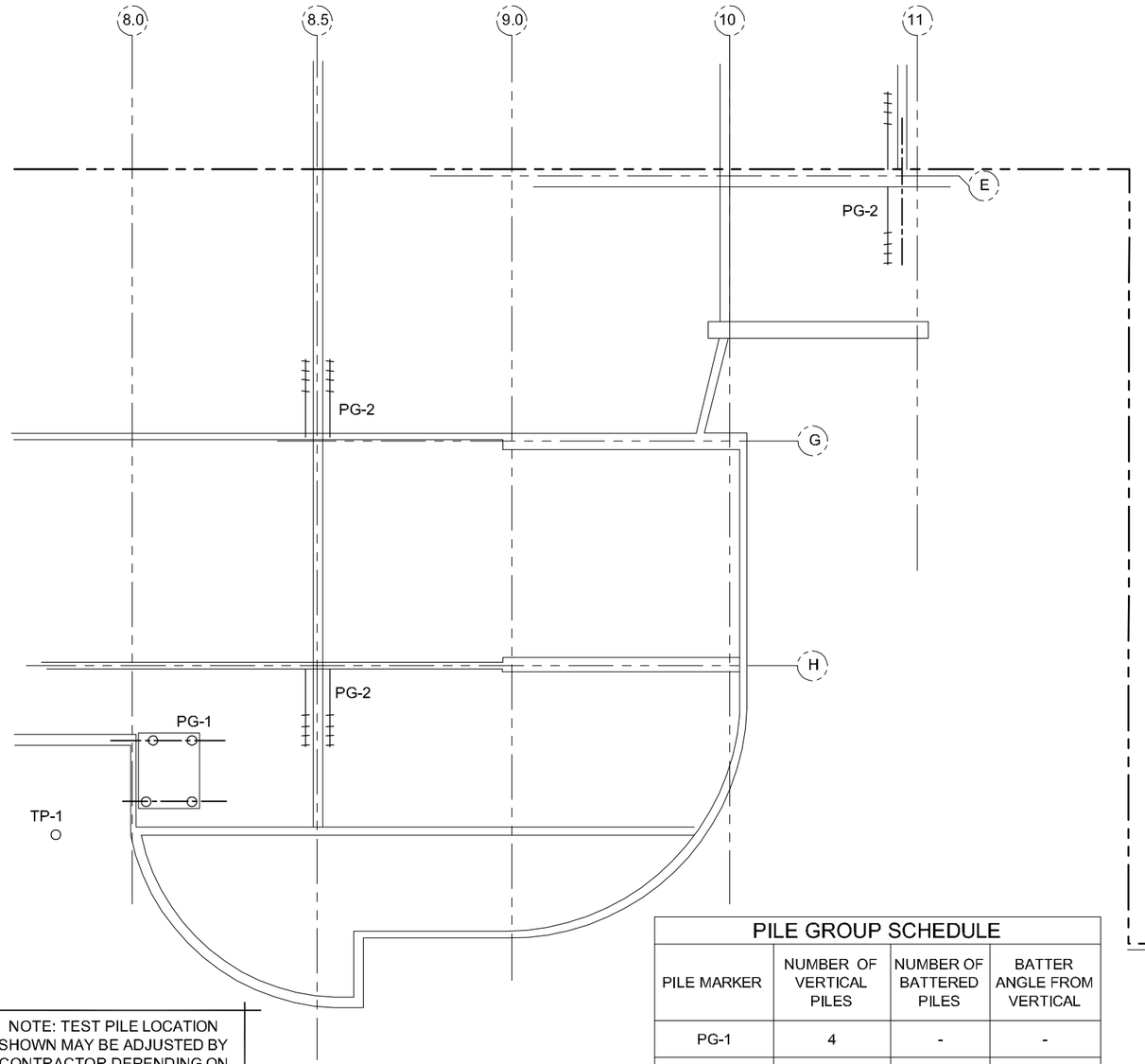
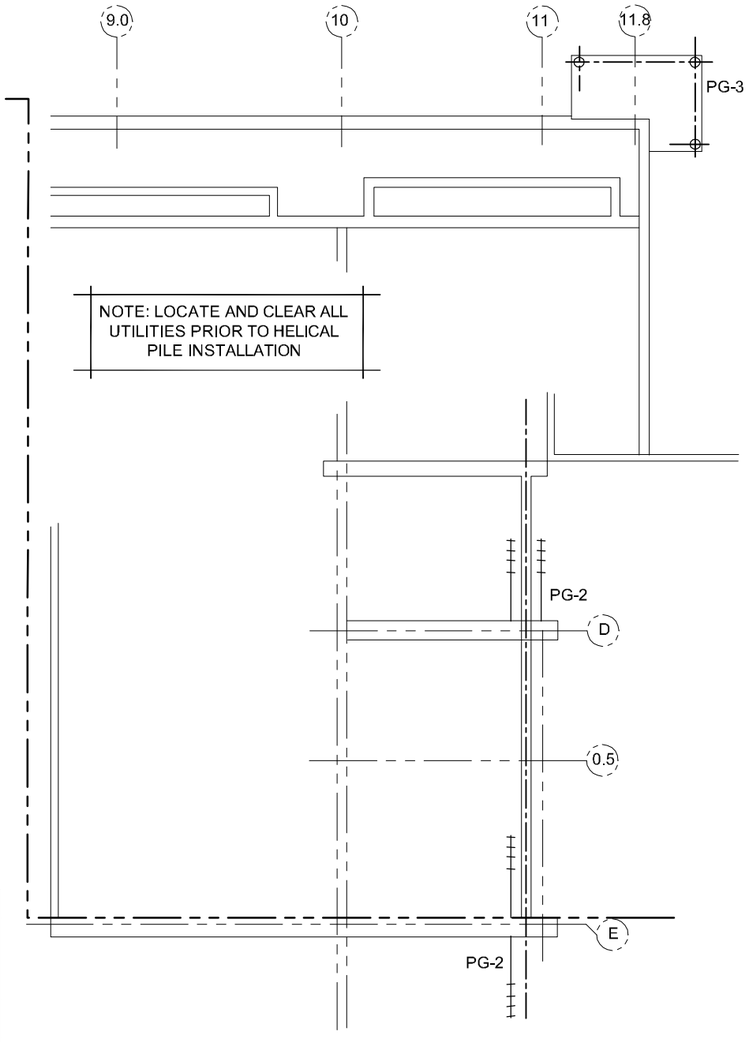


