December 26, 2024

Brian Church (via e-mail to Brian.Church@deq.oregon.gov)
Project Manager
Northwest Region Cleanup Program

Re: Response to DEQ's Comments on Exhibit C Scope of Work Measures (in letter from DEQ to undersigned dated October 9, 2024)
M Carter Commons (MCC) Development
Cleanup Project ID No. 6702

Thank you for your and DEQ's review and comments on the Work Plan[1] submitted to DEQ for the MCC development. This letter is a response to DEQ's comment letter, dated October 9, 2024. This letter uses the same format and numbering system as the DEQ letter, with the Coles + Betts Environmental Consulting, LLC's (C+BEC's) response to DEQ's comments in italics.

Specific Comments

1) Soil Gas Testing Scope of Work, Page 2.
    a. DEQ recommends methane measurements at depths consistent with both 5 and 10 feet below the anticipated future foundation floor slab.

    8 soil gas monitoring wells were installed at 4 locations, with one well at 5 feet and one well at 10 feet below the future slab at each location. The slab elevations were determined by review of the MCC Grading Plan, Sheet C200. The 5-foot soil gas well screens were installed to adjusted depths ranging between approximately 5.42 feet and 6.92 feet below ground surface (bgs). The 10-foot soil gas well screens were installed between approximately 10.42 feet and 11.92 feet bgs.

    The Work Plan will be revised to include the soil gas monitoring wells installation information above and an updated site map.

    b. DEQ acknowledges the methane monitoring performed in October 2023, which revealed no detections. However, the ideal conditions for additional methane monitoring in the footprint of the former landfill would be during a period of low or declining atmospheric pressure (typically associated with a storm event). For this reason, DEQ recommends postponing the methane monitoring until a later phase of investigation work during the wet season.

    After allowing the vapor points to equilibrate for at least an hour, the concentrations of

[1] *PPA Consent Order, Exhibit C Scope of Work Measures Soil and Soil Gas Sampling Within a Former Landfill at the M. Carter Commons Senior Housing Development, 3715-3717 N Interstate Avenue, Portland, Oregon 97217*, dated September 24, 2024, by Coles + Betts Environmental Consulting, LLC.

methane, carbon dioxide and oxygen in soil vapor were measured at each location using an MRU Optima-7 landfill gas meter. Note: barometric pressure had been decreasing for two days prior to well installation and was 29.86 inches of mercury (in Hg) at the time of initial measurement.

Landfill gas readings were collected during and after the soil gas wells' installation and methane was not detected, except for a negligible detection of 0.01% in the 10-foot well at SG2 after well installation. Methane must remain below the lower explosive limit of 5%, and the 0.01% detection is well below this limit.

The initial screening for methane found negligible methane (0.01%) in one well and no methane in the other 7 wells. Additional soil gas monitoring will occur in late December and the results will be submitted to DEQ. Based on the data collected to date, it is anticipated the forthcoming monitoring will also not detect methane (or detect negligible levels).

c. If Coles + Betts has prepared or identified a field data collection form to be used in associated with the planned methane monitoring, please provide it as an attachment to the Work Plan.

A field data collection form is included in the revised Work Plan.

d. Please provide general information regarding the Landtec GEM 5000 landfill gas meter including sensitivity (i.e., range of detection), uncertainty in measurements (i.e., ± error for methane and other fixed gases), and calibration procedures/frequency.

The Landtec GEM 5000 landfill gas meter's sensitivity for methane is 0-100% volume. The methane has the following uncertainty of measurement: 0-5% ± 0.3% volume; 0-70% ± 0.5% volume, and 70-100% ± 1.5% FS. The uncertainty of measurement for methane and other landfill gasses (carbon dioxide, oxygen and hydrosulfide) is summarized in the attached document: Landtec GEM 5000 Landfill Gas Meter – Technical Specifications and Online Resources.

C+BEC used both the Landtec meter and an MRU Optima-7 landfill gas meter. Documents summarizing the Landtec and Optima meters specifications are included in the revised Work Plan.

All landfill gas meters used by C+BEC are rented from FEI for each use. FEI field calibrates every unit that comes into their office and leaves their office. FEI inspects the unit, cleans and calibrates it to the standards, and thoroughly documents any issues. The Meter also requires an annual manufacturer calibration. FEI sends in the Meter to the manufacturer for service every year.

2) Plaza Landscape Areas Soil Sampling Scope of Work, Pages 3 and 4 (Comments 2a through 2e).

In lieu of sampling soils within the future plaza's landscaped area and the landscaped areas within the footprint of the former landfill, MCC will instead place a geotextile liner between the landfill material and the clean, imported fill material at these landscaped areas. A Soil Cap Management Plan for DEQ review is forthcoming, as is an Easement and Equitable Servitude (E&ES).

Matters of Style

3) In the last sentence of Page 3, "…50-6.0-foot interval" should be revised to "…5.0-6.0-foot interval).

4) In the first sentence under Reporting on Page 4, "Risk-Based Criteria" should be revised to Risk-Based Concentrations".

The revisions noted in Items 3 and 4 are included in the Revised Work Plan.

Please reach out to the undersigned with any questions.

Sincerely,

Jill Betts, RG
C+BEC

cc:
Jeff Schatz, DEQ
Lorenzo Danielson, DEQ
Mary Bradshaw, Northwest Housing Alternatives
Carson Bowler, Law Office of Carson Bowler

Attachment:
Revised PPA Consent Order, Exhibit C Scope of Work Measures Soil and Soil Gas Sampling Within a Former Landfill at the M. Carter Commons Senior Housing Development, 3715-3717 N Interstate Avenue, Portland, Oregon 97217, dated December 26, 2024, by Coles + Betts Environmental Consulting, LLC.

COLES+BETTS environmental consulting

December 26, 2024

Mr. Brian Church
Oregon Department of Environmental Quality
Northwest Region Cleanup Program
700 NE Multnomah Street, Suite 600
Portland, Oregon 97232

SUBJECT: **Revised PPA Consent Order, Exhibit C Scope of Work Measures Soil and Soil Gas Sampling Within a Former Landfill at the M. Carter Commons Senior Housing Development, 3715-3717 N Interstate Avenue, Portland, Oregon 97217**

Dear Mr. Church:

Introduction
This revised scope of work is presented to DEQ for review. The revisions herein were completed per DEQ's October 9, 2024, comments on their review of the September 24, 2024, scope of work. The soil sampling scope of work (Item 3 within the PPA) was eliminated since a geotextile liner will be placed between fill materials and imported, clean fill materials within landscaped areas inside the footprint of the former landfill on the property.

This scope of work addresses continued due diligence at the above-referenced property prior to acquisition. If the property is acquired, this scope of work is intended to address the following requirement under the PPA's Consent Order, Exhibit C Scope of Work (PPA measures):

- Item 4: Soil gas testing for methane associated with the former landfill with sampling locations situated within the proposed building footprint; and

The former landfill area (southern portion of the property) and building footprint outline are indicated on Figure 1.

The PPA Measure, Item 4, listed above will be completed in December 2024 or January 2025 prior to the mobilization of heavy equipment for demolition of property buildings and anticipated new construction activities in February 2025. The additional investigation Measures in the PPA, not addressed herein, will be completed in January and February 2025.

Additional soil disposal characterization of fill material/soils at depth will be completed concurrent with the PPA Measures' field activities and include the Geopier® and electrical utility vault excavations' locations and depths noted in Figure 1. For reference, these activities are discussed in an attachment to this Work Plan.

The grading, utility and construction excavation depths noted on Figure 1 were determined by reviewing the grading plan, the excavation plans for the new building's foundation plan, the

landscape materials plan, and the Geopiers® plan, as well as per discussions with the general contractor and architect. These plans are enclosed. This depth information was determined to ensure the soil gas and soil sample collection locations and depths represent in-situ conditions after construction. The new building floor elevation will be approximately 0.5 foot to 1.5 feet below current grade.

Scope of Work

The scope of work for soil gas testing within the building footprint, the handling and disposal of investigative derived waste (IDW), and reporting are summarized below. The soil gas testing will be completed in collaboration with Michael Reynolds, PE of Reynolds Engineering, LLC. A Tier 1 soil vapor investigation will be conducted within the footprint of the new building within the former landfill area on the property to evaluate the potential presence of methane in soil vapor as follows:

- A direct push drill rig will install 8 soil gas monitoring wells at 4 locations, with one well at 5 feet and one well at 10 feet below the future slab at each location. The slab elevations were determined by review of the MCC Grading Plan, Sheet C200. The 5-foot soil gas well screens will be installed to adjusted depths ranging between approximately 5.42 feet and 6.92 feet below ground surface (bgs). The 10-foot soil gas well screens will be installed between approximately 10.42 feet and 11.92 feet bgs (sample locations are shown in Figure 1). The soil gas samples at these depths will be approximately 5 and 10 feet below the top of the future building foundation floor.

- A screened, 0.5-foot stainless steel vapor point connected to Teflon tubing will be installed within 1-foot of clean sand at the proper elevation at each soil gas sample location. The remaining annular space of each boring will be backfilled with drilling spoils and sealed at the surface with hydrated bentonite to limit the intrusion of ambient air. A traffic-grade soil gas monitoring well monument will be installed for each well, with the monitoring tubing capped with a ball valve and set in plastic bags inside the monument. New nitrile gloves will be used at each sampling location.

- After allowing the vapor points to equilibrate for at least an hour, the initial concentrations of methane, carbon dioxide and oxygen in soil vapor will be measured at each location using a Landtec GEM 5000 or MRU Optima-7 landfill gas meter (specifications are enclosed). The landfill gas measurements will be recorded on a Field Data Collection form (also enclosed).

- Following DEQ's approval of the measurements and prior to property demolition and grading activities, the soil gas monitoring wells will be abandoned per Oregon Water Resources Department (OWRD). The drillers will cold-patch the asphalt surface as necessary.

IDW Disposal

Investigative derived waste (i.e., soil cuttings, decontamination water) will be stored on-site in 55-gallon drums until it is characterized for disposal. The drums will be transported off-site for

disposal upon receipt of the disposal facility's approval. Disposable sampling materials will be bagged, sealed and disposed as solid waste.

Reporting
The analytical results will be compared to DEQ Risk-Based Concentrations (RBCs) for the Residential, Excavation Worker and Construction Worker Soil Ingestion, Dermal Contact and Inhalation Exposure Pathway and DEQ Clean Fill criteria, with lead concentrations compared to EPA lead screening level of 100 mg/kg. A memo summarizing the field activities and observations, analytical laboratory results and recommendations will be submitted to DEQ. This information will be included in the final report submitted to DEQ upon completion of construction.

