STRUCTURAL NOTES

(THESE NOTES ARE TYPICAL UNLESS NOTED OR DETAILED OTHERWISE ON DRAWINGS)

CODE

ALL MATERIALS, WORKMANSHIP, DESIGN, AND CONSTRUCTION SHALL CONFORM TO THE DRAWINGS, SPECIFICATIONS, AND THE INTERNATIONAL BUILDING CODE (IBC), 2021 EDITION. SPECIFICATIONS AND STANDARDS WHERE REFERENCED ON THE DRAWINGS ARE TO BE THE LATEST EDITION.

DESIGN LOADS

DEAD LOADS:
- ROOF 15 PSF
- FLOOR 15 PSF

LIVE LOADS:
- ROOF (SNOW LOAD) 25 PSF
- RESIDENTIAL 40 PSF

STATEMENT OF SPECIAL INSPECTIONS

SPECIAL INSPECTIONS ARE REQUIRED AS INDICATED IN THE FOLLOWING TABLE. THE CONTRACTOR SHALL SUBMIT A WRITTEN STATEMENT OF RESPONSIBILITY TO THE BUILDING OFFICIAL AND OWNER PRIOR TO COMMENCEMENT OF WORK IN ACCORDANCE WITH SECTION 1704.4 OF THE IBC.

STRUCTURAL OBSERVATION OF THE STRUCTURAL SYSTEM BY THE ENGINEER IS NOT REQUIRED.

SPECIAL INSPECTION

OPERATION	CONT	PERIODIC	REMARKS
SOILS			
PIPE PILING INSTALLATION	X		GEOTECH ENGINEER
PILING REFUSAL VERIFICATION	X		GEOTECH ENGINEER

NOTE:
ALL ITEMS MARKED WITH AN "X" SHALL BE INSPECTED IN ACCORDANCE WITH IBC CHAPTER 17. SPECIAL INSPECTION SHALL BE PERFORMED BY A QUALIFIED TESTING AGENCY DESIGNATED BY THE OWNER. THE ARCHITECT, STRUCTURAL ENGINEER, AND BUILDING OFFICIAL SHALL BE FURNISHED WITH COPIES OF ALL RESULTS. ANY INSPECTION FAILING TO MEET THE PROJECT SPECIFICATIONS SHALL BE IMMEDIATELY BROUGHT TO THE ATTENTION OF THE DESIGN TEAM.

FOUNDATIONS: PIN PILES

SOILS REPORT: REPORT NO: 2EH033221024
PREPARED BY: MERIT ENGINEERING, INC.
DATED: 10/05/2023

ALLOWABLE PILE CAPACITY: 3 TONS (2"Ø PIPE PILES)

2"Ø PIPE PILING INSTALLATION

2" XS PIPE SHALL CONFORM TO ASTM A53 GRADE A OR B, FY = 30 KSI (MIN)

PILES SHALL BE DRIVEN THROUGH LOOSE MATERIAL & BEAR IN COMPETENT DENSE SOIL AS DETERMINED BY THE GEOTECHNICAL SPECIAL INSPECTOR. PILES SHALL HAVE A MINIMUM OVERALL EMBEDMENT OF 10 FEET OR AS DETERMINED ADEQUATE BY THE GEOTECHNICAL SPECIAL INSPECTOR. PILES SHALL NOT EXCEED A MAXIMUM EMBEDMENT DEPTH OF 30 FEET.

PIPE PILING SHALL BE DRIVEN INTO THE SUBGRADE TO A POINT OF REFUSAL BY MEANS OF A PNEUMATIC HAMMER OR OTHER SIMILAR HYDRAULIC HAMMER SYSTEM. THE PNEUMATIC HAMMER SHOULD WEIGH AT LEAST 140 POUNDS. REFUSAL SHALL BE DEFINED AS 1" OR LESS OF PENETRATION DURING 1 MINUTE OF SUSTAINED DRIVING. PIPE SECTIONS SHALL BE CONNECTED WITH INTERNAL SLIP COUPLINGS.

