1 C0.0 **OVERALL SITE LAYOUT**

1" = 20'-0"

FLEISCHMAN RETAINING WALL REPAIR

354 ISLAND AIRE DR.,
WOODLAND, WA 98674

IMPERVIOUS AREA

DRIVEWAY/PATIO:	1193 SF
ROOF AREA:	4529 SF
TOTAL	5722 SF

LOT AREA

TOTAL 0.25 ACRES

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CLIENT: TERRAFIRMA FOUNDATION SYSTEMS
JOB TITLE: FLEISCHMAN FOUNDATION REPAIR
354 ISLAND AIRE DR., WOODLAND, WA 98674
JURISDICTION: CITY OF WOODLAND

DENNIS M HEIER
STATE OF WASHINGTON
47866
REGISTERED
PROFESSIONAL ENGINEER

10-24-2023

DRAWING TITLE

SITE PLAN

ENGINEER:	AT	CHECKED BY:	DMH
DATE:	10-24-2023	DRAWN BY:	AG

SHEET NUMBER

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PROJECT DESCRIPTION:

- HELICAL ANCHORS ARE TO BE VOLUNTARILY INSTALLED TO PREVENT AND STABILIZE FURTHER SUBSIDENCE OF THE EXISTING STRUCTURE.

GENERAL REQUIREMENTS:

- ALL DETAIL CUTS SHALL BE CONSIDERED TYPICAL AT LIKE CONDITIONS. WHERE ANY DISCREPANCIES OCCUR BETWEEN PLANS, DETAILS, NOTES AND SPECIFICATIONS, THE GREATER REQUIREMENT SHALL GOVERN.
- THE CONTRACTOR SHALL PROVIDE BRACING AND SUPPORT REQUIRED FOR TEMPORARY CONSTRUCTION LOADS AND FOR STRUCTURAL COMPONENTS AS REQUIRED DURING ERECTION.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATION OF ALL WORK. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE COORDINATION OF THE EXCAVATION, SHORING, AND OTHER WORK WITH ALL UTILITIES AND ADJACENT PROPERTIES. CALL THE UTILITY LOCATE SERVICE PRIOR TO ANY WORK AT (800) 332-2344
- MANUFACTURER'S INSTALLATION INSTRUCTIONS FOR ALL HARDWARE AND MANUFACTURED STRUCTURAL PRODUCTS SHALL BE AVAILABLE ON THE JOBSITE AT THE TIME OF INSPECTION, FOR THE INSPECTOR'S USE AND REFERENCE.

CODE REQUIREMENTS:

- ALL DESIGN AND CONSTRUCTION SHALL CONFORM TO THE 2018 INTERNATIONAL RESIDENTIAL CODE W/ WASHINGTON STATE AMENDMENTS AND THE 2018 INTERNATIONAL BUILDING CODE W/ WASHINGTON STATE AMENDMENTS, BOTH AS ADOPTED BY THE AUTHORITY HAVING JURISDICTION.

DESIGN LOADS:

DEAD LOADS

ROOF	15 PSF
CEILING	5 PSF
FLOORS	15 PSF
WALLS (EXTERIOR)	13 PSF
WALLS (INTERIOR)	9 PSF
CONCRETE WEIGHT	150 PCF
BRICK WEIGHT	120 PCF
MASONRY WEIGHT	78 PSF

LIVE LOADS

ROOF (SNOW + RAIN-ON-SNOW SURCHARGE)	25 PSF
FLOORS (SLEEPING)	30 PSF
FLOORS (NON-SLEEPING)	40 PSF

GEOTECHNICAL INFORMATION:

- HELICAL PIERS HAVE BEEN DESIGNED WITH THE FOLLOWING PARAMETERS PER IBC TABLE 1806.2:

ALLOWABLE BEARING PRESSURE	1500 PSF
LATERAL BEARING PRESSURE	100 PSF/FT
ACTIVE EARTH PRESSURE	60 PSF/FT

CORROSION PROTECTION:

- SACRIFICIAL DESIGN THICKNESS - CAPACITIES INCLUDE A SCHEDULED LOSS IN STEEL THICKNESS DUE TO CORROSION FOR BUCK, UNCOATED STEEL. ANCHORS ARE DESIGNED FOR 60-YEAR SCHEDULED SACRIFICIAL THICKNESS LOSS IN ACCORDANCE WITH ICC-ES AC358.

