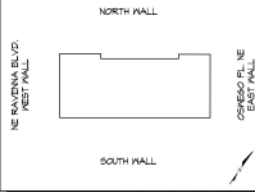


TEMPORARY SHORING WALL PLANS

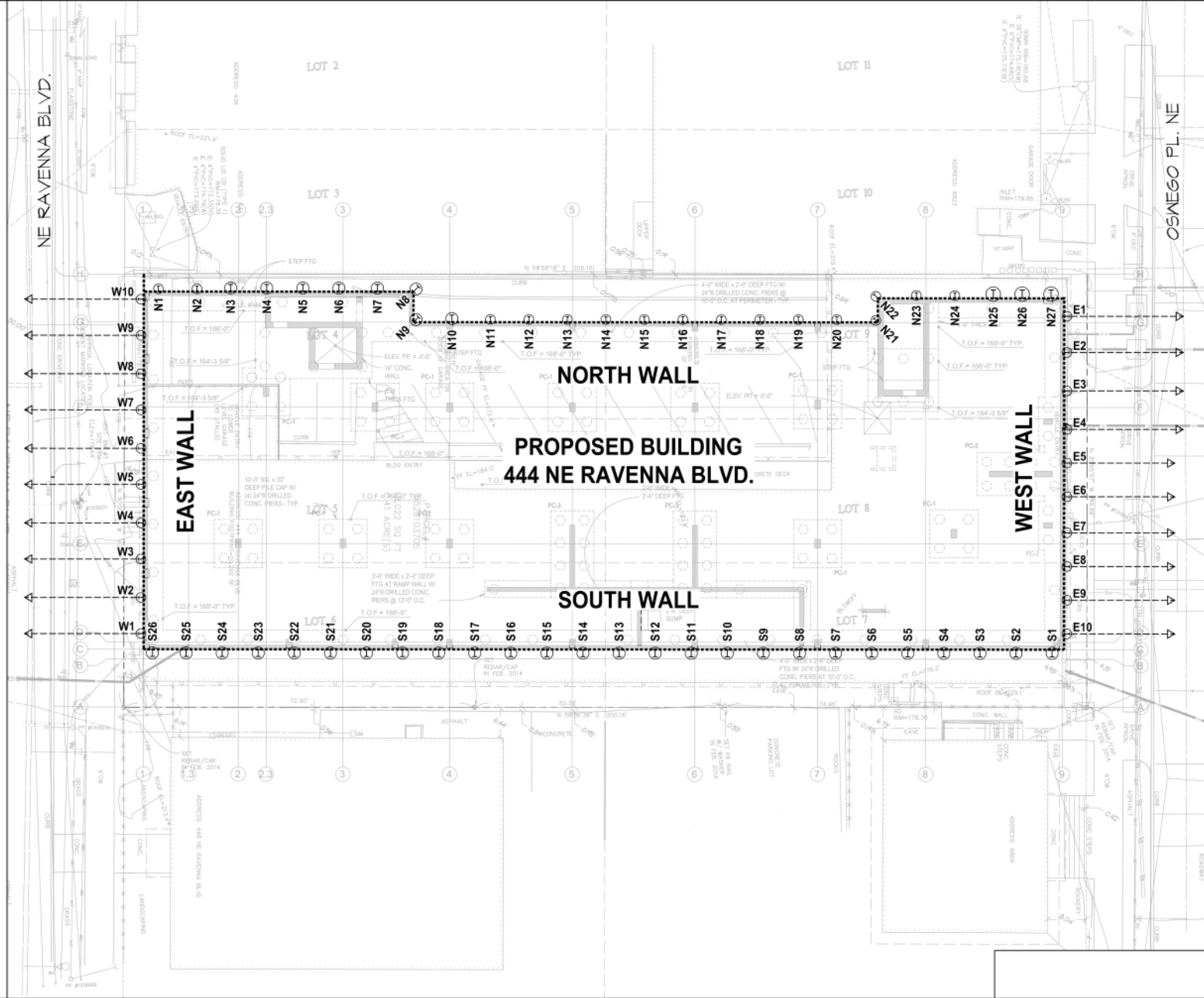
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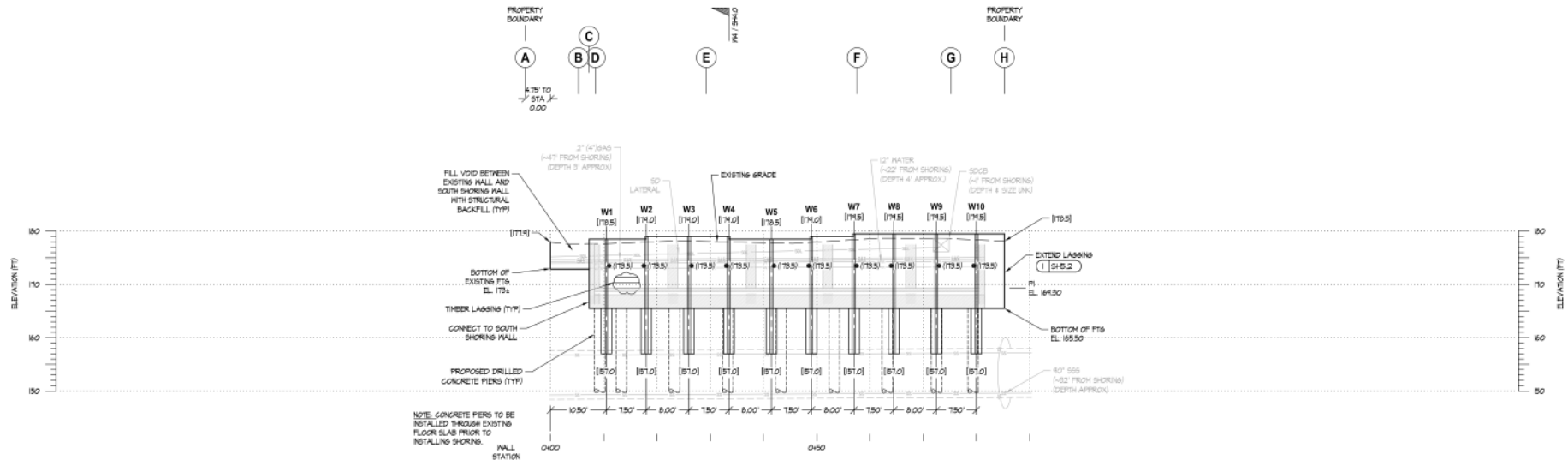
WALL KEY PLAN



