



August 29, 2023

Project No. M2473.01.001

Kevin Dana

Project Manager

Oregon Department of Environmental Quality

700 NE Multnomah Street, Suite 600

Portland, OR 97232

Sent via email: kevin.dana@deq.oregon.gov

Re: Shortstack Belmont 100% Design Drawings, 2721-2731 SE Belmont Street, Portland, Oregon,
ECSI Site ID#5731

Dear Kevin Dana:

Maul Foster & Alongi, Inc. (MFA) prepared this letter on behalf of Shortstack Belmont LLC (Shortstack) to present the 100% Design Drawings for the Shortstack Belmont site located at 2721-2731 SE Belmont Street in Portland, Oregon.

On August 3, 2023, MFA virtually met with the Oregon Department of Environmental Quality (DEQ) to propose modifications to the vapor barrier design. The changes were proposed in an effort to streamline vapor barrier installation beneath foundation elements. The attached 100% Design Drawings reflect these modifications. Key design revisions include the following:

- Deeper excavation beneath foundation elements to permit flat installation of the vapor barrier.
- Removal of the geocomposite monitoring layer given the monitoring probes are now embedded within imported backfill beneath the building slabs.
- Addition of a drainage pocket at the base of each vent riser to allow discharge of accumulated condensate within vapor collection pipes.

MFA and Shortstack appreciate the DEQ's continued support on this project.

Sincerely,

Maul Foster & Alongi, Inc.

Krysta Krippaehne-Stein, EIT
Staff Engineer

Ted Wall, PE
Principal Engineer

Attachments

Limitations

A—100% Design Drawings

cc: Heidi Nelson, Environmental Engineer, DEQ

Jennifer Levy, Principal, Cascade Environmental Solutions

Anna Mackay, Principal, Sister City

Jessy Ledesma, Principal, HomeWork Development

Limitations

The services undertaken in completing this report were performed consistent with generally accepted professional consulting principles and practices. No other warranty, express or implied, is made. These services were performed consistent with our agreement with our client. This report is solely for the use and information of our client unless otherwise noted. Any reliance on this report by a third party is at such party's sole risk.

Opinions and recommendations contained in this report apply to conditions existing when services were performed and are intended only for the client, purposes, locations, time frames, and project parameters indicated. We are not responsible for the impacts of any changes in environmental standards, practices, or regulations subsequent to performance of services. We do not warrant the accuracy of information supplied by others, or the use of segregated portions of this report.

Attachment A

100% Design Drawings



MAUL
FOSTER
ALONGI

SHORTSTACK BELMONT VAPOR MITIGATION PLAN SET

PREPARED FOR:

SHORTSTACK BELMONT LLC

LOCATED IN SEC. 1, T. 1 S., R. 1 E., W.M., MULTNOMAH COUNTY, PORTLAND, OREGON

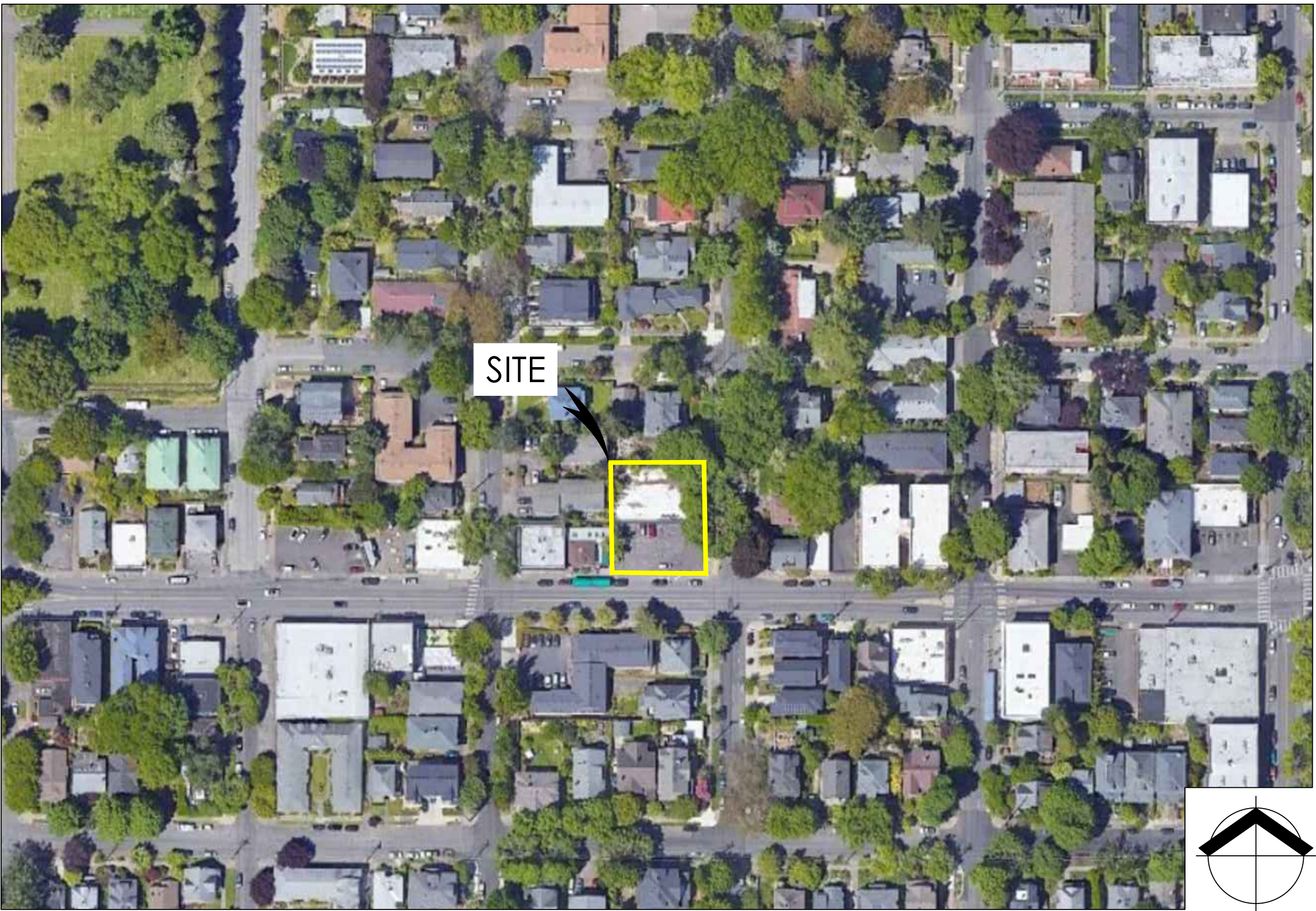
PROJECT CONTACTS

CLIENT SHORTSTACK BELMONT LLC 1017 N REVERE STREET PORTLAND, OREGON 97227 P: 540-846-4299 ANNA MACKAY ANNA@SISTER-CITY.COM	ENVIRONMENTAL ENGINEER MAUL, FOSTER & ALONGI, INC. 3140 NE BROADWAY STREET PORTLAND, OREGON 97232 P: 503-501-5210 TED WALL TWALL@MAULFOSTER.COM
ARCHITECT WORKS PROGRESS ARCHITECTURE 811 SE STARK STREET, SUITE 210 PORTLAND, OREGON 97214 P: 503-234-2945 KEEGAN HEBERT KEEGAN@WORKSARCHITECTURE.NET	

PROJECT SUMMARY

SITE ADDRESS:
2721–2731 SE BELMONT STREET
MULTNOMAH COUNTY
PORTLAND, OREGON 97214

WORK DESCRIPTION:
THE PROPOSED WORK INCLUDES INSTALLATION OF A SUB-SLAB VAPOR BARRIER AND PASSIVE VAPOR MITIGATION SYSTEM.



VICINITY MAP

NOT TO SCALE

GENERAL NOTES

- CONTRACTOR TO VERIFY ALL UTILITY LOCATIONS AND DEPTHS PRIOR TO CONSTRUCTION. A MINIMUM OF TWO FULL BUSINESS DAYS PRIOR TO BEGINNING CONSTRUCTION, THE CONTRACTOR SHALL CALL 811 (UTILITY NOTIFICATION CENTER) FOR LOCATION MARK-UP OF EXISTING UTILITIES.
- ALL CONSTRUCTION, MATERIALS, AND WORKMANSHIP SHALL CONFORM TO THE LATEST STANDARDS AND PRACTICES OF THE CITY PORTLAND AND THE LATEST EDITION OF THE "OREGON STANDARD SPECIFICATIONS FOR CONSTRUCTION" PREPARED BY ODOT/APWA.
- IN CASE OF A CONFLICT BETWEEN THE REGULATORY STANDARDS OR SPECIFICATIONS, THE MORE STRINGENT REQUIREMENT WILL PREVAIL.
- ANY CHANGES TO THE DESIGN AND/OR CONSTRUCTION SHALL BE APPROVED BY THE OWNER OR ENGINEER.
- APPROVAL OF THESE PLANS DOES NOT CONSTITUTE AN APPROVAL OF ANY OTHER CONSTRUCTION NOT SPECIFICALLY SHOWN ON THE PLANS. PLANS FOR STRUCTURES SUCH AS BRIDGES, BUILDINGS, TANKS, VAULTS, ROCKERIES, AND
- RETAINING WALLS MAY REQUIRE A SEPARATE REVIEW AND APPROVAL BY THE BUILDING DEPARTMENT PRIOR TO CONSTRUCTION.
- A COPY OF THESE APPROVED PLANS SHALL BE ON THE JOB SITE WHENEVER CONSTRUCTION IS IN PROGRESS.
- IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO OBTAIN ALL CONSTRUCTION EASEMENTS AND PERMITS NECESSARY TO PERFORM THE WORK.
- THE CONTRACTOR IS RESPONSIBLE FOR ALL CONSTRUCTION STAKING.
- PUBLIC AND PRIVATE DRAINAGE WAYS SHALL BE PROTECTED FROM POLLUTION. NO MATERIAL IS TO BE DISCHARGED TO OR DEPOSITED IN STORMWATER SYSTEMS THAT MAY RESULT IN VIOLATION OF STATE OR FEDERAL WATER QUALITY STANDARDS.
- ALL CONSTRUCTION WITHIN THE PUBLIC RIGHT-OF-WAY SHALL HAVE AN APPROVED PUBLIC RIGHT-OF-WAY WORK PERMIT PRIOR TO ANY CONSTRUCTION ACTIVITY WITHIN THE RIGHT-OF-WAY.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING ADEQUATE SAFEGUARDS, SAFETY DEVICES, PROTECTIVE EQUIPMENT, FLAGGERS, AND ANY OTHER NEEDED ACTIONS TO PROTECT THE LIFE, HEALTH, AND SAFETY OF THE PUBLIC, AND TO PROTECT PROPERTY IN CONNECTION WITH THE PERFORMANCE OF WORK COVERED BY THE CONTRACTOR. ALL TRAFFIC CONTROL DEVICES SHALL CONFORM TO THE LATEST ADOPTED EDITION OF THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES" (MUTCD) PUBLISHED BY THE U.S. DEPARTMENT OF TRANSPORTATION. TWO-WAY TRAFFIC MUST BE MAINTAINED AT ALL TIMES ON THE ADJACENT PUBLIC STREETS.
- ANY PUBLIC OR PRIVATE CURB, GUTTER, SIDEWALK, OR ASPHALT DAMAGED DURING CONSTRUCTION SHALL BE REPAIRED TO CITY OF PORTLAND STANDARDS AND PRACTICES.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING THE INTEGRITY OF ADJACENT UTILITIES WHICH MAY INCLUDE, BUT ARE NOT LIMITED TO, WATER, SANITARY SEWER, STORMWATER, POWER, TELEPHONE, CABLE TV, GAS, IRRIGATION, AND STREET LIGHTING. THE CONTRACTOR SHALL NOTIFY RESIDENTS AND BUSINESSES 48 HOURS IN ADVANCE OF ANY WORK AFFECTING ACCESS OR SERVICE AND SHALL MINIMIZE INTERRUPTIONS TO DRIVEWAYS FOR RESIDENTS AND BUSINESSES ADJACENT TO THE PROJECT.
- ALL LAWN AND VEGETATED AREAS DISTURBED WILL BE RESTORED TO ORIGINAL CONDITION. ANY DISTURBANCE OR DAMAGE TO OTHER PROPERTY ON ADJACENT PARCELS OR IN THE PUBLIC RIGHT OF WAY SHALL ALSO BE REPAIRED OR RESTORED TO ORIGINAL CONDITION.
- THE VAPOR MITIGATION SYSTEM DESIGN SHOWN IS IN PROGRESS, SUBJECT TO CHANGE BASED ON FURTHER REFINEMENT WITH THE DESIGN TEAM.
- ALL WORK SHOULD BE COMPLETED IN ACCORDANCE WITH THE PROCEDURES OUTLINED IN THE CONTAMINATED MEDIA MANAGEMENT PLAN.

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SHORTSTACK BELMONT VAPOR
MITIGATION SYSTEM PLAN SET
SHORTSTACK BELMONT LLC
PORTLAND, OREGON

ISSUE	DATE	DESCRIPTION
C	8/29/2023	100% DESIGN DRAWINGS
B	6/20/2023	10% DESIGN DRAWINGS
A	2/24/2023	ENGINEERING DESIGN REPORT SUBMITTAL

PROJECT: M2473.01.001
DESIGNED: K. KRIPPAEHNE-STEIN
DRAWN: K. KRIPPAEHNE-STEIN
CHECKED: S. FROST/T. WALL
SCALE

SHEET TITLE

COVER SHEET

SHEET

C0.0

BID DOCUMENT: NOT FOR CONSTRUCTION

CONSTRUCTION NOTES

I. MITIGATION REQUIREMENTS

A. NOTIFICATION PLACARD

1. A PERMANENT NOTIFICATION PLACARD IS REQUIRED TO INDICATE THE PRESENCE OF THE IMPERVIOUS MEMBRANE.
2. THE NOTIFICATION PLACARD SHALL BE POSTED AND MAINTAINED AT THE FRONT OF THE BUILDING THAT IS CONSTRUCTED WITH AN IMPERVIOUS MEMBRANE.
3. THE NOTIFICATION PLACARD SHALL BE UNCOVERED AND LOCATED IN CONSPICUOUS LOCATION. WHEN CAST IN FLOORS, SHALL ALSO REMAIN UNCOVERED AND IN A CONSPICUOUS LOCATION.
4. THE LETTERING SHALL BE LEGIBLE FROM 10 FEET AWAY AND AT LEAST 1 INCH HIGH.