THE CONTRACTOR SHALL LOCATE AND PROTECT ALL UTILITIES DURING CONSTRUCTION AND SHALL CONTACT THE UNDERGROUND UTILITIES LOCATION SERVICE (1-800-424-5555) AT LEAST 48 HOURS PRIOR TO CONSTRUCTION. IT IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR TO INDEPENDENTLY VERIFY ALL UTILITIES WHICH MAY BE AFFECTED BY THE IMPLEMENTATION OF THESE DRAWINGS. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR ANY AND ALL DAMAGE TO UNDERGROUND UTILITIES RESULTING FROM THEIR OPERATION.

CONCRETE

ALL CONCRETE SHALL BE MIXED, PROPORTIONED, CONVEYED, AND PLACED IN ACCORDANCE WITH CHAPTER 26 OF ACI 318 AND THE AMERICAN CONCRETE INSTITUTE'S SPECIFICATIONS FOR STRUCTURAL CONCRETE FOR BUILDINGS (ACI 301).

ALL CONCRETE SHALL BE STONE-AGGREGATE CONCRETE HAVING A UNIT WEIGHT OF APPROXIMATELY 150 POUNDS PER CUBIC FOOT.

CONCRETE STRENGTHS AT 28 DAYS (f'c) AND MIX CRITERIA SHALL BE AS FOLLOWS:

TYPE OF CONSTRUCTION	f'c*	MAXIMUM WATER/CEMENT RATIO	MIN CEMENT CONTENT PER CUBIC YARD	MAXIMUM SHRINKAGE STRAIN
SLABS ON GRADE	3000 PSI	0.55	5 1/2 SACK	N/A
BLOCK WALL GROUT	3000 PSI	0.55	5 1/2 SACK	N/A
GRADE BEAMS	3000 PSI	0.55	5 1/2 SACK	N/A

THE MINIMUM AMOUNT OF CEMENT LISTED ABOVE MAY BE CHANGED IF A CONCRETE PERFORMANCE MIX IS SUBMITTED TO THE ENGINEER AND THE BUILDING DEPARTMENT FOR APPROVAL TWO WEEKS PRIOR TO PLACING ANY CONCRETE. THE PERFORMANCE MIX SHALL INCLUDE THE AMOUNTS OF CEMENT, FINE AND COARSE AGGREGATE, WATER, AND ADMIXTURES AS WELL AS THE WATER-CEMENT RATIO, SLUMP, CONCRETE YIELD, AND SUBSTANTIATING STRENGTH DATA IN ACCORDANCE WITH CHAPTER 26 OF ACI 318.

ALL CONCRETE EXPOSED TO WEATHER OR TO FREEZING TEMPERATURES SHALL BE AIR-ENTRAINED IN ACCORDANCE WITH ACI 318 TABLE 19.3.3.1 FOR MODERATE EXPOSURE CLASS F1.

*PROVIDE f'c SPECIFIED IN TABLE FOR DURABILITY REQUIREMENTS. 2500 PSI CONCRETE MEETS STRENGTH REQUIREMENTS, THEREFORE SPECIAL INSPECTION IS NOT REQUIRED.

REINFORCING STEEL

REINFORCING STEEL SHALL BE DEFORMED BILLET STEEL CONFORMING TO ASTM A615, AND SHALL BE GRADE 60 (Fy = 60,000 PSI), UNLESS NOTED OTHERWISE. GRADE 60 REINFORCING BARS INDICATED ON DRAWINGS TO BE WELDED SHALL CONFORM TO ASTM A706. REINFORCING COMPLYING WITH ASTM A615 MAY BE WELDED IF MATERIAL PROPERTY REPORTS INDICATING CONFORMANCE WITH WELDING PROCEDURES SPECIFIED IN AWS D1.4 ARE SUBMITTED.

WELDED WIRE FABRIC SHALL CONFORM TO ASTM A185. PROVIDE WELDED WIRE FABRIC IN SHEETS NOT ROLLS. LAP WELDED WIRE FABRIC 12" AT SIDES AND ENDS.

REINFORCING STEEL SHALL BE DETAILED INCLUDING HOOKS AND BENDS IN ACCORDANCE WITH ACI SP-66 AND ACI 318, LATEST EDITIONS. UNLESS OTHERWISE NOTED, REINFORCING SPLICE LENGTHS AND DEVELOPMENT LENGTHS SHALL BE PER SCHEDULE.