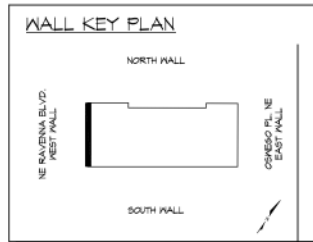
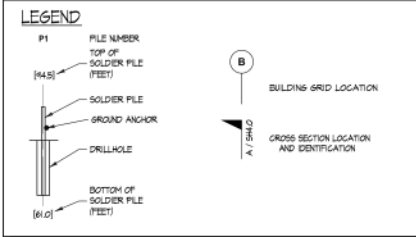
LEGEND

- SOLDIER PILE
- SOIL ANCHOR
- BUILDING GRID LOCATION
- FACE OF SOLDIER PILE WALL
- EXISTING GRADE CONTOUR
- PROPOSED BUILDING WALL





NOTE: INFORMATION SUPPLIED TO GROUND SUPPORT, LLC AT TIME OF SHORING DESIGN IS INSUFFICIENT TO CHECK FOR ALL POTENTIAL CONFLICTS BETWEEN SHORING ELEMENTS AND UTILITIES. CONTRACTOR IS RESPONSIBLE FOR LOCATION OF ALL UTILITIES WITHIN ZONE OF SHORING ELEMENTS AND FOR CHECKING THAT NO SUCH CONFLICTS EXIST.



DESIGN	DRAWN	REVIEW	DATE	REV	DESCRIPTION
1	1	1	12/20/2019	1	PERMIT ISSUE
2	2	2	12/20/2019	2	REV. CORRECTION

Ground Support, LLC
19523 1st Ave. NE, Suite 200
Woodinville, WA 98072
Ph: (425) 888-1147 Fax: (425) 626-4057

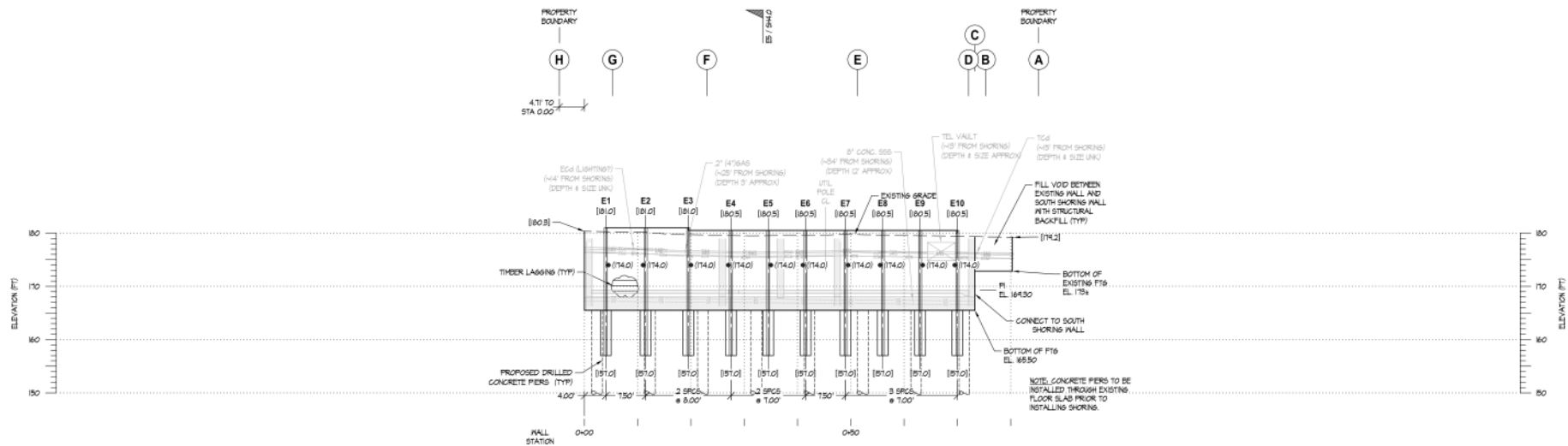
444 NE RAVENNA BLVD.
TEMPORARY SHORING WALL
WEST ELEVATION

PROJ. NO. 19-14

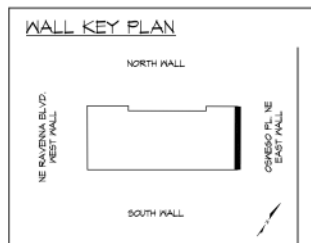
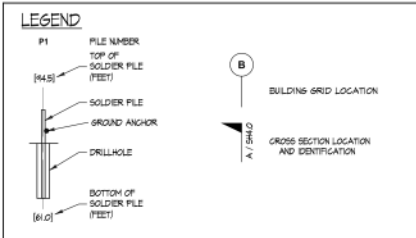
SHEET NUMBER

SH3.0

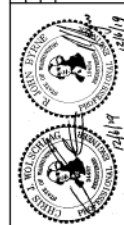
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NOTE: INFORMATION SUPPLIED TO GROUND SUPPORT PLLC AT TIME OF SHORING DESIGN IS INSUFFICIENT TO CHECK FOR ALL POTENTIAL CONFLICTS BETWEEN SHORING ELEMENTS AND UTILITIES. CONTRACTOR IS RESPONSIBLE FOR LOCATION OF ALL UTILITIES WITHIN ZONE OF SHORING ELEMENTS AND FOR CHECKING THAT NO SUCH CONFLICTS EXIST.