II. DESIGN CRITERIA

- A. PASSIVE SYSTEM
5. SUB-SLAB VENT SYSTEM

SUB-SLAB VENT SYSTEM SHALL CONSIST OF PERFORATED HORIZONTAL PIPES, GRAVEL BLANKET UNDER IMPERVIOUS MEMBRANE, GRAVEL AROUND PERFORATED HORIZONTAL PIPES AND VENT RISERS.

- A. PERFORATED HORIZONTAL PIPES:

- I. PERFORATED HORIZONTAL PIPES SHALL BE APPROVED AND LISTED, MINIMUM SCHEDULE 40, SLOTTED OR SITE DRAIN STRIP 6400 OR APPROVED EQUAL.

- ## 2. IMPERVIOUS MEMBRANE

- #### A. IMPERVIOUS MEMBRANE PROTECTION PRIOR TO FLOOR SLAB PLACEMENT

- I. INSTALLATION SEQUENCE FOR PROTECTION MATERIAL BELOW THE IMPERVIOUS MEMBRANE:

- a. FINISH THE GRAVEL BLANKET SMOOTH USING MECHANICAL MEANS (E.G., ROLLER).
- b. PLACE 12 OZ GEOTEXTILE FABRIC OVER THE GRAVEL BLANKET TO PROTECT THE GEOMEMBRANE.

- II. INSTALLATION SEQUENCE FOR PROTECTION MATERIAL ABOVE THE IMPERVIOUS MEMBRANE:

- a. PLACE 12 OZ GEOTEXTILE FABRIC OVER THE GEOMEMBRANE.
- b. PLACE CONCRETE, REINFORCING STEEL, PIPING AND OTHER FORMS SO AS NOT TO BE SUPPORTED DIRECTLY ON THE IMPERVIOUS MEMBRANE. EQUIPMENT SHALL NOT BE DRIVEN OVER THE IMPERVIOUS MEMBRANE OR ITS PROTECTIVE COVERING.
- c. IF THERE ARE ANY REBAR WELDING, GRINDING, OR HEAT GENERATING WORK TO OCCUR OVER THE MEMBRANE OR ITS PROTECTIVE LAYER, THE CONTRACTOR SHALL USE WOODEN PANELS (OR EQUAL) AT THE ACTIVE WORK AREAS UNDERLYING LAYER PROTECTION. THE AREA OF THE WOODEN PANEL SHIELD SHALL BE INSPECTED AFTER WELDING OR GRINDING ACTIVITIES ARE COMPLETED, WITH PARTICULAR ATTENTION TO THE PERIMETER TO VERIFY THAT SPARKS/BURRS HAVE NOT DAMAGED THE GEOMEMBRANE.

- B. IMPERVIOUS MEMBRANE SHALL BE 30 MIL HDPE. LINER INSTALLATION SHALL FOLLOW THE MANUFACTURER'S INSTALLATION GUIDELINES. MATERIAL SUBSTITUTIONS TO BE APPROVED BY DESIGN ENGINEER.

C. MISCELLANEOUS SYSTEMS

1. TRENCH DAM

TRENCH DAMS ARE INTENDED TO PREVENT TRAVEL OF UNDERGROUND VAPOR INTO BUILDINGS OR STRUCTURES ALONG THE TRENCH BACKFILL.

- A. A TRENCH DAM SHALL BE INSTALLED IN ALL ELECTRICAL, PLUMBING, GAS, OR OTHER TRENCHES ADJACENT TO THE PROPERTY BOUNDARY.
- B. IF PIPING AND CONDUITS ARE PLACED BEFORE CERTIFIED COMPACTED SOIL AS PART OF THE SITE PREPARATION FOR THE BUILDING PAD, THEN TRENCH DAMS WILL NOT BE REQUIRED.
- C. TRENCH DAMS SHALL BE INSTALLED IN THE TRENCH ADJACENT TO THE PROPERTY BOUNDARY.
- D. A TRENCH DAM SHALL HAVE A MINIMUM LENGTH OF TWICE THE WIDTH OF THE TRENCH OR A MINIMUM OF 36 INCHES IN LENGTH.
- E. TRENCH DAMS MAY BE OF THE FOLLOWING:
 - I. BENTONITE CEMENT SLURRY - A MIXTURE OF 4% TYPE II CEMENT, AND 2% POWDERED BENTONITE, OR
 - II. COMPACTED NATIVE BACKFILL - NATIVE SOIL SHALL BE COMPACTED TO AT LEAST 90% RELATIVE COMPACTION IN ACCORDANCE WITH ASTM D-1557 TESTING PROCEDURES
 - a. THE ENTIRE CROSS SECTION OF TRENCHES SHALL BE BACKFILLED TO PROVIDE A MINIMUM OF 6 INCHES OF TRENCH DAM MATERIAL AROUND ALL CONDUITS AND PIPES.

- ## 2. WIRING

- ## II. OUTDOOR ENCLOSURES

ALL OUTDOOR ENCLOSURES WITH OPEN BOTTOMS, WHEN INSTALLED ON GRADE OR FINISHED FLOORS, SHALL BE MOUNTED ON A MINIMUM 2-IN. (5.08 CM.) THICK CONCRETE PAD OVER A 30 MIL (.076 CM.) HIGH DENSITY POLYETHYLENE (HDPE) OR EQUIVALENT APPROVED IMPERVIOUS MEMBRANE. ALL MEMBRANE PENETRATIONS SHALL BE SUITABLY SEALED AGAINST TRANSMISSION OF VAPOR INTO THE ENCLOSURE.

- ### 3. MANHOLES AND OTHER UNDERGROUND ELECTRIC ENCLOSURES INTENDED FOR PERSONNEL ENTRY

THE PROVISIONS OF THIS SECTION ARE APPLICABLE TO ALL MANHOLES AND OTHER UNDERGROUND ELECTRIC ENCLOSURES THAT ARE INTENDED FOR PERSONNEL ENTRY. THE ENCLOSURES HEREWITH WILL BE REFERRED TO AS UNDERGROUND ELECTRICAL ENCLOSURES.

- #### A. VENT SYSTEM

- I. UNDERGROUND ELECTRICAL ENCLOSURES SHALL BE NATURALLY VENTILATED AT ALL TIME TO OPEN AIR IN AN APPROVED MANNER TO PREVENT THE BUILD-UP OF VAPORS.

- II. MECHANICAL VENTILATION IN LIEU MAY BE USED WHEN BACK-UP POWER SUFFICIENT TO RUN THE SYSTEM FOR 24 HOURS IS PROVIDED AND A VISUAL AND AUDIBLE MAIN POWER FAILURE ALARM AT A READILY ACCESSIBLE LOCATION.

- B. ENCLOSURE EXTERIOR

- I. APPROVED SEALS SHALL BE USED TO PREVENT WATER AND VAPORS FROM ENTERING THE SIDES OF THE UNDERGROUND ELECTRICAL ENCLOSURES.

- II. UNDERGROUND ELECTRICAL ENCLOSURES PERSONNEL ENTRY ACCESS COVER SHALL BE PROVIDED WITH AN APPROVED RESTRAINING SYSTEM.

- III. SOIL VAPOR UNDER THE UNDERGROUND ELECTRICAL ENCLOSURE SHALL BE VENTED IN A MANNER SHOWN IN THE STANDARD PLAN DETAILS.

- C. ENCLOSURE INTERIOR

- I. ALL WIRING TERMINATIONS, EQUIPMENT AND INSULATING MATERIALS WITHIN THE ENCLOSURE SHALL BE SUITABLE FOR WET LOCATION.

- II. APPROVED DUCT SEALS SHALL BE USED TO PREVENT WATER FROM THE CONDUITS ENTERING OR LEAVING THE MANHOLES AND OTHER UNDERGROUND ELECTRICAL ENCLOSURES INTENDED FOR PERSONNEL ENTRY. THE SEAL SHALL HAVE A DEPTH OF NOT LESS THAN THE DIAMETER OF THE CONDUIT.

SPECIFICATIONS FOR GRAVEL

SIEVE SIZE	PERCENTAGE PASSING SIEVE	
	3/4" Gravel	3/8" Gravel
1-1/2" (37.5 mm)	100	-
1" (25.0 mm)	90-100	-
3/4" (19.0 mm)	55-85	100
3/8" (9.5 mm)	8-20	85-100
No. 4 (4.75 mm)	0-5	0-30
No. 8 (2.36 mm)	0-5	0-10
No. 200 (75um)	0-2	0-2
ASTM C 131 TEST GRADING	B	C

SPECIFICATIONS FOR SAND

SIEVE SIZE	PERCENTAGE PASSING SIEVE
3/8" (9.5 mm)	100
No. 4 (4.75 mm)	90-100
No. 8 (2.36 mm)	75-90
No. 16 (1.18 mm)	55-75
No. 30 (600 um)	30-50
No. 50 (300 um)	10-25
No. 100 (150 um)	2-10
No. 200 (75 um)	0-5



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MITIGATION SYSTEM PLAN SET
SHORTSTACK BELMONT LLC
PORTLAND, OREGON

C.	8/28/2023	100% DESIGN DRAWINGS
B.	6/20/2023	90% DESIGN DRAWINGS
A.	2/24/2023	ENGINEERING DESIGN REPORT SUBMITAL
ISSUE	DATE	DESCRIPTION

PROJECT: M2473.01.001
DESIGNED: K. KRIPPAEHNE-STEIN
DRAWN: K. KRIPPAEHNE-STEIN
CHECKED: S. FROST/T. WALL
SCALE

SHEET TITLE
CONSTRUCTION NOTES

SHEET
C1.0

ABBREVIATIONS

AC	ACRE, ASPHALT CONCRETE PAVEMENT	LB	POUND(-S)
ACOE	ARMY CORPS OF ENGINEERS	LF	LINEAR FEET
AD	AREA DRAIN	LONG. LT	LONGITUDINAL LEFT
AGG	AGGREGATE		
AIR	AIR RELIEF	MAX	MAXIMUM
AMSL	ABOVE MEAN SEA LEVEL	MFA	MAUL FOSTER & ALONGI, INC.
AP	ANGLE POINT	MFR	MANUFACTURER
APPD	APPARENT PARCEL NUMBER	MH	MANHOLE
APPROX, ±	APPROVED	MIC	MONUMENT (IN CASE)
ASPH	APPROXIMATE(-E, -LY)	MIN	MINIMUM, MINUTE
ASSY	ASPHALT ASSEMBLY	MISC	MISCELLANEOUS
		MJ	MECHANICAL JOINT
		MON	MONUMENT (SURFACE)
		MW	MONITORING WELL
BCR	BEGIN CURB RETURN		
BF	BUTTERFLY	N	NORTH
BGS	BELOW GROUND SURFACE	N/A	NOT APPLICABLE
BLDG	BUILDING	NAT G, NG	NATURAL GAS
BLVD	BOULEVARD	NE	NORTHEAST
BM	BENCHMARK	NO.	NUMBER
BMP	BEST MANAGEMENT PRACTICE	NTS	NOT TO SCALE
BO	BLOW-OFF	NW	NORTHWEST
BOC	BACK OF CURB		
BOT, BTM	BOTTOM		
B.O.W.	BOTTOM OF WALL	OC	ON CENTER
BVC	BEGIN VERTICAL CURVE	OD	OUTSIDE DIAMETER
		OHP	OVERHEAD POWER
		OT	OWNERSHIP TIE
CB	CATCH BASIN		
CDF	CONTROLLED DENSITY FILL	P	PIPE
CEM	CEMENT	P TRAN	PAD MOUNTED TRANSFORMER
CF	CUBIC FEET	PC	POINT OF CURVATURE
CFS	CUBIC FEET PER SECOND	PCC	PORTLAND CEMENT CONCRETE
CIP	CAST IRON PIPE	PEN	PENETRATION
CIR	CIRCLE	PERF	PERFORAT(-E, -ED, -ES, -ION)
CK	CHECK	P.L., PL	PROPERTY LINE, PLACE
CL, ½	CENTERLINE	POW V	POWER VAULT
CMP	CORRUGATED METAL PIPE	PP	POWER POLE
CLEANOUT		PROP.	PROPOSED
COMP	COMPACTION	PS	PUMP STATION
CONC	CONCRETE	PSF	POUNDS PER SQUARE FOOT
CPE	CORRUGATED POLYETHYLENE	PSI	POUNDS PER SQUARE INCH
CPL	COUPLING	PT	POINT OF TANGENT
CTR	COURT	PV	PLUG VALVE
CULV	CULVERT	PVI	POINT OF VERTICAL INTERSECTION
CY	CUBIC YARD	PVC	POLYVINYL CHLORIDE
		PVMT	PAVEMENT
D	DEPTH		
DEG	DEGREE(-S)	R, RAD	RADIUS
DI	DUCTILE IRON	RC	REINFORCED CONCRETE
DIA	DIAMETER	RCP	REINFORCED CONCRETE PIPE
DIM.	DIMENSION(-S)	RD	ROOF DRAIN
DIP, D.I.P.	DUCTILE IRON PIPE	RED	REDUCER
DOT	DEPARTMENT OF TRANSPORTATION	REQD	REQUIRED
DR	DIMENSION RATIO	REQT	REQUIREMENT
DTL	DETAIL	REV	REVISION
DWG(S)	DRAWING(-S)	R/W, ROW	RIGHT OF WAY
		RT	RIGHT
E	EAST	S	SOUTH, SLOPE
EA	EACH	SB	SOIL BORING
ECR	END CURB RETURN	SCH	SCHEDULE
EG	EXISTING GROUND	SD	STORM DRAIN
EL, ELEV	ELEVATION	SDR	STANDARD DIMENSION RATIO
ELB, ELL	ELBOW	SE	SOUTHEAST
ELFC	ELECTRIC(-AL)	SF	SQUARE FEET
ENGR	ENGINEER	SHT	SHEET
ENTR	ENTRANCE	SL	SLOPE
EP, EOP	EDGE OF PAVEMENT	SPEC	SPECIFICATIONS
EQ	EQUAL(-LY)	SQ	SQUARE
ESC	EROSION CONTROL	SQ IN	SQUARE INCHES
ESMT	EASEMENT	SRF	SURFACE
EST	ESTIMATE(-D)	ST	STREET
EVC	END VERTICAL CURVE	STA	STATION
EXC	EXCAVATE	STD	STANDARD
EX., EXTG.	EXISTING	STL	STEEL
EW	EACH WAY	STRM	STORM
		STRUCT	STRUCTUR(-E, -AL)
FF	FINISH FLOOR	SSWR	SANITARY SEWER
FG	FINISH GRADE	SW, S/W	SIDEWALK, SOUTHWEST
FH	FIRE HYDRANT		
FL	FLOW LINE	TB	THRUST BLOCK
FLG	FLANGE	TBM	TEMPORARY BENCHMARK
FM	FORCE MAIN	TC	TOP OF CURB
FT	FEET, FOOT	TEL, TELE	TELEPHONE
		TEMP	TEMPORARY
		TP	TOP OF PAVEMENT, TEL POLE, TURNING POINT
GAL	GALLON(-S)	TW	TOP OF WALL
GM	GAS METER	TYP	TYPICAL
GND	GROUND		
GP	GUARD POST	UG	UNDERGROUND
GPM	GALLONS PER MINUTE	UGE	UNDERGROUND ELECTRIC
GRD	GRADE	UTIL	UTILITY
GV	GAS VALVE, GATE VALVE		
		VC	VERTICAL CURVE
HDPE	HIGH DENSITY POLYETHYLENE	VERT	VERTICAL
HGT, HT	HEIGHT	VOL	VOLUME
HP	HORSEPOWER		
HORZ	HORIZONTAL		
HYD	HYDRANT	W	WIDTH; WIDE; WEST
		W/	WITH
ID	INSIDE DIAMETER	WATR	WATER
IE	INVERT ELEVATION	WM	WATER METER
IN	INCH(-ES)	W/O	WITHOUT
INTX	INTERSECTION	WSE	WATER SURFACE ELEVATION
INV	INVERT	WV	GATE/GENERAL WATER VALVE
IP	IRON PIPE		
		YD	YARD
L	LENGTH	YR	YEAR
LAT	LATERAL		