NOTE: TEST PILE LOCATION SHOWN MAY BE ADJUSTED BY CONTRACTOR DEPENDING ON FIELD CONDITIONS AND SITE ACCESSIBILITY

PILE GROUP SCHEDULE			
PILE MARKER	NUMBER OF VERTICAL PILES	NUMBER OF BATTERED PILES	BATTER ANGLE FROM VERTICAL
PG-1	4	-	-
PG-2	-	2	45°
PG-3	3	-	-
TP-1	1	-	-



HELICAL PILE LAYOUT

Scale: NTS

PILE SCHEDULE								
ANCHOR/PILE SYMBOL**	ANCHOR/PILE TYPE	NUMBER OF PILE/ANCHORS	HELIX SIZE	BRACKET	PILE TIP ELEVATION (ft)	ULTIMATE CAPACITY (kip)*	ALLOWABLE CAPACITY (kip)*	MINIMUM TORQUE (ft-lb)
V	MH325BRG	7	8D10D12D	MHC1000G	≤ 569	70C; 20T	35C; 10T	8,750
B	MH325BRG	8	10D12D14D	MHC1000G	≤ 569	100C; 28T	50C; 14T	12,500

*C = compression, T = tension; **V = vertical pile, B = battered pile

TEST PILE SCHEDULE						
ANCHOR/PILE SYMBOL**	ANCHOR/PILE TYPE	NUMBER OF PILE/ANCHORS	HELIX SIZE	MINIMUM ELEVATION (ft)	TEST LOAD (kip)*	MINIMUM TORQUE (ft-lb)
TP	MH325BRG	1	8D10D12D	≤ 569	70C; 20T	8,750