DESIGN	DRAWN	REVIEW	DATE	REV	DESCRIPTION
10/2	10/2	10/2	10/2	1	SH3.2
10/2	10/2	10/2	10/2	2	REV CORN 4



Ground Support PLLC
19523 Neva Way, Industrial Rd. NE, #210
Woodinville, WA 98072
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**444 NE RAVENNA BLVD.
TEMPORARY SHORING WALL
EAST ELEVATION**

PROJ. NO. 19-14
SHEET NUMBER

SH3.2
2

PILE NUMBER	WALL STA	STEEL SECTION	PILE TOP ELEV (FT)	PILE BOT ELEV (FT)	PILE LENGTH (FT)	MIN. DRILL-HOLE DIA (FT)
N1	0+09.1	HA-X30	179.5	59.0	20.5	2.0
N2	0+09.7	HA-X30	179.5	59.0	20.5	2.0
N3	0+09.8	HA-X16	179.5	44.0	24.5	2.5
N4	0+09.8	HA-X16	179.5	44.0	24.5	2.5
N5	0+09.9	HA-X16	179.5	44.0	24.5	2.5
N6	0+09.9	HA-X16	179.5	44.0	24.5	2.5
N7	0+09.9	HA-X16	179.5	44.0	24.5	2.5
N8	0+09.9	HA-X16	179.5	44.0	24.5	2.5
N9	0+09.9	HA-X16	179.5	44.0	24.5	2.5
N10	0+10.4	HA-X16	179.5	44.0	24.5	2.5
N11	0+10.4	HA-X30	179.5	52.0	27.5	2.0
N12	0+10.4	HA-X30	179.5	52.0	27.5	2.0
N13	0+14.4	HA-X30	174.0	52.0	22.0	2.0
N14	0+22.4	HA-X30	174.0	52.0	22.0	2.0
N15	0+22.4	HA-X30	174.0	52.0	22.0	2.0
N16	0+22.4	HA-X30	174.0	52.0	22.0	2.0
N17	0+22.4	HA-X30	174.0	52.0	22.0	2.0
N18	0+22.4	HA-X30	174.0	52.0	22.0	2.0
N19	0+22.4	HA-X30	174.0	52.0	22.0	2.0
N20	0+22.4	HA-X30	174.0	52.0	22.0	2.0
N21	0+22.4	HA-X30	174.0	52.0	22.0	2.0
N22	0+22.4	HA-X30	174.0	52.0	22.0	2.0
N23	0+22.4	HA-X30	174.0	52.0	22.0	2.0
N24	0+22.4	HA-X30	174.0	52.0	22.0	2.0
N25	0+22.4	HA-X30	174.0	52.0	22.0	2.0
N26	0+22.4	HA-X30	174.0	52.0	22.0	2.0
N27	0+22.4	HA-X30	174.0	52.0	22.0	2.0

PILE NUMBER	WALL STA	STEEL SECTION	PILE TOP ELEV (FT)	PILE BOT ELEV (FT)	PILE LENGTH (FT)	MIN. DRILL-HOLE DIA (FT)
S1	0+02.5	HA-X30	177.5	145.0	32.5	2.5
S2	0+02.5	HA-X30	177.5	145.0	32.5	2.5
S3	0+02.5	HA-X30	177.5	145.0	32.5	2.5
S4	0+02.5	HA-X30	177.5	145.0	32.5	2.5
S5	0+02.5	HA-X30	177.5	145.0	32.5	2.5
S6	0+02.5	HA-X30	177.5	145.0	32.5	2.5
S7	0+02.5	HA-X30	177.5	145.0	32.5	2.5
S8	0+02.5	HA-X30	177.5	145.0	32.5	2.5
S9	0+02.5	HA-X30	177.5	145.0	32.5	2.5
S10	0+02.5	HA-X30	177.5	145.0	32.5	2.5
S11	0+02.5	HA-X30	177.5	145.0	32.5	2.5
S12	0+02.5	HA-X30	177.5	145.0	32.5	2.5
S13	0+02.5	HA-X30	177.5	145.0	32.5	2.5
S14	0+02.5	HA-X30	177.5	145.0	32.5	2.5
S15	0+02.5	HA-X30	177.5	145.0	32.5	2.5
S16	0+02.5	HA-X30	177.5	145.0	32.5	2.5
S17	0+02.5	HA-X30	177.5	145.0	32.5	2.5
S18	0+02.5	HA-X30	177.5	145.0	32.5	2.5
S19	0+02.5	HA-X30	177.5	145.0	32.5	2.5
S20	0+02.5	HA-X30	177.5	145.0	32.5	2.5
S21	0+02.5	HA-X30	177.5	145.0	32.5	2.5
S22	0+02.5	HA-X30	177.5	145.0	32.5	2.5
S23	0+02.5	HA-X30	177.5	145.0	32.5	2.5
S24	0+02.5	HA-X30	177.5	145.0	32.5	2.5
S25	0+02.5	HA-X30	177.5	145.0	32.5	2.5
S26	0+02.5	HA-X30	177.5	145.0	32.5	2.5