GENERAL LEGEND

GAS/POWER/TELEPHONE SYMBOLS

SYMBOL	DESCRIPTION
EXIST.	
PROP.	
	GAS METER
	GAS VALVE
	PAD MOUNTED TRANSFORMER
	POWER VAULT
	TRANSMISSION TOWER
	UTILITY POLE
	UTILITY POLE ANCHOR
	TELEPHONE RISER
	TELEPHONE VAULT
	LIGHT POLE

SURVEY SYMBOLS

SYMBOL	DESCRIPTION
THEOR./ EXIST.	
FOUND/ PROP.	
	ANGLE POINT
	BENCH MARK
	BLOCK CORNER
	IRON PIPE
	MONUMENT
	OWNERSHIP TIE
	SECTION DATA:
	SECTION CENTER
	SECTION CORNER
	SIXTEENTH CORNER
	CLOSING CORNER
	MEANDER CORNER
	WITNESS CORNER
	SOIL BORING
	SPOT ELEVATION

	EXISTING GRADE MAJOR CONTOUR
	EXISTING GRADE MINOR CONTOUR
	EXISTING STORM DRAIN PIPE
	EXISTING WATER PIPE
	EXISTING SANITARY SEWER PIPE
	EXISTING AC PAVEMENT
	EXISTING CONCRETE SURFACING
	EXISTING GRAVEL SURFACING
	EXISTING BUILDING
	EXISTING FENCE LINE
	EXISTING ROAD CENTERLINE
	EXISTING RIGHT-OF-WAY
	EXISTING PROPERTY LINE

WATER SYMBOLS

SYMBOL	DESCRIPTION
EXIST.	
PROP.	
	CAP/PLUG
	COUPLING
	GUARD POST / BOLLARD
	REDUCER
	THRUST BLOCK
	WATER METER
	DOUBLE CHECK VALVE ASSEMBLY
	FIRE HYDRANT
	AIR RELIEF
	BLOW-OFF VALVE
	CHECK VALVE
	GATE VALVE
	BENDS:
	90 DEGREE BEND
	45 DEGREE BEND
	22.5 DEGREE BEND
	11.25 DEGREE BEND
	VERTICAL BEND
	TEE
	CROSS

SANITARY/STORM SEWER SYMBOLS

SYMBOL	DESCRIPTION
EXIST.	
PROP.	
	SAN. SEWER CLEAN OUT
	SAN. SEWER MANHOLE
	STORM DRAIN CATCH BASIN
	STORM DRAIN CULVERT
	STORM DRAIN MANHOLE
	DRY WELL
	AREA DRAIN
	PROPOSED GRADE MAJOR CONTOUR (5.0' INTERVAL)
	PROPOSED GRADE MINOR CONTOUR (1.0' INTERVAL)
	PROPOSED STORM DRAIN PIPE
	PROPOSED WATER PIPE
	PROPOSED SANITARY SEWER PIPE
	PROPOSED AC PAVEMENT
	PROPOSED CONCRETE SURFACING
	PROPOSED GRAVEL SURFACING
	PROPOSED BUILDING
	PROPOSED FENCE LINE
	PROPOSED ROAD CENTERLINE
	PROPOSED RIGHT-OF-WAY
	PROPOSED PROPERTY LINE

MITIGATION SYSTEM SYMBOLS

SYMBOL	DESCRIPTION
	VENT RISER
	PERFORATED SUB-SLAB VAPOR COLLECTION PIPE
	SOLID WALL SUB-SLAB VAPOR COLLECTION PIPE
	MONITORING PORT AND PROBE
	IMPERVIOUS MEMBRANE
	TYPICAL SECTION CALLOUT
	TYPICAL DETAIL CALLOUT
	PROPOSED SEDIMENT FENCE
	PROPOSED FLOW DIRECTION
	PROPOSED GRADE BREAK
	PROPOSED DITCH FLOW LINE
	PROPOSED COMPOST SOCK
	PROPOSED PAINT STRIPE
	PROPOSED TRUNCATED DOMES
	EXISTING FLOW DIRECTION
	EXISTING OVERHEAD POWER
	EXISTING UNDERGROUND POWER
	EXISTING UNDERGROUND TELEPHONE
	EXISTING UNDERGROUND GAS

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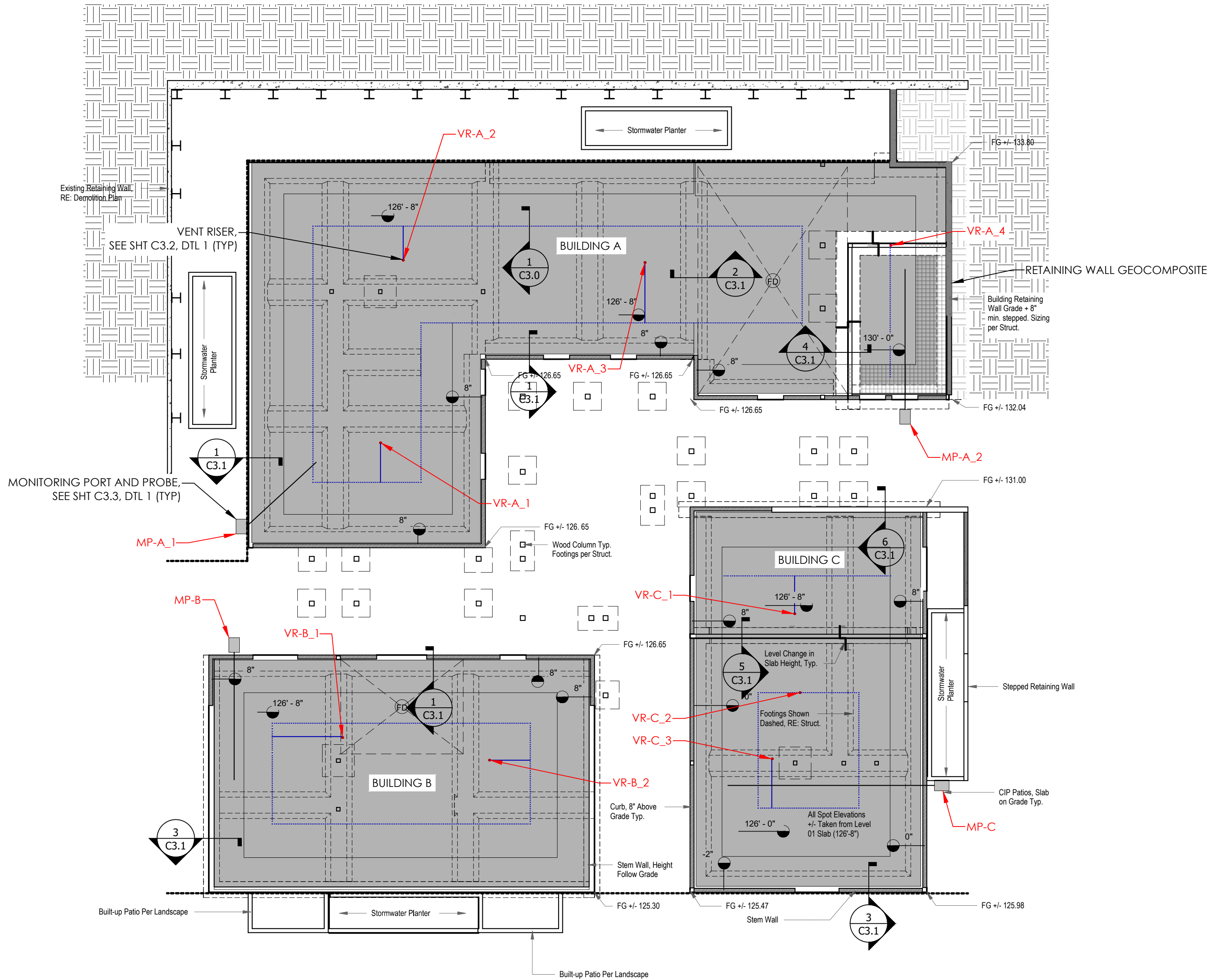


SHORTSTACK BELMONT VAPOR
MITIGATION SYSTEM PLAN SET
SHORTSTACK BELMONT LLC
PORTLAND, OREGON

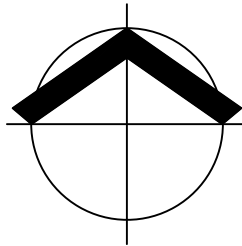
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DESIGNED:	K. KRIPPBAHN-STEIN
DRAWN:	K. KRIPPBAHN-STEIN
CHECKED:	S. FROST/T. WALL
SCALE:	
SHEET TITLE:	MASTER LEGEND
SHEET:	C 1.1

FILENAME: C:\PROJECTS\MA23.01 Shortstack - Belmont\PLANS\C2.0 VAPOR MITIGATION SYSTEM - SLAB.dwg PLOTTED BY: Krista Krippaehne-Stein PLOTTED ON: 2023/08/28 4:07 PM

BUILDING PLANS PROVIDED BY WORKS PROGRESS ARCHITECTURE



LEGEND:
VR-XX VERTICAL VENT RISER PIPE
MP-XX MONITORING PORT





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PORTLAND, OR 97232
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REGISTERED PROFESSIONAL ENGINEER
65669PE
OREGON
EXPIRES: 12/31/2023
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SHORTSTACK BELMONT VAPOR MITIGATION SYSTEM PLAN SET
SHORTSTACK BELMONT LLC
PORTLAND, OREGON

ISSUE	DATE	DESCRIPTION
A	2/24/2023	ENGINEERING DESIGN REPORT SUBMITTAL
B	6/29/2023	100% DESIGN DRAWINGS
C	8/28/2023	100% DESIGN DRAWINGS

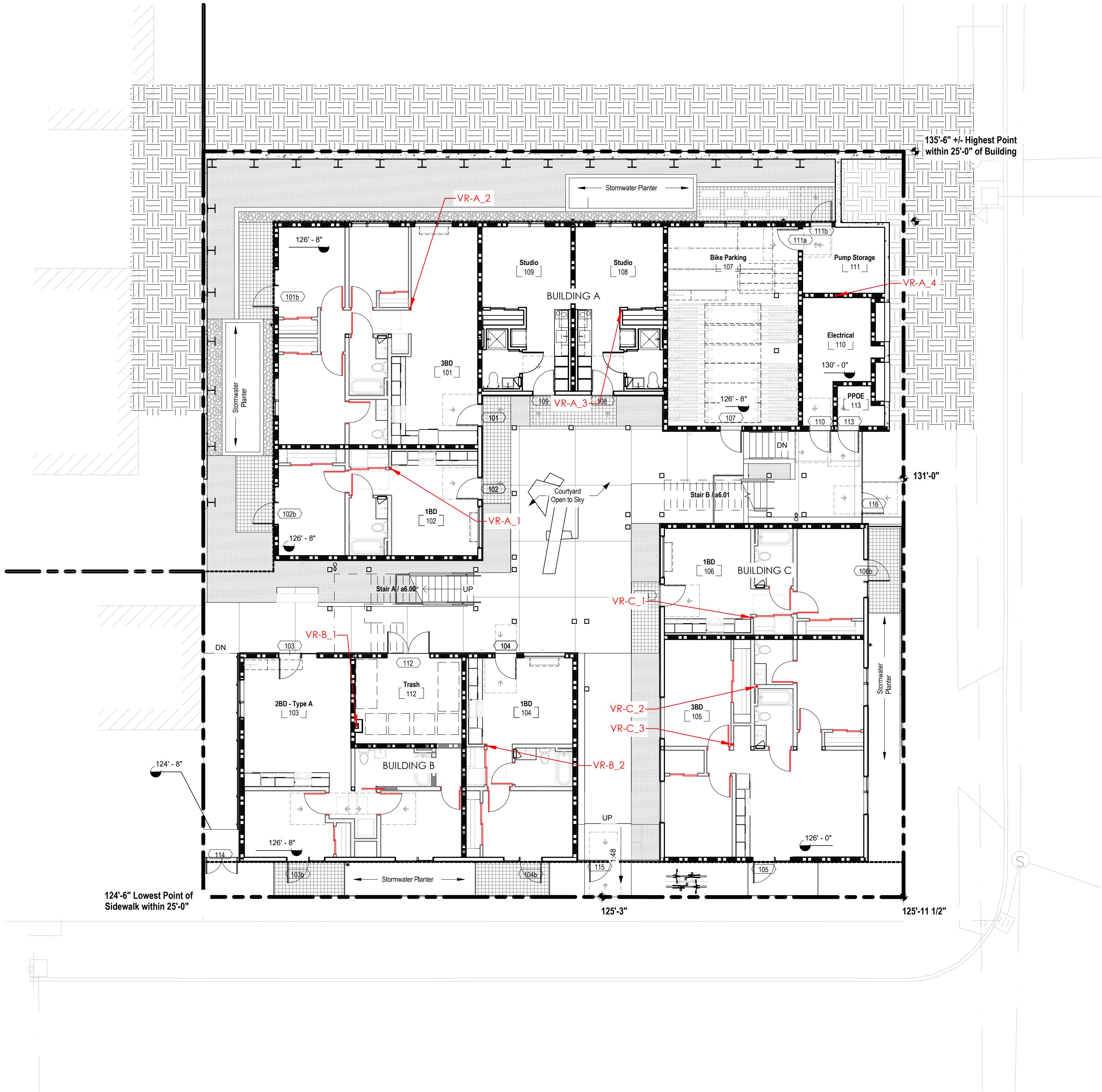
PROJECT: M2473.01.001
DESIGNED: K. KRIPPAEHNE-STEIN
DRAWN: K. KRIPPAEHNE-STEIN
CHECKED: S. FROST/T. WALL