*C = compression, T = tension; **TP = test pile location was not specified on structural plans

MAGNUM GEO-SOLUTIONS, LLC
363 W. DRAKE ROAD, SUITE 1
FORT COLLINS, CO 80526
513-275-2442
800-822-7437
WWW.MAGNUMPIERING.COM

PLAN NOT VALID WITHOUT ORIGINAL WET STAMP

PROJECT NAME:

COMMERCIAL BUILDING

ADDRESS
CITY, STATE

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

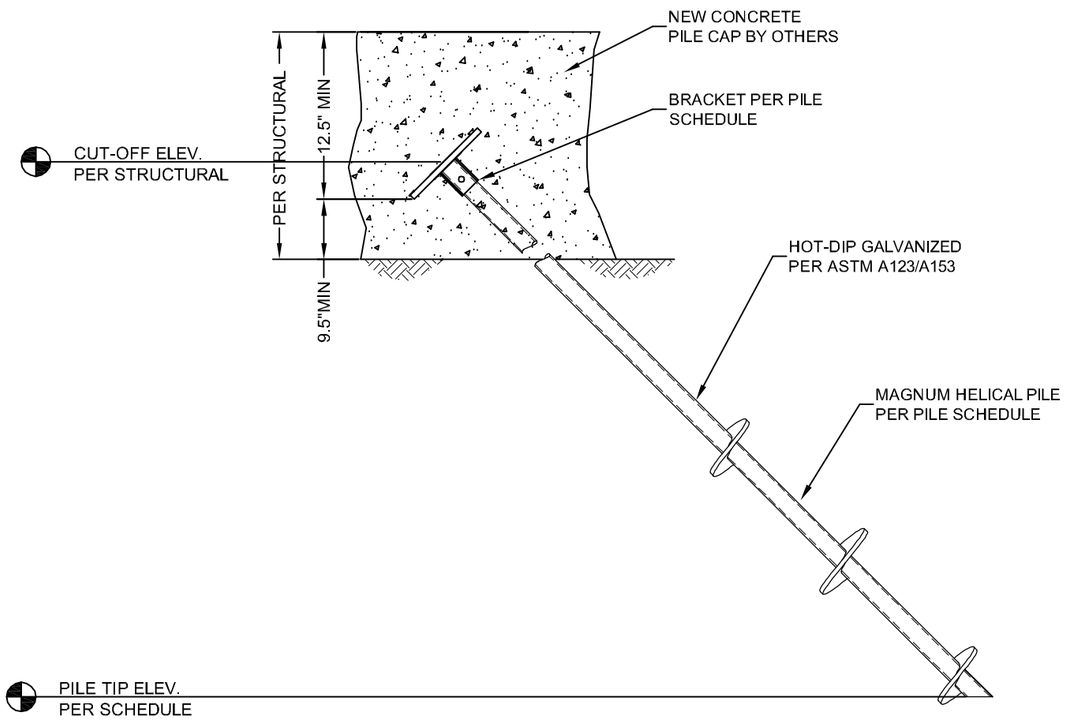
HELICAL PILE LOCATION

NO.	DATE	REVISION/ISSUE

DESIGNED BY: MMB
DRAWN BY: MMB
CHECKED BY: HAP
PROJECT No: CRH3

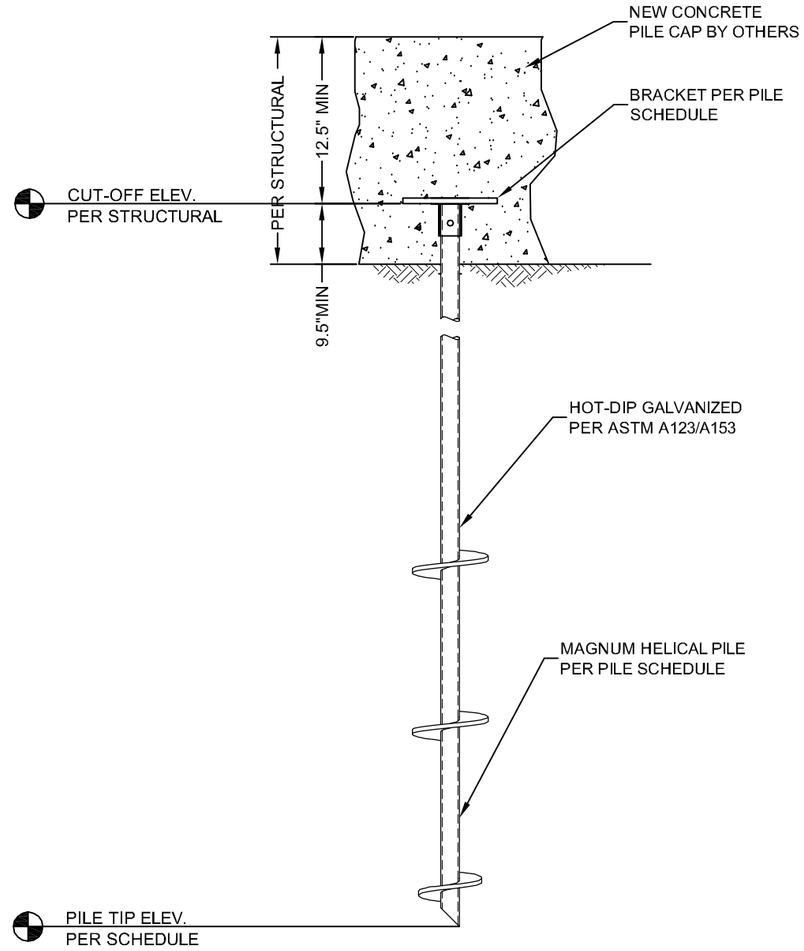
DATE: 7/13/09
SCALE: AS SHOWN

SHEET S1



BATTERED HELICAL
PILE DETAIL

Scale: 1/2" = 1'



VERTICAL HELICAL
PILE DETAIL

Scale: 1/2" = 1'

MAGNUM GEO-SOLUTIONS, LLC
363 W. DRAKE ROAD, SUITE 1
FORT COLLINS, CO 80526
513-275-2442
800-822-7437
WWW.MAGNUMPIERING.COM

PLAN NOT VALID WITHOUT ORIGINAL
WET STAMP

PROJECT NAME:

COMMERCIAL BUILDING

ADDRESS
CITY, STATE

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

HELICAL PILE DETAILS

NO.	DATE	REVISION/ISSUE

DESIGNED BY: MMB
DRAWN BY: MMB
CHECKED BY: HAP
PROJECT No: CRH3

DATE: 7/13/09
SCALE: AS SHOWN

SHEET S2

General Notes:

1.Codes:
This plan was prepared based on most recent versions of the International Building Code and ICC-ES AC358.

2. Loads:
This plan is based upon the following load parameters:
Vertical Piles:
Maximum Compressive Load: Working Load = 35 kips
Maximum Tensile Load: Working Load = 10 kips

Battered Piles:
Maximum Compressive Load: Working Load = 50 kips
Maximum Tensile Load: Working Load = 14 kips

3. Subsurface Conditions:
Soils report by: Soil Engineering Company, City, State, Project Name; dated Month Day, Year.
Helix sizing based on SPT values obtained in borings.

4. Materials:
This plan is based upon the following material properties (Not all materials may be used in this plan). If there is a conflict between these specifications and plans by others, the more stringent criteria should be followed.

Connectors: All bolts shall be ASTM A325 (U.N.O.). All anchors shall be Simpson Strong-bolt wedge anchors with nominal shear strength of 6,560 lb per wedge anchor or greater.

Helical Piles: All helical piles/anchors and end caps shall be manufactured and supplied by Magnum Piering Inc. Piles, anchors and caps shall be galvanized steel.

Concrete: Concrete shall contain Type II cement, 6% ±1% air entrainment, and a minimum 28 day compressive strength of 4,000 psi.