PILE AND ANCHOR SCHEDULE - EAST WALL													
PILE NUMBER	WALL STA	STEEL SECTION	PILE TOP ELEV (FT)	PILE BOT ELEV (FT)	PILE LENGTH (FT)	MIN. DRILL-HOLE DIA (FT)	ANCHOR 1						
							ANCHOR ELEV (FT)	DEGL- WATION (DEG)	TOTAL LENGTH (FT)	UNBOND LENGTH (FT)	BOND LENGTH (FT)	OR BAR SIZE	DESIGN LOAD (K)
E1	0+04.0	HA-X30	181.0	57.0	24.0	2.0	174.0	45.0	35.0	10.0	25.0	No. 10	50.0
E2	0+04.0	HA-X30	181.0	57.0	24.0	2.0	174.0	45.0	35.0	10.0	25.0	No. 10	50.0
E3	0+04.0	HA-X30	181.0	57.0	24.0	2.0	174.0	45.0	35.0	10.0	25.0	No. 10	50.0
E4	0+04.0	HA-X30	181.0	57.0	24.0	2.0	174.0	45.0	35.0	10.0	25.0	No. 10	50.0
E5	0+04.0	HA-X30	181.0	57.0	24.0	2.0	174.0	45.0	35.0	10.0	25.0	No. 10	50.0
E6	0+04.0	HA-X30	181.0	57.0	24.0	2.0	174.0	45.0	35.0	10.0	25.0	No. 10	50.0
E7	0+04.0	HA-X30	181.0	57.0	24.0	2.0	174.0	45.0	35.0	10.0	25.0	No. 10	50.0
E8	0+04.0	HA-X30	181.0	57.0	24.0	2.0	174.0	45.0	35.0	10.0	25.0	No. 10	50.0
E9	0+04.0	HA-X30	181.0	57.0	24.0	2.0	174.0	45.0	35.0	10.0	25.0	No. 10	50.0
E10	0+04.0	HA-X30	181.0	57.0	24.0	2.0	174.0	45.0	35.0	10.0	25.0	No. 10	50.0

PILE AND ANCHOR SCHEDULE - WEST WALL													
PILE NUMBER	WALL STA	STEEL SECTION	PILE TOP ELEV (FT)	PILE BOT ELEV (FT)	PILE LENGTH (FT)	MIN. DRILL-HOLE DIA (FT)	ANCHOR 1						
							ANCHOR ELEV (FT)	DEGLINATION (DEG)	TOTAL LENGTH (FT)	UNBOND LENGTH (FT)	BOND LENGTH (FT)	OR BAR SIZE	DESIGN LOAD (K)
W1	0+02.5	HA-X30	178.5	57.0	21.5	2.0	173.5	45.0	35.0	5.0	30.0	No. 4	40.0
W2	0+02.5	HA-X30	178.5	57.0	22.0	2.0	173.5	45.0	35.0	5.0	30.0	No. 4	40.0
W3	0+02.5	HA-X30	178.5	57.0	22.0	2.0	173.5	45.0	35.0	5.0	30.0	No. 4	40.0
W4	0+02.5	HA-X30	178.5	57.0	22.0	2.0	173.5	45.0	35.0	5.0	30.0	No. 4	40.0
W5	0+02.5	HA-X30	178.5	57.0	22.5	2.0	173.5	45.0	35.0	5.0	30.0	No. 4	40.0
W6	0+02.5	HA-X30	178.5	57.0	22.0	2.0	173.5	45.0	35.0	5.0	30.0	No. 4	40.0
W7	0+02.5	HA-X30	178.5	57.0	22.5	2.0	173.5	45.0	35.0	5.0	30.0	No. 4	40.0
W8	0+02.5	HA-X30	178.5	57.0	22.5	2.0	173.5	45.0	35.0	5.0	30.0	No. 4	40.0
W9	0+02.5	HA-X30	178.5	57.0	22.5	2.0	173.5	45.0	35.0	5.0	30.0	No. 4	40.0
W10	0+02.5	HA-X30	178.5	57.0	22.5	2.0	173.5	45.0	35.0	5.0	30.0	No. 4	40.0

2 NOTE: ALL REVISION CLOUDS ON THIS SHEET REFER TO REVISION NUMBER 2.

NOTES:

- FOR ANCHORS EXTENDING ACROSS CITY OF SEATTLE PUBLIC RIGHT-OF-WAY, TIEBACK/ANCHOR LENGTHS CANNOT BE INCREASED UNTIL SUBMITTAL OF A FULL PERMIT REVISION AND SUCH REVISION APPLICATION IS REVIEWED, APPROVED, AND RELEASED BY SOG.
- NO ANCHOR LOCK-OFF LOADS REQUIRED. AFTER TESTING EACH ANCHOR, LOOSEN, THEN HAND-TIGHTEN ANCHOR NUT.

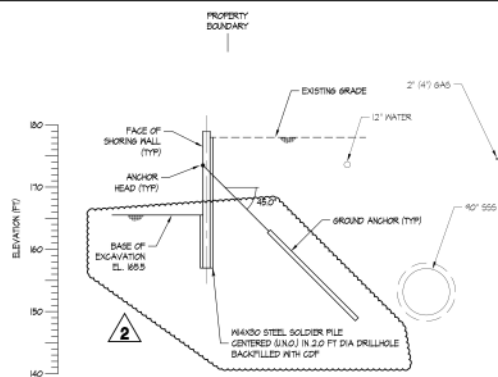
FILE NO.	19-14
SHEET NUMBER	SH3.A

444 NE RAVENNA BLVD.
TEMPORARY SHORING WALL
PILE AND ANCHOR SCHEDULE

Ground Support, LLC
 18323 Ravenna Blvd., Suite 200
 Woodinville, WA 98072
 Ph: (425) 888-1142 Fax: (425) 626-4057

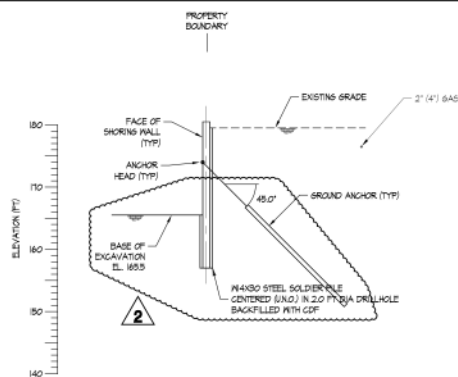
DATE: 12/2/2019
 DRAWN: JAS
 CHECKED: JAS
 REVISION: 1
 PERMIT: 19-14