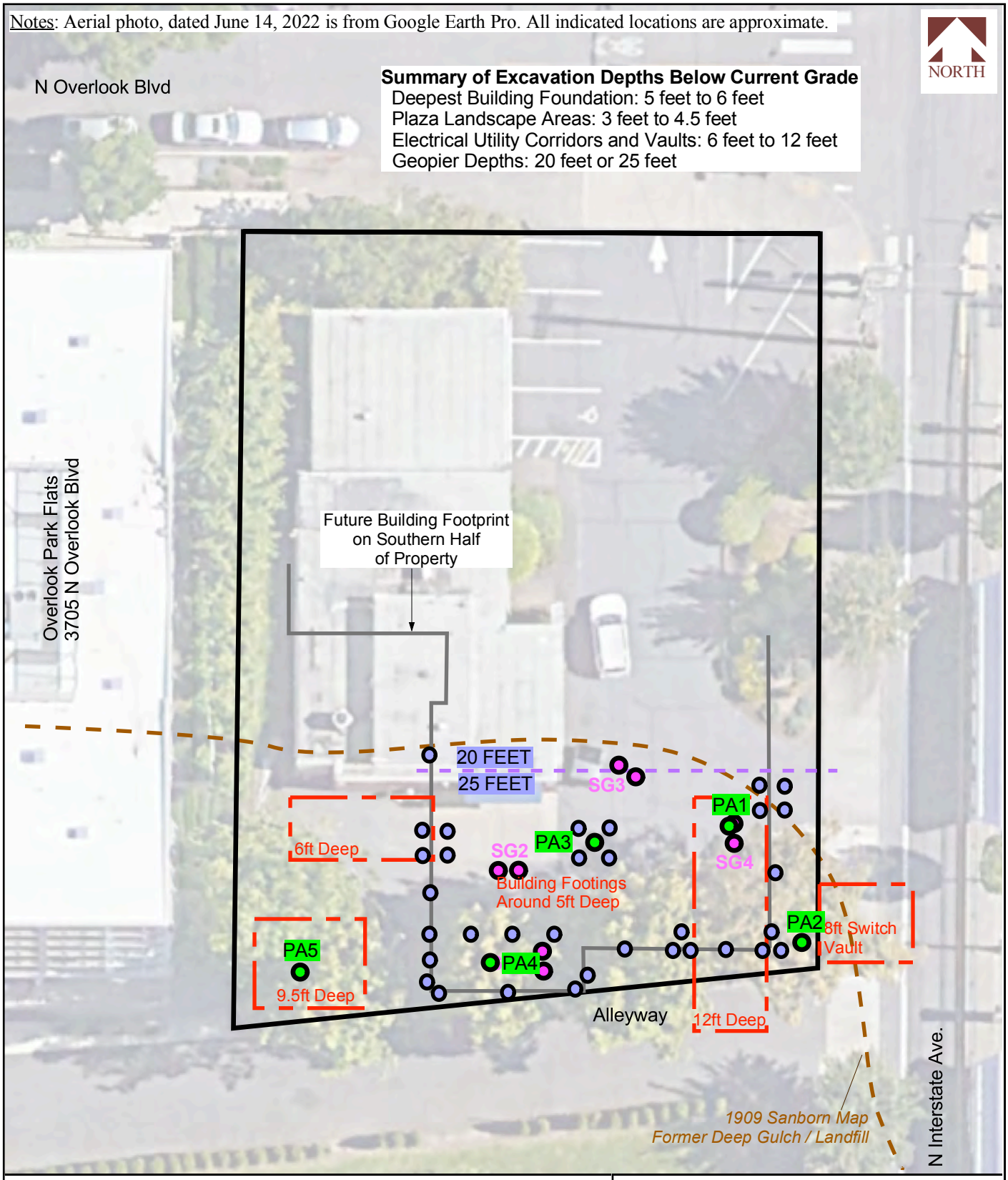
If there are any comments or questions, please contact the undersigned at (503) 477-6150.

Sincerely,

Jill S. Betts, R.G.
Principal

Electronic copies sent to:
Jeff K. Schatz, R.G., DEQ
Lorenzo Danielson, DEQ
Mary Bradshaw, Northwest Housing Alternatives
Carson Bowler, Law Office of Carson Bowler

Attachments:
Figure 1: Property Map with Proposed Soil Gas Monitoring Well & Soil Characterization Boring Locations
Landfill Gas Meter Specifications – Landtec GEM 5000 & MRU Optima-7
Field Data Collection Form
Site Plans of Grading and Excavation Activities:
Grading plan (1 page),
Electrical utilities plan (1 page),
Building foundation and Landscape materials plan (1 page), and
Geopiers® plans (3 pages)
Scope of Work for the Soil Characterization of Deep Excavation Soils (not a requirement of the PPA)



COLES+BETTS environmental consulting

Approx. Scale: 1" = 25'	Approved By	Date/Revision
		12/26/2024
		Rev. 0

Figure 1.
Property Map with Soil Gas Monitoring Well & Soil Characterization Boring Locations.

Landtec GEM 5000 Landfill Gas Meter – Technical Specifications and Online Resources

▼ TECHNICAL SPECIFICATION

GAS RANGES

Gases Measured	CH_4	By dual wavelength infrared cell with reference channel		
	CO_2	By dual wavelength infrared cell with reference channel		
	O_2	By internal electrochemical cell		
	CO	By internal electrochemical cell		
	H_2S	By internal electrochemical cell		
Ranges	CH_4	0-100% (vol)		
	CO_2	0-100% (vol)		
	O_2	0-25% (vol)		
	CO	0-2000ppm***		
	H_2S	0-500ppm***		
Gas Accuracy*	CH_4	0-5% ± 0.3% (vol)	0-70% ± 0.5% (vol)	70-100% ± 1.5% FS
	CO_2	0-5% ± 0.3% (vol)	0-60% ± 0.5% (vol)	60-100% ± 1.5% FS
	O_2	0-25% ±1.0% (vol)		
	$CO(H_2)$**	0-2000ppm ± 2.0% FS		
	H_2S	0-500ppm ± 2.0% FS		

* Typical accuracy after calibration as recommended in the operations manual.
**Hydrogen compensated Carbon Monoxide measurement.
***Additional ranges available, contact LANDTEC for more information.

OTHER PARAMETERS

	Unit	Resolution	Comments
Energy	BTU/hr	1000 BTU/hr	Calculated from specific parameters
Static Pressure	in. H_2O	0.01 in. H_2O	Direct Measurement
Differential Pressure	in. H_2O	0.001 in. H_2O	Direct Measurement
Temperature Accuracy	°F	0.1	±1 (Range -58°F to 482°F)

Important Note: The information in this document is correct at the time of generation. We do, however, reserve the right to change the specification without prior notice as a result of continuing development.

PUMP

Flow	Typically 550cc/min
Flow with 80 in. H2O vacuum	Approximately 80cc/min

ENVIRONMENTAL CONDITIONS

Operating Temperature Range	14°F – 122°F (-10°C to +50°C)
Operating Pressure	-100 in. H_2O, +100 in. H_2O (-250mbar, +250mbar)
Relative Humidity	0-95% non condensing
Barometric Pressure	± 14.7 in.Hg (±500mbar) from calibration pressure
Barometric Pressure Accuracy	± 1% typically

POWER SUPPLY

Battery Life	Typical use 8 hours from fully charged
Charge Time	Approximately 4 hours from complete discharge

CERTIFICATION RATING

ATEX	II 2G Ex ib IIA T1 Gb (Ta= -10°C to +50°C)
ISO17025	ISO/IEC17025:2005 Accreditation #66916
CSA	Ex ib IIA T1 (Ta= -10°C to +50°C) (Canada), AEx ib IIA T1 (Ta= -10°C to +50°C) USA

The Landtec GEM 5000 Landfill Gas Meter (Meter) is rented from FEI for each use. FEI field calibrates every unit that comes into their office and leaves their office. FEI inspects the unit, cleans and calibrates it to the standards, and thoroughly documents any issues. The Meter also requires an annual manufacturer calibration. FEI sends in the Meter to the manufacturer for service every year.

You can find additional Meter information on FEI's website for the unit selected as follows:

Landtec GEM 5000

Operating Manual

Brochure

Gaschecks

Workflow

MRU Optima-7 Landfill Gas Meter – Technical Specifications and Online Resources

TECHNICAL SPECIFICATIONS

OPTIMA 7 analyzer	Handheld analyzer with up to 5 electrochemical sensors and a dual gas NDIR bench

BIOGAS components			Measuring range	Accuracy
CO_2	Carbon dioxide	2 Gas NDIR	0....100%	± 0.3 % or 5% reading
CH_4	Methane	2 Gas NDIR	0....100%	± 0.3 % or 5% reading
O_2	Oxygen		0 ... 25.0 Vol-%	± 0.2 Vol-% abs.
H_2S	Hydrogen sulfide		0 ... 2,000 ppm	± 10 ppm or 10 % reading up to 2,000 ppm
			overload 5,000ppm *	10 % reading up to 5,000 ppm
H_2S	Hydrogen sulfide		0 ... 500 ppm	± 5 ppm or 5 % reading up to 500 ppm
			overload 2,000ppm *	10 % reading from 500 to 2,000 ppm
H_2	Hydrogen		0 ... 1,000 ppm	± 10 ppm or 5 % reading up to 1,000 ppm
			overload 2,000ppm *	10 % reading up to 2,000 ppm

The MRU Optima-7 Landfill Gas Meter (Meter) is rented from FEI for each use. FEI field calibrates every unit that comes into their office and leaves their office. FEI inspects the unit, cleans and calibrates it to the standards, and thoroughly documents any issues. The Meter also requires an annual manufacturer calibration. FEI sends in the Meter to the manufacturer for service every year.

You can find additional Meter information on FEI's website for the unit selected as follows:

MRU Optima 7 Biogas Landfill Analyzer

Product Specifications

Product Brochure

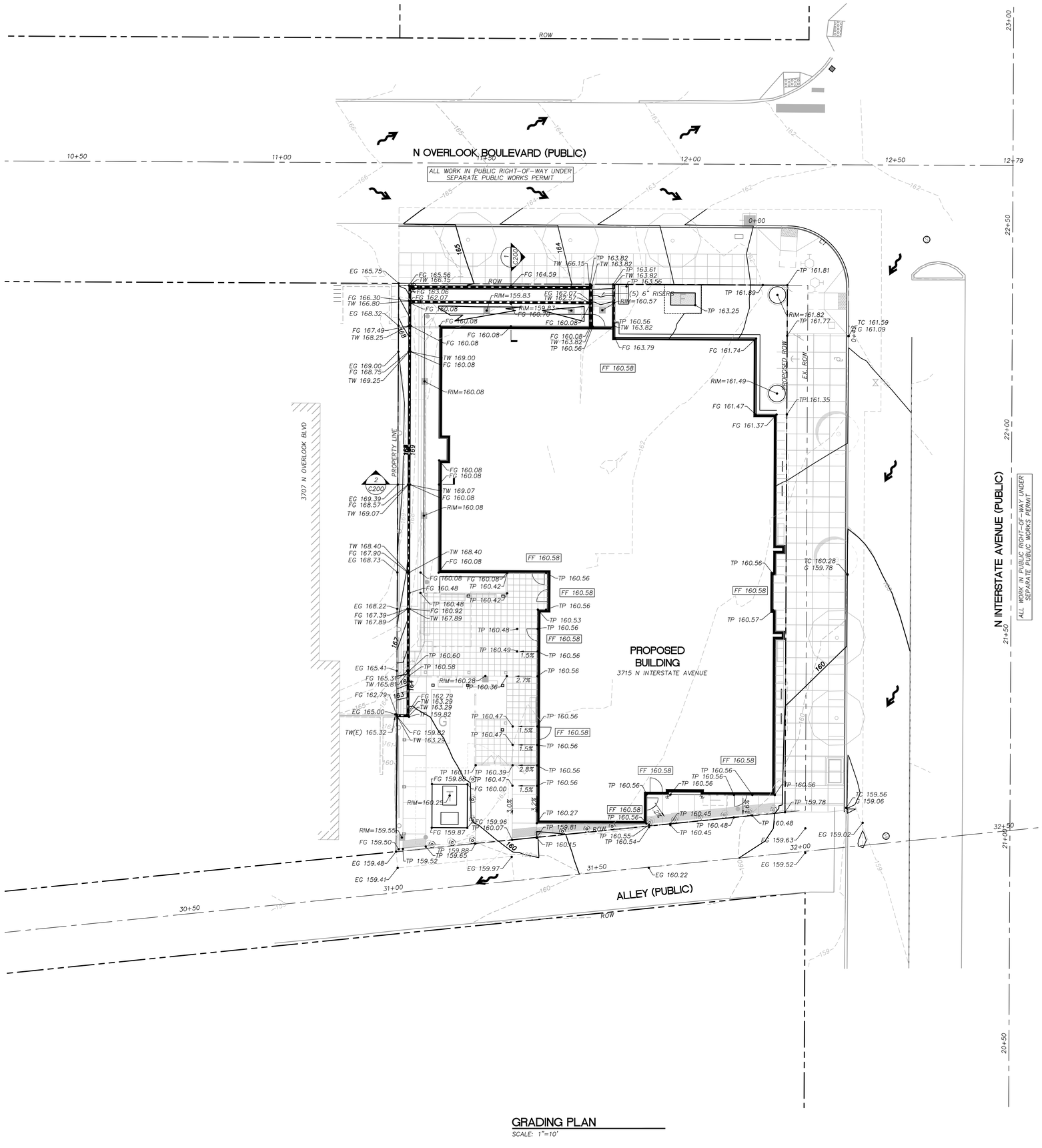
Soil Gas Measurements - Field Data Collection Form
Coles & Betts Environmental Project Number: 437
M. Carter Commons Site
3715-3717 N Interstate
Portland, OR 97227