SCALE
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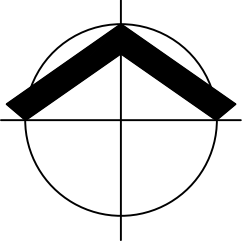
SHEET TITLE
VAPOR MITIGATION SYSTEM - SLAB

SHEET
C2.0

BID DOCUMENT: NOT FOR CONSTRUCTION



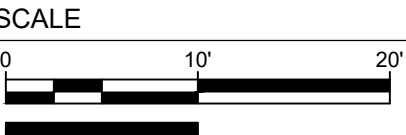
LEGEND:
 VR-XX VERTICAL VENT RISER PIPE
 MP-XX MONITORING PORT



SHORTSTACK BELMONT VAPOR
 MITIGATION SYSTEM PLAN SET
 SHORTSTACK BELMONT LLC
 PORTLAND, OREGON

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PROJECT: M2473.01.001
 DESIGNED: K. KRIPPAEHNE-STEIN
 DRAWN: K. KRIPPAEHNE-STEIN
 CHECKED: S. FROST/T. WALL



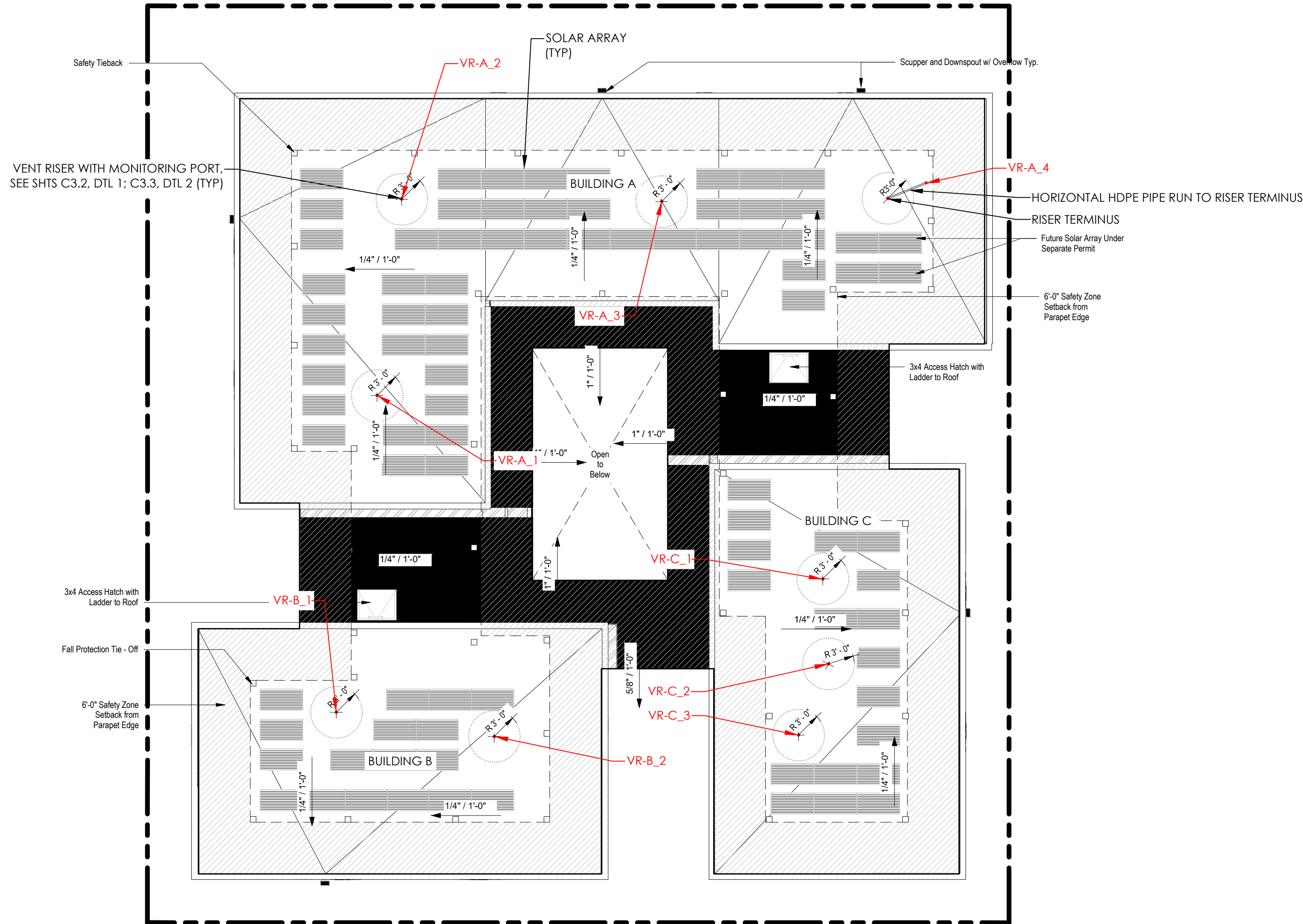
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SHEET TITLE
 VAPOR MITIGATION
 SYSTEM - LEVEL 1

SHEET
 C2.1

PLOTTED ON: 2023.08.28 3:24 PM
 PLOTTED BY: Krista Krippaehne-Stein
 FILENAME: G:\PROJECTS\MM23.01 Shortstack - Belmont\PLANS\C2.2 VAPOR MITIGATION SYSTEM - ROOF.dwg

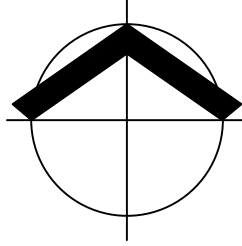
BUILDING PLANS PROVIDED BY WORKS PROGRESS ARCHITECTURE



LEGEND:

VR-XX VERTICAL VENT RISER PIPE
MP-XX MONITORING PORT

 SAFETY ZONE SETBACK



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ISSUE	DATE	DESCRIPTION
C	8/29/2023	100% DESIGN DRAWINGS
B	6/29/2023	10% DESIGN DRAWINGS
A	2/24/2023	ENGINEERING DESIGN REPORT SUBMITTAL

PROJECT: M2473.01.001
 DESIGNED: K. KRIPPAAEHNE-STEIN
 DRAWN: K. KRIPPAAEHNE-STEIN
 CHECKED: C. GOKCORA/T. WALL

SCALE

0 10' 20'

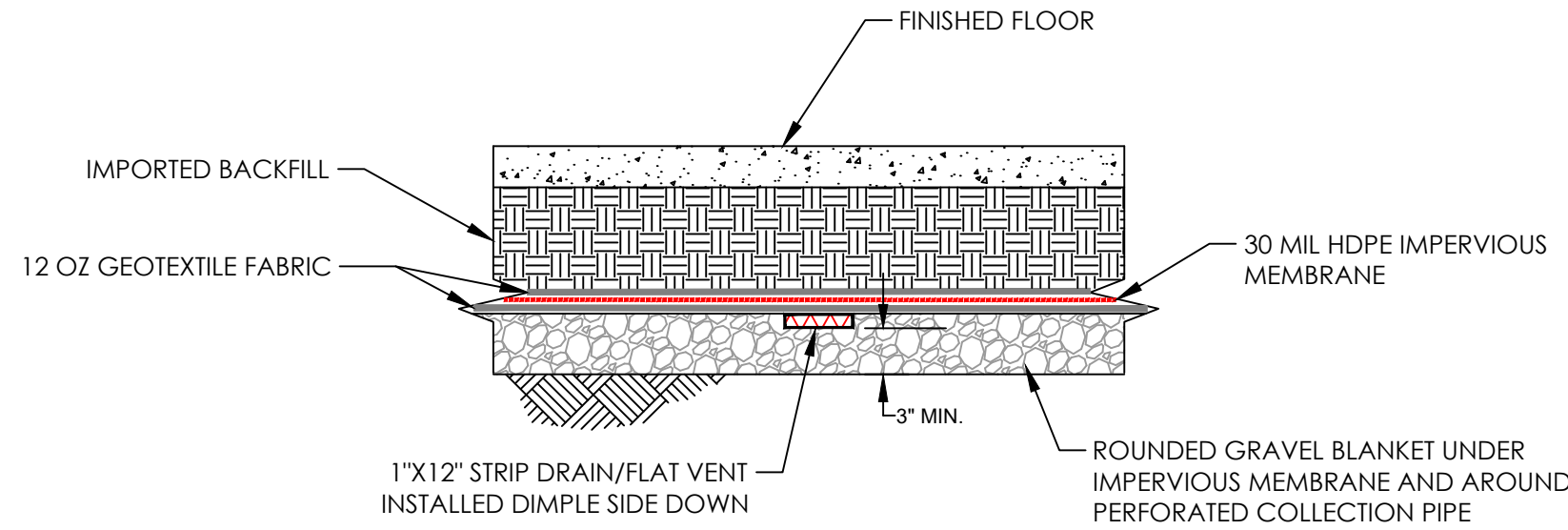
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SHEET TITLE
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 SYSTEM - ROOF

SHEET
 C2.2

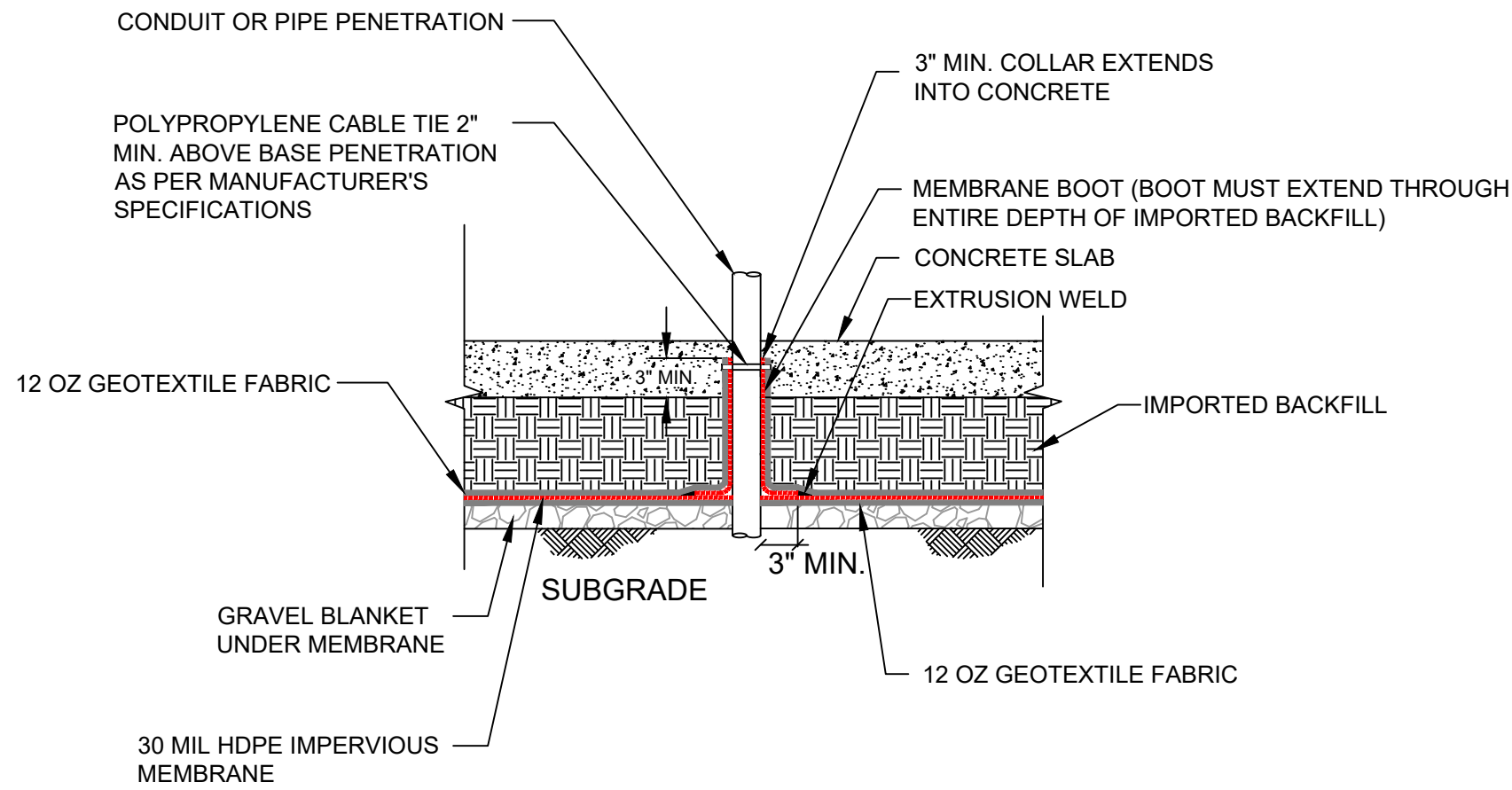
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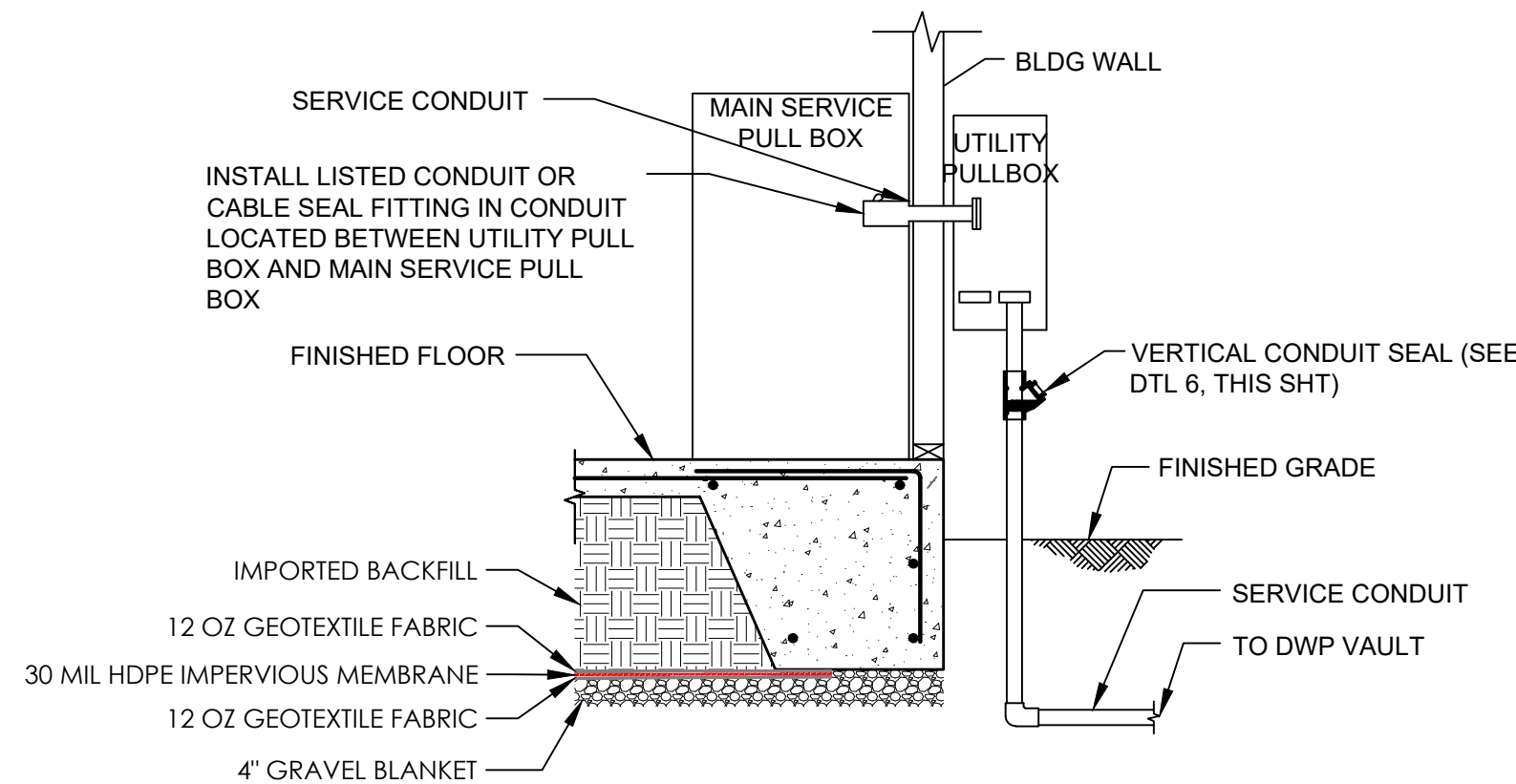
NOTE:
1. IMPERVIOUS MEMBRANE SHALL BE UNDERLAIN BY SMALL DIAMETER ROUNDED GRAVEL BLANKET, GEOTEXTILE FABRIC CUSHION LAYER, OR SAND LAYER TO PREVENT LINER PUNCTURE.