DESCRIPTION: BRIDGE #1



WEST WALL
CROSS-SECTION AT
PILE W4

0 10

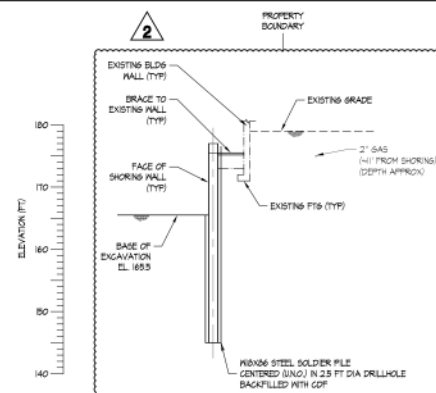


EAST WALL
CROSS-SECTION AT
PILE E5



54.0

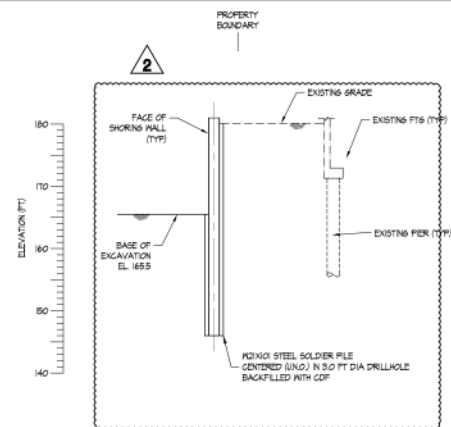
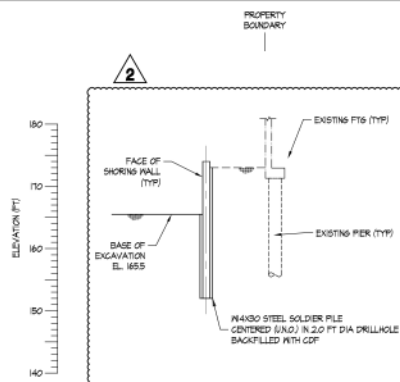
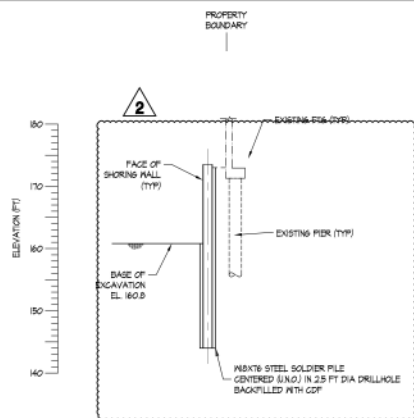
0 10



SOUTH WALL
CROSS-SECTION AT
PILE S23



0 10



NORTH WALL
CROSS-SECTION AT
PILE N26

0 10
FEET

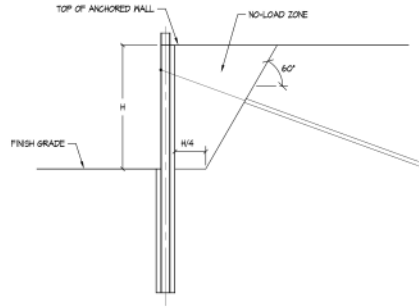
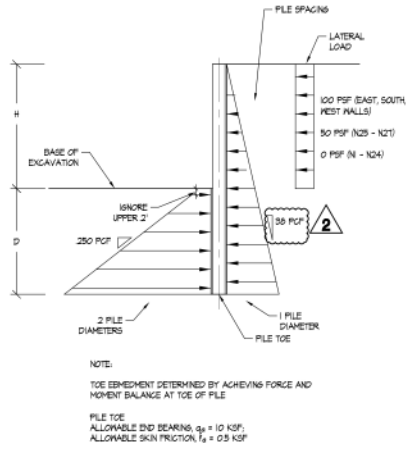
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SLB	ASS	CJM	5/20/04	2	BIF CORN #1



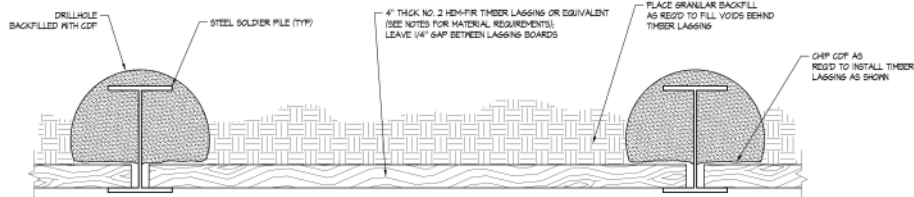
444 NE RAVENNA BLVD.
TEMPORARY SHORING WALL
CROSS-SECTIONS

PROJ. NO.	19-14
SHEET NUMBER	

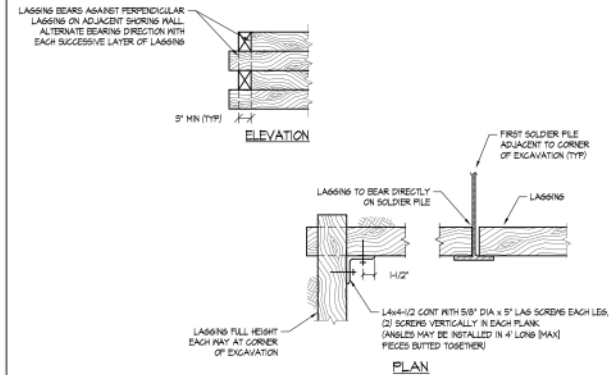
SH4.0



PROJ. NO.						19-14	
SHEET NUMBER						SH4.1	
444 NE RAVENNA BLVD. TEMPORARY SHORING WALL DESIGN DIAGRAM							
Ground Support & LLC 10523 Neva Way, Suite 100, NE, #210 Woodstock, WA 98072 Ph: (425) 888-1145 Fax: (425) 625-6257							
							