Soil Gas Well Number	

Date	
Time	
Weather Conditions (Rain, Cloud Cover, Temperature)	
Rain	
Cloud Cover	
Temperature	
Wind Direction and Speed	
Barometric Pressure	

Landfill Gas Meter Used	
Calibration Date	

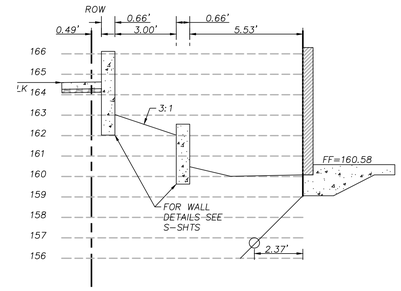
Methane (CH_4) %	
Oxygen (O_2) %	
Carbon Dioxide ($CO_{2)}$ %	
Hydrogen Sulfide (H_2S) ppm	
Carbon Monoxide (CO) ppm	
Nitrogen (N_2) %	



GRADING PLAN

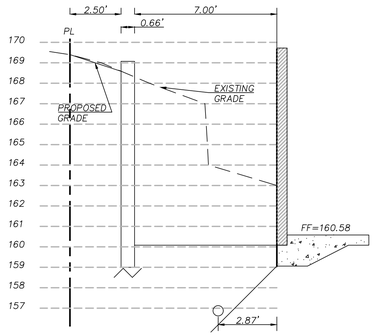
SCALE: 1"=10'

SHEET LEGEND		
ITEM	DESCRIPTION	REFERENCE
165	PROPOSED CONTOUR	
164	EXISTING CONTOUR	
	DRAINAGE FLOW DIRECTION	
TC XXX.XX	GRADE AT TOP OF CURB	
FG XXX.XX	FINISH GRADE	
TP XXX.XX	GRADE AT TOP OF PAVEMENT	
FF XXX.XX	FINISH FLOOR ELEVATION	
BW XXX.XX	GRADE AT BOTTOM OF WALL	
TW XXX.XX	GRADE AT TOP OF WALL	
G XXX.XX	GRADE AT GUTTER	
(E)	EXISTING	
X.X%	SLOPE ARROW	
GB	GRADE BREAK	



1 SECTION A

NTS



2 SECTION B

NTS

GRAPHIC SCALE

0 10 20

1 inch = 10 ft.

SALAZAR ARCHITECT

2222 NE OREGON ST., SUITE 101
PORTLAND, OR 97232
503.702.2575
WWW.SALAZARCH.COM

Humber Design Group, Inc.
Civil Engineering • 503.946.6690 • hdgpdx.com

PROJECT NUMBER:

M. Carter Commons

CLIENT:

Northwest Housing Alternatives
2316 SE WILLARD ST., MILWAUKIE OR 97222

Urban League of Portland
10 N RUSSELL ST., PORTLAND OR 97227

REGISTERED PROFESSIONAL ENGINEER
89353
OREGON
SEPT. 12, 2017
ALLEN SCHMITZ
RENEWAL DATE 6/30/2024

PHASE:

PERMIT SET

REVISIONS:

	DATE	DESCRIPTION

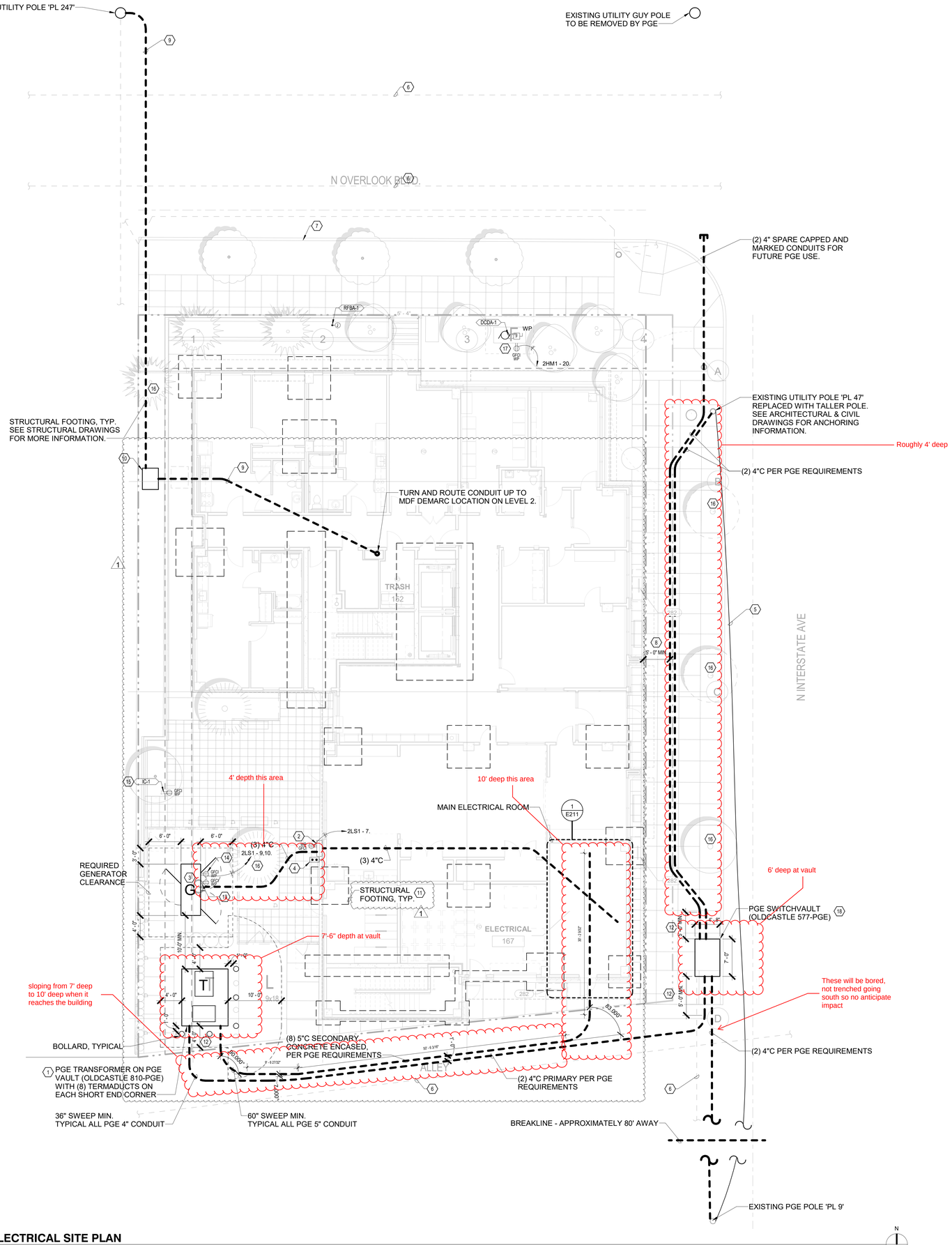
SHEET TITLE:

GRADING PLAN

DRAWN BY:	SY
CHECKED BY:	AS
DATE:	04.01.24

SHEET:

C200



1 E101 **ELECTRICAL SITE PLAN**
1/8" = 1'-0"

6/21/2024 2:53:24 PM
C:\Users\wfrank\Documents\MCC_Electrical_v21_wfrank22.rvt

GENERAL NOTES:

A. THE INITIAL FIRST FILL FOR THE GENERATOR DIESEL TANK IS REQUIRED TO BE WITNESSED BY THE FIRE MARSHAL'S OFFICE HAZARDOUS MATERIALS INSPECTOR, WHERE THE 90% ALARM AND 95% SHUT-OFF WILL BE VERIFIED.

B. 4A-40BC MINIMUM RATED PORTABLE FIRE EXTINGUISHER FOR GENERATOR PROVIDED BY OTHERS.

C. A CALIBRATION CHART OF PERMANENT AND DURABLE CONSTRUCTION SHALL BE LOCATED AT THE GENERATOR FILL BOX.

D. GENERATOR INNER AND OUTER TANK TESTING DOCUMENTATION SHALL BE PROVIDED IN ACCORDANCE WITH NFPA 30 21.5. PROVIDE NFPA 704 REQUIRED PLACARD ON THE OUTSIDE OF THE GENERATOR TANKS.

E. MAINTAIN A MINIMUM OF 5' SEPARATION FOR ALL UNDERGROUND CONDUIT, HANDHOLES, TRANSFORMERS, VAULTS, AND PADS FROM ALL WATER, SEWER, AND STORM LINES. COMPLY WITH ALL UTILITY CLEARANCE REQUIREMENTS. SEE CIVIL DRAWINGS.

F. MAINTAIN A MINIMUM OF 1.5' SEPARATION FOR ALL UNDERGROUND CONDUIT, HANDHOLES, TRANSFORMERS, VAULTS, AND PADS FROM ALL GAS AND TELECOMMUNICATION LINES. SEE CIVIL DRAWINGS.

G. COMPLY WITH ALL ABOVE GROUND AND UNDERGROUND CLEARANCE REQUIREMENTS PER PGE ESR (2024) PRIOR TO TRENCHING. CONTRACTOR SHALL CONTACT UTILITY COMPANIES AND FIELD VERIFY EXISTING CONDITIONS PRIOR TO COMMENCING ANY WORK.

H. REFER TO LANDSCAPE, CIVIL, AND STRUCTURAL PLANS FOR ADDITIONAL REQUIREMENTS.

I. ALL TENCHING, VAULT EXCAVATION, SHORING, DEWATERING, BACKFILL, GRAVEL FOR VAULT BASES, AND RESTORATION SHALL BE PROVIDED BY THE CONTRACTOR.

J. FIELD LOCATE UNDERGROUND PUBLIC AND OWNER UTILITIES OF ALL TRADES AND GROUNDING PRIOR TO ANY EXCAVATION. CONTRACTOR SHALL BE RESPONSIBLE FOR REPLACEMENT OR REWORK OF ANY DAMAGED UTILITIES AND GROUNDING SYSTEMS.