1 SUB-SLAB VENT SYSTEM
NTS



NOTE:
1. IMPERVIOUS MEMBRANE SHALL BE UNDERLAIN BY SMALL DIAMETER ROUNDED GRAVEL BLANKET, GEOTEXTILE FABRIC CUSHION LAYER, OR SAND LAYER TO PREVENT LINER PUNCTURE.

2 MEMBRANE BOOT
NTS



NOTES:
1. PIPING AND CONDUIT SHALL BE PROTECTED FROM CORROSION AND STRUCTURAL SETTLEMENT AS FOLLOWS:
A. TAPE SHALL BE APPLIED ON CONDUIT AND PIPING ENCASED IN CEMENT SLURRY OR CONCRETE.
B. TAPE SHALL BE PS-37-90, BLACK PLASTIC PVC OR PE PRESSURE - SENSITIVE CORROSION PREVENTIVE TAPE.
2. IMPERVIOUS MEMBRANE SHALL BE UNDERLAIN BY SMALL DIAMETER ROUNDED GRAVEL BLANKET, GEOTEXTILE CUSHION LAYER, OR SAND LAYER TO PREVENT LINER PUNCTURE.

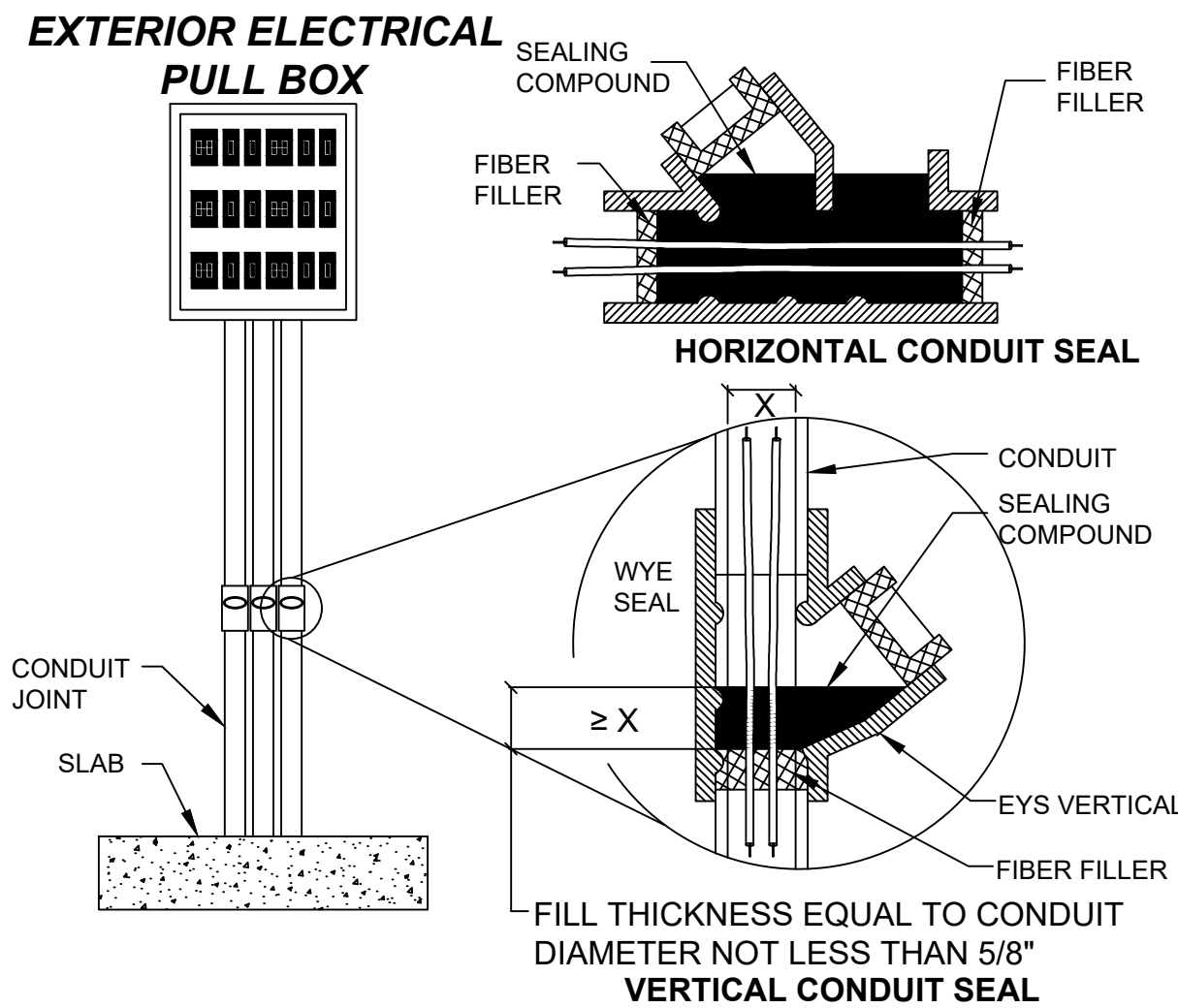
3 CONDUIT CABLE SEAL FITTINGS
NTS

WARNING

THIS BUILDING IS PROTECTED WITH A VAPOR CONTROL BARRIER. ANY PROPOSED PENETRATION OR ALTERATION OF FLOOR SLAB REQUIRES NOTIFICATION OF THE BUILDING OFFICIAL AND INSPECTION BY AN ENGINEER. DEQ MUST BE NOTIFIED OF ANY PENETRATION OR ALTERATIONS OF THE VAPOR BARRIER LINER, AND REPAIRS ARE SUBJECT TO DEQ'S REVIEW FOR APPROVAL.

NOTES:
1. THIS NOTIFICATION IS TO BE PERMANENTLY STAMPED OR ETCHED IN THE SURFACE OF THE SLAB OR OTHER LOCATION APPROVED BY THE BUILDING INSPECTOR AT THE TIME OF CONSTRUCTION.
2. ALL LETTERS 1/2" (MIN.) IN HEIGHT.
3. AT LEAST ONE REQUIRED PER BUILDING.
4. THIS NOTIFICATION SHALL BE POSTED AND MAINTAINED AT THE FRONT ENTRANCE OF THE BUILDING.