DESIGN	DRAWN	REVIEW	DATE	REV	DESCRIPTION		
WLB	JDS	CAN	5/10/20	1	PERMIT ISSUE		
WLB	JDS	CAN	5/10/20	2	BY CORN 4		

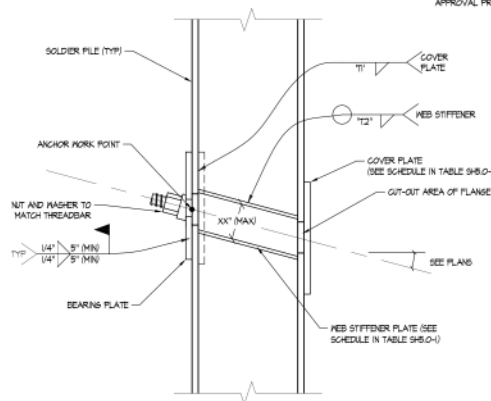


1
SH5.0
PILE / SHAFT / LAGGING
DETAIL
NOT TO SCALE

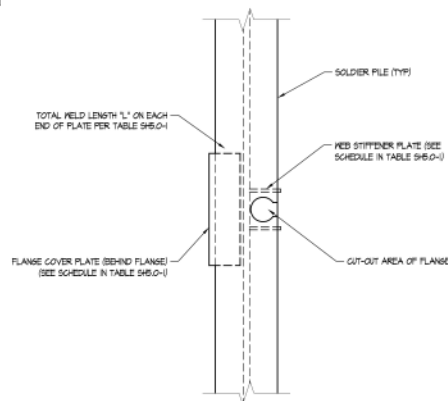


4
SH5.0
TYPICAL INTERIOR CORNER LAGGING
SUPPORT DETAIL
NOT TO SCALE

NOTE:
CONTRACTOR TO SUBMIT DETAILS OF FLANGE CUT-OUT, AND
CORRESPONDING WELD CONNECTIONS TO THE ENGINEER FOR
APPROVAL PRIOR TO FABRICATION



2
SH5.0
ANCHOR TO PILE CONNECTION
DETAIL (SIDE VIEW)
NOT TO SCALE



3
SH5.0
ANCHOR TO PILE CONNECTION
DETAIL (FRONT VIEW)
NOT TO SCALE

TABLE SH5.0-1 ANCHOR TO PILE CONNECTION SCHEDULE						
ANCHOR LOAD (KIPS)	PILE SECTION	GRADE 36 COVER PLATE DIMENSIONS (IN)	COVER PLATE WELD LENGTH (IN)	COVER PLATE WELD SIZE (IN)	WEB STIFFENER PLATE DIMENSIONS (IN)	WEB STIFFENER PLATE WELD SIZE (IN)
60	PH400	1/2 x 4 x 24	11 1/2	1/4	1/2 x 4 x 12	1/4
60	PH454	1/2 x 4 x 27	15	1/4	1/2 x 4 x 15	1/4

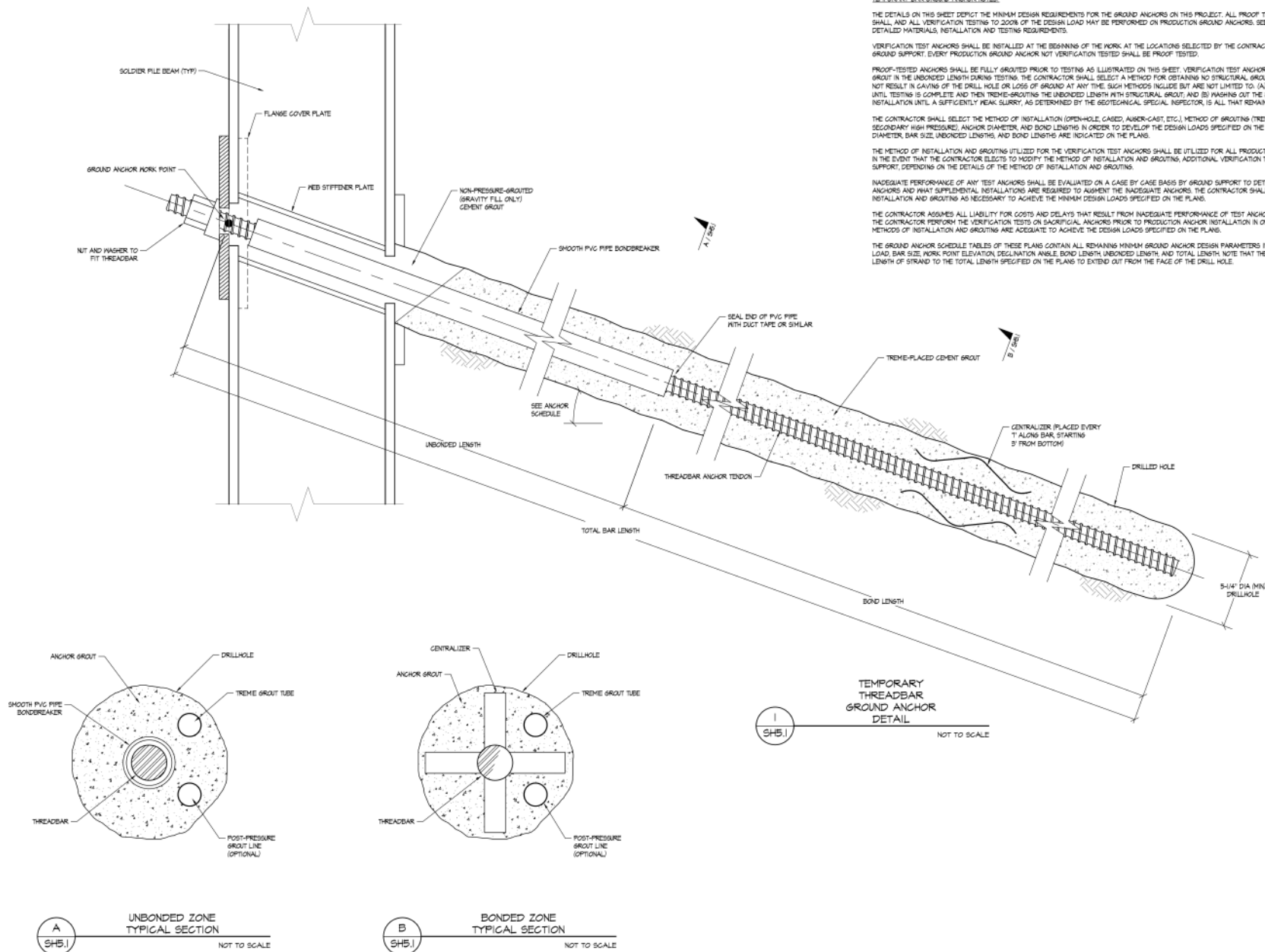
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444 NE RAVENNA BLVD.
TEMPORARY SHORING WALL
DETAILS