MECHANICAL SPLICING OF REINFORCING BARS, WHERE INDICATED ON THE DRAWINGS, SHALL BE BY AN ICBO APPROVED SYSTEM, SHALL DEVELOP 125% OF THE SPECIFIED YIELD STRENGTH OF THE BAR, AND SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.

REINFORCING SHALL BE PLACED AND ADEQUATELY SUPPORTED PRIOR TO PLACING CONCRETE. WET-SETTING EMBEDDED ITEMS IS NOT ALLOWED WITHOUT PRIOR ENGINEER APPROVAL. BARS PARTIALLY EMBEDDED IN HARDENED CONCRETE SHALL NOT BE FIELD BENT UNLESS SO DETAILED OR APPROVED BY THE STRUCTURAL ENGINEER. REFER TO CHAPTER 25 OF ACI 318 FOR OTHER REINFORCING STEEL REQUIREMENTS.

MINIMUM LAPS AND EMBEDMENT

UNLESS OTHERWISE NOTED, REINFORCING SPLICE LENGTHS AND DEVELOPMENT LENGTHS SHALL BE AS TABULATED BELOW:

f'c = 2500 PSI						
BAR SIZE	DEVELOPMENT LENGTH			LAP SPLICE		
	TENSION		COMPRESSION	TENSION		COMPRESSION
	TOP BARS	OTHER BARS	ALL BARS	TOP BARS	OTHER BARS	ALL BARS
#3	24	18	9	30	23	12
#4	31	24	12	41	31	15
#5	39	30	15	51	39	19
#6	47	36	18	61	47	23
#7	68	53	21	89	68	27
#8	78	60	24	102	78	30

NOTE:
1. ALL LENGTHS ARE IN INCHES.
2. ALL LAP SPLICES ARE CLASS B.
3. "TOP BARS" ARE HORIZONTAL REINFORCEMENT PLACED SUCH THAT MORE THAN 12 INCHES OF CONCRETE IS CAST IN THE MEMBER BELOW THE BAR.

CONCRETE COVER ON REINFORCING

CONCRETE CAST AGAINST AND PERMANENTLY EXPOSED TO EARTH: 3"

CONCRETE EXPOSED TO EARTH AND WEATHER:
- #6 BARS AND LARGER 2"
- #5 BARS AND SMALLER 1 1/2"

CONCRETE NOT EXPOSED TO EARTH OR WEATHER:
- SLABS, WALLS AND JOISTS 3/4"
- COLUMN TIES OR SPIRALS AND BEAM STIRRUPS 1 1/2"

CONCRETE GENERAL NOTES

VERTICAL BARS SHALL START FROM TOP OF FOOTING. HORIZONTAL BARS SHALL START A DISTANCE OF 1/2 THE NORMAL BAR SPACING FROM TOP OF FOOTING AND TOP OF FRAMED SLABS. IN ADDITION, THERE SHALL BE A HORIZONTAL BAR AT A MAXIMUM OF 3" FROM TOP OF WALL AND BOTTOM OF FRAMED SLABS.

PROVIDE CORNER BARS TO MATCH THE HORIZONTAL REINFORCING WITH TENSION LAP SPLICE AT EACH SIDE PER TABLE, OR BEND ONE SIDE OVER TO PROVIDE TENSION LAP.

PROVIDE CONTROL OR CONSTRUCTION JOINTS IN SLABS ON GRADE TO BREAK UP SLAB INTO RECTANGULAR AREAS OF NOT MORE THAN 400 SQUARE FEET EACH. AREAS TO BE AS SQUARE AS PRACTICAL AND HAVE NO ACUTE ANGLES. JOINT LOCATIONS TO BE APPROVED BY THE ARCHITECT.

ALL CONSTRUCTION JOINTS SHALL BE THOROUGHLY CLEANED AND PROPERLY PREPARED IMMEDIATELY PRIOR TO POURING OF CONCRETE. DOWEL STEEL SHALL BE THE SAME SIZE AND SPACING AS MAIN REINFORCING DETAILED BEYOND JOINT.