4 VAPOR MEMBRANE NOTIFICATION PLACARD
NTS



5 CONDUIT SEAL
NTS

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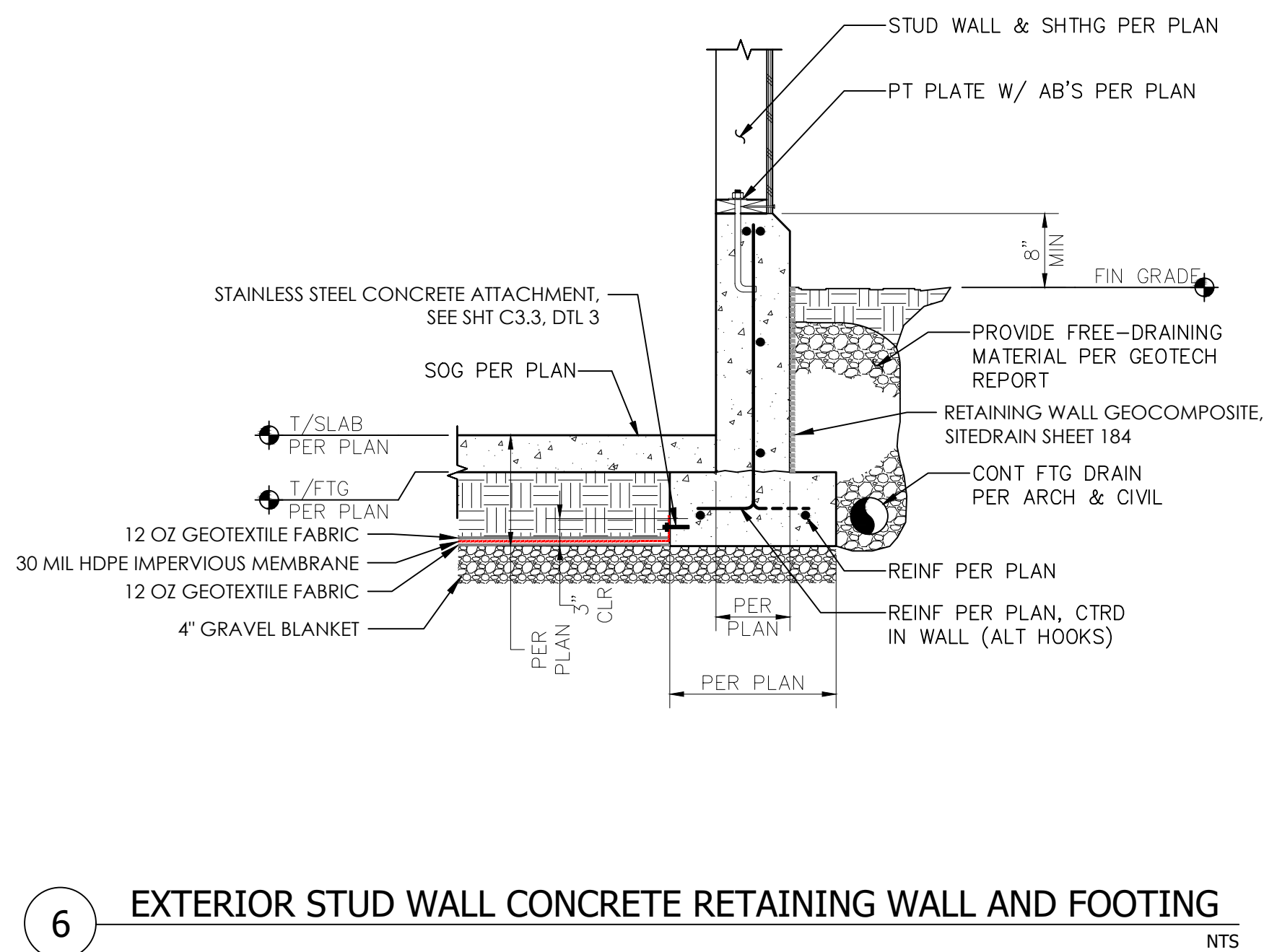
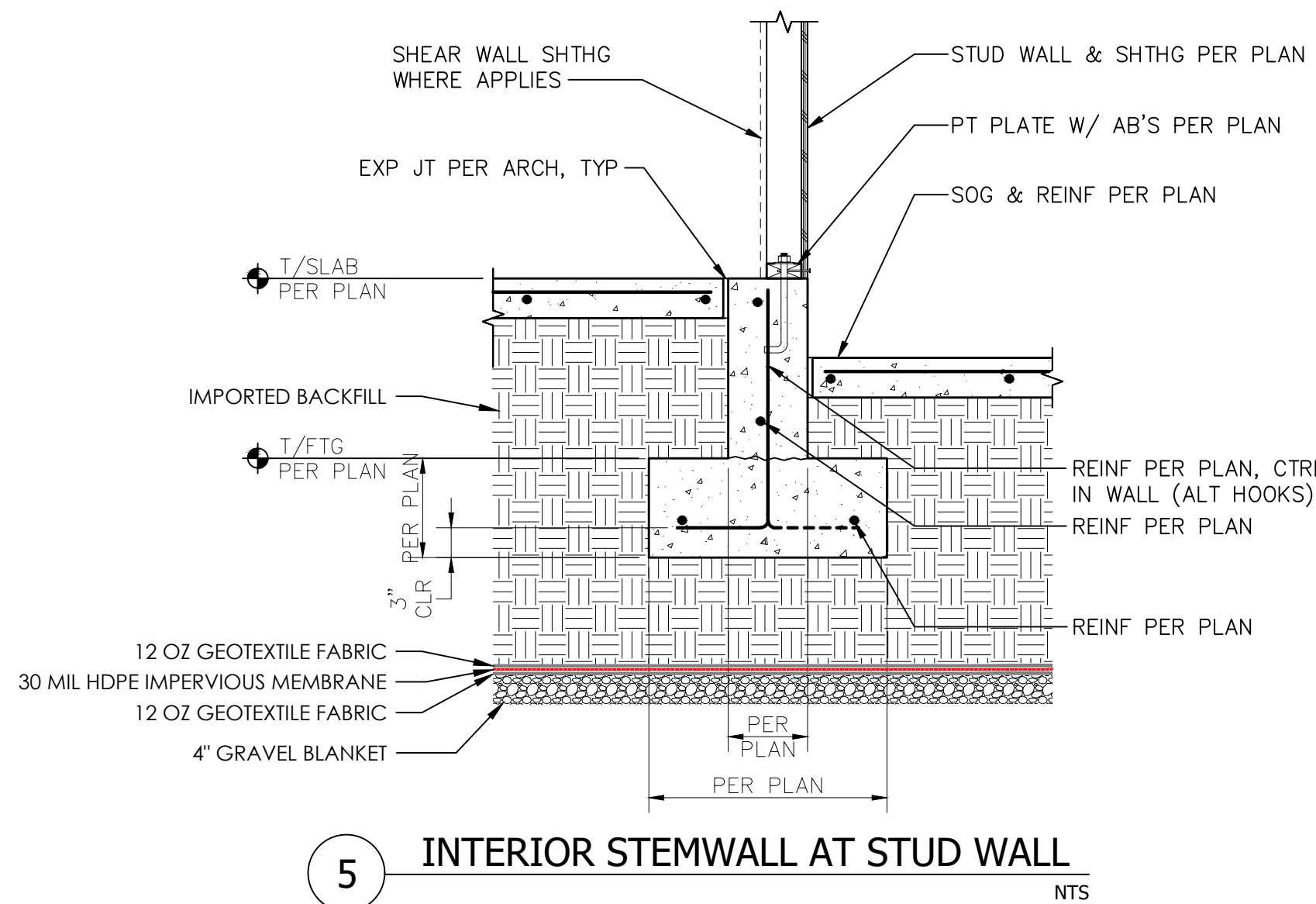
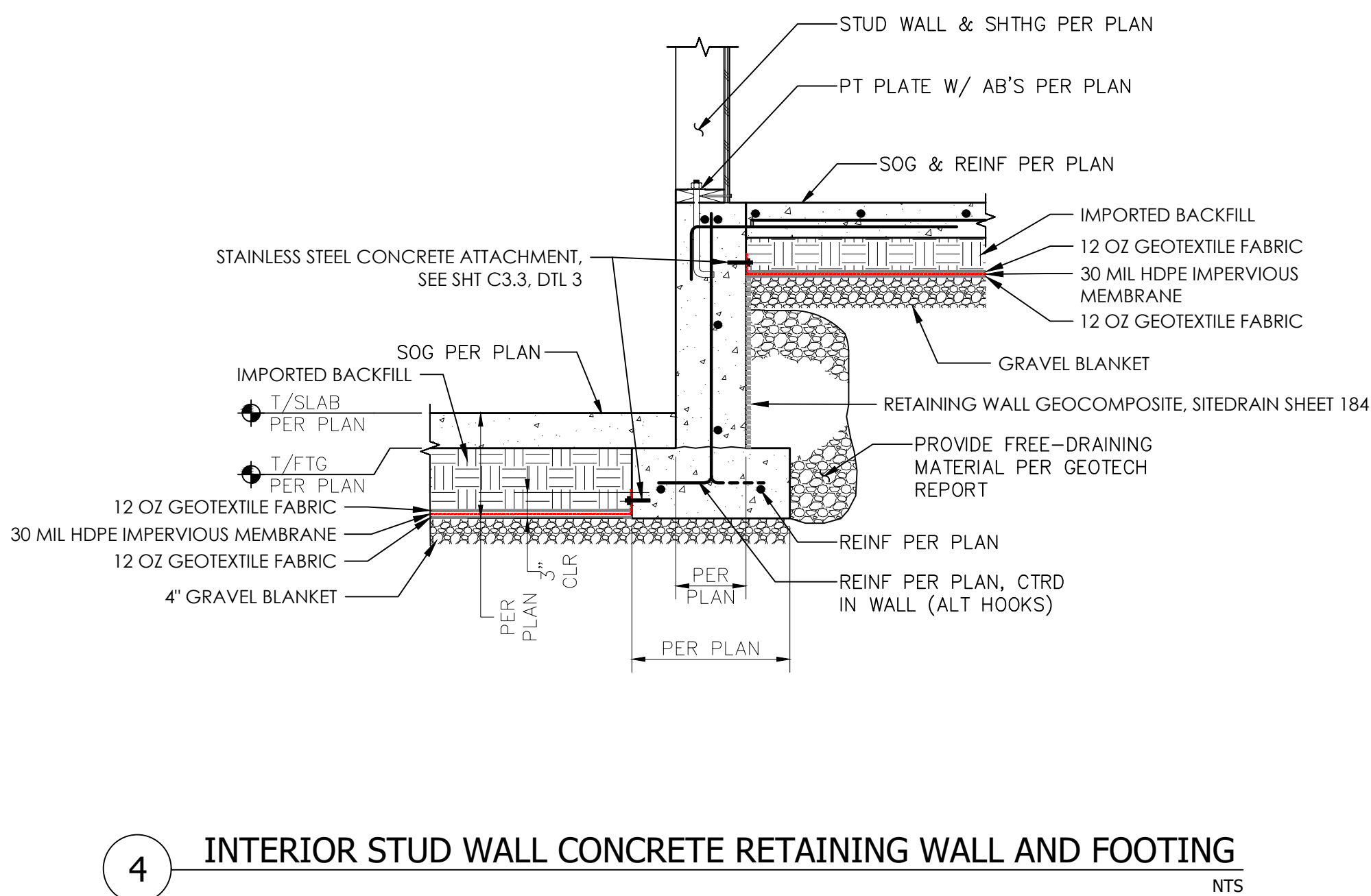
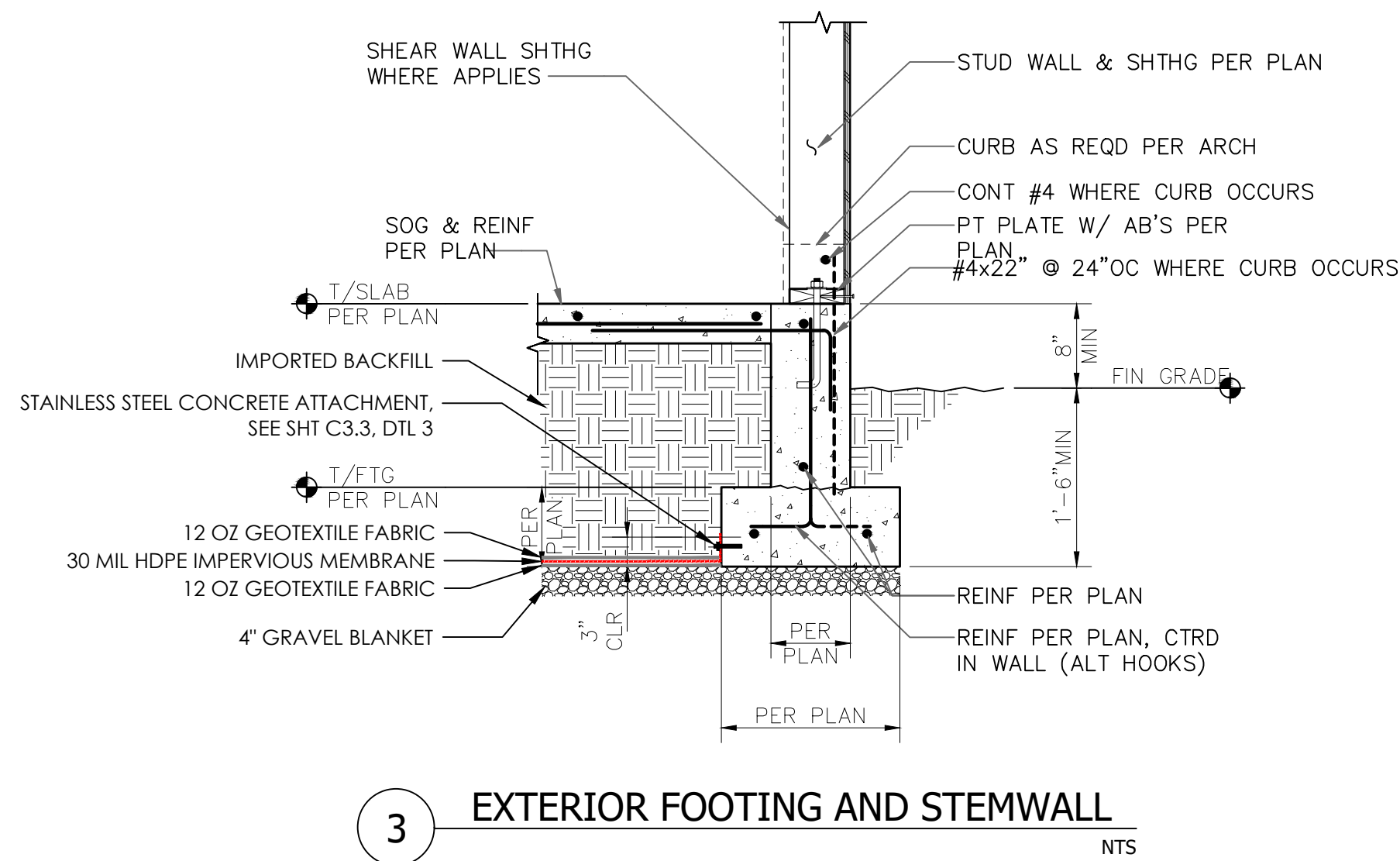
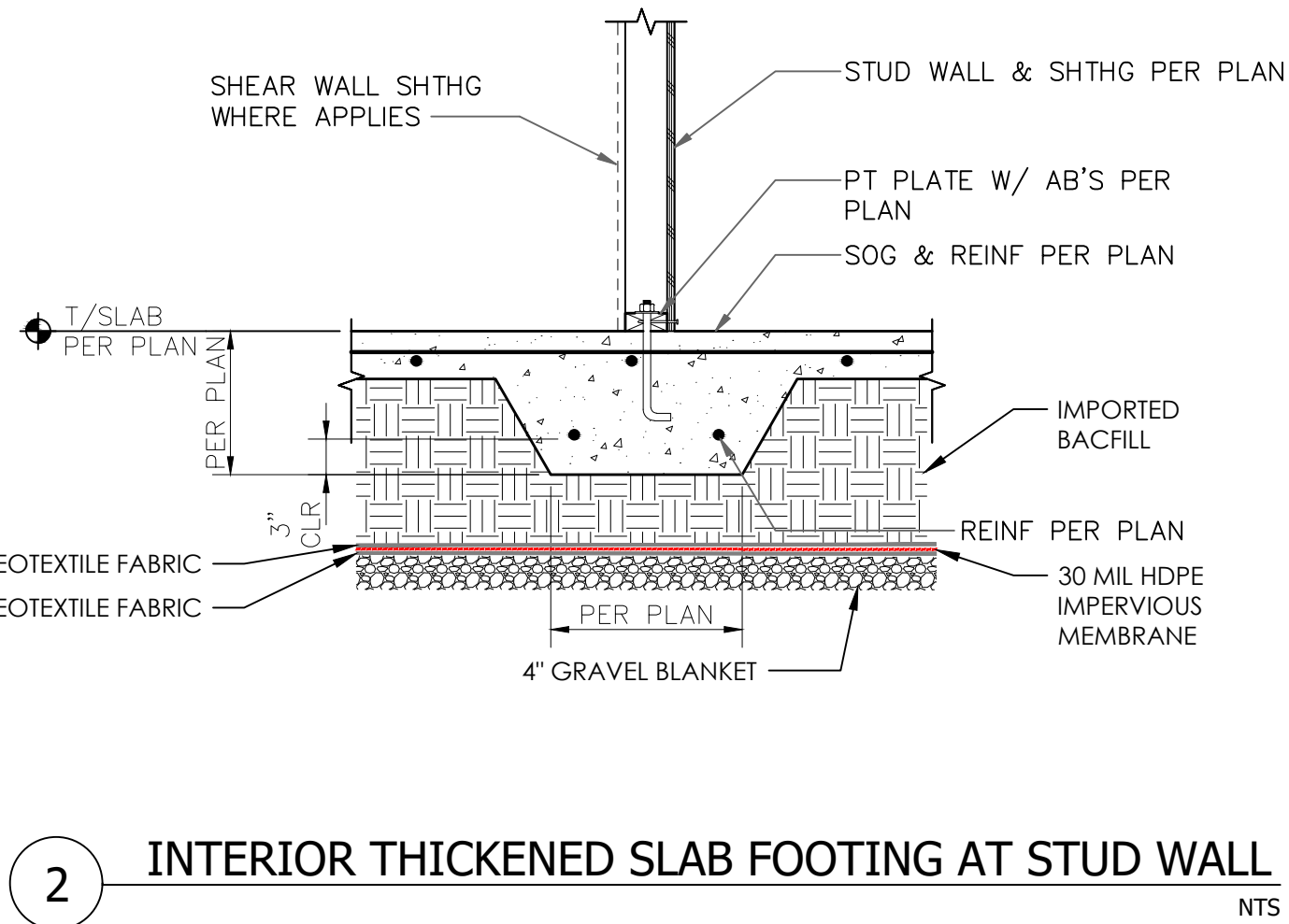
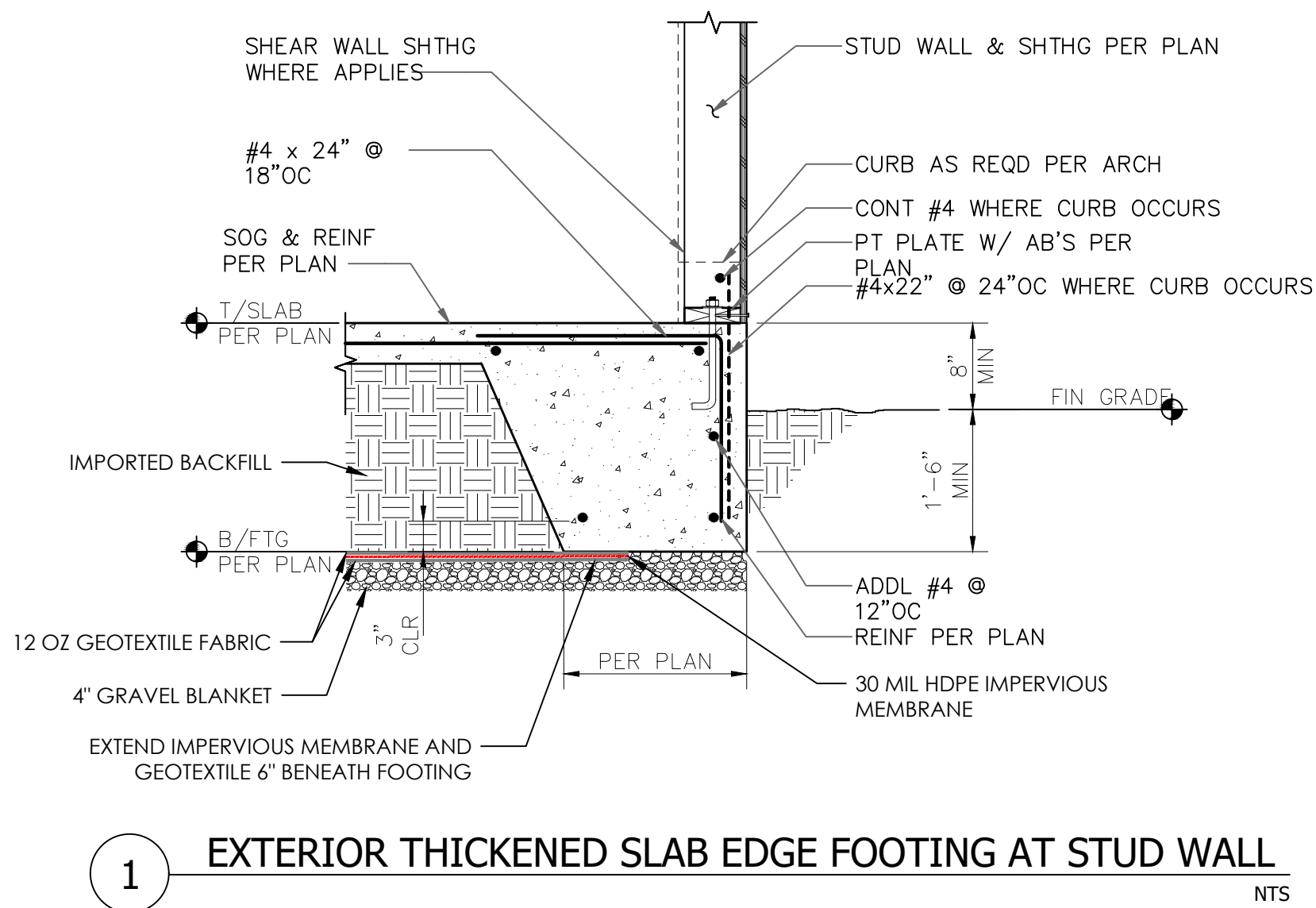
REGISTERED PROFESSIONAL ENGINEER
65669PE
OR
STACY L. FROST
EXPIRES: 12/31/2023
This digital seal certifies the signatory and document content.