KEYNOTES:

1. TRANSFORMER & VAULT SHALL BE 5' FROM ALL WATER/SEWER/STORM LINES, 1.5' FROM ALL GAS AND TELECOMMUNICATION LINES, AND 8' FROM ALL COMBUSTIBLE SURFACES (STRUCTURAL, LANDSCAPING, ETC).
2. PORTABLE GENERATOR AND PORTABLE LOAD BANK CONNECTION PANEL. SEE SHEET E702 FOR MORE DETAILS.
3. GENERATOR WITH LEVEL 2 SOUND ATTENUATED ENCLOSURE ON CONCRETE PAD. GENERATOR IS APPROXIMATELY 58.9"H AND 3,988LBS. COORDINATE CONCRETE PAD SIZING AND CONDUIT-STUB UP LOCATIONS WITH APPROVED GENERATOR MANUFACTURER'S SUBMITTAL. COORDINATE ANCHORING DETAILS WITH CIVIL ENGINEER. SEE SHEET E301 FOR GENERATOR ENCLOSURE LUMINAIRES.
4. PROVIDE EMERGENCY STOP AND PROPER SIGNAGE FOR GENERATOR SHUTDOWN. ELECTRICAL CONTRACTOR TO COORDINATE LOCATION WITH OWNER, ARCHITECT, AND GENERATOR MANUFACTURER.
5. EXISTING OVERHEAD SPAN SHALL BE REMOVED BY PGE. SPAN SHOWN OFFSET FOR DRAWING CLARITY.
6. EXISTING POWER/GAS/WATER/STORM DRAIN LINE. MAINTAIN CLEARANCE FROM NEW POWER CONDUIT PER GENERAL NOTES. SEE CIVIL DRAWINGS.
7. WATER VAULT. COORDINATE MINIMUM DISTANCE FROM TELECOM CONDUITS WITH UTILITIES. SEE CIVIL DRAWINGS FOR MORE INFORMATION.
8. MAINTAIN 5' PGE EASEMENT AROUND CONDUCTORS IN PEDESTRAIN ROW.
9. (4) 2"C PVC SCHEDULE 40 TYPE PER COMCAST & LUMEN REQUIREMENTS. PROVIDE MULE TAPE IN EACH CONDUIT. BENDS MUST BE A MINIMUM OF 36" RADIUS. COORDINATE ROUTING WITH STRUCTURAL FOOTINGS, CIVIL VAULTS, AND UTILITY PIPING. CONFIRM FINAL ROUTING PATH WITH BOTH COMCAST & LUMEN.
10. 36"W x 48"L x 24"D TELECOM VAULT. PROVIDE GROUND ROD IN VAULT. COORDINATE FINAL LOCATION WITH CIVIL CONSULTANT.
11. NOT ALL STRUCTURAL FOOTINGS ARE SHOWN. COORDINATE ALL STRUCTURAL FOOTINGS WITH STRUCTURAL CONSULTANT AND STRUCTURAL SHEET S101.
12. STRAIGHT CONDUIT RUN OF DIMENSION SHOWN BEFORE SWEEP IS REQUIRED WHEN ENTERING OR EXITING VAULT UNLESS OTHERWISE APPROVED BY PGE.
13. PROVIDE CONNECTION FOR GENERATOR ENGINE CRANKING BATTERY CHARGER AND ENGINE CRANKING BATTERY BLANKET HEATER LOCATED IN GENERATOR ENCLOSURE.
14. PROVIDE CONNECTION FOR ENGINE BLOCK HEATER LOCATED IN GENERATOR ENCLOSURE.
15. IRRIGATION CONTROLLER. MOUNT RECEPTACLE ON BOLLARD. CONTROLLER TO BE AT EYE LEVEL. COORDINATE FINAL LOCATION AND MOUNTING HEIGHT WITH LANDSCAPE CONSULTANT. CONTROLLER MUST BE LOCATED OUTSIDE OF GENERATOR CLEARANCE AREA.
16. ALL CONDUIT SHALL BE A MINIMUM OF 5' FROM BASE OF TREE. COORDINATE FINAL CONDUIT PLACEMENT WITH LANDSCAPE CONSULTANT. ROOT BARRIERS SHALL BE PROVIDED AS DEEMED NECESSARY BY THE LANDSCAPE CONSULTANT.
17. PROVIDE 3/4"C FROM SUMP PUMP TO FACP (TAMPER SWITCH).
18. VAULT SHALL BE 8" FROM BACK OF CURB.

SALAZAR ARCHITECT
2222 NE OREGON ST., SUITE 101
PORTLAND, OR 97232
503.702.2575
WWW.SALAZARCH.COM

REGISTERED PROFESSIONAL ENGINEER 18502PE OREGON JULY 10, 1998 FLAVIANO V. REYES JR.
EXPIRES 12/31/2024

PROJECT NUMBER: 23007

M. CARTER COMMONS
3715-3717 N INTERSTATE AVE
PORTLAND, OR 97227

CLIENT:
Northwest Housing Alternatives
2316 SE WILLARD ST., MILWAUKIE OR 97222
Urban League of Portland
10 N RUSSELL ST., PORTLAND OR 97227

REYES ENGINEERING

PHASE:
PERMIT SET

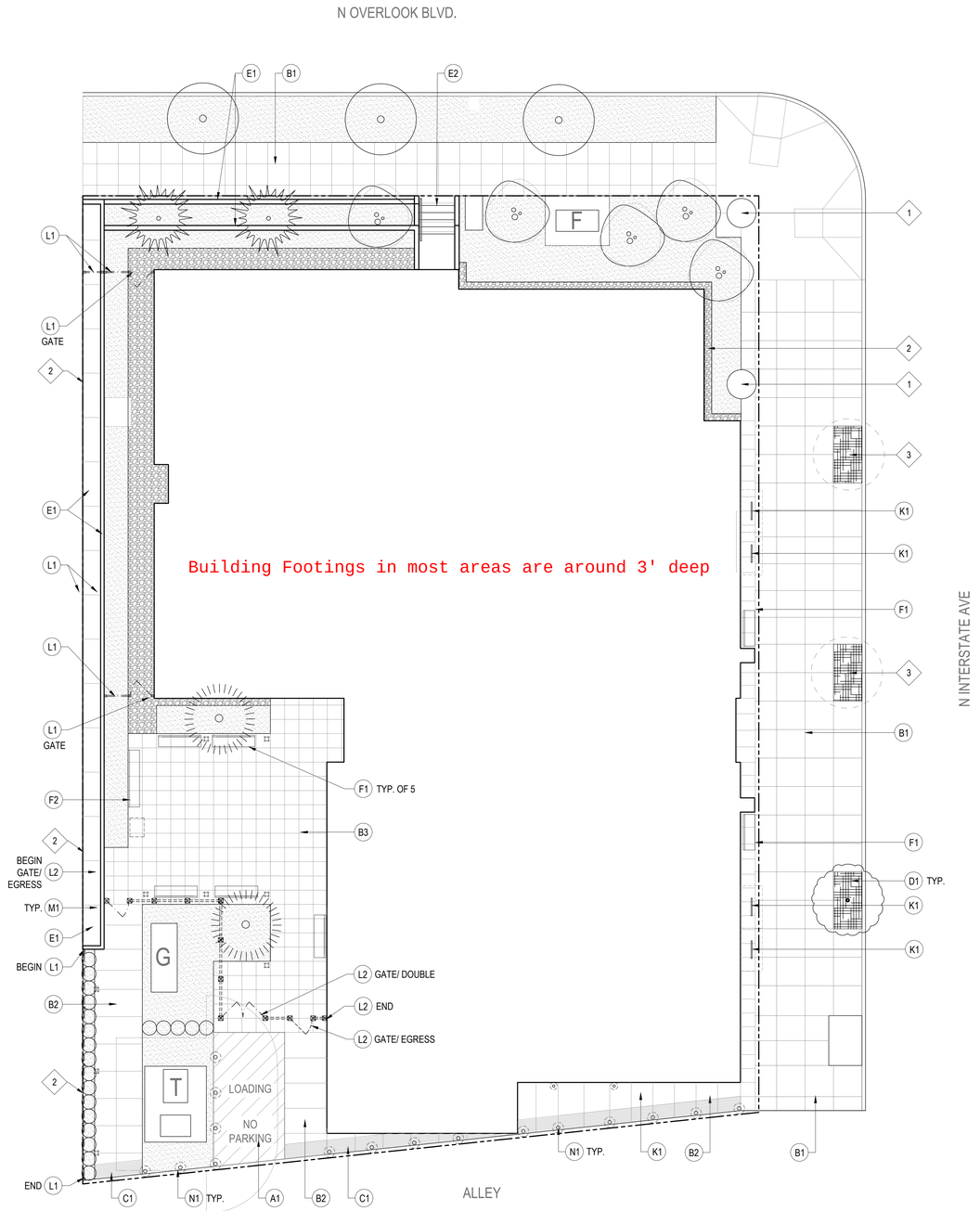
REVISIONS:

#	DATE	DESCRIPTION
1	06/21/2024	Permit Set Updates

SHEET TITLE:
ELECTRICAL SITE PLAN

DRAWN BY:	WF
CHECKED BY:	RH
DATE:	04.01.24

SHEET:
E101



MATERIALS SCHEDULE

PAVEMENTS

- A1 — ASPHALT PAVING & PAINT (SEE CIVIL)
- B1 — CONCRETE PAVING - ROW (SEE CIVIL)
- 1/L501 — B2 — CONCRETE PAVING - PEDESTRIAN
  - 4" DEPTH
  - MEDIUM BROOM FINISH
- 1/L501 — B3 — DECORATIVE CONCRETE PAVING - PEDESTRIAN
  - 4" DEPTH
  - EXPOSED AGGREGATE FINISH
- C1 — TACTILE SCORE/ GROOVE TEXTURE PAVER
- D1 — BARK MULCH
  - 3" DEPTH
- D2 — MINERAL MULCH WALKWAY W/ METAL EDGING
  - 3" DEPTH, 1-1/2" CRUSHED DRAIN ROCK

SITE FURNISHINGS

- E1 — CONCRETE WALLS (SEE CIVIL/ STRUCT.)
- 7/L501, 6/L501 — E2 — CONCRETE STAIR WITH S.S. HANDRAIL
- 8/L501 — F1 — 6' WOOD FREE STANDING W/ BACKREST
  - BASIS OF DESIGN: LANDSCAPE FORMS GEN 50.
  - CANTILEVER
- 8/L501 — F2 — 8' WOOD FREE STANDING W/ BACKREST
  - BASIS OF DESIGN: LANDSCAPE FORMS GEN 50.
  - CANTILEVER, CUSTOM LENGTH
- 9/L501 — K1 — BIKE RACK
  - BASIS OF DESIGN: HUNTCO, ARC
- 1/L502 — L1 — WOOD FENCE
  - 6' HT. SITE OBSQURING
- 2/L502 — L2 — LOUVERED FENCE & GATE
  - 6' HT. WITH LOCK & PANIC HARDWARE
- M1 — BOLLARD LIGHT
  - BASIS OF DESIGN: BEGA 84 218 (SEE ELECTRICAL)
- N1 — FIXED BOLLARD (SEE CIVIL)

PLANTING (SEE IRRIGATION & PLANTING PLANS)

- PLANTING AREA

SHEET NOTES

1. STORM WATER EQUIPMENT, SEE CIVIL.
2. REPAIR OR REPLACE EXISTING ARBORVITAE HEDGE & OR CHAIN-LINK FENCE IF DAMAGED DURING CONSTRUCTION.
3. EXISTING TREE SEE ARBORIST REPORT

N

SCALE: 1/8" = 1' - 0"

0 2 4 8 16

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Urban League of Portland
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REGISTERED LANDSCAPE ARCHITECT
416
MAURICIO J VILLARREAL
7/10/1998
OREGON
EXP: 1/30/2024

PHASE:
PERMIT DOCUMENTS

REVISIONS:

#	DATE	DESCRIPTION

SHEET TITLE:
LANDSCAPE MATERIALS PLAN

DRAWN BY: PLA
CHECKED BY: PLA
DATE: 04.01.24

SHEET:
L101

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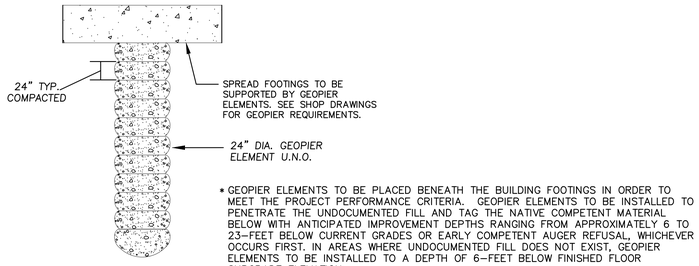
RAMMED AGGREGATE PIER (RAP) ELEMENT FOUNDATION CONSTRUCTION NOTES