SEE ARCHITECTURAL DRAWINGS AND MECHANICAL DRAWINGS FOR EXACT LOCATIONS AND DIMENSIONS OF OPENINGS IN CONCRETE WALLS, FLOORS AND ROOF. UNLESS INDICATED OTHERWISE, REINFORCE AROUND OPENINGS GREATER THAN 12" IN EITHER DIRECTION WITH (2) #5 EACH SIDE AND (1) #5 x 4'-0" DIAGONAL AT EACH CORNER. EXTEND BARS 2'-0" BEYOND EDGE OF OPENING. IF 2'-0" IS UNAVAILABLE, EXTEND AS FAR AS POSSIBLE AND HOOK. HOOK ALL REINFORCING INTERRUPTED BY OPENINGS.

BARS PARTIALLY EMBEDDED IN HARDENED CONCRETE SHALL NOT BE FIELD BENT UNLESS SO DETAILED OR APPROVED BY THE STRUCTURAL ENGINEER.

SEE ARCHITECTURAL DRAWINGS FOR ALL GROOVES, NOTCHES, CHAMFERS, FEATURE STRIPS, COLOR, TEXTURE AND OTHER FINISH DETAILS AT ALL EXPOSED CONCRETE SURFACES. PROVIDE 3/4" CHAMFER AT ALL CORNERS EXCEPT AS NOTED.

GENERAL

STRUCTURAL DRAWINGS SHALL BE USED IN CONJUNCTION WITH ARCHITECTURAL, CIVIL, ELECTRICAL, AND MECHANICAL DRAWINGS FOR BIDDING AND CONSTRUCTION. CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND CONDITIONS FOR COMPATIBILITY BEFORE PROCEEDING. ANY DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE ARCHITECT BEFORE PROCEEDING.

CONTRACTOR TO SEE ARCHITECTURAL, CIVIL, ELECTRICAL AND MECHANICAL DRAWINGS FOR SIZE AND LOCATION OF PIPE, VENT, DUCT AND OTHER OPENINGS AND DETAILS NOT SHOWN ON THESE DRAWINGS.

CONTRACTOR SHALL BE RESPONSIBLE FOR ERECTION STABILITY AND TEMPORARY SHORING AS NECESSARY UNTIL PERMANENT SUPPORT AND STIFFENING ARE INSTALLED.

CONTRACTOR-INITIATED CHANGES SHALL BE SUBMITTED IN WRITING TO THE ARCHITECT AND STRUCTURAL ENGINEER FOR APPROVAL PRIOR TO FABRICATION OR CONSTRUCTION. CHANGES SHOWN ON SHOP DRAWINGS ONLY WILL NOT SATISFY THIS REQUIREMENT.

DRAWINGS INDICATE GENERAL AND TYPICAL DETAILS OF CONSTRUCTION. WHERE CONDITIONS ARE NOT SPECIFICALLY INDICATED BUT ARE OF A SIMILAR CHARACTER TO DETAILS SHOWN, SIMILAR DETAILS OF CONSTRUCTION SHALL BE USED, SUBJECT TO REVIEW AND APPROVAL BY THE ARCHITECT AND THE STRUCTURAL ENGINEER.

LEGEND

DEFINITION	SYMBOL	DEFINITION	SYMBOL
DIRECTION OF FRAMING		NATIVE SOIL	
EXTENT OF FRAMING		GRANULAR FILL	
COLUMNS		STRUCTURAL STEEL	
COLUMN BEARING ON BEAM	(A)	RATED SHEATHING	
BEAM CONTINUOUS OVER SUPPORT	(B)	SHEAR WALL (SEE SCHEDULE)	SWX
CONCRETE WALL		COLUMN MARK (SEE SCHEDULE)	C#
BEARING STUD WALL		FOOTING MARK (SEE SCHEDULE)	F#
NON-BEARING STUD WALL		HOLDOWN MARK (SEE SCHEDULE)	H#
BEARING STUD SHEAR WALL		HANGER MARK (SEE SCHEDULE)	X
NON-BEARING STUD SHEAR WALL		FLAG NOTE (SEE PLAN NOTES)	X
CMU WALL		STEEL MOMENT FRAME CONN.	