Grout: All grout shall be non-shrink standard grout or chemical grout with minimum 28 day compressive strength of 1,500 psi.

Reinforcing Steel: Reinforcing steel shall be deformed grade 60 steel unless noted otherwise (U.N.O.) on the plan and shall conform to ASTM A615. Minimum concrete cover shall be 2" U.N.O. on the plan. Overlaps shall be 36 bar diameters but not less than 24". Detail reinforcing bars in accordance to the ACI detailing manual and ACI code, latest edition. All foundation wall reinforcement should be wired in place. Slab and footing reinforcement shall utilize chairs or other acceptable methods to achieve the required cross section location.

Structural Steel: Structural steel beams shall conform to ASTM A50. 3" diameter adjustable steel columns shall be 11GA or better and rated for a safe allowable load of not less than 14 kips for columns up to 8'-0" in height, and 12.5 kips for columns up to 9'-0" in height. 3.5" diameter adjustable steel columns shall be schedule 40 and rated for a safe allowable load of not less than 36 kips for columns up to 10'-0" in height. All adjustable steel columns shall have 1" to 3" of threads exposed.

5. Installation:
Helical piles/anchors shall be furnished and installed at the locations, inclinations, and orientations shown on the plans. Standard tolerance for transverse positioning is ± 1"; for longitudinal positioning the tolerance is ± 0.5", and for declination the tolerance is ± 5°. Helical piles/anchors should extend to or beyond the minimum depth shown on the plans or contained in the soil report. Continue installation until installation torque equals or exceeds that shown on the helical pile/anchor schedule. Log installation depth and torque at 3-foot intervals during installation and submit installation logs to Engineer for review prior to completion of the project.

6. Backfill:
Backfill shall be placed and compacted per soil report. At a minimum, backfill may consist of non-expansive on-site soils or imported sandy soils. Backfill materials shall be free of cobbles, boulders, and debris greater than 3" diameter. Backfill materials shall not contain frozen soil or water, organics or any deleterious materials. Backfill shall be placed and compacted in thin (8" max) lifts.

7. Drainage:
The ground surface shall be sloped as much as practical to conduct runoff water away from foundations and retaining walls. For new construction, Magnum Geo-Solutions, LLC. typically recommends a minimum slope of 10% in landscaped areas and 1% for pavements and slab-on-grade. This drainage should be monitored and maintained throughout the life of the structure.

8. Foundation Drains:
Foundation and retaining wall drains should conform to the geotechnical engineer's report. At a minimum, foundation drains, if any, shall consist of drainage fabric over 12" of clean gravel over a 4" perforated pipe sloped at ⅛" per foot to daylight well beyond the foundation or earth retention system or to a sump pit with pump.

9. Limitations:
This Plan is based on client furnished plans, soil report, and the above referenced specifications. It is the contractors responsibility to verify and coordinate all dimensions prior to construction. Any discrepancies or changes should be brought to the attention of the Engineer. This plan is only a helical pile/anchor plan. Unknowns could exist regarding the construction of the structure and subsurface properties that could affect pile/anchor performance. This plan was prepared to the level of skill and care ordinarily practiced by other engineers in this area at this time. No warrantee is made by Engineer, express or implied.

This plan is based on products manufactured by Magnum Piering, Inc. and methods of installation practiced by Magnum Authorized Dealers. This plan is invalid for products manufactured by others and any other installation contractors.

MAGNUM GEO-SOLUTIONS, LLC
363 W. DRAKE ROAD, SUITE 1
FORT COLLINS, CO 80526
513-275-2442
800-822-7437
WWW.MAGNUMPIERING.COM

PLAN NOT VALID WITHOUT ORIGINAL WET STAMP

PROJECT NAME:
COMMERCIAL BUILDING

ADDRESS
CITY, STATE

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

GENERAL NOTES

NO.	DATE	REVISION/ISSUE

DESIGNED BY: MMB
DRAWN BY: MMB
CHECKED BY: HAP
PROJECT No: CRH3

DATE: 7/13/09
SCALE: AS SHOWN

SHEET S3