HELICAL PIER INSTALLATION:

- THE HELICAL PIER SYSTEM SHALL BE INSTALLED PER THE MANUFACTURERS RECOMMENDATIONS.
- THE MINIMUM INSTALLATION PRESSURE IS TO BE DETERMINED BY THE FOLLOWING EQUATION:
  - HELICAL PIER INSTALLATION TORQUE (FT-LB): [DESIGN WORKING LOAD] X [FS =2] / [EMPIRICAL TORQUE CORRELATION FACTOR PER AC358, KT = 10 FT^{-1}]
- THE MINIMUM INSTALLATION DEPTH IS 15'-0" UNO.

HELICAL PIER SPLICING:

- HELICAL LEAD AND EXTENSION ARE TO BE MECHANICALLY SPLICED WITH GRADE 8 BOLTS WITH NUTS.

INSPECTION AND TESTING:

- THE CONTRACTOR SHALL BE RESPONSIBLE TO COORDINATE ALL INSPECTIONS REQUIRED BY THE LOCAL BUILDING DEPARTMENT
- THE MANUFACTURERS INSTALLATION INSTRUCTIONS SHALL BE AVAILABLE ON THE JOB SITE AT THE TIME OF INSPECTION.
- SPECIAL INSPECTION IS REQUIRED DURING INSTALLATION PER 2018 IBC SECTION 1810.4.12.
- PERIODIC INSPECTION IS ACCEPTABLE, THE INSPECTOR SHALL WITNESS THE INSTALLATION OF 20% OF ALL PIERS.
- THE SPECIAL INSPECTOR WILL RECORD THE PROJECT LOCATION, DATE, PERMIT NUMBER, PIER LOCATIONS, PART DESCRIPTION, PIER DEPTH AND INSTALLATION PRESSURE.
- LOAD TESTING SHALL BE PERFORMED IN ACCORDANCE WITH ASTM METHOD D1143 (QUICK METHOD) AND 2018 IBC 1810.3.3.1.9 ON ALL PIERS THAT DO NOT MEET THE INSTALLATION REQUIREMENTS SHOWS IN THESE PLANS. AN ALIGNMENT LOAD (AL) SHALL BE APPLIED TO THE PILE PRIOR TO SETTING THE DEFLECTION MEASURING EQUIPMENT TO ZERO OR A REFERENCE POSITION.
- THE AL SHALL BE NO MORE THAN 10% OF THE DESIGN LOAD.
- INCREMENTAL LOADING SHALL BE IN ACCORDANCE WITH THE FOLLOWING SCHEDULE:

HELICAL PIER - INCREMENTAL LOADING		
TEST LOADING SCHEDULE	HOLD TIME	MAX. DEFLECTION
ALIGNMENT LOAD (0.10 DL MAX)	0 MIN.	
0.25 DL	UNIT STABLE	
0.50 DL	UNIT STABLE	
0.75 DL	UNIT STABLE	
1 DL	UNIT STABLE	
1.25 DL	UNIT STABLE	
1.5 DL	HOLD FOR CREEP TEST (SEE BELOW)	0.04"
1.25 DL	UNIT STABLE	
1 DL	UNIT STABLE	
0.75 DL	UNIT STABLE	
0.50 DL	UNIT STABLE	
0.25 DL	UNIT STABLE	