ABBREVIATIONS

(A)	ABOVE	HORIZ	HORIZONTAL
AB	ANCHOR BOLT	KP	KING POST
ALT	ALTERNATE	KSI	KIPS PER SQUARE INCH
ARCH	ARCHITECT	MECH	MECHANICAL
(B)	BELOW	MF	MOMENT FRAME
BLKG	BLOCKING	NS	NEAR SIDE
BM	BEAM	OC	ON CENTER
BOT	BOTTOM	OPP	OPPOSITE
BTWN	BETWEEN	PL	PLATE
CJP	COMPLETE JOINT PENETRATION	PLCS	PLACES
CLR	CLEAR	PSI	POUNDS PER SQUARE INCH
CMU	CONCRETE MASONRY UNIT	PSF	POUNDS PER SQUARE FOOT
COL	COLUMN	P/T	POST TENSIONED
CONC	CONCRETE	PT	PRESSURE TREATED
CONN	CONNECTION	REINF	REINFORCING
CONT	CONTINUOUS	REQ'D	REQUIRED
DBL	DOUBLE	SCHED	SCHEDULE
DET	DETAIL	SIM	SIMILAR
DIM	DIMENSION	SOG	SLAB ON GRADE
EA	EACH	STD	STANDARD
ELEV	ELEVATION	SW	SHEAR WALL
EXIST	EXISTING	TOC	TOP OF CONCRETE
EXP	EXPANSION	TOS	TOP OF STEEL
FLR	FLOOR	TOW	TOP OF WALL
FDN	FOUNDATION	TYP	TYPICAL
FTG	FOOTING	UNO	UNLESS NOTED OTHERWISE
FS	FAR SIDE	VFY	VERIFY
FH	FULL HEIGHT	VIF	VERIFY IN FIELD
GLB	GLUE-LAMINATED BEAM	VERT	VERTICAL

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02/25/26

MARK	DATE	DESCRIPTION
	02/23/26	POST ISSUANCE PERMIT RESUBMITTAL

DESIGN: SPM
DRAWN: JOS
CHECK: GAG
JOB NO: 25262.10
DATE: 02/23/26

WANG & YANG ADU
6450 E MERCER WAY
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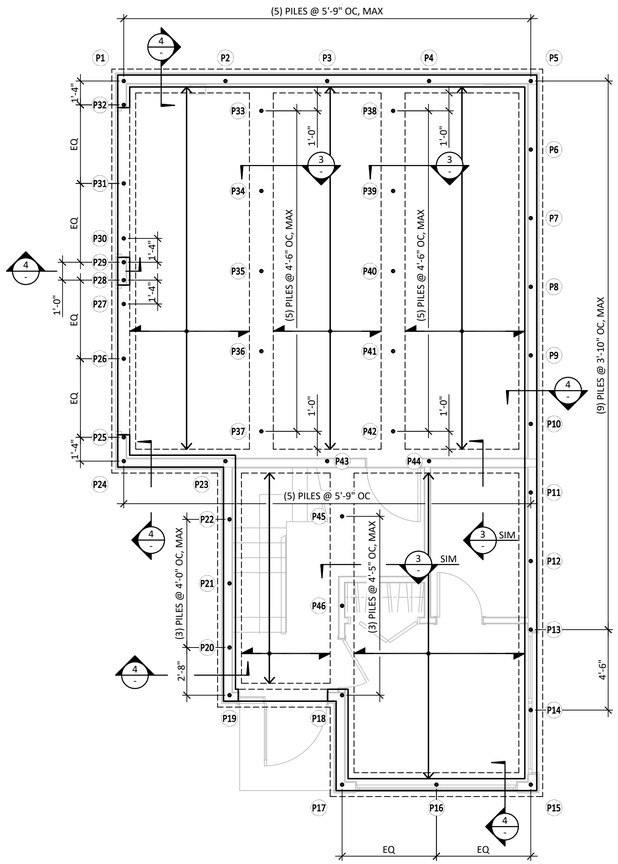
STRUCTURAL NOTES

FILE NAME:

SHEET: S1.1



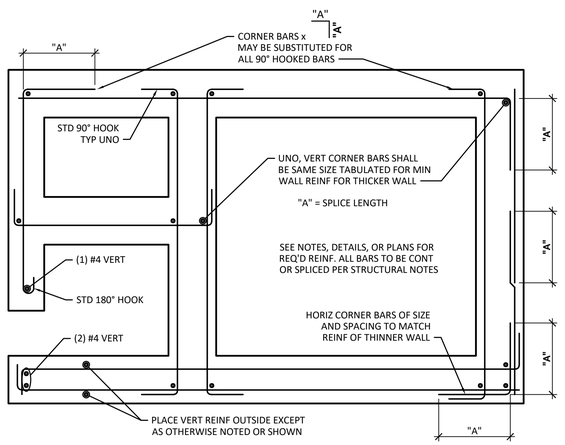
1 FOUNDATION STABILIZATION PLAN
SCALE: 1/4" = 1'-0"

FOUNDATION AND PILE PLAN NOTES:

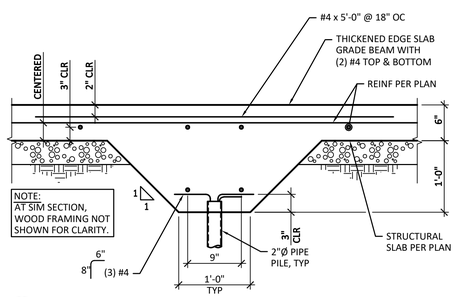
1. (X) INDICATES PILE PER STRUCTURAL NOTES AND SCHEDULE.
2. INDICATES DIRECTION OF PRIMARY REINFORCEMENT OF STRUCTURAL SLAB. STRUCTURAL SLAB SHALL BE 6" THICK W/ #4 @ 12" OC PRIMARY REINF CENTERED IN SLAB. PROVIDE #4 @ 18" TEMP REINF IN TRANSVERSE DIRECTION. SLAB SHALL BE POURED OVER A 10 MIL VAPOR BARRIER OVER SUBGRADE AS RECOMMENDED BY THE GEOTECHNICAL ENGINEER.
3. PILE INSTALLATION SHALL BE OBSERVED BY THE GEOTECHNICAL INSPECTOR.
4. NOTIFY THE STRUCTURAL ENGINEER AND THE GEOTECHNICAL ENGINEER IF OBSTRUCTIONS ARE ENCOUNTERED DURING THE INSTALLATION PROCESS. ALL FINAL PILE LOCATIONS SHALL BE PROVIDED TO THE STRUCTURAL ENGINEER FOR REVIEW.
5. CONTRACTOR SHALL VERIFY ALL DIMENSIONS, WALL LOCATIONS, AND CONCRETE ROUGH OPENINGS IN THE FIELD AND NOTIFY ALL PARTIES OF ANY DISCREPANCIES.

PILE SCHEDULE

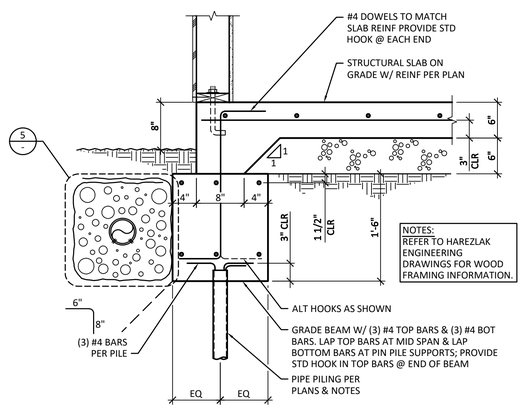
PILE	TYPE	DESIGN LOAD	NOTES
P1-P46	2"Ø XS PIPE	6.0K	-



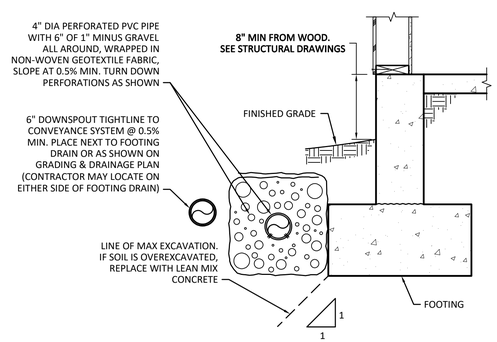
2 TYPICAL CONCRETE WALL REINFORCING DETAIL
SCALE: NTS