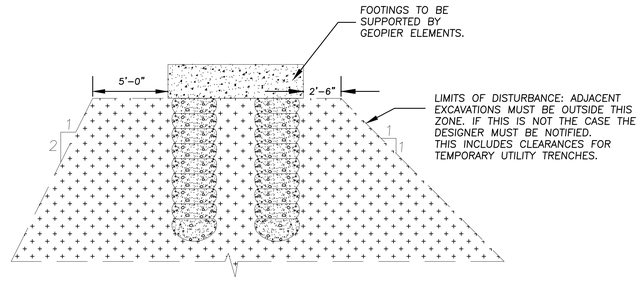
1. RAP ELEMENT LAYOUT IS THE RESPONSIBILITY OF THE GENERAL CONTRACTOR (GC). GEOPIER ELEMENT SHALL BE INSTALLED IN THE FIELD WITHIN 6–INCHES OF LOCATION SHOWN ON THESE PLANS.
2. A QUALIFIED, FULL–TIME QUALITY CONTROL (QC) REPRESENTATIVE PROVIDED BY THE RAP INSTALLER (THE INSTALLER) SHALL BE RESPONSIBLE FOR INSTALLATION OF THE RAP ELEMENTS IN ACCORDANCE WITH THE DESIGN, AND SHALL REPORT ALL GEOPIER FOUNDATION CONSTRUCTION ACTIVITIES TO THE DESIGNER. IF AUTHORIZED BY THE OWNER, THE QC REPRESENTATIVE SHALL COORDINATE QC ACTIVITIES WITH THE TESTING AGENCY HIRED BY THE OWNER. UNDER NO CIRCUMSTANCES SHALL THE TESTING AGENCY DIRECT RAP INSTALLATION PROCEDURES.
3. GEOPIER ELEMENTS WILL BE EITHER CONTROLLED DENSITY FILL OR CEMENT TREATED AGGREGATE. MATERIAL WILL BE APPROVED BY THE GEOPIER DESIGNER.
4. WHEN OBSTRUCTIONS ARE ENCOUNTERED THAT CANNOT BE REMOVED WITH CONVENTIONAL RAP INSTALLATION EQUIPMENT, THE GC SHALL BE RESPONSIBLE FOR REMOVING THE OBSTRUCTIONS. IF THE GC DOES NOT DO SO IN A TIMELY MANNER THAT DOES NOT INTERRUPT RAP PRODUCTION, THE INSTALLER MAY REMOVE OBSTRUCTION(S) AND SHALL BE REIMBURSED FOR COSTS INCURRED, INCLUDING LABOR, EQUIPMENT, AND MATERIALS. IN THE EVENT OBSTRUCTIONS ARE ENCOUNTERED BELOW THE DESIGN BOTTOM OF FOOTING ELEVATION THE OBSTRUCTION SHALL BE REMOVED AS OUTLINED ABOVE. THE RESULTING EXCAVATION SHALL THEN BE BACKFILLED AND COMPACTED IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS. THE AREA SHALL BE TESTED BY THE OWNER'S TESTING AGENCY AND THE COMPACTION TEST RESULTS SHALL BE SUBMITTED TO THE INSTALLER AND THE DESIGNER.
5. RAP ELEMENTS NOT MEETING THE REQUIREMENTS DEFINED IN THE DESIGN AND MODULUS TEST SHALL BE RE–INSTALLED TO MEET PROJECT REQUIREMENTS UNLESS OTHERWISE APPROVED IN WRITING BY THE DESIGNER.
6. FOOTING ELEVATIONS ARE THE RESPONSIBILITY OF THE CONTRACTOR AND SHALL BE REPORTED IN WRITING TO THE INSTALLER'S QC REPRESENTATIVE PRIOR TO INSTALLING RAP ELEMENTS.
7. UTILITY LOCATIONS ARE THE RESPONSIBILITY OF THE GC. THE DESIGNER SHALL BE NOTIFIED OF ANY CONFLICTS WITH RAP LOCATIONS SHOWN ON THE PLANS. NEW UTILITY EXCAVATIONS ARE PROHIBITED IN THE ZONE DEPICTED IN DETAIL 2. IF EXCAVATIONS ARE PLANNED WITHIN THE RAP "NO DIG" ZONE, THE DESIGNER SHOULD BE NOTIFIED IMMEDIATELY TO DISCUSS EXCAVATION OPTIONS. FOLLOWING OPTIONS INCLUDE EARTHWORKS CONTRACTOR SHALL BE MADE AWARE OF THIS LIMITATION AS IT MAY IMPACT WARRANTY OF GEOPIER WORK.
8. RAP ELEMENTS ARE LOCATED AT THE INTERSECTION OF REFERENCE GRID LINES OR AT THE CENTERLINE OF STRIP FOOTINGS UNLESS DIMENSIONED OTHERWISE.
9. AFTER COMPLETION OF RAP INSTALLATIONS, THE GC IS RESPONSIBLE FOR PROTECTION OF THE WORK. THIS INCLUDES, BUT IS NOT LIMITED TO, PROPER SITE DRAINAGE TO PREVENT PONDING OF WATER ABOVE THE RAP ELEMENTS AND APPROPRIATE CONTROL AND COORDINATION OF EARTHWORK AND ANY SUBSEQUENT DRILL ACTIVITIES SUCH AS ELEVATOR SHAFT CONSTRUCTION, TO PREVENT DAMAGE TO INSTALLED RAP ELEMENTS.
10. ALL RAP ELEMENTS HAVE A MINIMUM NOMINAL TOP DIAMETER OF 24 INCHES WITH COMPACTED 24 INCH LIFTS. GEOPIER ELEMENTS TO BE PLACED BENEATH THE BUILDING FOOTINGS IN ORDER TO MEET THE PROJECT PERFORMANCE CRITERIA. GEOPIER ELEMENTS TO BE INSTALLED TO PENETRATE THE UNDOCUMENTED FILL AND TAG THE NATIVE COMPETENT MATERIAL BELOW WITH ANTICIPATED IMPROVEMENT DEPTHS RANGING FROM APPROXIMATELY 6 TO 23–FEET BELOW CURRENT GRADES OR EARLY COMPETENT AUGER REFUSAL, WHICHEVER OCCURS FIRST. IN AREAS WHERE UNDOCUMENTED FILL DOES NOT EXIST, GEOPIER ELEMENTS TO BE INSTALLED TO A DEPTH OF 6–FEET BELOW FINISHED FLOOR SUBGRADE ELEVATION.
11. THESE DRAWINGS ARE BASED ON THE STRUCTURAL DRAWINGS PROVIDED BY VALAR CONSULTING ENGINEERS. THE RAP ELEMENT LAYOUT LOCATION PLAN AND FOOTING DETAILS PLAN ARE FOR RAP ELEMENT NUMBER, LOCATION, AND LAYOUT ONLY. FOOTING LOCATIONS, SIZES, AND ORIENTATION SHOWN ON THESE PLANS ARE FOR INFORMATION ONLY. PLEASE REFER TO STRUCTURAL PLANS FOR SPECIFIC FOUNDATION DIMENSIONS AND LOCATION. THE DESIGNER ACCEPTS NO RESPONSIBILITY FOR LOCATION OF FOOTINGS SHOWN ON THESE PLANS. THE DESIGNER SHALL BE NOTIFIED IMMEDIATELY IF INFORMATION ON THESE PLANS CONFLICTS WITH STRUCTURAL OR ARCHITECTURAL DRAWINGS.
12. THE RAP FOUNDATION DESIGN IS BASED ON THE GEOTECHNICAL INFORMATION PROVIDED IN THE SUBSURFACE EXPLORATION BY CENTRAL GEOTECHNICAL, REPORT DATE JANUARY 19, 2024. GEOPIER FOUNDATION COMPANY, INC., HAS RELIED ON THIS INFORMATION AND WE HAVE NO REASON TO SUSPECT ANY OF THE INFORMATION IN THE REPORT IS IN ERROR. GEOPIER FOUNDATION COMPANY, INC. IS NOT RESPONSIBLE FOR ERRORS OR OMISSIONS IN THE REPORT THAT MAY AFFECT THE PARAMETER VALUES IN OUR DESIGN. IF THE SUBSURFACE OR SITE CONDITIONS DIFFER FROM THOSE UTILIZED IN THE DESIGN THE DESIGNER SHALL BE NOTIFIED IMMEDIATELY.
13. RAP FOUNDATION DESIGN LOADS ARE BASED ON THE DESIGN INFORMATION PROVIDED TO US BY VALAR CONSULTING ENGINEERS. IN THE EVENT THE STRUCTURAL LOADS VARY THE DESIGNER SHALL BE NOTIFIED.

CONCRETE FOOTING CONSTRUCTION SUPPORTED BY RAP NOTES

1. ALL EXCAVATIONS FOR FOOTINGS SUPPORTED BY RAMMED AGGREGATE PIERS SHALL BE PREPARED IN THE FOLLOWING MANNER BY THE GC: OVEREXCAVATION BELOW THE BOTTOM OF FOOTING SHALL BE LIMITED TO THREE INCHES. THIS INCLUDES LIMITING THE TEETH OF EXCAVATORS FROM OVEREXCAVATION BEYOND THREE INCHES BELOW THE FOOTING ELEVATION.
2. FOOTINGS SHALL BE POURED AS SOON AS POSSIBLE FOLLOWING FOOTING EXCAVATIONS. IT IS THE CONTRACTORS RESPONSIBILITY TO PROTECT FOOTING BEARING SURFACES FROM WET WEATHER AND DISTURBANCE. A "MUD MAT" (3 INCH THICKNESS OF LEAN CONCRETE) OR COMPACTED CRUSHED ROCK SURFACE IS RECOMMENDED TO PROTECT BEARING SURFACES.
3. PRIOR TO CONCRETE OR MUD MAT PLACEMENT, THE TOP OF THE EXCAVATED SOIL AND RAMMED AGGREGATE PIERS SHALL BE COMPACTED WITH A STANDARD, HAND–OPERATED IMPACT COMPACTOR (I.E. JUMPING JACK COMPACTOR). COMPACTION SHALL BE PERFORMED OVER THE ENTIRE FOOTING SUBGRADE TO COMPACT ANY LOOSE SURFACE SOIL AND LOOSE SURFACE PIER AGGREGATE.
4. WATER SHALL NOT BE ALLOWED TO ACCUMULATE IN THE FOOTING EXCAVATIONS PRIOR TO CONCRETE PLACEMENT OR ALLOWED TO ACCUMULATE OVER THE POURED FOOTING.
5. EXCAVATION AND SURFACE COMPACTION OF ALL FOOTING SUBGRADES SHALL BE THE RESPONSIBILITY OF THE GC.
6. THE TESTING AGENCY SHALL INSPECT EACH FOOTING AND APPROVE IT IN WRITING ON THE SAME DAY THAT THE CONCRETE OR MUD MAT IS PLACED IN THE FOOTING EXCAVATION. THE APPROVAL SHALL STATE THAT ALL FOOTING BOTTOMS INCLUDING MATRIX SOILS AND RAP TOPS HAVE NOT BEEN OVEREXCAVATED MORE THAN THREE–INCHES BELOW THE BOTTOM OF THE FOOTING, HAVE BEEN KEPT FREE OF WATER ACCUMULATION, AND HAVE BEEN REASONABLY DENSIFIED WITH A HAND–HELD MECHANICAL IMPACT COMPACTOR ON THE SAME DAY THAT THE CONCRETE WAS PLACED.
7. THE GC IS RESPONSIBLE FOR MEASURING TOP OF FOOTING ELEVATIONS TO ACCURACY OF 0.01 FEET. MEASUREMENTS SHALL BE TAKEN BY A LICENSED PROFESSIONAL SURVEYOR BEFORE LOADS ARE APPLIED TO THE FOOTINGS.
8. IN THE EVENT THAT FOOTING BOTTOM PREPARATIONS, AS DESCRIBED ABOVE, ARE NOT PERFORMED OR DOCUMENTED IN ACCORDANCE WITH THIS SECTION, ANY WRITTEN OR IMPLIED WARRANTY WITH RESPECT TO GEOPIER FOUNDATION PERFORMANCE CAN BE CONSIDERED VOID.
9. STRUCTURAL FILL SHOULD CONSIST OF 3/4" OR 1" MINUS CRUSHED AGGREGATE CONFORMING TO STATE DOT REQUIREMENTS FOR BASE AGGREGATE, COMPACTED TO A MINIMUM 95% MAXIMUM DENSITY AS STATE IN ASTM D1557. ALTERNATES SUCH AS LEAN CONCRETE OR CONTROLLED DENSITY FILL MAY ALSO BE SUBSTITUTED WITH THE APPROVAL OF THE RAP DESIGNER.



