responsibility to verify and coordinate all dimensions prior to construction. Brick ledges, foundation steps, insets, etc. may or may not be shown. This plan is based on the contractor/owner furnished plans and the above referenced specifications. Any discrepancies or changes should be brought to the attention of Magnum.



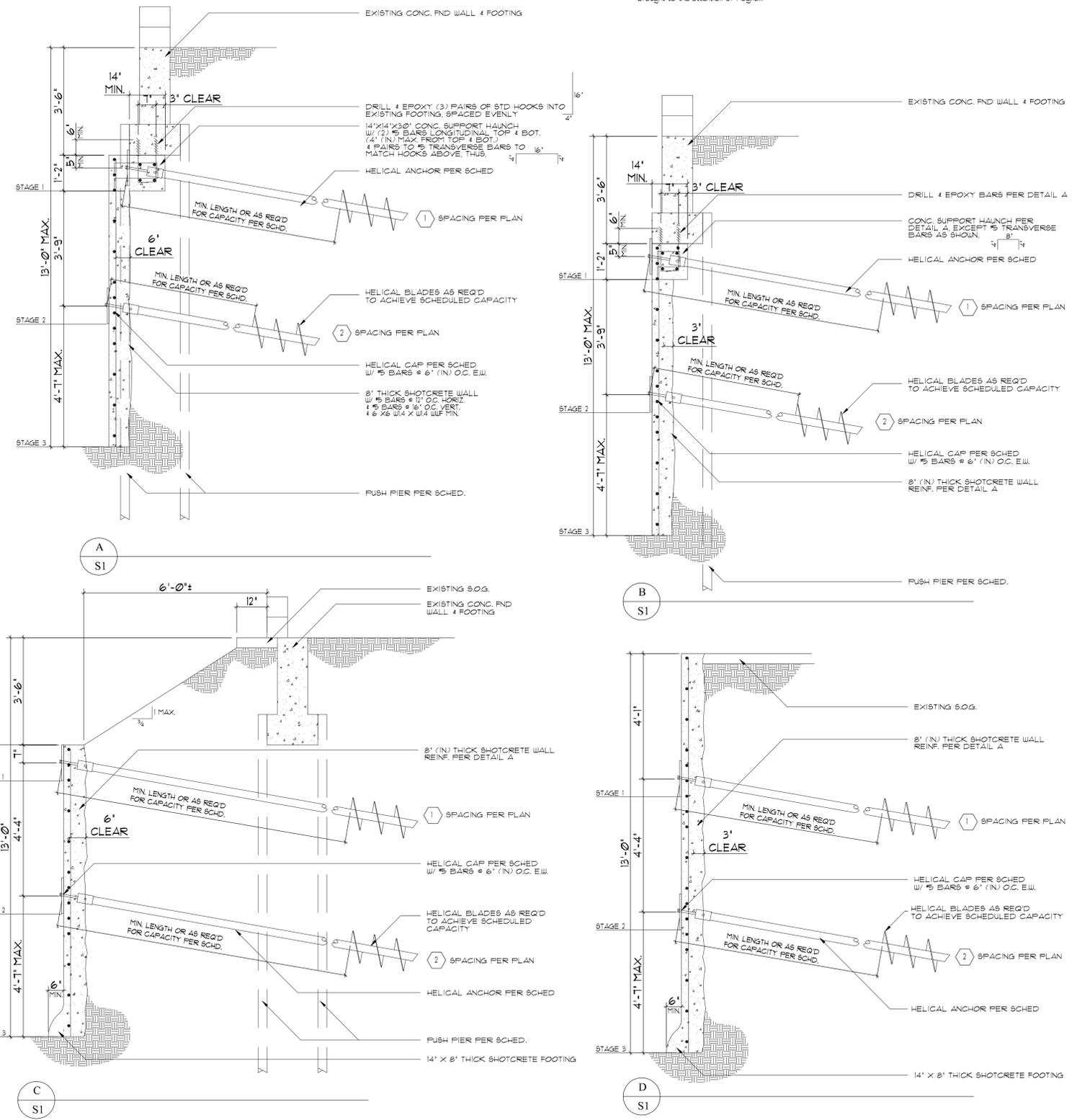
**SHORING & UNDERPINNING PLAN**  
SCALE 1/4" = 1'-0"

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. Ø28Ø WALL 3"Ø SHAFT (STANDARD DUTY)	HELIICAL 4 OIL THREADS & POST TENSION NUT TO 26Ø 16-ft. (MIN.)
②	15	30 KIPS	9' (FT)	MAGNUM TIE-BACK CAP W/ WEDGE WASHERS	MIN. Ø28Ø WALL 3"Ø SHAFT (STANDARD DUTY)	HELIICAL 4 OIL THREADS & POST TENSION NUT TO 26Ø 16-ft. (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. Ø125 WALL 3"Ø PUSH PIER SHAFT, GROUT SHAFT SOLID (STD DUTY)
○	5	22 KIPS	AS REQ'D TO MEET DESIGN CAPACITY	PLATE BRACKET	MIN. Ø125 WALL 3"Ø PUSH PIER SHAFT, GROUT SHAFT SOLID (STD DUTY)

CONSTRUCTION SEQUENCE	
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 & SNUG 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 & SNUG TIGHT HEX NUT.
STAGE 3	EXCAVATE TO PLANNED BOTTOM OF EXCAVATION, PLACE REINFORCING & SHOTCRETE WALL PER DETAILS.



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PLAN NOT VALID WITHOUT ORIGINAL WET STAMP

**PROJECT NAME:**

**PROJECT NAME**

**PROJECT DESCRIPTION**  
STREET ADDRESS  
CITY, STATE

**CLIENT:**  
YOUR COMPANY NAME  
STREET ADDRESS  
CITY, STATE  
Contact: Your Name  
Your Number

THESE DRAWINGS AND DETAILS ARE PROVIDED FOR GENERAL REFERENCE PURPOSE AND SHALL NOT BE USED FOR CONSTRUCTION WITHOUT THE ENGINEER'S PERMISSION.

**PUSH PIER LAYOUT & DETAILS**

NO.	DATE	REVISION/ISSUE