PROJ. NO. 18-14
SHEET NUMBER

SH5.0

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TEMPORARY BAR GROUND ANCHOR NOTES:

THE DETAILS ON THIS SHEET DEPICT THE MINIMUM DESIGN REQUIREMENTS FOR THE GROUND ANCHORS ON THIS PROJECT. ALL PROOF TESTING TO 100% OF THE DESIGN LOAD SHALL, AND ALL VERIFICATION TESTING TO 200% OF THE DESIGN LOAD MAY BE PERFORMED ON PRODUCTION GROUND ANCHORS. SEE THE NOTES ON SHEET SH-1 FOR DETAILED MATERIALS, INSTALLATION AND TESTING REQUIREMENTS.

VERIFICATION TEST ANCHORS SHALL BE INSTALLED AT THE BEGINNING OF THE WORK AT THE LOCATIONS SELECTED BY THE CONTRACTOR AND APPROVED IN WRITING BY GROUND SUPPORT. EVERY PRODUCTION GROUND ANCHOR NOT VERIFICATION TESTED SHALL BE PROOF TESTED.

PROOF-TESTED ANCHORS SHALL BE FULLY GROUTED PRIOR TO TESTING AS ILLUSTRATED ON THIS SHEET. VERIFICATION TEST ANCHORS SHALL NOT HAVE STRUCTURAL GROUT IN THE UNBONDED LENGTH DURING TESTING. THE CONTRACTOR SHALL SELECT A METHOD FOR OBTAINING NO STRUCTURAL GROUT IN THE UNBONDED LENGTH THAT DOES NOT RESULT IN CAVING OF THE DRILL HOLE OR LOSS OF GROUND AT ANY TIME. SUCH METHODS INCLUDE BUT ARE NOT LIMITED TO: (A) LEAVING THE UNBONDED LENGTH OPEN UNTIL TESTING IS COMPLETE AND THEN TREME-GROUTING THE UNBONDED LENGTH WITH STRUCTURAL GROUT; AND (B) WAXING/CUT THE UNBONDED LENGTH AFTER INSTALLATION UNTIL A SUFFICIENTLY HEAVY SLURRY, AS DETERMINED BY THE GEOTECHNICAL SPECIAL INSPECTOR, IS ALL THAT REMAINS IN THE UNBONDED LENGTH.

THE CONTRACTOR SHALL SELECT THE METHOD OF INSTALLATION (OPEN-HOLE, CASSED, AUSTRIAN-CAST, ETC.) METHOD OF GROUTING (TREME, PRIMARY LOW-PRESSURE, SECONDARY HIGH PRESSURE), ANCHOR DIAMETER, AND BOND LENGTHS IN ORDER TO DEVELOP THE DESIGN LOADS SPECIFIED ON THE PLANS. THE MINIMUM REQUIRED ANCHOR DIAMETER, BAR SIZE, UNBONDED LENGTHS, AND BOND LENGTHS ARE INDICATED ON THE PLANS.

THE METHOD OF INSTALLATION AND GROUTING UTILIZED FOR THE VERIFICATION TEST ANCHORS SHALL BE UTILIZED FOR ALL PRODUCTION ANCHORS INSTALLED THEREAFTER. IN THE EVENT THAT THE CONTRACTOR ELEGTS TO MODIFY THE METHOD OF INSTALLATION AND GROUTING, ADDITIONAL VERIFICATION TESTING MAY BE REQUIRED BY GROUND SUPPORT, DEPENDING ON THE DETAILS OF THE METHOD OF INSTALLATION AND GROUTING.

INADEQUATE PERFORMANCE OF ANY TEST ANCHORS SHALL BE EVALUATED ON A CASE BY CASE BASIS BY GROUND SUPPORT TO DETERMINE THE REMAINING VALUE OF THE ANCHORS AND WHAT SUPPLEMENTAL INSTALLATIONS ARE REQUIRED TO AUGMENT THE INADEQUATE ANCHORS. THE CONTRACTOR SHALL MODIFY THE METHOD OF INSTALLATION AND GROUTING AS NECESSARY TO ACHIEVE THE MINIMUM DESIGN LOADS SPECIFIED ON THE PLANS.

THE CONTRACTOR ASSUMES ALL LIABILITY FOR COSTS AND DELAYS THAT RESULT FROM INADEQUATE PERFORMANCE OF TEST ANCHORS. IT IS HIGHLY RECOMMENDED THAT THE CONTRACTOR PERFORM THE VERIFICATION TESTS ON SACRIFICIAL ANCHORS PRIOR TO PRODUCTION ANCHOR INSTALLATION IN ORDER TO CONFIRM THAT THE CHOSEN METHODS OF INSTALLATION AND GROUTING ARE ADEQUATE TO ACHIEVE THE DESIGN LOADS SPECIFIED ON THE PLANS.

THE GROUND ANCHOR SCHEDULE TABLES OF THESE PLANS CONTAIN ALL REMAINING MINIMUM GROUND ANCHOR DESIGN PARAMETERS INCLUDING: DESIGN LOAD, LOCKOFF LOAD, BAR SIZE, WORK POINT ELEVATION, DECLINATION ANGLE, BOND LENGTH, UNBONDED LENGTH, AND TOTAL LENGTH. NOTE THAT THE CONTRACTOR MUST ADD ADDITIONAL LENGTH OF STRAND TO THE TOTAL LENGTH SPECIFIED ON THE PLANS TO EXTEND OUT FROM THE FACE OF THE DRILL HOLE.