- LOAD TESTING CREEP ACCEPTANCE CRITERIA SHALL BE NO GREATER THAT 0.04" WITHIN A 10 MINUTE PERIOD. IF MOVEMENT IS OBSERVED GREATER THAN 0.04" WITHIN THE 10 MINUTE PERIOD THE LOAD TEST SHALL BE HELD FOR AN ADDITIONAL 50 MINUTES, THE PIER IS TO BE DEEPENED AND RE-TESTED, OR THE PIER IS TO BE ABANDONED AND REPLACED WITH A NEW PIER. IF THE LOAD TEST IS TO BE HELD THE PIER MOVEMENTS SHALL BE MEASURED AT 15, 20, 30, 40, 50 AND 60 MINUTES. THE CREEP VERSUS THE LOGARITHM OF TIME SHALL BE PLOTTED. IF THE CREEP RATE IS LESS THAN 0.080 INCHES BETWEEN 6 AND 60 MINUTES, THE LOAD TEST SHALL BE CONSIDERED SUCCESSFUL.

HELICAL PIER MATERIALS	
BRACKET PLATES	ASTM A36
PIER TUBES	ASTM A500 GRADE B OR C
EXTERNAL SLEEVE	ASTM A500 GRADE B OR C
PIER CAP	ASTM A529 GRADE 50
ALL-THREAD ROD	ASTM A193 GRADE B7
STEEL ANGLE SHAPES	ASTM A36
SHAFT COUPLER	ASTM 513 TYPE 5
SHAFT COUPLER HARDWARE	GRADE 8 BOLTS WITH NUTS
HELIX PLATES (ROUND SHAFT)	ASTM A572 GRADE 50

SPECIAL INSPECTIONS	
TYPE OF INSPECTION	REQUIRED?
HELICAL PIER	Y
ANCHORS - EXPANSION/SCREW	N
WOOD CONSTRUCTION	N
CONCRETE CONSTRUCTION	N

10-24-2023

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DRAWING TITLE

GENERAL NOTES

ENGINEER:	AT	CHECKED BY:	DMH
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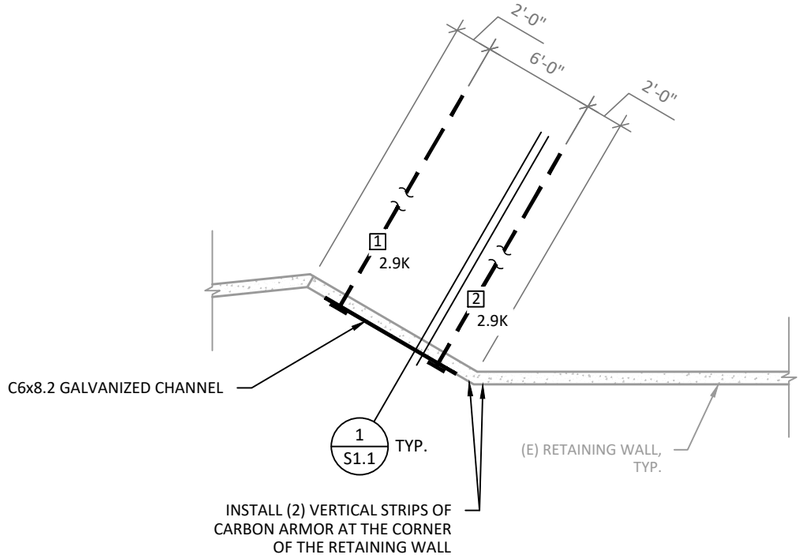
SHEET NUMBER

S0.0



1/S0.1 **RETAINING WALL REPAIR PLAN**

1/8"= 1'-0"

SPECIAL NOTE:
THE HELICAL ANCHORS SHOWN ARE TO BE VOLUNTARILY INSTALLED TO PREVENT AND STABILIZE FURTHER SUBSIDENCE OF THE EXISTING BUILDING.

(E) FOUNDATION/(N) PIER LAYOUT PLAN NOTES

1. CONTRACTOR TO NOTIFY EOR OF DISCREPANCIES BETWEEN FIELD CONDITIONS AND THOSE SHOWN IN THESE DOCUMENTS PRIOR TO CONSTRUCTION/INSTALLATION OF PIERS TYP.