SHORTSTACK BELMONT VAPOR MITIGATION SYSTEM PLAN SET
SHORTSTACK BELMONT LLC
PORTLAND, OREGON

NO.	DATE	DESCRIPTION
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PROJECT: M2473.01.001
DESIGNED: K. KRIPPAEHNE-STEIN
DRAWN: K. KRIPPAEHNE-STEIN
CHECKED: S. FROST/T. WALL
SCALE:
SHEET TITLE:
VAPOR MITIGATION SYSTEM DETAILS I
SHEET:
C3.0

FILENAME: C:\PROJECTS\MA243.01 Shortstack Belmont\PLANS\C3.0 VAPOR MITIGATION SYSTEM DETAILS.dwg
PLOTTED BY: Krista Krippaehne-Stein
PLOT DATE: 2023-08-28 3:19 PM



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MITIGATION SYSTEM PLAN SET
SHORTSTACK BELMONT LLC
PORTLAND, OREGON

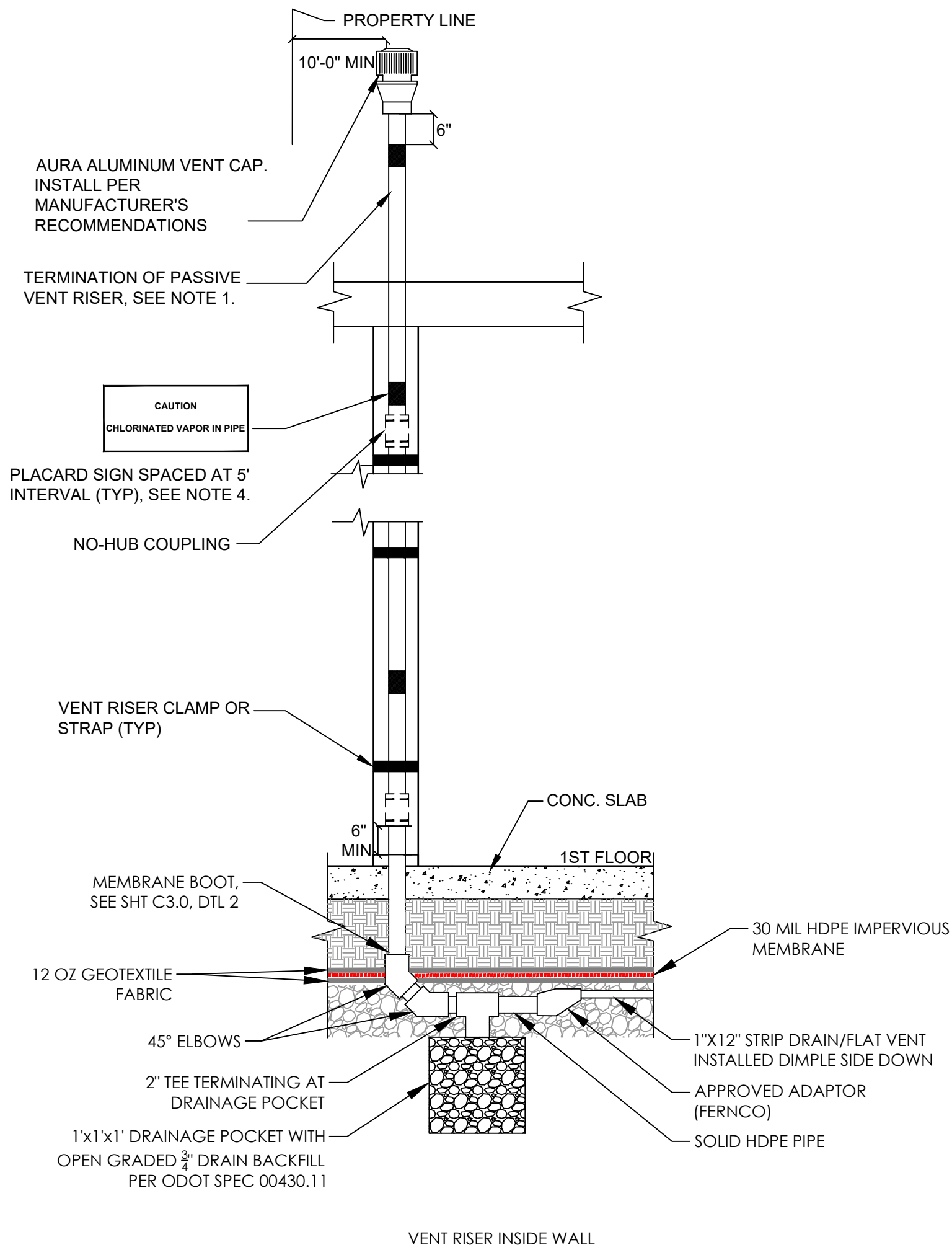
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C	8/28/2023	100% DESIGN DRAWINGS

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DRAWN: K. KRIPPAEHNE-STEIN
CHECKED: S. FROST/T. WALL
SCALE:

SHEET TITLE
VAPOR MITIGATION
SYSTEM DETAILS II

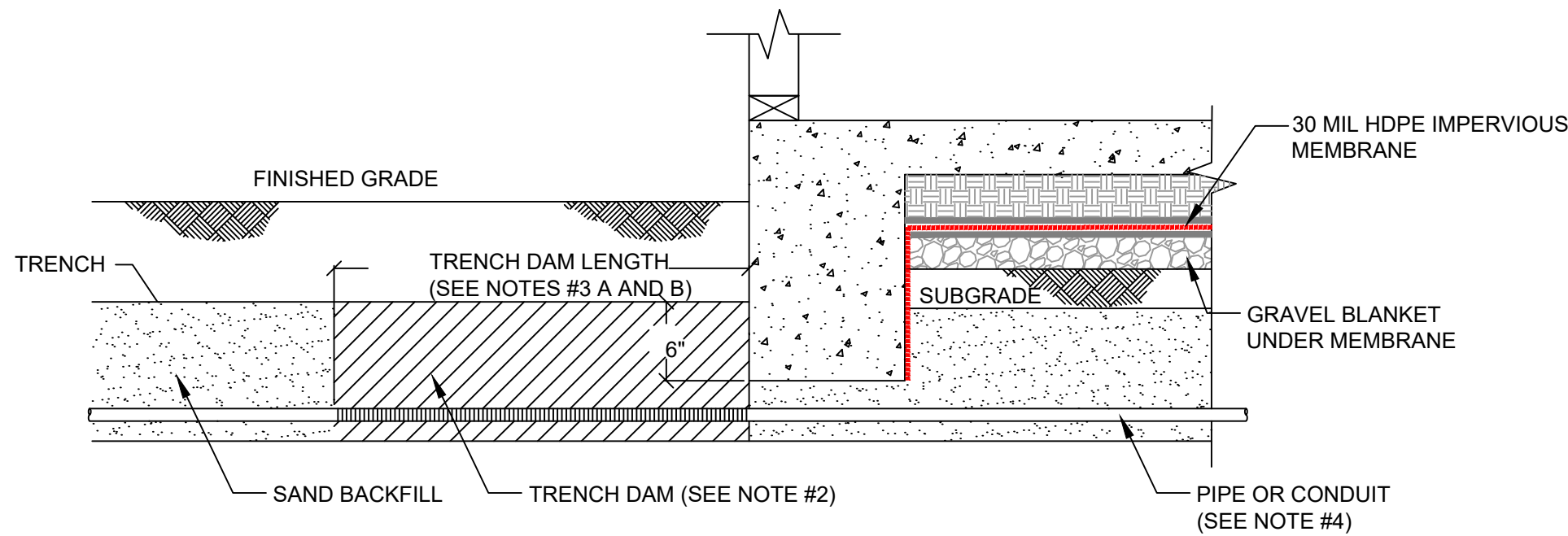
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PLOTTED BY: Krista Krippaehne-Stein
PLOTTED ON: 2023.08.28 2:28 PM

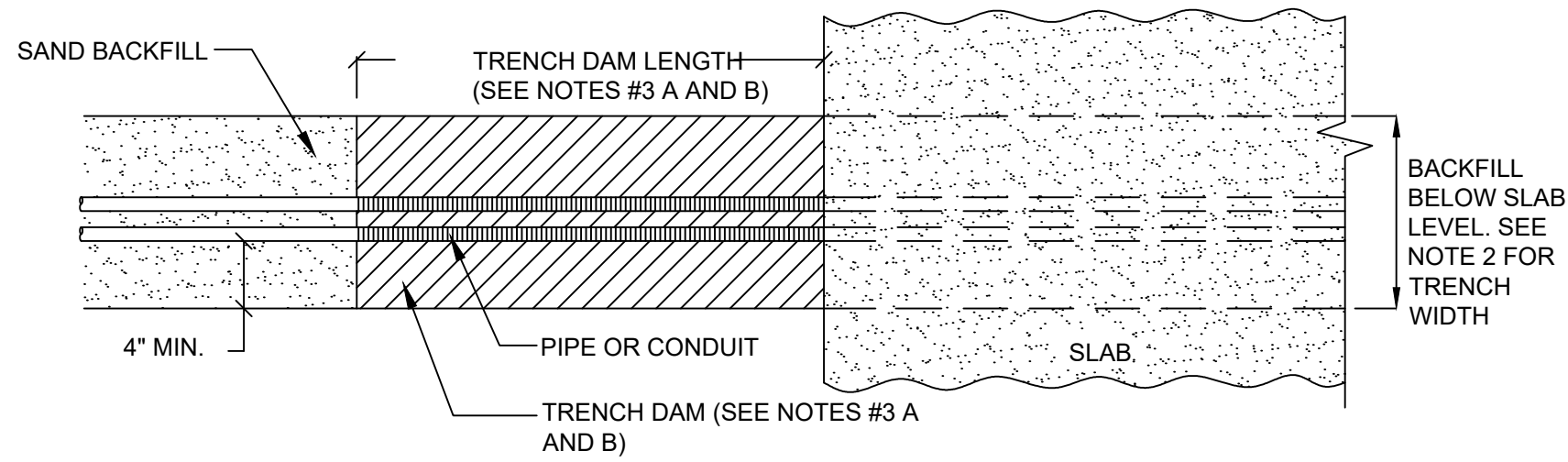


- NOTES:**
- TERMINATION OF PASSIVE VENT RISER SHALL BE AS FOLLOWS:
 - 10' MIN. AWAY FROM, AND AT LEAST 3' ABOVE ANY OPENABLE WINDOW, DOOR, OPENING OR AIR INTAKE, OR VENT SHAFT.
 - 4' MIN. IN EVERY DIRECTION FROM ANY LOT LINE, ALLEY, AND STREET.
 - EXTEND THROUGH THE VENT FLASHING 5' VERTICALLY ABOVE THE ROOF, AND 3' MIN. HORIZONTALLY FROM ANY PARAPET OR BUILDING WALL.
 - WRAP ALL PIPING WITH APPROVED MATERIAL THROUGH CONCRETE SLAB OR FLOOR.
 - THE PIPING OF THE VENTING SYSTEM SHALL BE TESTED WITH AIR IN ACCORDANCE WITH THE 2021 UNIFORM PLUMBING CODE.
 - PLACARD SIGN SHALL BE 3" HIGH X 4" WIDE, MADE OF PLASTIC WITH ADHESIVE BACKING, AND HAVE 1/4" HIGH BLACK LETTERS ON WHITE BACKGROUND.
 - VENT RISERS SHALL BE OF HDPE PIPE AND 2" DIAMETER.