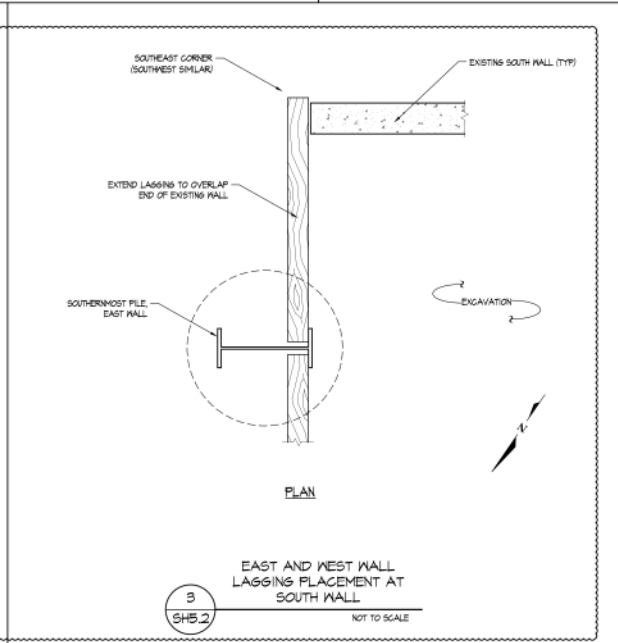
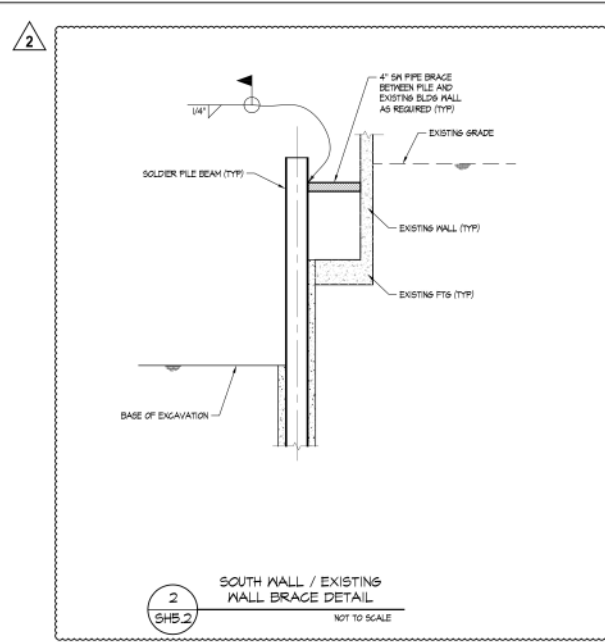
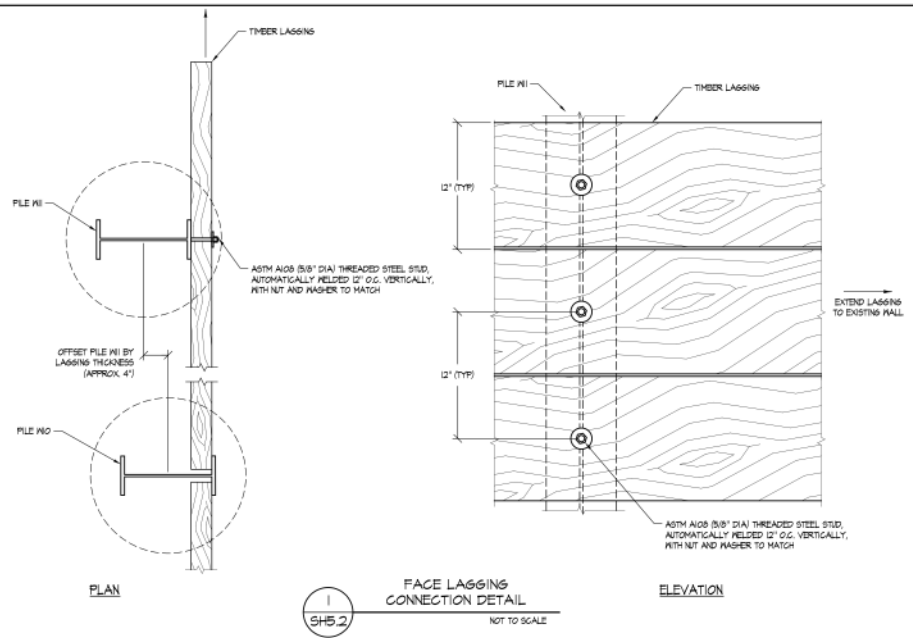
DESIGN	DRAWN	REVIEW	DATE	REVISION	DESCRIPTION
SH5.1	SH5.1	SH5.1	12/20/2019	1	TEMPORARY BAR GROUND ANCHOR NOTES
SH5.1	SH5.1	SH5.1	12/20/2019	2	TEMPORARY BAR GROUND ANCHOR NOTES
SH5.1	SH5.1	SH5.1	12/20/2019	3	TEMPORARY BAR GROUND ANCHOR NOTES
SH5.1	SH5.1	SH5.1	12/20/2019	4	TEMPORARY BAR GROUND ANCHOR NOTES

Ground Support, LLC
19932 Ravenna Blvd, Suite 400, NE, #210
Woodinville, WA 98072
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444 NE RAVENNA BLVD.
TEMPORARY SHORING WALL
DETAILS

PROJ. NO. 19-14
SHEET NUMBER
SH5.1

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DESIGN	DRAWN	REVIEW	DATE	REV	DESCRIPTION
1	JSS	CAN	12/10/2019	1	PERMIT ISSUE
2	JSS	CAN	12/10/2019	2	BY CORNER 1

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444 NE RAVENNA BLVD.
TEMPORARY SHORING WALL
DETAILS

PROJ. NO. 19-14
SHEET NUMBER
SH5.2