1 TYPICAL GEOPIER ELEMENT - FOUNDATIONS
NOT TO SCALE



2 ADJACENT EXCAVATION DETAIL
NOT TO SCALE

NOTE: GEOPIER DESIGN DOCUMENTS AND PLANS ARE ONLY VALID IF INSTALLED BY A LICENSED GEOPIER INSTALLER.

THIS DOCUMENT HAS BEEN REVIEWED FOR GENERAL COMPATIBILITY WITH THE DESIGN CONCEPT AND THE FOLLOWING IS NOTED.
- [x] NO EXCEPTION ARE TAKEN
- [ ] REVISE AS NOTED
- [ ] REVISE & RESUBMIT
- [ ] REJECTED

BY NJF DATE 4-8-24

VALAR CONSULTING ENGINEERING

REVISIONS

ZONE	REV	DESCRIPTION	DATE	APPROVED

GEOPIER CONSTRUCTION NOTES & DETAILS

REGISTERED PROFESSIONAL ENGINEER
63094
OREGON
JULY 11, 2008
SCOTT P. McDEVITT
EXPIRES: 12/31/24

3/14/2024

M CARTER COMMONS

PORTLAND, OREGON

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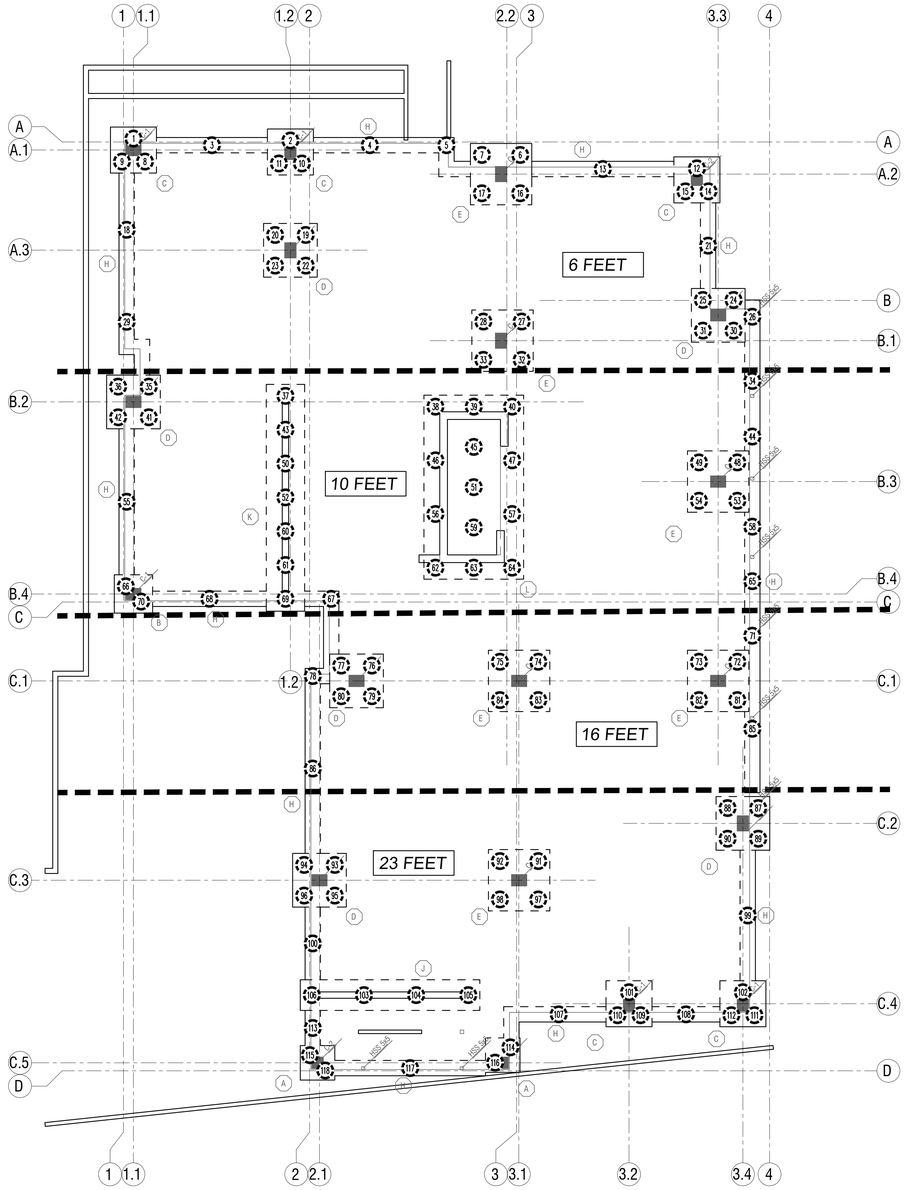
PROJECT NUMBER
P23–GOW–76

DATE 3/14/2024

SHEET NUMBER
GP1.0

DATE: Mar 14, 2024 – 8:13pm DRAWING: M Carter Commons Geopier.dwg



GEOPIER LEGEND

NUMBERED 24" GEOPIER

FEET APPROXIMATE GEOPIER DEPTH

FOUNDATION PLAN

1/8" = 1'-0"

NORTH

NOTE: GEOPIER DESIGN DOCUMENTS AND PLANS ARE ONLY VALID IF INSTALLED BY A LICENSED GEOPIER INSTALLER.

GEOPIER PLAN NOTES:

1. THIS DRAWING IS BASED ON STRUCTURAL DRAWINGS PROVIDED BY VALAR CONSULTING ENGINEERS.
2. FOOTING OUTLINES ARE FOR INFORMATION ONLY. SEE STRUCTURAL AND/OR ARCHITECTURAL PLANS FOR FOOTING DIMENSIONS AND DETAILS.
3. FOOTING LOCATIONS SHALL BE IN ACCORDANCE WITH STRUCTURAL AND/OR ARCHITECTURAL DRAWINGS, DIMENSIONS, AND DETAILS.
4. GEOPIER ELEMENTS UNDER WALLS AND COLUMNS SHALL BE CENTERED UNDER FOOTINGS AS SHOWN, DIMENSIONED FROM CONTROL POINTS ESTABLISHED FROM STRUCTURAL AND/OR ARCHITECTURAL PLANS.

THIS DOCUMENT HAS BEEN REVIEWED FOR GENERAL COMPATIBILITY WITH THE DESIGN CONCEPT AND THE FOLLOWING IS NOTED.
- [x] NO EXCEPTION ARE TAKEN
- [ ] REVISE AS NOTED
- [ ] REVISE & RESUBMIT
- [ ] REJECTED

BY NJF DATE 4-8-24

VALAR CONSULTING ENGINEERING

DATE: Mar 14, 2024 — 8:14pm DRAWING: M Carter Commons Geopier.dwg

REVISIONS

ZONE	REV	DESCRIPTION	DATE	APPROVED

GEOPIER FOUNDATION PLAN

REGISTERED PROFESSIONAL ENGINEER 63094 OREGON JULY 11, 2000 SCOTT P. McDEVITT

EXPIRES: 12/31/24

3/14/2024

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PROJECT NUMBER
P23-GOW-76

DATE
3/14/2024

SHEET NUMBER
GP2.0

GENERAL NOTES AND DATA:

SEE GENERAL NOTES FOR ALL INFORMATION NOT SHOWN HERE.

SYSTEM DESCRIPTION:

SHORE THE EXCAVATION BY METHODS AS SHOWN ON THE DRAWINGS. SHORING IS PERMANENT AND ANY DAMAGE TO PROTECTION, COATING, AND ASSEMBLIES SHALL BE REPAIRED OR REPLACE TO LIKE NEW TO MEET SERVICE LIFE OF STRUCTURE.

QUALITY ASSURANCE:

WORK SHALL BE DONE BY A FIRM SPECIALIZING IN THIS TYPE OF CONTRUCTION. THE FIRM SHALL:

A.REGULARLY AND PRESENTLY PERFORM SHORING AND TIEBACK INSTALLATION AS ONE OF THEIR PRINCIPAL SERVICES.

B.HAVE TECHNICAL QUALIFICATIONS, EXPERIENCE, TRAINING, AND EQUIPMENT TO PROPERLY INSTALL SHORING AND TIEBACKS AS SHOWN.

SUBMITTALS:

IN ADDITION TO THE TYPICAL SUBMITTAL REQUIREMENTS ON S002, SHOP DRAWINGS SHALL BE SUBMITTED TO THE VALAR PRIOR TO FABRICATION AND CONSTRUCTION OF ALL STRUCTURAL ITEMS, INCLUDING THE FOLLOWING:

SUBMITTALS			
ITEMS	FOR REVIEW	FOR INFORMATION	COMMENTS
CONCRETE, GROUT AND LEAN MIX DESIGNS	X		
CONCRETE REINFORCEMENT	X		
CONCRETE ANCHORAGES	X		
EMBEDDED STEEL ITEMS	X		
STRUCTURAL STEEL	X		
STEEL WELDING PROCEDURES		X	
PRECONSTRUCTION SURVEY		X	
SHORING MONITORING RESULTS		X	
CONSTRUCTION STAGING PLAN		X	REF. NOTE 3

FOOTNOTES:

1. SHOP DRAWINGS SHALL BE SUBMITTED TO THE ARCHITECT PRIOR TO FABRICATION AND CONSTRUCTION OF STRUCTURAL ITEMS. IF THE SHOP DRAWINGS DIFFER FROM OR ADD TO THE DESIGN OF THE STRUCTURAL DRAWINGS, THEY SHALL BEAR THE SEAL AND SIGNATURE OF A STRUCTURAL ENGINEER REGISTERED IN THE STATE OF OREGON. ANY CHANGES TO THE STRUCTURAL DRAWINGS SHALL BE SUBMITTED TO THE ARCHITECT AND ARE SUBJECT TO REVIEW AND ACCEPTANCE OF THE STRUCTURAL ENGINEER.

2. FIELD ENGINEERED DETAILS DEVELOPED BY THE CONTRACTOR THAT DIFFER FROM OR ADD TO THE STRUCTURAL DRAWINGS SHALL BEAR THE SEAL AND SIGNATURE OF A STRUCTURAL ENGINEER REGISTERED IN THE STATE OF OREGON AND SHALL BE SUBMITTED TO THE ARCHITECT PRIOR TO CONSTRUCTION.

3. CONSTRUCTION STAGING PLAN SHALL INCLUDE THE GEOMETRY, LAYOUT, AND LOADING OF CRANE AND CONCRETE PUMP OUTRIGGERS, EARTHWORK VEHICLES AND EQUIPMENT, MATERIAL LAYDOWN AREAS, AND ANY OTHER ITEMS CAUSING SURCHARGE LOADING ON THE SHORED WALLS. LOADS IN EXCESS OF THOSE DESCRIBED IN THESE DRAWINGS MAY REQUIRE CHANGES TO THE SHORING DESIGN OR MAY BE DISALLOWED.