3 SECTION
SCALE: 1" = 1'-0"



4 SECTION
SCALE: 1" = 1'-0"



5 FOOTING AND ROOF DRAIN SECTION
SCALE: NTS

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MARK	DATE	DESCRIPTION
	02/23/26	POST ISSUANCE PERMIT RESUBMITTAL

DESIGN:	SPM
DRAWN:	JOS
CHECK:	GAG
JOB NO:	25262.10
DATE:	02/23/26

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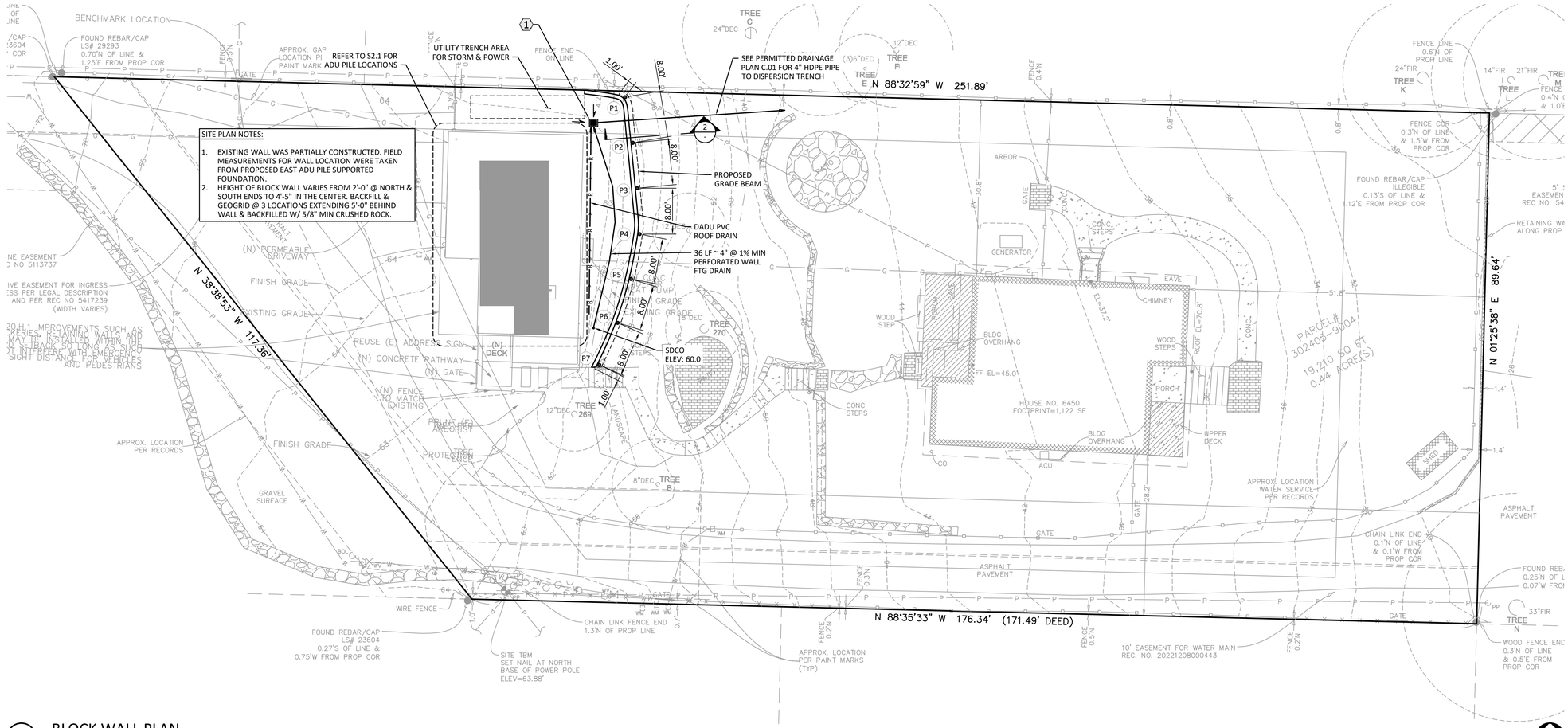
6450 E MERCER WAY
MERCER ISLAND, WA 98040