2. XX K #

IN ADDITION TO THE GENERAL NOTES & SPECIFICATIONS DETAILED IN THIS PLAN SET, ALL WORK & MATERIALS SHALL CONFORM TO THE 2018 INTERNATIONAL RESIDENTIAL CODE W/ WASHINGTON STATE AMENDMENTS, AS ADOPTED BY THE AUTHORITY HAVING JURISDICTION.

3. INDICATES HELICAL TIEBACKS AND DESIGN LOAD (KIPS).

4. ALL PILES, HELICAL BLADES, CARBON ARMOR, FOUNDATION BRACKETS, HARDWARE, ETC., SHALL BE MANUFACTURED BY SUPPORTWORKS, INC.

5. **HELICAL TIEBACK INSTALLATION NOTES**

- **HP288** (2.875"Ø (O.D.) x 0.276" THICK WALL)
- 0.38" THICK **10/12"** HELIX CONFIGURATION w/ 1/4" FILLET WELDS EACH SIDE OF HELIX TO PIER
- MINIMUM **15'-0"** INSTALLATION DEPTH REQUIRED AND FINAL INSTALLATION TORQUE OF **1,500 FT-LB**.

7. HELICAL TIEBACK AND CARBON ARMOR SPACING SHALL BE INDICATED ON PLAN.

8. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO IDENTIFY ALL UTILITIES AND PROTECT AS REQUIRED DURING THE COURSE OF CONSTRUCTION.

9. SEE SHEET **S0.0** FOR ADDITIONAL NOTES.

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FOUNDATION PLAN

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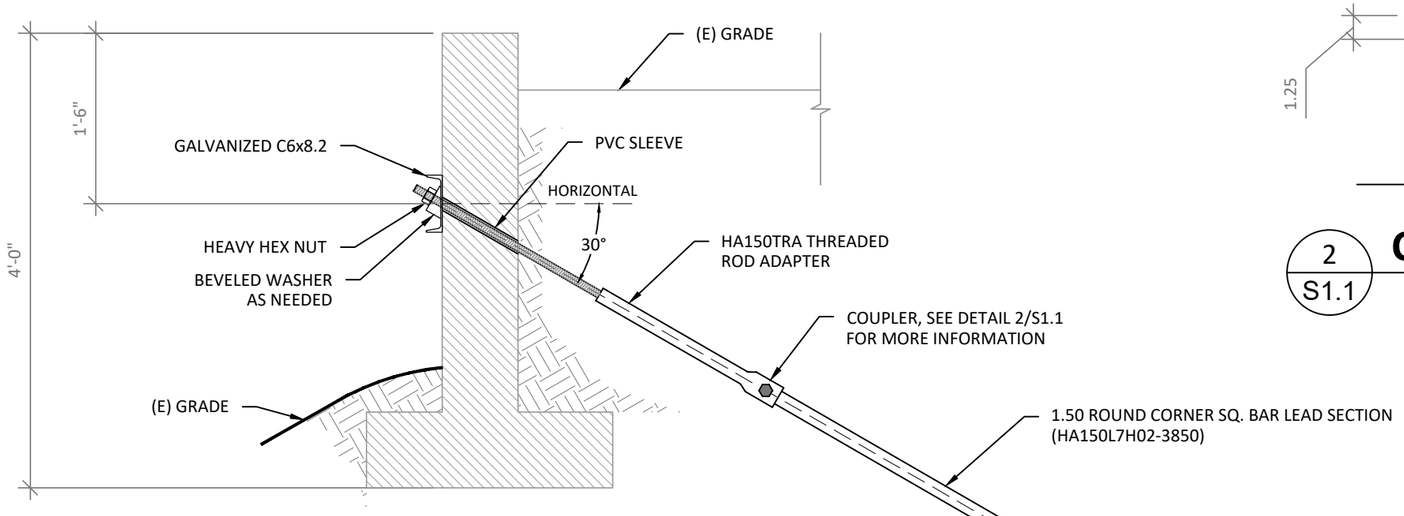
S0.1