DRILLED SOLDIER PILES:

THE MINIMUM REQUIRED STRUCTURAL STEEL W-SHAPES FOR THE SOLDIER PILES ARE INDICATED ON THE PLANS. ALTERATIVE STEEL SECTION MAY BE USED PROVIDED THAT THE SECTION MODULUS OF EACH ALTERNATIVE STEEL SECTION ARE EQUAL TO OR GREATER THAN THE CROSS-SECTIONAL AREA AND SECTION MODULUS OF THE CORRESPONDING STEEL SECTION SHOWN ON THE PLANS, AND IS APPROVED BY THE SHORING DESIGNER.

SHAFTS SHALL BE CONSTRUCTED SO THAT THE CENTER AT THE TOP OF THE SHAFT IS WITHIN +/- 1 INCH OF THE PLAN LOCATION. SHAFTS SHALL BE PLUMB, THE ELEVATION AT THE TOP OF THE SHAFT SHALL BE +/- 2 INCHES FROM THE PLAN LOCATION. DURING CONSTRUCTION FOR THE SHAFT, THE CONTRACTOR SHALL MAKE FREQUENT CHECKS ON THE PLUMBNESS, ALIGNMENT AND DIMENSIONS OF THE SHAFT. ANY DEVIATION EXCEEDING THE ALLOWABLE TOLERANCES SHALL BE CORRECTED IMMEDIATELY.

THE STEEL SOLDIER PILES SHALL BE PLACED SO THAT THE CENTER OF THE PILE IS WITHIN +/- 1 INCH OF THE PLAN LOCATION AT THE TOP OF THE PILE, AND WITHIN 0.5% OF VERTICAL WITH DEPTH.

SHAFTS SHALL BE EXCAVATED TO THE REQUIRED DEPTH AS SHOWN ON THE PLANS. THE EXCAVATION SHALL BE COMPLETED IN A CONTINUOUS OPERATION USING EQUIPMENT CAPABLE OF EXCAVATION THROUGH THE TYPE OF MATERIAL EXPECTED TO BE ENCOUNTERED.

IF THE SHAFT EXCAVATION IS STOPPED WITH THE APPROVAL OF THE ENGINEER, THE SHAFT SHALL BE SECURED BY INSTALLATION OF A SAFETY COVER. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO ENSURE THE SAFETY OF THE SHAFT AND SURROUNDING SOIL AND THE STABILITY OF THE SIDE WALLS. A TEMPORARY CASING SHOULD BE USED IF NECESSARY TO ENSURE SUCH SAFETY AND STABILITY.

WHERE CAVING CONDITIONS ARE ENCOUNTERED, FURTHER EXCAVATION WILL NOT BE ALLOWED UNTIL THE CONTRACTOR SELECTS A METHOD TO PREVENT GROUND MOVEMENT. THE CONTRACTOR MAY ELECT TO PLACE A TEMPORARY CASING OR USE OTHER METHODS APPROVED BY THE ENGINEER.

THE CONTRACTOR SHALL USE APPROPRIATE MEANS (SUCH AS A CLEAN-OUT BUCKET) TO CLEAN THE BOTTOM OF THE EXCAVATION SUCH THAT NO MORE THAN 2 INCHES OF LOOSE OR DISTURBED MATERIAL IS PRESENT.

WHEN UNEXPECTED OBSTRUCTIONS, WHICH REQUIRE SPECIALIZED EQUIPMENT AND/OR LABOR ARE ENCOUNTERED, THE CONTRACTOR SHALL NOTIFY THE ENGINEER PROMPTLY AND THE OBSTRUCTION SHALL BE REMOVED AND THE EXCAVATION CONTINUED IN A MANNER APPROVED BY THE ENGINEER.

TEMPORARY CASINGS OR THE SHAFT SHALL BE REMOVED. A MINIMUM 5 FOOT HEAD OF CONCRETE MUST BE MAINTAINED TO BALANCE THE SOIL AND WATER PRESSURE AT THE BOTTOM OF THE CASING DURING REMOVAL. THE CASING SHALL BE SMOOTH.

SHAFT CONCRETE SHALL BE PLACED AS SHOWN ON THE PLANS AND SHALL COMMENCE WITHIN 2 HOURS AFTER COMPLETION OF THE EXCAVATION. SHAFT CONCRETE SHALL BE PLACED IN ONE CONTINUOUS OPERATION TO THE TOP OF THE SHAFT.

STRUCTURAL STEEL AND WELDING:

SEE GENERAL NOTES S003 FOR STEEL AND WELDING REQUIREMENTS TO APPLY HERE.

CONCRETE:

PILE ENCASEMENT CONCRETE: CONCRETE WORK SHALL CONFORM TO CHAPTER 19 OF THE OSSC CONCRETE STRENGTHS SHALL BE VERIFIED BY STANDARD 28-DAY CYLINDER TESTS PER ASTM C39, AND SHALL BE AS FOLLOWS:

ABSOLUTE WATER-CEMENT RATIO BY WEIGHT

f'c (PSI)	W/C STRUCTURAL	USE
500	LEAN MIX	CONCRETE ENCASEMENT BELOW EXISTING GRADE TO BOTTOM OF EXCAVATION.
4,000	0.44	BOTTOM OF EXCAVATION TO BOTTOM OF SHAFT, ALL OTHER USES, U.N.O.

MINIMUM CEMENT CONTENT PER CUBIC YARD SHALL BE AS FOLLOWS:

f'c (PSI)	MINIMUM CEMENT PER CUBIC YARD
500	LEAN MIX *
4,000	550 LBS.

LEAN MIX WILL BE CHIP OUT AT LATER DATE, COORDINATE WITH GENERAL CONTRACTOR FOR STRENGTH REQUIREMENTS OF CONCRETE MIX.

FLYASH CONFORMING TO ASTM C618 (INCLUDING TABLE 2A) TYPE F OR TYPE C, MAY BE USED TO REPLACE UP TO 20% OF THE CEMENT CONTENT, PROVIDED THAT THE MIX STRENGTH IS SUBSTANTIATED BY TEST DATA.

THE CONTRACTOR SHALL SUBMIT CONCRETE MIX DESIGNS, ALONG WITH TEST DATA AS REQUIRED, A MINIMUM OF TWO WEEKS PRIOR TO PLACING CONCRETE. CONCRETE SHALL NOT IMPACT GALVANIZING COATING. CALCIUM CHLORIDES SHALL BE LIMITED PER S002. SEE GENERAL NOTES FOR REINFORCING NOTES

PRECAST CONCRETE:

CONCRETE MIXES AND CODE CONFORMANCE SHALL BE AS REQUIRED BY NOTES UNDER "CONCRETE MIXES" AND "CONCRETE REINFORCING STEEL IN GENERAL NOTES WITH A MINIMUM CONCRETE STRENGTH OF 5,000 PSI AT 28 DAYS. REFERENCE ARCHITECTURAL DRAWINGS FOR FINISH REQUIREMENTS AND DIMENSIONS NOT SHOWN. THE REINFORCING SHOWN IS THE REQUIRED MINIMUM. THE CONTRACTOR SHALL PROVIDE ANY ADDITIONAL REINFORCING REQUIRED FOR HANDLING AND ERECTION.

SHORING MONITORING:

SURVEY MONITORING OF THE SHORING WALLS, SHALL BE PERFORMED TO DETERMINE THE VERTICAL AND HORIZONTAL MOVEMENT OF THE MONITORING POINTS. THE MEASURING SYSTEM SHALL HAVE A ACCURACY OF AT LEAST 0.01 FEET.

THE MONITORING PROGRAM SHALL BE DETERMINED BY THE GEOTECHNICAL SPECIAL INSPECTOR BUT, AT A MINIMUM, SHALL INCLUDE THE FOLLOWING :

- MONITORING POINTS SHALL CONSIST OF RODS OR BOLTS EMBEDDED INTO THE OBJECT OF INTEREST OR CROSS-HAIRS INSCRIBED ONTO A PLATE THAT IS ATTACHED TO THE OBJECT OF INTEREST.

-MONITORING POINTS SHALL BE ESTABLISHED, (1) ALONG EACH WALL AT THE TOP OF EVERY THIRD SOLDIER PILE, (2) ON ANY ADJACENT STRUCTURES THAT ARE LOCATED WITHIN A HORIZONTAL DISTANCE EQUAL TO THE WALL HEIGHT ALONG THE SHORING WALLS, AND (3) ALONG EACH OF THE CORNERS OF PRIMARY UTILITY VAULTS.

-READINGS SHALL BE TAKEN AND REPORTED AT LEAST TWICE A WEEK, ONE TIME OF WHICH MUST BE BY A LICENSED SURVEYOR.

MONITORING DATA SHALL BE DISTRIBUTED TO THE GEOTECHNICAL ENGINEER, THE SHORING DESIGN ENGINEER, AND THE GENERAL CONTRACTOR FOR REVIEW.

THE EXPECTED LATERAL SHORING WALL MOVEMENT IS ON THE ORDER OF 1/2" TYPICAL. IF THE MOVEMENTS EXCEED 1/2" RESPECTIVELY, THE EXCAVATION SHALL BE HALTED UNTIL FURTHER REVIEW BY GEOTECHNICAL ENGINEER AND SHORING DESIGN ENGINEER.

SPECIAL INSPECTION OF THE SHORING WALLS:

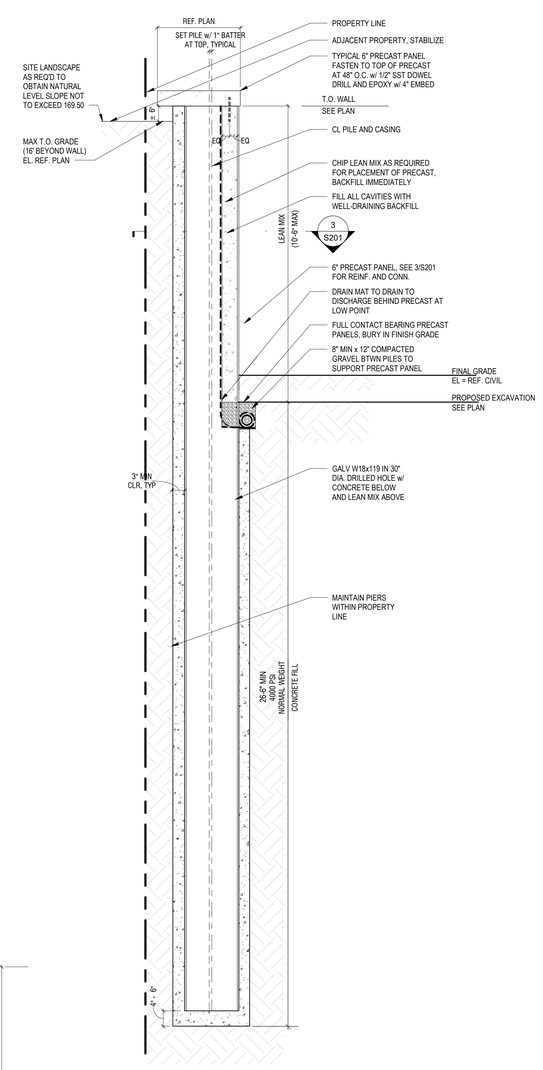
REF. SPECIAL INSPECTION MATRIX FOR ALL SPECIAL INSPECTION REQUIREMENTS

GALVANIZING AND DUPLEX COATING:

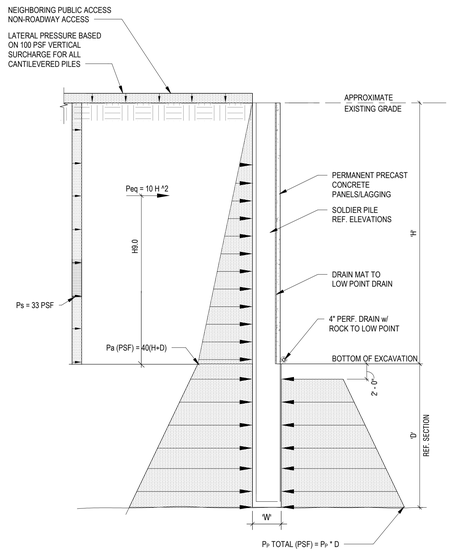
ALL STEEL EXPOSED TO WEATHER SHALL BE HOT DIPPED GALVANIZED, AND WHERE ALSO EXPOSED TO VIEW SHALL ADDITIONALLY BE PAINTED OR POWDER COATED PER SPECIFICATIONS AND ARCHITECTURAL DRAWINGS.