FOUNDATION STABILIZATION PLAN AND DETAILS

FILE NAME:

SHEET:

S2.1



1 BLOCK WALL PLAN

SCALE: 1" = 10'

FOUNDATION AND PILE PLAN NOTES:

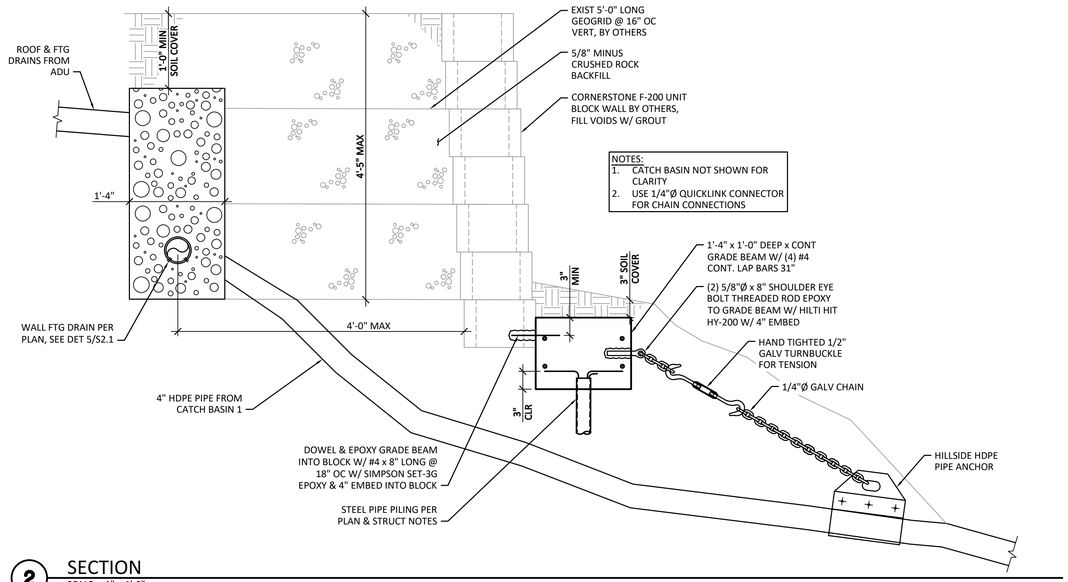
1. (X) INDICATES PILE PER STRUCTURAL NOTES AND SCHEDULE
2. PILE INSTALLATION SHALL BE OBSERVED BY THE GEOTECHNICAL INSPECTOR
3. NOTIFY THE STRUCTURAL ENGINEER AND THE GEOTECHNICAL ENGINEER IF OBSTRUCTIONS ARE ENCOUNTERED DURING THE INSTALLATION PROCESS. ALL FINAL PILE LOCATIONS SHALL BE PROVIDED TO THE STRUCTURAL ENGINEER FOR REVIEW.
4. CONTRACTOR SHALL VERIFY ALL DIMENSIONS, WALL LOCATIONS, AND CONCRETE ROUGH OPENINGS IN THE FIELD AND NOTIFY ALL PARTIES OF ANY DISCREPANCIES.

CATCH BASIN SCHEDULE

MARK	TYPE	RIM ELEV	INV ELEV	NOTES
(1)	TYPE I	63.0	(4" W): 61.5 PVC ROOF DRAIN (4" S): 59.5 PERF PVC WALL DRAIN (4" E): 59.3 HDPE	SOLID GRATE

PILE SCHEDULE

PILE	TYPE	DESIGN LOAD	NOTES
P1-P7	2"Ø XS PIPE	6.0K	-



2 SECTION

SCALE: 1" = 1'-0"

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BLOCK WALLS PLAN AND DETAILS

FILE NAME:

SHEET:

S2.2