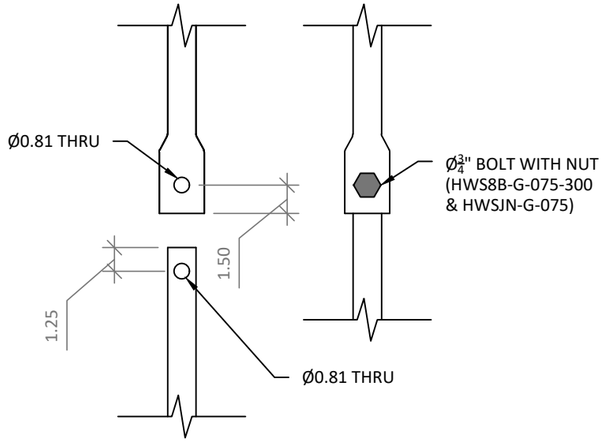


NOTES:

1. MINIMUM MATERIAL REQUIREMENTS:
   SHAFTS - Fy = 90 ksi, Fu = 115 ksi
   HELIX PLATES - ASTM A572 Gr.50
   SHAFT COUPLING HARDWARE - (1) - Ø ¾" GRADE 8 BOLT WITH NUT
2. ALL WELDING TO BE IN ACCORDANCE WITH AWS D1.1 LATEST ISSUE WITH E70-XX MIN ELECTRODE.
3. HELIX PLATES HAVE A NOMINAL 3" PITCH WITH LEADING AND TRAILING EDGES BEING NO MORE THAN ¼" OUT OF PARALLEL.
4. SHAFT COUPLING HARDWARE IS PROVIDED AS MECHANICALLY GALVANIZED IN ACCORDANCE WITH ASTM B695.

SPECIAL NOTE:
TIEBACK EMBEDMENT SHALL BE 15'-0" MIN UNO, INSTALLED PER THE TORQUE CORRELATION METHOD

1 / S1.1 **HELICAL PIER DETAIL**
3/4"= 1'-0"



2 / S1.1 **COUPLER DETAIL**
3/4"= 1'-0"

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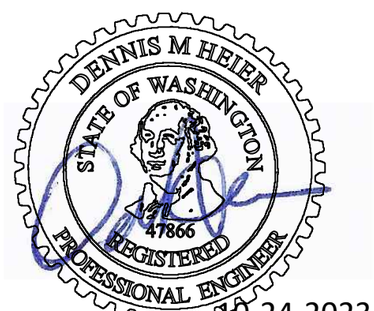
DIGGA		
HH-6K		
DIFFERENTIAL PRESSURE (PSI)	THEORETICAL TORQUE (FT/LB)	ACTUAL TORQUE (FT/LB)
500	1554	1197
750	2331	1795
1000	3108	2393
1250	3886	2992
1500	4663	3591
1750	5440	4189
2000	6217	4787
2100	6528	5022

MM10		
500	1747	1345
1000	3493	2690
1300	4541	3496
1500	5240	4034
1700	5938	4572
1900	6637	5110
2100	7335	5648
2300	8034	6186
2500	8733	6724
3000	10479	8069

PENGO		
RS-7		
DIFFERENTIAL PRESSURE (PSI)	THEORETICAL TORQUE (FT/LB)	ACTUAL TORQUE (FT/LB)
500	1832	1502
1000	3664	3004
1300	4763	3906
1500	5496	4507
1700	6229	5107
1900	6962	5708
2100	7695	6309
2300	8428	6910
2500	9161	7511

MDT-12K (2 SPEED)		
DIFFERENTIAL PRESSURE (PSI)	LOW TORQUE/HIGH SPEED (FT/LB)	HIGH TORQUE/LOW SPEED (FT/LB)
1000	2733	5466
1200	3279	6559
1400	3826	7652
1600	4373	8746
1800	4919	9839
2000	5466	10932
2200	6012	12025
2400	6559	13119



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DRAWING TITLE
TORQUE CORRELATION

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DATE:	10-24-2023	DRAWN BY:	AG

SHEET NUMBER
S2.1