CONTRACTOR TO COMMUNICATE WITH GALVANIZER FOR THE PROJECT EARLY ON TO INFORM THE GALVANIZER THAT THE STEEL IS TO RECEIVE A DUPLEX COATING. HOT DIPPED GALVANIZED STEEL THAT IS TO BE PAINTED SHALL BE PREPARED PER ASTM D7803.

ALL GALVANIZED STEEL IS TO BE DETAILED TO BE SHOP WELDED AND FIELD BOLTED. WHERE FIELD WELDING IS REQUIRED DUE TO FIELD CONDITIONS OR DAMAGE INCURRED DURING CONSTRUCTION, REPAIR DAMAGED GALVANIZED COATING WITH ZINC RICH PAINT PER ASTM A780 WITH EFFECTIVE THICKNESS EQUAL TO HOT-DIP GALVANIZED COATING.



2 TYPICAL SHORING WALL
1/2" = 1'-0"



NOTES:

1. DIAGRAMS ARE ONLY ILLUSTRATIVE FOR CONVENTIONAL SOLDIER PILE SHORING. REFER TO SOILS REPORT BY CENTRAL.

2. THIS DESIGN ASSUMES NO HYDROSTATIC PRESSURE. IF PERCHED GROUNDWATER CONDITIONS ARE ENCOUNTERED, THE SHORING STRUCTURE SHALL BE DRAINED TO PREVENT BUILD-UP OF HYDROSTATIC PRESSURE.

3. H, INDICATES TOTAL HEIGHT OF EXCAVATION.

4. THE ABOVE SURCHARGES ARE MEANT TO ACCOUNT FOR TYPICAL PUBLIC NON ROADWAY ACCESS. THEY DO NOT INCLUDE ALLOWANCES FOR HEAVY CONSTRUCTION EQUIPMENT. CONTRACTOR TO ANY SUCH LOADS TO ENGINEER OF RECORD FOR REVIEW

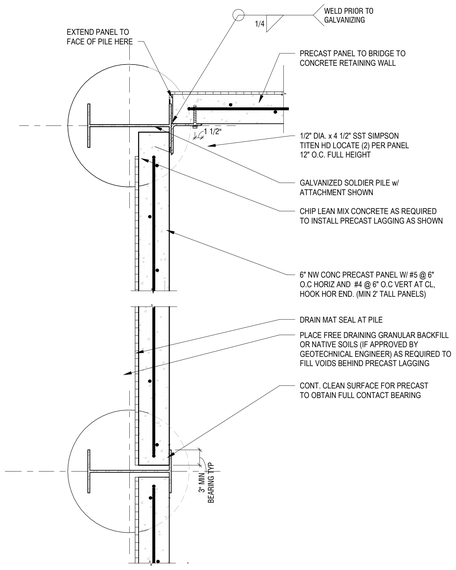
5. INCLUDES PERMANENT SURCHARGE AND SEISMIC LOADS.

6. PASSIVE PRESSURE RESISTANCE SHOULD BE NEGLECTED 2 FEET BELOW THE BOTTOM OF THE EXCAVATION.

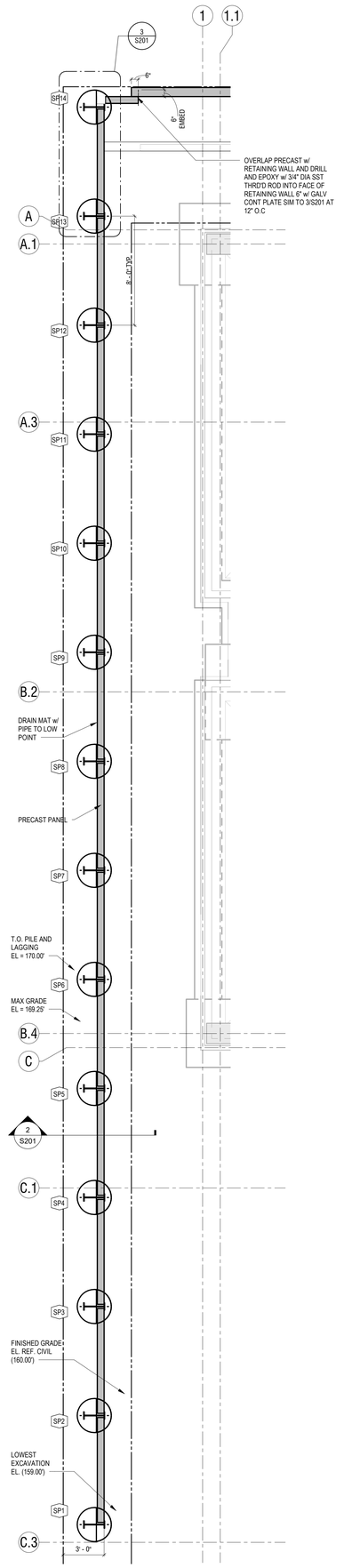
7. THE LATERAL EARTH PRESSURES ARE UNFACTORED.

EXPLANATION:
Pa = ACTIVE EQUIVALENT FLUID PRESSURE(ASSUME WALL IS FREE TO ROTATE)
Peq = SEISMIC LATERAL PRESSURE
Po = AT-REST EQUIVALENT FLUID PRESSURE (ASSUMES WALL IS RESTRAINED FROM ROTATION)
PS = SURCHARGE PRESSURE EQUIVALENT TO 1/3 OF THE VERTICAL SURFACE PRESSURE
PP = 250 PCF
H = EXPOSED WALL HEIGHT (FEET)
D = EMBEDMENT
SH1=PASSIVE PRESSURE (PP) ACTS OVER 2.5X THE PILE WIDTH
ACTIVE (PP) ACT OVER 1X THE PILE WIDTH BELOW THE EXCAVATION BASE

4 TYPICAL DESIGN DIAGRAM
1/8" = 1'-0"



3 SHORING DETAIL
1" = 1'-0"



1 SHORING PLAN
1/4" = 1'-0"

SALAZAR ARCHITECT
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STRUCTURAL REGISTERED PROFESSIONAL ENGINEER 62945 OREGON DECEMBER 9, 2008 NORMAN J. FARIS
EXPIRES: 12/31/25

PROJECT NUMBER: 2225

M. CARTER COMMONS
3715-3717 N INTERSTATE AVE
PORTLAND, OR 97227

CLIENT:
Northwest Housing Alternatives
2316 SE WILLARD ST., MILWAUKIE OR 97222
Urban League of Portland
10 N RUSSELL ST., PORTLAND OR 97227

VALAR LLC
VALAR CONSULTING ENGINEERING
12042 SE SUNNYSIDE RD #357 503.758.8092
CLACKAMAS, OR 97015

PHASE:
90% CONSTRUCTION DOCUMENTS

REVISIONS:

#	DATE	DESCRIPTION

SHEET TITLE:
SITE SHORING WALL

DRAWN BY: AB
CHECKED BY: NJF
DATE: 04.01.24

SHEET:
S201

Scope of Work for the Soil Characterization of Deep Excavation Soils

Introduction

Soils within the excavations for electrical utilities and Geopiers® within the former landfill area need additional characterization for disposal and construction worker health and safety as part of continued due diligence prior to acquisition. Although not required by DEQ, five additional soil material samples will be collected at depth from these areas for disposal characterization purposes. The electrical site plan and Geopier® plans with notes from the general contractor were reviewed and the excavation depths in these areas indicate:

- Electrical utility corridors and vaults within the former landfill area will be between 6 and 12 feet below current grade, and

- Geopier® depths within the former landfill area will be between 20 feet and 25 feet below current grade.

The electrical utility corridors and vault and the Geopiers® locations and excavation depths within the fill area are indicated on Figure 1. The site plans listed above are provided in this Work Plan document.

The scope of work for soil gas testing within the building footprint and landscaped area soil testing are summarized below. Handling and disposal of investigative derived waste (IDW) and reporting are also summarized below.

Scope of Work

Five borings will be installed in deeper excavation areas (e.g., electrical vaults and Geopiers®) to characterize soils for disposal. The location of the 5 borings was determined from review of the Phase II ESA soil data within the landfill area and the locations and depths of electrical utilities and Geopiers® within the landfill area. Locations within the landfill area on the property with soil data gaps and/or dense electrical utility excavation and/or Geopier® installations were selected for soil characterization sampling. The locations of the 5 borings (PA1 through PA5) are indicated in Figure 1.

The table below summarizes the soil characterization borings' installation depths, field composite sample collection depths, and the sample intervals that will be composited by the laboratory for laboratory analyses.

Summary Table for Soil Characterization Drilling and Sampling

Boring Number	Boring Depth (Feet)	Purpose of Boring	Field Composite Sample Depth Below Current Grade (Feet)	Laboratory Composite Sample Depth Interval for Laboratory Analyses
1	30	Characterize soils in 12ft deep electrical utility vault and in adjacent Geopiers®	0-5 5-10 10-12 12-15	0 to 12 feet; and 0 to 25 feet

Boring Number	Boring Depth (Feet)	Purpose of Boring	Field Composite Sample Depth Below Current Grade (Feet)	Laboratory Composite Sample Depth Interval for Laboratory Analyses
			15-20 20-25	
2	30	Characterize soils at adjacent 8ft deep electrical utility vault and Geopiers®	0-5 5-8 8-10 10-15 15-20 20-25	0 to 8 feet 0 feet to 25 feet
3	30	Characterize soils at adjacent Geopiers®	0-5 5-10 10-15 15-20 20-25	0 to 25 feet
4	30	Characterize soils at adjacent Geopiers®	0-5 5-10 10-15 15-20 20-25	0 to 25 feet
5	10	Characterize soils in 9.5 deep electrical utility vault	0-5 5-10	0 to 10 feet

Soil samples will be field screened for evidence of contamination (e.g., sheen, odor, discoloration). The soil samples will be placed in laboratory-supplied containers.

The direct push drill rig sampling equipment and tooling will be decontaminated prior to each use at each sample location, and new nitrile gloves will be donned before collecting each sample. The borings will be backfilled with bentonite upon completion and cold patch asphalt the surface.

The samples will be submitted to Apex Labs of Tigard, Oregon under chain of custody on a normal-turn analyses for the following:

- Gasoline-range petroleum hydrocarbons by NWTPH-Gx (collected per EPA Method 5035);
- Diesel-range petroleum hydrocarbons by NWTPH-Dx; and
- Total Resource Conservation and Recovery Act (RCRA)-8 metals by EPA Method 6010.
- If diesel- and/or oil-range petroleum hydrocarbons are detected up soil samples will be analyzed for:
    - Polychlorinated biphenyls (PCBs) by EPA Method 8082A,
    - Polynuclear aromatic hydrocarbons (PAHs) by EPA Method 8270 SIM,
    - Volatile Organic Compounds (VOCs) by EPA Method 8260C (collected per EPA Method 5035).

- Samples will be submitted for toxicity characteristic leaching procedure (TCLP) analyses as needed by EPA Method 6020/1311.

If encountered, the soil samples that exhibit evidence and/or "worst case" evidence of contamination as based on field screening will be selected for laboratory analyses and DEQ will be notified and the analyses selected per DEQ review and comment.

This scope of work assumes the field work will be completed with the DEQ PPA soil and soil gas testing activities.