1 VENT RISER
NTS



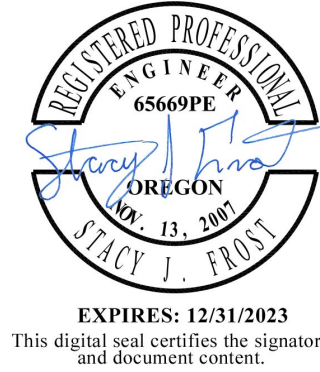
SECTION:



PLAN VIEW:

- NOTES:**
- ALL TRENCH DAMS SHALL BE INSTALLED IN TRENCHES CONTAINING PIPING AND CONDUIT.
 - THE WIDTH OF A TRENCH DAM SHALL BE ONE HALF THE LENGTH.
 - TRENCH DAMS SHALL BE CONSTRUCTED OF ONE OF THE FOLLOWING:
 - BENTONITE CEMENT SLURRY THREE FEET LONG: A MIXTURE OF 4% TYPE II CEMENT, AND 2% POWDERED BENTONITE.
 - COMPACTED NATIVE SOILS BACKFILL FIVE FEET LONG: NATIVE SOILS SHALL BE COMPACTED AT LEAST 90% RELATIVE COMPACTION IN ACCORDANCE WITH ASTM D-1557 TESTING PROCEDURES.
 - CONCRETE MIXES OTHER THAN BENTONITE CEMENT SLURRY MAY BE USED PROVIDED: CONDUIT OR PIPING IS WRAPPED WITH HIGH DENSITY PVC FOAM TAPE, CLOSED CELLS, ADHESIVE BACKED, 1/4" THICK BY 1/2" WIDE SHALL BE APPLIED TO CLEAR SURFACE WITH ENDS BUTTED TOGETHER AT MOST VISIBLE LOCATIONS IN TRENCH DAM.
 - PIPING AND CONDUIT SHALL BE PROTECTED FROM CORROSION AND STRUCTURAL SETTLEMENT AS FOLLOWS:
 - TAPE SHALL BE APPLIED ON CONDUIT AND PIPING ENCASED IN CEMENT SLURRY OR CONCRETE.
 - TAPE SHALL BE PS-37-90, BLACK PLASTIC PVC OR PE PRESSURE-SENSITIVE CORROSION PREVENTIVE TAPE.
 - UTILITY PLAN IS CURRENTLY BEING DEVELOPED. SEE UTILITY PLAN FOR TRENCH DAM LOCATIONS.
 - UTILITIES THAT DO NOT GO UNDER OR THROUGH FOOTINGS DO NOT REQUIRE TRENCH DAMS.

2 TRENCH DAM
NTS



SHORTSTACK BELMONT VAPOR
MITIGATION SYSTEM PLAN SET
SHORTSTACK BELMONT LLC
PORTLAND, OREGON

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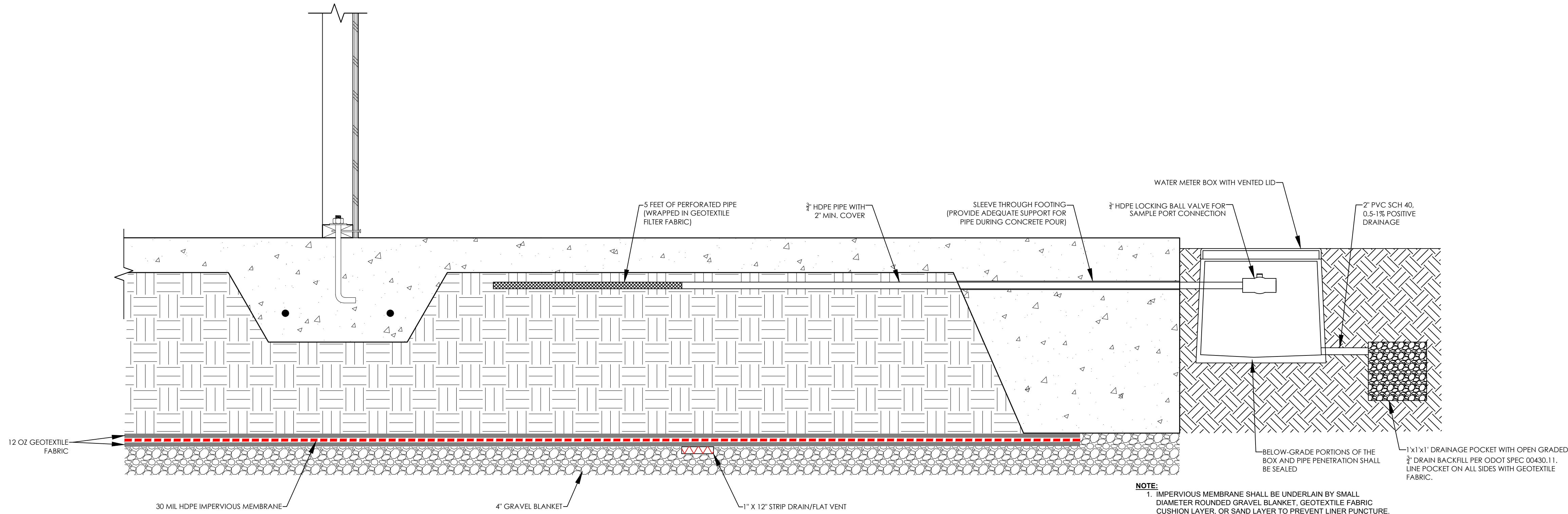
PROJECT: M2473.01.001
DESIGNED: K. KRIPPAEHNE-STEIN
DRAWN: K. KRIPPAEHNE-STEIN
CHECKED: S. FROST/T. WALL
SCALE:

SHEET TITLE
VAPOR MITIGATION
SYSTEM DETAILS III

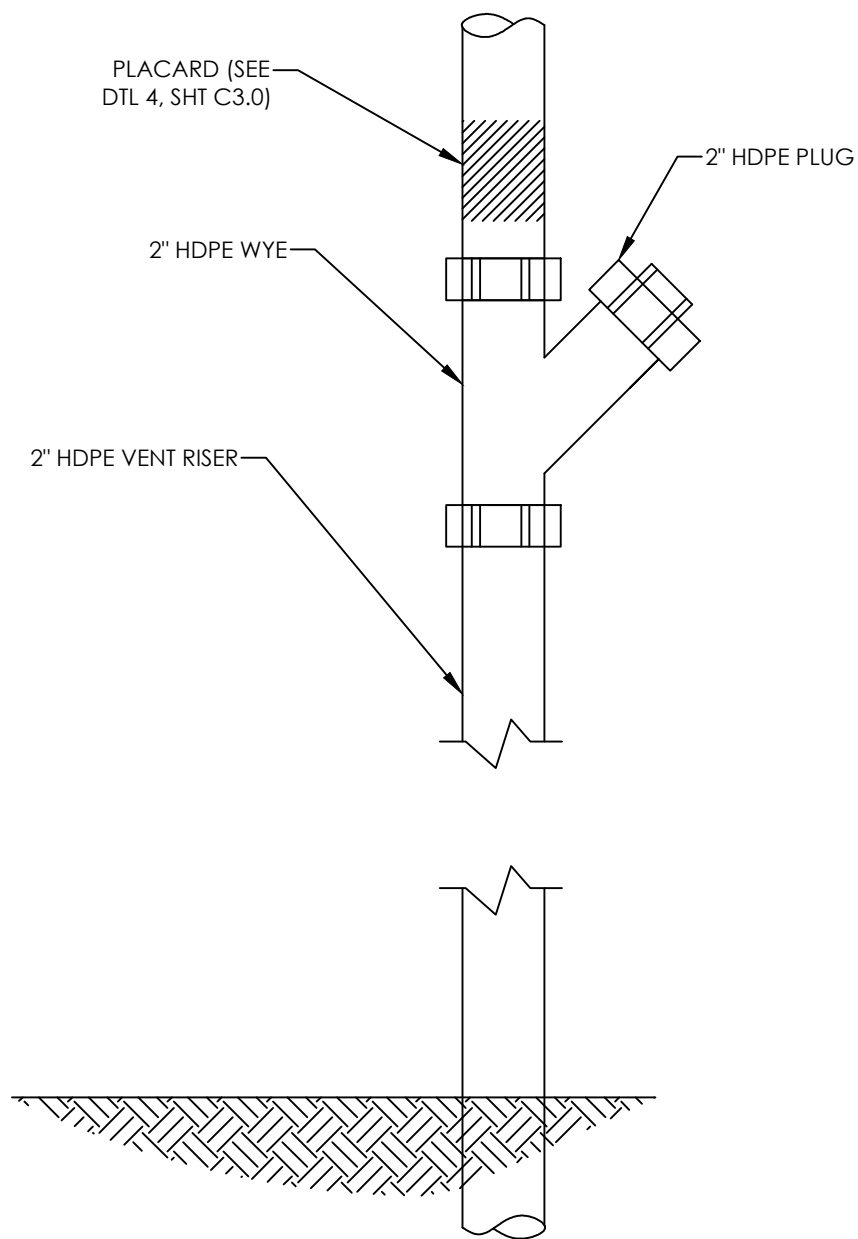
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BID DOCUMENT: NOT FOR CONSTRUCTION

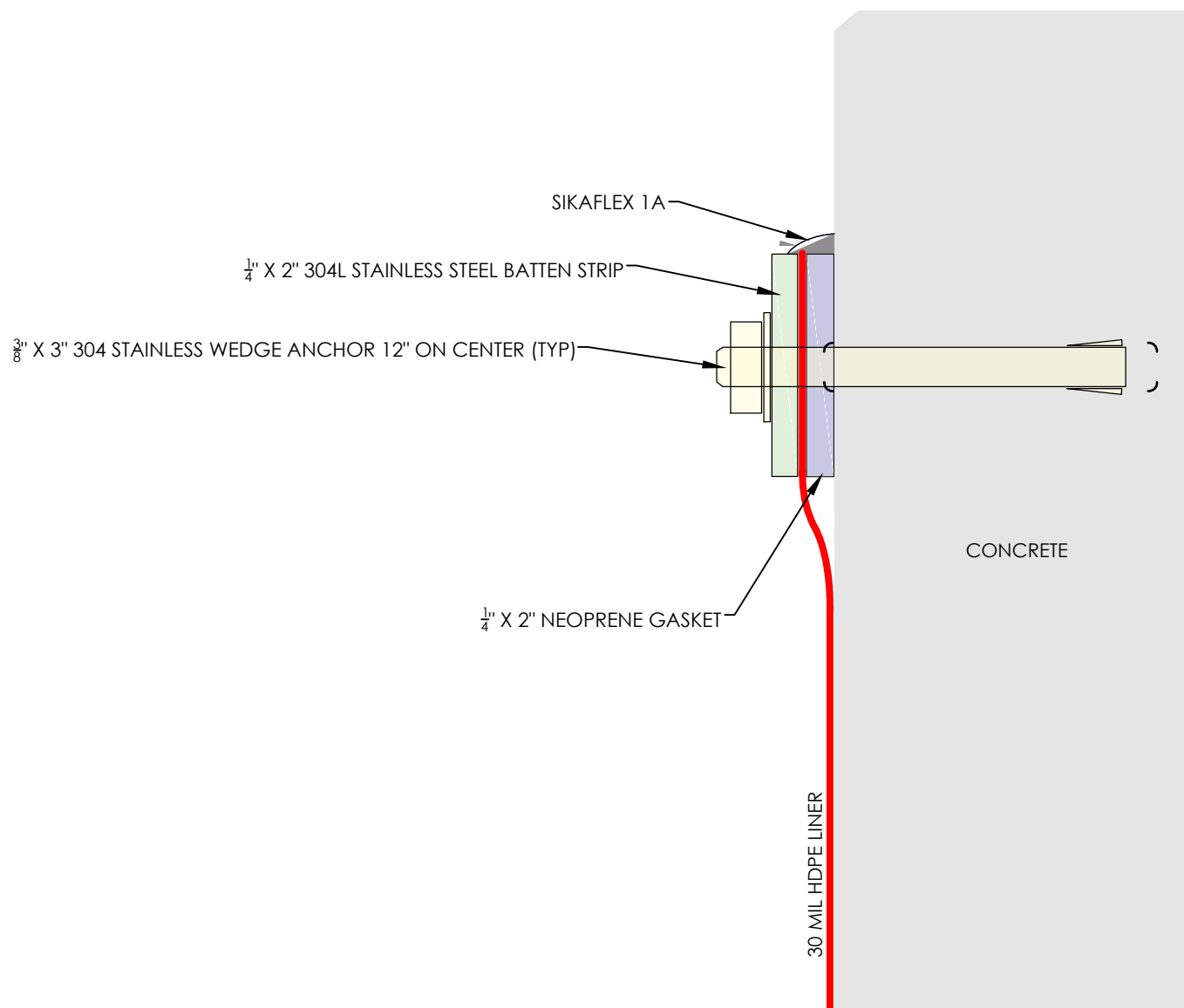
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PORTLAND, OR 97232
PHONE: 971.544.2139
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1 SUB-SLAB MONITORING PORT AND MONITORING PROBE
NTS



2 VENT RISER MONITORING PORT
NTS



3 STAINLESS STEEL CONCRETE ATTACHMENT
NTS

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DRAWN: K. KRIPPAEHNE-STEIN
CHECKED: S. FROST/T. WALL
SCALE

SHEET TITLE
VAPOR MITIGATION
SYSTEM DETAILS IV

SHEET
C3.3